

1

00:00:00,000 --> 00:00:07,180

Hey, don't try what you're about to see at home. We're what you call experts. That's right. We do this for a living

2

00:00:09,800 --> 00:00:12,200

On this episode of myth busters

3

00:00:12,720 --> 00:00:17,380

Adam and Jamie are all smiles as they tackle a myth that's massive

4

00:00:17,520 --> 00:00:24,400

That's just about the funniest thing I've ever seen they're getting ready to unleash the biggest boom in myth busters history

5

00:00:24,560 --> 00:00:26,360

Now he's off the ground

6

00:00:26,360 --> 00:00:29,480

Did a world war two airman survive a fall from?

7

00:00:29,920 --> 00:00:35,880

20,000 feet because an explosion on the ground cushioned his landing Jamie wants big boom

8

00:00:35,960 --> 00:00:41,000

Then Carrie Grant and Tori turn the spotlight on the lights on or off myth

9

00:00:41,600 --> 00:00:46,080

As they find out how to leave you with a lighter electricity bill

10

00:00:47,800 --> 00:00:49,800

Little sugar in the coffee this morning

11

00:00:50,800 --> 00:00:52,800

You are the myth master

12

00:00:53,840 --> 00:01:00,040

Adam Savage and throw over my head man and Jamie Heineman gets me all worked up just looking at it

13

00:01:01,440 --> 00:01:05,160

Between them more than 30 years special effects experience

14

00:01:06,120 --> 00:01:08,120

That was heavy joining them

15

00:01:08,360 --> 00:01:10,520

Brett imihara go get him boy

16

00:01:11,040 --> 00:01:15,480

Tori Bellachy send me orders of exploding pants and Carrie Byron

17

00:01:17,000 --> 00:01:19,000

They don't just tell the myths

18

00:01:20,360 --> 00:01:22,360

They put them to the test

19

00:01:28,880 --> 00:01:36,560

When it comes to explosions the myth busters are king they turn toilets torpedo

20

00:01:39,600 --> 00:01:42,360

Try to spot a painting and detonating

21

00:01:43,600 --> 00:01:46,960

And of course they blew a cement truck to kingdom come

22

00:01:47,360 --> 00:01:55,840

But that's all in the past because now Adam and Jamie are about to plan the biggest explosion in myth busters history

23

00:01:57,080 --> 00:01:59,740

There's nothing like starting with a bang

24

00:02:04,280 --> 00:02:05,360

Well

25

00:02:05,360 --> 00:02:11,120

Calaveras County says it's okay the quarry says it's okay the police department in the bomb squad says it's okay

26

00:02:11,120 --> 00:02:12,560

Can we blow this thing up?

27

00:02:12,560 --> 00:02:19,080

No, we have to tell a whole story first like always and this one begins with a fan who wrote us about a story

28

00:02:19,080 --> 00:02:25,960

They've read on a calendar hanging in their house a World War two gunner fell from a plane without a parachute fell

29

00:02:26,760 --> 00:02:31,960

22,000 feet into the glass roof of a French train station at the very moment a bomb went off in that train station

30

00:02:32,560 --> 00:02:34,560

Cushing his fall and allowed him to survive

31

00:02:36,720 --> 00:02:39,220

It's a tall tale from World War two

32

00:02:39,880 --> 00:02:40,960

cruising at

33

00:02:40,960 --> 00:02:45,160

22,000 feet an unfortunate airman fell out of the gun turret of his plane

34

00:02:45,720 --> 00:02:49,960

Without a parachute the prospect of a soft landing looked awfully hard

35

00:02:50,560 --> 00:02:57,360

But as he neared the ground a thousand pound bomb blew up in a train station beneath him and sent out a shockwave

36

00:02:57,560 --> 00:02:59,560

That actually cushioned his fall

37

00:02:59,920 --> 00:03:05,600

It's an explosive story that for Adam and Jamie begins with a trip to an aviation museum

38

00:03:06,080 --> 00:03:10,840

Now we've got a myth that involves one of these planes it involves a turret gunner

39

00:03:12,200 --> 00:03:15,480

Who got shot out of the plane at 22,000 feet?

40

00:03:16,200 --> 00:03:22,720

Without a shoot and survived because he hit the roof of a train station at the very moment a bomb was going off in

41

00:03:22,720 --> 00:03:27,400

That train station and the shockwave of the bomb cushioned his fall and allowed him to live

42

00:03:27,760 --> 00:03:33,880

Have you heard that I have heard instances or one instance where a gunner fell into a snow bank

43

00:03:33,920 --> 00:03:38,560

Which was about I think 19 or 20,000 feet and came out of it with a broken limb

44

00:03:38,560 --> 00:03:44,880

But I have not heard this story although Joe hasn't heard of our myth. There's one part of it. That's definitely true

45

00:03:45,440 --> 00:03:50,640

B17 ball gunners did not wear parachutes and the reason is obvious

46

00:03:51,160 --> 00:03:57,120

You can see how confining that is so that's why they don't wear parachutes exactly dude

47

00:03:57,120 --> 00:04:03,560

That is messed up right and hanging hanging under this aircraft at several thousand feet your target practice

48

00:04:04,000 --> 00:04:11,360

Basically, oh my god. Oh my god indeed without a parachute the airman in the myth sure would have plummeted

49

00:04:11,560 --> 00:04:17,480

But could a thousand pound explosion in a French train station really have saved him

50

00:04:17,680 --> 00:04:22,720

It's time to get a myth busting but back at the shop Adams already having doubts

51

00:04:23,400 --> 00:04:25,500

I am starting to get worried about this one

52

00:04:26,120 --> 00:04:30,360

22,000 foot fall is shaping up to be like the biggest myth we have ever done

53

00:04:30,800 --> 00:04:35,600

Yeah, we really really need to be prepared for this so we need your guys help

54

00:04:36,440 --> 00:04:42,440

We want to focus on the large-scale experiment that we want you guys to do the bench tests for us the small-scale experiments

55

00:04:42,440 --> 00:04:44,440

Hi captain what you need?

56

00:04:44,440 --> 00:04:50,120

Well, I want you to start with car airbags. It seems to me the best potential analog test bed

57

00:04:50,120 --> 00:04:55,240

They're easy to get easy to set off and they might really be able to demonstrate that an explosion can cause

58

00:04:55,520 --> 00:04:57,860

Desoloration and something heading towards it. It's gonna be fun

59

00:04:58,620 --> 00:05:00,620

So to blast off with this myth

60

00:05:00,860 --> 00:05:07,940

Cary and Tori are going to find out if a falling lead weight can be slowed down by an explosive charge from a car airbag

61

00:05:09,100 --> 00:05:11,100

I've set up a drop rig basically

62

00:05:11,100 --> 00:05:13,780

It's just a quick release and a pull string and here

63

00:05:13,780 --> 00:05:20,280

I have a lead weight with my G shock stickers on it that go up to 100 G's and I'm going to do a

quick test just to

64

00:05:20,860 --> 00:05:25,020

See how violent of fall this is gonna be three two one

65

00:05:28,100 --> 00:05:30,100

See what we got

66

00:05:31,540 --> 00:05:36,380

Only two yeah, wow so it's between 75 and 100 G's

67

00:05:37,020 --> 00:05:41,260

So without the bang both the 50 and 75 G watches triggered

68

00:05:41,780 --> 00:05:45,340

That means that now the question is with an airbag explosive

69

00:05:46,020 --> 00:05:50,100

Decelerate the ball so much that these shock stickers stay intact

70

00:05:50,740 --> 00:05:53,860

So now that I've got my ball. I'll redress with new shock watch stickers

71

00:05:53,860 --> 00:05:59,580

The next step is to drop the lead weight directly onto just the pyrotechnic no enclosure

72

00:05:59,580 --> 00:06:06,220

We want to see what kind of deceleration you can get from just the blast to find out Tori first removes the airbag bag

73

00:06:06,260 --> 00:06:08,260

From the pyrotechnic charge

74

00:06:09,180 --> 00:06:12,580

Penny in here. I guess they put that in there for good luck

75

00:06:12,900 --> 00:06:19,700

And once that's done our dynamic duo put it inside a miniature house to represent the train station of the myth

76

00:06:20,340 --> 00:06:22,340

How are we gonna time this?

77

00:06:22,860 --> 00:06:27,540

I'm just gonna watch it the ball fall and at the point where I think I

78

00:06:28,620 --> 00:06:34,060

Should ignite the airbag. That's what I'm gonna do it for this to even remotely work. It's all about the timing

79

00:06:34,060 --> 00:06:36,060

So that's why I'm doing it by eye

80

00:06:38,540 --> 00:06:40,380

It's very

81

00:06:40,380 --> 00:06:46,020

Crucial that I do it by eye with a plan as concrete as that what could possibly go wrong ready

82

00:06:46,580 --> 00:06:48,580

in three two

83

00:06:48,780 --> 00:06:49,940

Oh

84

00:06:49,940 --> 00:06:53,660

What the heck is that and now it's too sensitive you with three

85

00:06:56,100 --> 00:07:02,580

Saboteur it seems like Harry has dropped the ball. Let's try that again in three two one

86

00:07:07,100 --> 00:07:14,160

Those a delay reaction there, but this time it was Tori balls things up in three two one

87

00:07:14,840 --> 00:07:20,720

Take three doesn't go much better in three two one

88

00:07:22,720 --> 00:07:26,280

It might be a dud huh and after the fourth dropout

89

00:07:26,320 --> 00:07:28,680

It's looking like the team need a plan B

90

00:07:29,040 --> 00:07:34,680

Later the biggest ever bomb on myth busters goes boom Jamie wants big boom

91

00:07:36,400 --> 00:07:38,400

But next

92

00:07:38,600 --> 00:07:45,440

Cary and Tori get some smashing results. I was gonna fall on a glass roof. I would not want a bomb going off on me

93

00:07:53,600 --> 00:08:00,680

In 22,000 footfall the myth busters are testing whether a turret gunner who plummeted from his plane without a parachute

94

00:08:01,000 --> 00:08:05,880

Was really saved by a massive explosion on the ground that cushioned his fall

95

00:08:06,760 --> 00:08:13,520

To put this to the test Cary and Tori have been trying to see if a small explosive can decelerate a falling lead ball

96

00:08:14,360 --> 00:08:16,360

But it's not exactly gone to plan

97

00:08:17,200 --> 00:08:21,520

And in the meantime Adam and Jamie need to get on with the big scale plans

98

00:08:22,760 --> 00:08:27,800

Well the small scale experiment is underway next we have to tackle the big scale

99

00:08:28,080 --> 00:08:32,240

Yeah, we've we've got a lot ahead of us. We've got to do the train station the bomb

100

00:08:32,480 --> 00:08:37,160

We've got to replicate our airman and his 22,000 footfall

101

00:08:37,720 --> 00:08:39,720

Where do you want to start?

102

00:08:40,040 --> 00:08:44,080

There's such a shopping list for this myth that the boys don't know where to begin

103

00:08:44,640 --> 00:08:49,160

They need a plane to bail out of an airman to plummet without a parachute a

104

00:08:49,440 --> 00:08:53,920

Train station for him to fall into and a huge bomb to blow up

105

00:08:54,800 --> 00:08:56,800

Let's start with the station

106

00:08:57,280 --> 00:09:02,000

Our airman fell into a French train station with a glass roof

107

00:09:02,280 --> 00:09:03,520

And

108

00:09:03,520 --> 00:09:05,120

Those aren't that common in California

109

00:09:05,120 --> 00:09:10,800

So we we have to build our own the goal is to use a bunch of steel and two foot by two foot pains of glass

110

00:09:10,800 --> 00:09:12,720

And I've designed something that's got some arches

111

00:09:12,720 --> 00:09:16,400

It feels kind of like the right thing and with welding skills like this

112

00:09:16,400 --> 00:09:20,800

It's not long before the station frame begins to look tray magnifique

113

00:09:22,400 --> 00:09:25,880

Those things seem about right so I think we're good to lock it down

114

00:09:25,880 --> 00:09:30,840

Which gives Adam an excuse to move on to myth shopping list number two the bomb

115

00:09:31,600 --> 00:09:37,800

The original bomb that the myth involves is a thousand pound bomb whose casing weighs on the order of several hundred pounds

116

00:09:38,000 --> 00:09:40,480

That's just the casing alone without the explosives

117

00:09:40,600 --> 00:09:46,680

So we wanted a metal casing that was as heavy as possible and this actually fits the bill perfectly for us

118

00:09:46,840 --> 00:09:50,200

This started out as the shiramer for the shark

119

00:09:52,720 --> 00:09:55,800

Then morphed into the XMB for exploding hair cream

120

00:09:56,360 --> 00:09:58,360

Result

121

00:09:58,720 --> 00:10:00,720

Became the steam cannon

122

00:10:01,920 --> 00:10:09,360

And now it's final task will be as a bomb casing for us for twenty two thousand foot fall with the casing and the train station

123

00:10:09,640 --> 00:10:14,280

Running on time now the boys just need a B 17 bomber and an airman

124

00:10:15,320 --> 00:10:19,920

But that's not gonna be so easy so in terms of dropping our airmen

125

00:10:20,040 --> 00:10:24,200

We can't drop them from twenty two thousand feet because well number one

126

00:10:24,200 --> 00:10:29,920

We can't get any aircraft to fly over an explosion no matter how high they are and we can't aim from that height and make him hit

127

00:10:29,920 --> 00:10:37,440

A such a tiny target. Well, why don't we use balloons? I mean we've lifted you with a balloon before perfect

128

00:10:37,480 --> 00:10:42,160

I'll tell you what um all we need is to get him up to a hundred and twenty miles an hour

129

00:10:42,160 --> 00:10:46,480

That's a human's terminal velocity. We know that from umpteen myths. We've done about people falling

130

00:10:46,720 --> 00:10:52,600

So I'll figure out exactly how high he has to fall from in order to reach a hundred and twenty miles per hour and

131

00:10:54,000 --> 00:11:01,400

We'll just fly the balloons that high the key to this myth is terminal velocity the maximum speed at which an object can fall

132

00:11:01,600 --> 00:11:07,920

It's reached when gravity is matched by the force of wind resistance which for humans works out at

around

133

00:11:08,560 --> 00:11:10,440

120 miles an hour

134

00:11:10,480 --> 00:11:17,520

So all Adam has to do is work out the minimum drop height required to reach that magic number basically

135

00:11:18,360 --> 00:11:22,520

He's got a fall for five and a half seconds to reach 120 miles per hour

136

00:11:22,520 --> 00:11:27,420

And that puts him at 487 feet in the air. That's totally doable

137

00:11:27,840 --> 00:11:33,000

All things considered it's the cheapest it's the most practical way to go and I can't see anything

138

00:11:33,560 --> 00:11:35,880

Better. Yeah, let's do it. All right

139

00:11:36,440 --> 00:11:41,120

So that's the plan instead of a B 17 bomber at 22,000 feet

140

00:11:41,120 --> 00:11:44,960

They'll drop buster from some weather balloons at 500 feet

141

00:11:45,600 --> 00:11:50,920

Just enough for him to reach terminal velocity as he lands in the exploding train station

142

00:11:52,080 --> 00:11:57,640

So with the balloons checked off Adam and Jamie have almost all they need to put this myth to the test

143

00:11:57,720 --> 00:12:02,480

The only thing missing is the results from Tori and Kerry's small-scale experiment

144

00:12:03,480 --> 00:12:11,720

And back at M7 it seems that everything is finally ready to see if a small explosion can decelerate a falling lead ball

145

00:12:12,440 --> 00:12:15,120

And Tori's about to add the finishing touch

146

00:12:15,560 --> 00:12:21,640

What I have here is a piece of 16th inch glass and since the myth talks about the man falling through a glass roof

147

00:12:21,640 --> 00:12:23,680

We thought why don't we use a piece of glass?

148

00:12:23,680 --> 00:12:26,840

So what we're gonna do is we're gonna lay this on top of the explosion

149

00:12:27,480 --> 00:12:33,680

Drop the ball into this and see if you know this breaks the fall with the glass roof in place

150

00:12:33,680 --> 00:12:37,000

It's the perfect small-scale representation of the myth

151

00:12:37,480 --> 00:12:41,440

But will the ball playing the role of the airman slow down at all?

152

00:12:42,240 --> 00:12:46,660

If I can time it right hopefully when the ball just touches the glass

153

00:12:46,660 --> 00:12:52,300

I'll set off the airbag and break the fall the ball. Well, okay, consider we're gonna be blowing up a sheet of glass

154

00:12:52,520 --> 00:12:54,520

It's probably a good idea if we

155

00:12:55,120 --> 00:12:59,500

Give ourselves a little bit of protection in three two one

156

00:13:05,400 --> 00:13:07,400

Destruction to the bomb go off

157

00:13:08,800 --> 00:13:13,160

At last the airbag explosive detonate and with perfect timing

158

00:13:14,120 --> 00:13:20,920

mere moments before the ball touches the glass the explosion was triggered spraying glass shards far and wide

159

00:13:21,760 --> 00:13:24,480

Next what we're gonna do we're gonna drop the ball again into the glass

160

00:13:24,680 --> 00:13:30,100

No explosion this time and just see how that decelerates the ball in three two one

161

00:13:34,720 --> 00:13:36,640

Looks like the sticker stayed

162

00:13:36,640 --> 00:13:43,080

There's more glass shards than an accident at a chandelier factory, but what happened to the ball speed?

163

00:13:43,560 --> 00:13:47,320

Well side by side, it's clear that the explosion did very little

164

00:13:47,960 --> 00:13:54,240

The balls fall virtually the same in each test and that's got Carrie ready to make some early conclusions

165

00:13:54,880 --> 00:14:00,960

We're at a point with the large-scale build that we could use the information that you've gotten from your small-scale testing

166

00:14:00,960 --> 00:14:02,560

What do you got?

167

00:14:02,560 --> 00:14:06,240

You know, it's still a little dubious because you got to think about the fact that the shockwave

168

00:14:06,320 --> 00:14:13,280

It's going at you at twenty five thousand feet per second. You're falling at a hundred and seventy six feet per second and when you hit

169

00:14:14,120 --> 00:14:17,480

You know, it's not exactly an equal and opposite reaction. So

170

00:14:18,040 --> 00:14:22,480

What do you think also you got to consider that there's glass shrapnel flying everywhere?

171

00:14:22,720 --> 00:14:28,840

You know, look, I think these guys did a great job. We know that the devil is always in the details in the scaling

172

00:14:29,160 --> 00:14:33,600

I'm starting to believe from the research we got that this guy did survive its true story

173

00:14:33,840 --> 00:14:38,160

We just don't know how and there may be something that we're missing in the small-scale experiments

174

00:14:38,160 --> 00:14:43,080

It'll pick up when we do this full-size. We have to continue doing this full-size short

175

00:14:43,280 --> 00:14:45,280

I wish you all the luck in the world with this one

176

00:14:46,000 --> 00:14:52,480

Still to come the train station leaves its platform. It's pretty but it's gonna go away pretty soon

177

00:14:54,240 --> 00:15:00,080

But next a bright idea to save money, I think Carrie is showing some interest in that

178

00:15:05,480 --> 00:15:10,300

Carrie Torian grand are about to test a household myth with the flick of a switch

179

00:15:10,340 --> 00:15:15,580

Do you really save on energy and your electricity bill if you leave your lights on permanently

180

00:15:15,980 --> 00:15:18,620

Rather than turn them on and off throughout the day

181

00:15:19,340 --> 00:15:22,220

Now this is a myth that can divide a household

182

00:15:22,460 --> 00:15:24,260

Let's take our little family for instance

183

00:15:24,260 --> 00:15:29,740

Does anybody notice that Jamie follows you around the shop flipping off lights after you leave just to save energy

184

00:15:30,060 --> 00:15:36,220

It's really really annoying. So the idea here, I guess is will you save on energy and bills?

185

00:15:36,540 --> 00:15:40,980

If you leave the lights continually on rather than flipping them off every time you leave the room

186

00:15:41,220 --> 00:15:48,660

Yeah, actually some people believe that the startup energy usage is so high. It's better to leave the lights on all the time

187

00:15:50,580 --> 00:15:54,780

Finally everything was ready for the turning of the main switch on the control board

188

00:15:55,620 --> 00:15:59,640

Ever since the invention of the first electric light bulb in the 1800s

189

00:15:59,840 --> 00:16:06,520

People have continually proposed that to save money you should actually leave your lights on even if you don't need them

190

00:16:07,760 --> 00:16:12,160

Decades down the line and it's time for the myth busters to find the truth

191

00:16:13,280 --> 00:16:15,280

All right, so how are we gonna test this one?

192

00:16:15,280 --> 00:16:18,880

I think we should measure the amount of energy consumed when you turn the light on

193

00:16:19,200 --> 00:16:25,300

Start up and compare that to the amount of energy consumed over a period of time. So you call that steady state

194

00:16:25,460 --> 00:16:30,420

Yeah, that's cool that way we can figure out if Jamie's actually saving any money flipping on off lights

195

00:16:31,500 --> 00:16:36,580

So the team will finally shed some light on a myth that's been around since the end of the Dark Age

196

00:16:37,060 --> 00:16:41,900

But first they need to do some shopping which will highlight another question

197

00:16:42,220 --> 00:16:49,980

How many myth busters does it take to buy a light bulb? My name is Mark. Hi, Kerry Grant. Hi, Grant. Hey, don't worry. Hi, Tori

198

00:16:50,580 --> 00:16:57,780

Okay, Mark. So the myth is is it better to leave your lights on or turn them off in order to save energy?

199

00:16:58,540 --> 00:17:05,620

Increase the lifespan of your light bulbs. That's what I think the optimum energy efficiency is simply turning your lights on

200

00:17:05,700 --> 00:17:11,100

Well, you heard it from the professional myth busted. I think we're done. This is the shortest myth ever, right? Thanks, Mark

201

00:17:12,060 --> 00:17:17,620

Mark may think this myth is all hot air, but the team hasn't come this far to give up without a fight

202

00:17:18,620 --> 00:17:25,980

Heavily laden with a selection of the most common household light bulbs. It's back to base to turn the spotlight on this myth

203

00:17:27,100 --> 00:17:33,300

Well first up we're gonna wire up a set of lights of several different varieties and measure their power consumption

204

00:17:33,660 --> 00:17:38,820

We're interested in three periods first power consumption during startup

205

00:17:39,300 --> 00:17:45,180

second during maintenance well while it's sort of on and then finally during shutdown

206

00:17:45,700 --> 00:17:51,860

That's the plan hot wire is 120 volts above ground the hot wire is the one that'll kill you

207

00:17:51,860 --> 00:17:56,900

So don't touch the hot wire. These will explode these will melt this will kill you. This is great

208

00:17:57,020 --> 00:18:02,460

You had no idea this is how dangerous my world was with Kerry wired about the danger

209

00:18:02,460 --> 00:18:07,700

She helps carefully rig up all the lights the team bought earlier including Grant's favorite

210

00:18:07,860 --> 00:18:16,060

If anything was going to rekindle his interest in electronics, it's this

211

00:18:21,300 --> 00:18:25,260

Little sugar in the coffee this morning, just love electronics

212

00:18:29,620 --> 00:18:33,500

In 22,000 footfall Adam and Jamie are having a blast

213

00:18:33,900 --> 00:18:39,900

Can shock wave from a massive bomb cushion the fall of a plummeting person?

214

00:18:40,620 --> 00:18:44,940

To detonate an answer they've come to a quarry in Southern, California

215

00:18:45,140 --> 00:18:49,020

But it's only just dawned on them, but there's an awful lot to do

216

00:18:49,940 --> 00:18:54,260

Well, we've got to build our train station out here pretty much right where I'm standing

217

00:18:55,020 --> 00:19:01,220

Then we've got to lay out all the rigging hardware and launch hardware for the helium balloon and the drop rig

218

00:19:01,900 --> 00:19:04,660

Then we've got to meet with our bomb techs and

219

00:19:05,340 --> 00:19:10,820

Pretty much. Hopefully if everything gets done correctly fill the balloons with helium get the dummy up in the air

220

00:19:10,820 --> 00:19:13,180

Get in place and blow this thing to smithereens

221

00:19:15,420 --> 00:19:18,060

Blow this thing to smithereens and how?

222

00:19:18,620 --> 00:19:25,580

In the original myth an airman fell 22,000 feet into an exploding train station and survived

223

00:19:26,180 --> 00:19:29,740

But to test this the myth busters have made some alterations

224

00:19:31,220 --> 00:19:38,060

They're replacing the plane with some helium balloons the airman with buster and the 22,000 feet with

225

00:19:39,940 --> 00:19:46,340

Buster will fall down a guide wire into the train station just as a thousand pound bomb goes

ballistic

226

00:19:46,580 --> 00:19:49,340

The only bad thing about this is it actually is quite nice

227

00:19:49,340 --> 00:19:51,660

It's a you know, we got the little kind of radiating

228

00:19:52,260 --> 00:19:56,020

Spines and it's pretty but it's gonna go away pretty soon

229

00:19:56,420 --> 00:19:59,860

While Jamie's feeling sad about the train station's imminent demise

230

00:20:00,380 --> 00:20:04,260

Buster is feeling overjoyed because he's had a last-minute reprieve

231

00:20:05,140 --> 00:20:09,960

so buster is not our testimony on this one the

232

00:20:10,780 --> 00:20:16,860

Carre Torian Grant actually have made one out of ballistic material and his name is Ted as in

233

00:20:17,580 --> 00:20:18,540

bus

234

00:20:18,540 --> 00:20:23,460

Ted or as in exploit ed detonate ed and

235

00:20:24,380 --> 00:20:31,180

Annihilated and to help Ted assume the role of turret gunner. He's been squeezed into a tiny box

236

00:20:31,860 --> 00:20:33,540

What happened to his head?

237

00:20:33,540 --> 00:20:37,340

Well, it got broken up because they put him in because he's too tall for the box

238

00:20:38,580 --> 00:20:44,300

We'll see whether he starts to sag in the noon day heat with the temperature already a mind-melting

239

00:20:44,780 --> 00:20:50,460

115 degrees sagging in the noon day heat is about all that Adam and Jamie can do too

240

00:20:51,180 --> 00:20:57,140

Well, look everything's pretty much done the train station stun the bomb is laid the the guy wire positions are

241

00:20:57,620 --> 00:21:03,660

Staked out you're pretty tired. Are you all right? I'm exhausted man. It's like 115 degrees out here

242

00:21:03,660 --> 00:21:07,180

I'd like to go and come back like an hour before dawn tomorrow to set this thing off

243

00:21:08,100 --> 00:21:10,100

Sure. Yeah, fresh pot of coffee

244

00:21:10,580 --> 00:21:15,020

This thing won't be so hot that it's gonna go off when we load the explosives in it exactly

245

00:21:15,260 --> 00:21:17,740

All right, let's get out of here. All right coming up

246

00:21:17,740 --> 00:21:23,860

It's off to see a light that's been on for over a century. Is that the light right there? That is our light

247

00:21:24,820 --> 00:21:29,620

Cool and later a shock from the explosion of a thousand pound bomb

248

00:21:30,180 --> 00:21:32,180

Here comes the shockwave

249

00:21:35,940 --> 00:21:38,780

Anything that you're about to see us do at home ever

250

00:21:39,580 --> 00:21:47,060

Carrie Grant and Tori are turning the spotlight on a myth that's divided households for decades

251

00:21:47,500 --> 00:21:51,860

To save money is it really better to leave your lights on and never turn them off?

252

00:21:53,060 --> 00:22:00,940

The theory is that the energy required on startup is so great that it's better to turn your lights on once and then leave them on forever

253

00:22:03,620 --> 00:22:05,620

To find out what you're doing

254

00:22:06,620 --> 00:22:13,500

To find out if this is true the team has made a circuit that contains the most common household light bulbs

255

00:22:13,500 --> 00:22:15,820

And now it's time to get some data

256

00:22:16,020 --> 00:22:22,900

So in order to measure how much power each of these lamps is consuming we have this which is called a kilowatt and

257

00:22:23,580 --> 00:22:30,100

Basically, it's available at any hardware store and what you do is plug in your appliance or in our case a lamp

258

00:22:30,500 --> 00:22:34,540

into this and it will measure over a time period how much

259

00:22:35,220 --> 00:22:43,440

Electricity are using so using grants kilowatt the first step in this myth is to work out how much energy each of the bulbs uses

260

00:22:43,460 --> 00:22:45,460

When left on for an hour

261

00:22:46,460 --> 00:22:50,580

And to help the team remember that times up grants even rigged on alarm

262

00:22:52,900 --> 00:22:58,340

60 minutes on the clock this is going to count up to that as soon as that happens

263

00:22:59,820 --> 00:23:01,980

Bell's gonna ring and we'll know to come running

264

00:23:02,380 --> 00:23:09,980

Take down the measurement and reset it for the next one and first up is one of the most common lights of all the compact fluorescent ball

265

00:23:10,180 --> 00:23:12,180

and an hour later

266

00:23:16,860 --> 00:23:19,700

Well the alarm works, but how did the ball do

267

00:23:25,700 --> 00:23:27,860

This one's point one kilowatt hour

268

00:23:28,780 --> 00:23:31,500

Sorry point oh one kilowatt hour

269

00:23:31,980 --> 00:23:36,300

Okay, so in terms of data it's one ball down five to go

270

00:23:36,820 --> 00:23:41,260

Okay, so next one halogen light here we go

271

00:23:43,620 --> 00:23:46,900

60 minutes go okay see you guys in an hour

272

00:23:50,100 --> 00:23:57,500

The next five tests pass by it light speed as the team puts incandescent bulbs fluorescent tubes

273

00:23:58,100 --> 00:23:59,780

LEDs

274

00:23:59,780 --> 00:24:01,780

halogens and metal halides

275

00:24:01,980 --> 00:24:03,300

to the test

276

00:24:03,300 --> 00:24:08,460

And after an enlightening afternoon they have all the data they could ever need

277

00:24:08,740 --> 00:24:10,220

so

278

00:24:10,220 --> 00:24:11,380

Great

279

00:24:11,380 --> 00:24:15,580

Over the course of an hour all six bulbs were surprisingly efficient

280

00:24:15,940 --> 00:24:19,300

So if the startup energy surges as high as the myth says

281

00:24:19,780 --> 00:24:23,220

That it may well be better to leave your lights on permanently

282

00:24:24,540 --> 00:24:29,900

But before testing that Grant has a burning childhood ambition that he wants to fulfill

283

00:24:30,500 --> 00:24:32,500

Eddie's very excited

284

00:24:32,540 --> 00:24:38,220

Here at the Livermore fire department. They have a light bulb that's been burning for 105 years

285

00:24:38,220 --> 00:24:42,020

I really want to see this only you could be really excited about seeing a light bulb

286

00:24:42,020 --> 00:24:45,140

It is I I can't even get a light bulb to burn for 105 days

287

00:24:48,820 --> 00:24:53,940

Hi Grant I'm Chief Jeff so for Ellie welcome to the LPPFD. Hi nice to meet you Kerry. How do you do?

288

00:24:53,940 --> 00:24:57,460

We hear you have a light bulb that's been burning for 105 years

289

00:24:57,860 --> 00:25:02,060

Is that the light right there that is our light there she hangs as she is

290

00:25:02,900 --> 00:25:04,900

cool

291

00:25:05,540 --> 00:25:07,540

And

292

00:25:08,300 --> 00:25:14,260

That's how you know that it never goes off. It's got its own dedicated camera and that's that's how she's been

293

00:25:14,900 --> 00:25:17,500

For about the last hundred and five hundred and six years

294

00:25:18,140 --> 00:25:25,260

Cool. Yeah, it's amazing a hundred and six years and it's still bright as a button and Grant has spotted why

295

00:25:26,220 --> 00:25:30,220

Look how big the filament is I mean even from down here

296

00:25:30,220 --> 00:25:31,980

I can see how massive it is

297

00:25:31,980 --> 00:25:37,020

This is what they call a carbon filament and the newer ones we have are the more exotic metals some of them are

298

00:25:37,540 --> 00:25:43,780

Titanium so it's much thinner and it puts out a lot more light burns a lot hotter. This doesn't burn as hot

299

00:25:46,460 --> 00:25:48,860

With memories to savor for a lifetime

300

00:25:49,620 --> 00:25:54,780

Grant and Kerry head back to the shop to take this myth to its nail biting conclusion

301

00:25:54,940 --> 00:26:02,500

That could leave you with a lighter electricity bill still to come a thousand pound bomb reaches for the skies

302

00:26:03,220 --> 00:26:06,660

This metric explosives won't just blow a hole right through the cloud cover

303

00:26:06,660 --> 00:26:14,020

But next will lights on or off reveal some enlightening results faster than you can blink your eye
Wow

304

00:26:18,860 --> 00:26:26,040

Adam and Jamie have built a replica train station and bomb casing as they prepare to take the plunge on the myth of the

305

00:26:26,580 --> 00:26:28,580

22,000 foot fall

306

00:26:29,220 --> 00:26:32,260

Supposedly a World War two airman fell from his plane

307

00:26:32,340 --> 00:26:37,260

But was miraculously saved when an explosion on the ground cushioned his fall

308

00:26:38,300 --> 00:26:45,700

To put this to the test the myth musters have replaced the plane with some helium balloons and the airman with ballistics gel

309

00:26:46,580 --> 00:26:49,460

And the bomb countdown is not far away

310

00:26:49,980 --> 00:26:54,220

And if the pressure in the balloons isn't enough to keep Adam and Jamie on their toes

311

00:26:54,580 --> 00:27:00,660

Retired FBI agent Frank Doyle has arrived with some news to make the atmosphere even more tense

312

00:27:02,180 --> 00:27:04,820

Hey, good morning guys, what a Frank Frank

313

00:27:04,860 --> 00:27:11,460

Let's go and fill if you have any influence with the weatherman now is a good time to make the telephone call because

314

00:27:12,060 --> 00:27:14,660

See all of our clouds and overcast up there

315

00:27:15,060 --> 00:27:17,060

That's not good for explosions

316

00:27:17,940 --> 00:27:22,220

Because that cloud cover will keep our pressures and our noise

317

00:27:22,860 --> 00:27:28,900

Down so that everything will bounce up come back down and go out and I hope there's no neighborhood windows nearby

318

00:27:29,220 --> 00:27:32,660

This much explosives won't just blow a hole right through the cloud cover

319

00:27:34,660 --> 00:27:37,020

Doesn't work that way if you've been watching too much television

320

00:27:37,700 --> 00:27:43,380

While TV addict Jamie waits on the weather Frank and colleague Phil get on with loading up

321

00:27:43,860 --> 00:27:45,860

alarmingly large amounts of explosives

322

00:27:46,540 --> 00:27:47,820

1,000 pound

323

00:27:47,820 --> 00:27:54,820

GP bomb has a little bit over 500 pounds of HE in it high explosive and the rest is the

324

00:27:55,140 --> 00:27:56,420

Metal of the steel case

325

00:27:56,420 --> 00:28:02,900

So that's what we have gone to great lengths to duplicate here in creating a an authentic

326

00:28:03,540 --> 00:28:05,300

situation for our myth

327

00:28:05,300 --> 00:28:08,580

500 pounds of high explosives should ensure authenticity

328

00:28:09,060 --> 00:28:14,740

But how will this train station detonation compare to previous mythbusters mayhem?

329

00:28:14,740 --> 00:28:19,020

Of course, we've done a very large 3500 pounds safe

330

00:28:21,220 --> 00:28:27,660

Wow that worked beautifully now with the cement truck we used a different kind of explosive

331

00:28:27,660 --> 00:28:29,660

It had a slower detonating velocity

332

00:28:30,380 --> 00:28:35,140

As compared to this explosive this explosive is about three times faster

333

00:28:35,500 --> 00:28:38,860

If the train station torpedo is faster than this

334

00:28:41,900 --> 00:28:46,540

What can we expect I think this is gonna be the biggest one

335

00:28:46,540 --> 00:28:53,140

So stand by for the biggest explosion in mythbusters history and with the balloons all inflated

336

00:28:53,140 --> 00:28:57,900

It's time for airman Ted to rise to the occasion Ted you ready

337

00:28:59,460 --> 00:29:02,900

500 foot drop and history is yours

338

00:29:03,220 --> 00:29:10,020

To get things airborne the boys have rigged a clever pulley system that should allow them to precisely

339

00:29:10,020 --> 00:29:13,540

Control the ascent of the balloons and airman Ted

340

00:29:13,940 --> 00:29:19,940

At least that's the theory everybody on the winches. You're about to start to get a little tension

341

00:29:20,820 --> 00:29:22,820

Three two one

342

00:29:26,100 --> 00:29:28,100

Oh heads up

343

00:29:31,100 --> 00:29:34,500

Houston we have a problem. I lost it. I lost it

344

00:29:35,100 --> 00:29:41,780

The cord tethering Ted suddenly snapped which means the balloons are up, but our airman is still grounded

345

00:29:41,780 --> 00:29:43,780

Watch out for the cable. Watch out for the cable

346

00:29:43,860 --> 00:29:45,300

That one's gone

347

00:29:45,700 --> 00:29:50,340

And then things take a turn for the worse when some of the balloons start to burst

348

00:29:50,900 --> 00:29:56,100

And as Adam's about to learn that is very bad news indeed. Are you guys totally slack?

349

00:29:57,140 --> 00:29:59,140

Yeah

350

00:29:59,220 --> 00:30:02,020

That's it. We're officially screwed. We lost our buoyancy

351

00:30:02,900 --> 00:30:04,020

Damn

352

00:30:04,020 --> 00:30:10,500

With three balloons down there's just not enough helium to get Ted up and what's more the fire team says

353

00:30:10,500 --> 00:30:15,940

It's now too hot to safely detonate the bomb so for today the show's over

354

00:30:16,900 --> 00:30:19,540

Understandably the boys are feeling a little deflated

355

00:30:20,340 --> 00:30:22,500

Murphy is in full force here today

356

00:30:24,180 --> 00:30:29,060

Uh and now it's too late because not only did we have some setbacks

357

00:30:29,140 --> 00:30:35,780

But those setbacks pushed us past the window that we had to set this thing off Ted's not holding up very well either

358

00:30:35,860 --> 00:30:38,260

That's another whole can of worms

359

00:30:38,420 --> 00:30:44,260

So I think we're gonna have to come up with a dynamic solution in the next 15 minutes so that he doesn't just turn into a

360

00:30:44,820 --> 00:30:47,060

Puddle with grass embedded in it by tomorrow morning

361

00:30:50,340 --> 00:30:55,540

Carrie Grant and Tori are testing a myth that came to light with the genesis of the common light bulb

362

00:30:56,260 --> 00:31:03,300

Do you save on energy and money by leaving your lights on to avoid the power surge that flicking the switch generates?

363

00:31:04,260 --> 00:31:11,060

To answer this important question once and for all the team are halfway through their experiment

364

00:31:12,420 --> 00:31:20,340

They found out how much energy six types of light bulb use when they're on and now they need to see how this compares to the energy surge

365

00:31:20,500 --> 00:31:22,500

That happens on startup

366

00:31:23,220 --> 00:31:26,820

And for this test grant unveils gadget number two

367

00:31:27,220 --> 00:31:30,980

This is an inductive current loop and what you do is pass your wire through here

368

00:31:31,620 --> 00:31:34,420

And as the current flows through here, it actually induces a voltage

369

00:31:35,060 --> 00:31:39,940

This line is going to go to a computer-based digital sampling oscilloscope

370

00:31:40,260 --> 00:31:48,740

So in that millisecond range that really quick turn on I'll be able to capture that and measure exactly how much current is going

371

00:31:49,300 --> 00:31:50,900

through that wire

372

00:31:50,900 --> 00:31:56,740

With grants electrical mastermind firing at all cylinders. Carrie once again turns apprentice

373

00:31:57,540 --> 00:31:59,540

Soon you'll be able to do this blindfolded

374

00:32:01,140 --> 00:32:02,580

open

375

00:32:02,580 --> 00:32:07,700

Open your mind to your feelings feel the wire. I have no idea what that's from

376

00:32:08,740 --> 00:32:13,860

When the test finally gets underway, it doesn't take long for a pattern to start to emerge

377

00:32:15,060 --> 00:32:17,060

So the interesting thing

378

00:32:17,460 --> 00:32:20,580

Um after a couple different trials we've caught

379

00:32:21,220 --> 00:32:23,620

There's always a big spike on startup

380

00:32:24,260 --> 00:32:29,940

As the filament warms up which is to be expected, but it's not very long

381

00:32:30,980 --> 00:32:35,060

And actually it gets to steady state very quickly

382

00:32:35,460 --> 00:32:39,780

But I think we're probably going to have to hold our judgment until we see some of the other ones

383

00:32:40,900 --> 00:32:46,260

So it's coming to light that the energy surge used on startup is not very big at all

384

00:32:46,900 --> 00:32:54,260

And that means that only a few calculations stand between grant and a bright conclusion of the lights on or off myth

385

00:32:54,660 --> 00:32:57,700

So currents the numbers and here's what I got for the incandescent

386

00:32:58,420 --> 00:33:06,500

Total power used during startup is 21,522 watt seconds

387

00:33:07,380 --> 00:33:13,060

Total power for one second is 59,519 watt seconds

388

00:33:13,540 --> 00:33:18,260

And that makes our break even time 0.36 seconds

389

00:33:18,740 --> 00:33:23,540

Okay, so from that I guess that means I'm leaving the room to go make a cup of coffee

390

00:33:24,020 --> 00:33:28,500

It's only worth it for me economically to keep the light on if I come back in

391

00:33:29,140 --> 00:33:32,900

A third of a second. Yeah, that's that's pretty quick

392

00:33:34,660 --> 00:33:40,820

That'd be a really quick brew coffee. Okay, so in this instance, I am turning the lights off when I leave the room. Yes

393

00:33:41,620 --> 00:33:44,500

A quick brew indeed for the incandescent bulb

394

00:33:44,580 --> 00:33:50,580

The startup surge is so small that you will always save money if you turn it off when it's not needed

395

00:33:51,300 --> 00:33:57,940

Stand by for the next grant keeps plugging away and soon has the results for the other five bulbs

396

00:33:58,180 --> 00:34:02,180

And they all conform to this pattern. Okay, I got the compact fluorescent figures

397

00:34:02,580 --> 00:34:04,100

0.0

398

00:34:04,100 --> 00:34:07,380

15 seconds faster than you can blink your eye

399

00:34:07,860 --> 00:34:09,060

halogen

400

00:34:09,060 --> 00:34:10,820

0.51 seconds

401

00:34:10,820 --> 00:34:13,060

Okay fluorescent tube 23

402

00:34:14,020 --> 00:34:15,380

0.3

403

00:34:16,260 --> 00:34:21,060

So the common fluorescent tube draws more energy on startup than any of the other bulbs

404

00:34:21,780 --> 00:34:25,780

But it's still only equivalent to 23 seconds of continuous use

405

00:34:26,900 --> 00:34:29,940

As far as a residential situation goes

406

00:34:31,220 --> 00:34:35,300

That is the most likely one for you to have still

407

00:34:35,940 --> 00:34:37,460

23 seconds

408

00:34:37,460 --> 00:34:38,820

I don't think so

409

00:34:38,820 --> 00:34:43,300

Coming right up the myth busters countdown to the biggest explosion ever

410

00:34:46,180 --> 00:34:48,180

One

411

00:34:53,780 --> 00:34:57,380

We'd like to cast a little more light on the subject after much research

412

00:34:57,460 --> 00:35:01,380

We've been unable to find another man like our hero who is the chef's delight

413

00:35:01,700 --> 00:35:04,580

He won't blow a fuse no matter what you said before him

414

00:35:05,060 --> 00:35:11,860

Carrie Grant and Tori are trying to digest that the cost of switching on a fluorescent tube is equivalent to just

415

00:35:12,100 --> 00:35:14,100

23 seconds of continuous light

416

00:35:15,060 --> 00:35:19,460

At a meager 0.36 of a second for a common incandescent bulb

417

00:35:20,180 --> 00:35:26,260

Modern replica which means it's looking like it's always best to turn your lights off when you don't need them

418

00:35:27,780 --> 00:35:30,820

So far this myth is looking really easily busted to me

419

00:35:31,060 --> 00:35:34,100

I mean, I don't think that there's any way you're going to save money by leaving the lights on all the time

420

00:35:34,500 --> 00:35:38,980

I mean unless you have a room filled with fluorescence and you only plan on being out of the room for 30 seconds

421

00:35:39,220 --> 00:35:41,140

Yeah, but I think that's only half the story

422

00:35:41,220 --> 00:35:45,380

I think our fans are probably wondering as I am how this affects the longevity of the bulbs

423

00:35:45,540 --> 00:35:50,500

So you want a test to see if the number of times you turn the light bulb on and off has an effect on the lifetime of the bulb

424

00:35:52,660 --> 00:35:56,180

In a final test specimen bulbs are lighted and allowed to burn out

425

00:35:56,500 --> 00:36:04,100

So the final test before reaching a bright conclusion is to see whether the money you save turning your lights on and off more regularly

426

00:36:04,500 --> 00:36:08,340

Means that you spend your savings replacing your bulbs more often

427

00:36:09,300 --> 00:36:16,020

Well, uh, it's not just energy consumption that figures into whether it's better to leave the lights on or turn them off

428

00:36:16,580 --> 00:36:21,300

It's also longevity of the lamps. So what I've set up is a little timer

429

00:36:21,860 --> 00:36:27,060

Plus a relay what I'm going to do is take this group of lamps and turn them all

430

00:36:27,700 --> 00:36:28,740

on

431

00:36:28,740 --> 00:36:30,660

and off at

432

00:36:30,660 --> 00:36:34,580

Some predetermined time interval. So why don't we just put this on a two minute cycle?

433

00:36:34,900 --> 00:36:36,900

So that's the plan

434

00:36:37,460 --> 00:36:44,580

Grants rigged the lights up to a timer and they're going to turn them on and off every two minutes to see how long before the bulbs break

435

00:36:47,300 --> 00:36:49,940

And six weeks later the results are in

436

00:36:51,380 --> 00:36:56,340

Okay, so we've been running our longevity test with the two minute on off cycle for over a month now

437

00:36:56,580 --> 00:37:00,260

And the only bulb that is not burnt out is the led

438

00:37:00,740 --> 00:37:02,980

So how does this test compare to say

439

00:37:03,700 --> 00:37:07,140

The average stress and usage that you put on a light bulb in a normal household

440

00:37:07,460 --> 00:37:11,380

Right because I mean these lights have been turned on and off over 10,000 times in a month

441

00:37:11,860 --> 00:37:18,420

Yeah, actually that corresponds to over five years worth of stress turning on and off in a regular household

442

00:37:18,740 --> 00:37:21,540

And given that when you turn on an incandescent light bulb

443

00:37:22,020 --> 00:37:27,300

It uses the same amount of power as point three six seconds of continuous use

444

00:37:27,700 --> 00:37:30,020

And doesn't really take that much wear and tear

445

00:37:30,580 --> 00:37:33,700

Jamie might be right. You're supposed to flip off the lights when you leave the room

446

00:37:34,420 --> 00:37:36,740

Yeah, I have a feeling this one's busted

447

00:37:37,620 --> 00:37:39,620

Yeah, I think it's definitely busted

448

00:37:40,020 --> 00:37:42,020

Jamie's always right

449

00:37:50,180 --> 00:37:54,500

We get a lot of fan mail saying that we have the best job in the world and I won't disagree with that

450

00:37:54,660 --> 00:37:56,740

But there are also days like this morning

451

00:37:57,780 --> 00:38:00,020

When it is the hardest job I have ever done

452

00:38:00,660 --> 00:38:06,180

By far and that's because so far with this myth they've had setback after setback

453

00:38:06,500 --> 00:38:13,060

Severed lines burst balloons and grounded dunnings what could have gone wrong past. That's it. We're officially screwed

454

00:38:13,300 --> 00:38:17,540

This is like the the myth of joe is what's happening here, but I've got seven balloons

455

00:38:17,620 --> 00:38:22,180

I think each of them are at least 20 to 25 pounds. It gives me 150 some odd pounds

456

00:38:22,180 --> 00:38:24,180

I think it's enough to lift our airman

457

00:38:24,420 --> 00:38:26,980

The bomb squad is coming back up here and then

458

00:38:27,940 --> 00:38:29,780

We just cross our fingers

459

00:38:29,780 --> 00:38:34,900

Now he's off the ground. Now. He's off the ground. He climbs 500 feet

460

00:38:35,300 --> 00:38:40,660

He may be slightly off target, but the guide wire will ensure that he falls right into the station

461

00:38:41,380 --> 00:38:43,940

Which means it's time to retreat to safety

462

00:38:44,820 --> 00:38:46,820

Well, our guy is airborne

463

00:38:46,900 --> 00:38:49,140

Uh, the balloons are up cable's good

464

00:38:49,860 --> 00:38:51,860

Once they push that detonator

465

00:38:52,660 --> 00:38:54,820

Our airman will drop for approximately six seconds

466

00:38:55,460 --> 00:39:01,620

We'll blast and cap and then a second blast and cap will detonate the bomb under the train station. Hopefully at the very

467

00:39:02,980 --> 00:39:06,100

Femto second that our airman is touching the roof

468

00:39:06,660 --> 00:39:11,140

With the boys a safe distance away. It's finally here's what's going to happen

469

00:39:12,260 --> 00:39:16,180

Airman ted is suspended so that he's 500 feet off the ground

470

00:39:17,140 --> 00:39:24,420

He's connected to the train station via a guide wire on adam's cue the balloons will be cut and ted will fall

471

00:39:25,220 --> 00:39:28,340

Six seconds later the thousand pound bomb will boom

472

00:39:29,540 --> 00:39:31,540

Will ted survive?

473

00:39:31,700 --> 00:39:35,620

Everybody say it with me. Jamie wants big boom

474

00:39:39,860 --> 00:39:44,420

He's falling he's falling he's going towards it. He's going towards it. No

475

00:39:46,660 --> 00:39:48,660

I

476

00:39:50,260 --> 00:39:52,260

Wow here comes the shockwave

477

00:39:54,660 --> 00:40:01,460

The booms created a mushroom cloud of frightening proportions and it's also set the surrounding

hills on fire

478

00:40:02,500 --> 00:40:04,260

Ah, look at that

479

00:40:04,260 --> 00:40:10,660

Fortunately the county fire department are quick to respawn and there's a day's just getting better and better

480

00:40:11,060 --> 00:40:13,060

Come to ground zero it's awesome

481

00:40:14,100 --> 00:40:16,100

Closure like that

482

00:40:19,380 --> 00:40:21,380

Frank's my new best friend too

483

00:40:21,780 --> 00:40:27,700

On the high speed you can clearly see the cushioning shockwave before the area gets blown to smithereens

484

00:40:29,620 --> 00:40:31,620

But what happened to ted?

485

00:40:32,820 --> 00:40:38,420

Well, unfortunately there was a malfunction in the guide wire which meant that he fell way off target

486

00:40:39,060 --> 00:40:46,500

But the charge caused so much carnage that jayme and adam should still be able to drive in this whole blast site

487

00:40:47,060 --> 00:40:52,740

That tells you what the real deal is with this kind of explosion and being close to it. It's right over here. Check it out

488

00:40:56,260 --> 00:40:57,700

Whoa

489

00:40:57,700 --> 00:40:59,060

It totally wrapped around it

490

00:40:59,060 --> 00:41:04,900

But this piece of steel would have done to you if it hit you instead of the street. I mean it's like a necktie

491

00:41:05,620 --> 00:41:11,460

But you're not gonna get that off of there. No, we're gonna cut it here and here and display it proudly on your shelf

492

00:41:12,100 --> 00:41:19,140

There's so much shrapnel that if ted had fallen into the station our gunner would have been a goner. Here's the body

493

00:41:19,780 --> 00:41:21,380

There's the steel

494

00:41:21,380 --> 00:41:25,780

There's more steel way over there and a lot further. So there's no way

495

00:41:26,580 --> 00:41:28,260

There's just no way

496

00:41:28,260 --> 00:41:33,220

The idea is that the pressure of this one human body somehow equalized the pressure of the bomb going off

497

00:41:34,900 --> 00:41:36,900

That's just not gonna happen

498

00:41:39,140 --> 00:41:43,940

So in the middle of a crater in the middle of aquaring in the middle of no way

499

00:41:44,420 --> 00:41:47,380

It's time to wrap this one up. So what are we going to call this one?

500

00:41:47,460 --> 00:41:47,940

I mean

501

00:41:47,940 --> 00:41:52,260

Look factually we know that in world war two there was an airman who fell 22 000 feet

502

00:41:52,740 --> 00:41:57,060

From his bomber and survived without a parachute. That is historically accurate

503

00:41:57,300 --> 00:42:02,260

Yeah, but the idea that a bomb going off would provide such an upwelling of air that it would

504

00:42:02,660 --> 00:42:04,420

decelerate him and

505

00:42:04,420 --> 00:42:09,700

Gently lower him to the ground is his bunk. It's just not I don't think it's possible. What do you think?

506

00:42:10,260 --> 00:42:16,820

Uh, give me a break. It didn't happen. So bust it bust it bust it. Let's get out of here. All right

507

00:42:19,620 --> 00:42:21,620

I had a super puzzle