

1

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

1

2

00:01:00,000 --> 00:01:18,480

You ready for the explosion special, maybe you can give me a minute. Hi, you big baby

3

00:01:30,000 --> 00:01:49,480

Jamie when we're all done making mythbusters, how would you like us to be remembered? How about for our promotion of critical thought?

4

00:01:49,480 --> 00:01:56,640

And how do you think we will be remembered? For blown crap up. Yep, that is why in this our final season

5

00:01:56,640 --> 00:02:00,480

We're devoting an entire episode to an explosion special what's on the docket?

6

00:02:00,480 --> 00:02:07,400

Well, we are finally going to tackle an explosive. We have never had any experience with before landmines like this

7

00:02:10,020 --> 00:02:17,880

But first we have a new twist on perhaps mythbusters most favorite and famous explosion that would be the cement truck

8

00:02:18,840 --> 00:02:24,960

Yes, it would and it stars our favorite fictional honorary mythbuster Angus MacGyver. Let me set you the scene

9

00:02:25,840 --> 00:02:30,600

A mail truck has been fitted with a bomb full of dynamite keep it coming

10

00:02:31,040 --> 00:02:35,820

MacGyver brings a cement truck over to the mail truck and starts filling it with wet concrete

11

00:02:37,000 --> 00:02:39,400

When he gets it above the bomb the bomb goes off

12

00:02:41,280 --> 00:02:45,520

The cement seems to prevent the bomb from causing any real damage it worked

13

00:02:46,200 --> 00:02:50,720

I honestly don't know what would actually happen which makes it a perfect myth for us to test

14

00:02:51,400 --> 00:02:52,440

three

15

00:02:52,440 --> 00:02:59,120

When it comes to countdown to the mythbusters one have an explosive 14-year history

16

00:03:02,160 --> 00:03:05,120

And to sign off their final season in style

17

00:03:07,120 --> 00:03:09,120

They're putting a MacGyver spin

18

00:03:10,520 --> 00:03:14,120

On an old mythbusters favorite well, there's your problem

19

00:03:17,400 --> 00:03:21,880

To get things rolling the team to camp to a much loved location

20

00:03:22,480 --> 00:03:27,240

If you're gonna blow something up and you need more than just a few pounds of explosives to do it

21

00:03:27,520 --> 00:03:33,440

Generally the neighbors don't like it and that's why we've come to one of our favorite places to blow large things up

22

00:03:33,760 --> 00:03:35,480

I own California

23

00:03:35,480 --> 00:03:37,480

That seems about right

24

00:03:39,520 --> 00:03:45,680

Our plan today is pretty straightforward we're going to be detonating two mail trucks why two mail trucks

25

00:03:45,680 --> 00:03:50,160

Well one obviously will be full of wet cement, but their first blast will be empty. Yes

26

00:03:50,440 --> 00:03:55,040

The mythbusters postal service the skeleton bird with dynamite in his talons

27

00:03:56,320 --> 00:03:58,400

Why are we detonating an empty mail truck?

28

00:03:58,400 --> 00:04:05,480

Well, that's because we can't know if MacGyver's actions had any effect on the blast unless we have something to compare it to that's our control

29

00:04:06,160 --> 00:04:10,560

Percept dressing the carb car that MacGyver hides behind is dropped into place

30

00:04:10,720 --> 00:04:14,760

But the key to this myth is the mail trucks explosive cargo

31

00:04:15,760 --> 00:04:20,080

By looking at the clip we've determined that they used about 84 pounds of dynamite

32

00:04:20,200 --> 00:04:27,480

Now this right here may look a little bit more festive, but this is actually what 84 pounds of dynamite looks like

33

00:04:28,440 --> 00:04:35,220

To quantify and compare the damage between the control and the concrete blasts. They'll measure two parameters

34

00:04:36,120 --> 00:04:41,080

First the shrapnel we want to know how dangerous the shrapnel might be so we are implementing

35

00:04:42,000 --> 00:04:48,240

Shrapnel catchers we have cut out a ton of plywood dudes that we are going to place on a 30 foot radius

36

00:04:48,520 --> 00:04:54,560

Between us and the blasts so that we can see if chunks of metal fly off will it kill someone standing that far away

37

00:04:56,600 --> 00:04:58,600

Let's

38

00:05:01,600 --> 00:05:05,120

Well, it's universally agreed that MacGyver brought

39

00:05:06,240 --> 00:05:11,720

Ingenuity and cool problem-solving a network television. It's not often discussed what he's done for the mullet

40

00:05:12,880 --> 00:05:14,640

business in the front

41

00:05:14,640 --> 00:05:16,320

party in the rear

42

00:05:16,320 --> 00:05:18,680

The second parameter is the pressure wave

43

00:05:18,880 --> 00:05:24,400

We'll be gathering precise data on the strength of our blasts using one of these this is a pressure transducer

44

00:05:24,400 --> 00:05:29,720

Our blasts obviously will put out a tremendous amount of energy most of it in the form of a blast pressure wave

45

00:05:29,720 --> 00:05:32,560

That way we'll meet our pressure transducer

46

00:05:32,560 --> 00:05:39,440

It'll exert a little mechanical energy on a tiny crystal inside the transducer called a piezo when we hook it up to a computer

47

00:05:39,440 --> 00:05:45,480

It gives us exactly how strong the blast pressure wave was where that pressure transducer was placed

48

00:05:45,960 --> 00:05:52,800

Having all three of these data points for both blasts ought to give us a really good picture to see if MacGyver cement made a difference

49

00:05:52,800 --> 00:05:55,100

between the control and the cement blast

50

00:05:59,160 --> 00:06:03,240

Mr. Heineman you ready? Okay arming and ready

51

00:06:04,280 --> 00:06:10,700

This is MacGyver control empty postal van 84 pounds of TNT in three

52

00:06:12,200 --> 00:06:13,960

two

53

00:06:13,960 --> 00:06:15,460

one

54

00:06:15,460 --> 00:06:17,460

two

55

00:06:18,460 --> 00:06:20,460

Boo

56

00:06:24,540 --> 00:06:31,720

That I think there's still some stuff flying through the air. Yeah, nobody go outside yet. No what goes up comes down

57

00:06:38,220 --> 00:06:40,220

Yep, you've got hail

58

00:06:40,220 --> 00:06:42,220

a

59

00:06:42,740 --> 00:06:44,740

Hail of metal shrapnel

60

00:06:45,020 --> 00:06:51,100

Look the eagle has landed and plywood shrapnel catchers that's gotta hurt

61

00:06:53,460 --> 00:06:56,180

It's pure carnage for our track

62

00:06:57,740 --> 00:07:00,260

Legs and hands and mullets everywhere

63

00:07:00,460 --> 00:07:13,660

The blast was significantly more powerful than expected at 30 feet the shrapnel damage was clearly catastrophic

64

00:07:14,100 --> 00:07:16,460

But what about the pressure sensors? Oh?

65

00:07:19,140 --> 00:07:24,280

It looks like all three of the sensors we had out here are totally busted

66

00:07:25,180 --> 00:07:28,840

with the cables for the pressure transducers shredded even at

67

00:07:29,360 --> 00:07:34,480

250 feet they have no control data and the next step will take some figuring out

68

00:07:35,160 --> 00:07:40,360

So it's on to story to where the guys are breaking new ground by going underground

69

00:07:41,160 --> 00:07:46,480

So landmines yep the myth is if you want to cross a minefield and you want to do it safely

70

00:07:46,480 --> 00:07:50,280

Which I assume you do the vehicle of choice is a hovercraft

71

00:07:50,520 --> 00:07:55,720

And that would be because the hovercraft doesn't set them off. That's the myth. That's what I think we should test

72

00:07:55,760 --> 00:08:00,320

You know, I don't think I've ever driven a hovercraft especially over a minefield

73

00:08:02,680 --> 00:08:10,640

This is a story of firsts over the years the team has tackled every conceivable explosive tech

74

00:08:12,720 --> 00:08:14,960

Except one landmines

75

00:08:18,440 --> 00:08:23,520

But first this story's other first the state of the art craft in question

76

00:08:26,720 --> 00:08:30,840

Supposedly a hovercraft is perfect for safely traversing a minefield

77

00:08:31,480 --> 00:08:34,840

Because it evenly distributes its weight on a cushion of air

78

00:08:37,080 --> 00:08:41,000

To find out the truth our novice riders require lessons

79

00:08:41,000 --> 00:08:46,800

We got the left and the right steering and we have the throttle that provides both the lift and the thrust

80

00:08:56,360 --> 00:08:59,040

Once in the driver's seat Adam discovers

81

00:09:00,640 --> 00:09:03,040

It's surprisingly easy to handle

82

00:09:05,400 --> 00:09:07,400

These haven't way too much fun

83

00:09:07,720 --> 00:09:12,660

Yep, and they're also starting to get a feel for how 600 pounds of man and machine

84

00:09:13,280 --> 00:09:17,040

Could possibly power through a minefield without mishap

85

00:09:19,600 --> 00:09:25,320

Well, they're basically boats that float on a cushion of air and that cushion of air is retained underneath the boat

86

00:09:25,320 --> 00:09:29,840

By a flexible skirt and there's an engine that's pumping air down into that skirt

87

00:09:38,200 --> 00:09:46,080

That same fan and engine though are also pushing air out the back through these fins and that provides it with propulsion and steering

88

00:09:46,080 --> 00:10:02,120

As far as operating this thing in a minefield, I think this is gonna be kind of like operating a boat in a marina. Yeah, I

89

00:10:02,800 --> 00:10:06,480

Think it can be done, but you have to plan ahead. That's gonna be the key

90

00:10:09,480 --> 00:10:13,040

That's my friends is the sound of Jamie Hahneman being enthusiastic

91

00:10:16,120 --> 00:10:21,620

Well, I don't know about you, but I feel ready to drive this across the minefield. Let's go make a minefield. Let's do it

92

00:10:23,960 --> 00:10:25,960

Coming up on mythbusters

93

00:10:26,640 --> 00:10:28,640

This explosive

94

00:10:29,960 --> 00:10:33,240

There's just a flesh one final season spectacular

95

00:10:34,480 --> 00:10:42,920

I am working Walrus turns back the clock. Hey welcome to 1987 and tests the team's limits. Whoop.
All right

96

00:10:42,920 --> 00:10:44,280

I'm in

97

00:10:44,280 --> 00:10:46,280

Robotic ingenuity

98

00:10:55,440 --> 00:10:57,440

Back at the beginning go

99

00:10:58,680 --> 00:11:03,680

That is not enough to blast somebody off the seat the big booms weren't so big

100

00:11:07,200 --> 00:11:12,120

Or beautifully captured and often didn't go according to plan

101

00:11:15,280 --> 00:11:20,480

Is my missing an eyebrow over a decade later

102

00:11:22,080 --> 00:11:25,020

And the mythbusters have upped the explosive anti

103

00:11:25,920 --> 00:11:30,380

and covered every combination of tech and target

104

00:11:33,240 --> 00:11:35,240

Except one

105

00:11:35,520 --> 00:11:40,960

Landmines and the myth that a minefield can be crossed by hovercraft

106

00:11:41,960 --> 00:11:47,660

How they go about testing one of the world's deadliest military devices is a tricky task

107

00:11:48,760 --> 00:11:50,760

PVC tubing

108

00:11:51,800 --> 00:11:59,440

We obviously need mines to conduct our test and out of this I will produce a set of artificial mines

109

00:12:00,040 --> 00:12:02,040

Now they won't blow up

110

00:12:02,240 --> 00:12:05,080

But that's only half of what a mine does the other thing it does is

111

00:12:05,400 --> 00:12:12,560

Register a certain amount of pressure in order to tell it to blow up a mine is really effectively a scale a scale that says blow up when a

112

00:12:12,600 --> 00:12:15,040

Person steps on it like 150 pounds look at that

113

00:12:16,200 --> 00:12:23,080

Or a truck 700 pounds and the soul of our fake mines will be this little metal button

114

00:12:23,080 --> 00:12:30,520

This is in fact a pressure transducer and it will allow my fake minds to behave just like the real thing in every way

115

00:12:30,880 --> 00:12:32,320

except for explosives

116

00:12:32,360 --> 00:12:35,880

While Adam makes the housing for the programmable pressure trigger

117

00:12:38,440 --> 00:12:45,320

Jamie replaces the C4 with an air powered mortar designed to give off a safe movie effect blast

118

00:12:46,360 --> 00:12:52,840

That right there is the tank and we'll have a funnel on the end of it filled with stuff that's gonna get shot up in the air

119

00:12:54,040 --> 00:12:59,160

Pretty simple and straightforward. We step on the landmine and off she goes kaboom

120

00:12:59,880 --> 00:13:04,840

With Jamie's mortar assembled and loaded with fake rubble it's ready for a demo

121

00:13:10,520 --> 00:13:12,520

That's great looks pretty good to me

122

00:13:15,080 --> 00:13:21,560

That's the film effect explosion back inside Adam has a prototype of the pressure pad ready for demo

123

00:13:22,040 --> 00:13:25,240

So here is the function of our mine

124

00:13:25,440 --> 00:13:31,600

We've got the body that is the casing and we've got our pressure rod here and down at the bottom

125

00:13:31,600 --> 00:13:36,640

Is that little pressure transducer screwed into the bottom of our ABS pipe cap and?

126

00:13:37,400 --> 00:13:39,400

That will work just like a real thing

127

00:13:40,880 --> 00:13:45,880

So while the team mass produces 20 accurate and programmable landmines

128

00:13:47,520 --> 00:13:49,520

It's back to the MacGyver myth

129

00:13:50,040 --> 00:13:52,920

Adam and Jamie want to know if this immense solution is

130

00:13:53,800 --> 00:13:55,800

cinematically scientific

131

00:13:56,480 --> 00:14:01,520

Or a made for TV tall tail three two one

132

00:14:11,640 --> 00:14:14,960

So far the control blast didn't exactly go to plan

133

00:14:15,560 --> 00:14:23,040

Well, we like to say failure is always an option and it has to be because we had a total failure of our pressure transducer system

134

00:14:23,720 --> 00:14:25,240

Oh

135

00:14:25,240 --> 00:14:28,040

But we do have a plan B

136

00:14:29,120 --> 00:14:35,200

Yep, we're gonna focus on the physical evidence our cutouts tells the shrapnel was catastrophic at 30 feet

137

00:14:36,600 --> 00:14:43,360

But we can also compare the strength of the control to the concrete covered blast by measuring how far the shrapnel flew

138

00:14:43,360 --> 00:14:47,040

That's a heavy thing and it shot it about 150 feet

139

00:14:48,560 --> 00:14:51,200

First we marked out the more sizable pieces on foot

140

00:14:51,720 --> 00:14:56,040

That's got to be one of the farthest chunks and then we get the big picture by air

141

00:14:56,280 --> 00:15:02,880

This right here is the newest piece of amazing camera equipment that myth busters has brought to bear on shooting our episodes over the past

142

00:15:02,880 --> 00:15:06,280

Couple of years. This is called a DJI inspire one

143

00:15:06,840 --> 00:15:11,520

And we use the inspire to witness our entire debris field in one shot

144

00:15:12,520 --> 00:15:17,960

Yep from this birds eye view the debris field can be mapped at a maximum radius of

145

00:15:18,920 --> 00:15:20,920

675 feet

146

00:15:22,080 --> 00:15:25,240

That stat replacing the pressure transducer data

147

00:15:27,840 --> 00:15:29,840

Q truck number two

148

00:15:33,600 --> 00:15:36,200

This is our 84 pounds of dynamite and

149

00:15:36,680 --> 00:15:41,560

Reason I'm locking all this stuff down is that this stuff is lighter than concrete and it might float

150

00:15:42,120 --> 00:15:46,440

Now wait these detonation cords and things like that won't come out hopefully

151

00:15:47,280 --> 00:15:49,440

Similar to the shelves in the original clip

152

00:15:49,840 --> 00:15:54,200

Janie's placed one bundle of dynamite down low and one up top and

153

00:15:55,240 --> 00:16:00,000

Screwing them to the wooden frame should prevent them from floating free when the concrete flows

154

00:16:02,680 --> 00:16:05,680

Meaning it's time for man of the moment. How you doing?

155

00:16:06,880 --> 00:16:08,880

a

156

00:16:11,400 --> 00:16:13,400

Like this look maybe I'm gonna try it out

157

00:16:13,680 --> 00:16:14,480

our

158

00:16:14,480 --> 00:16:18,280

Mullethead heroes springs into action and perfect right there

159

00:16:19,240 --> 00:16:26,440

Matching the clip he directs the dump truck to unload eight cubic yards or 32,000 pounds of wet cement

160

00:16:27,840 --> 00:16:29,840

It's coming out

161

00:16:30,560 --> 00:16:33,160

It looks kind of like a cow taking a dump

162

00:16:33,960 --> 00:16:35,960

It

163

00:16:37,880 --> 00:16:41,120

Really doesn't like a cow taking a dump and I've never even seen that

164

00:16:42,120 --> 00:16:48,360

Wow, it'll take 30 minutes to fill her up, but there's a problem kill it. What's up?

165

00:16:50,560 --> 00:16:52,160

Look at the

166

00:16:52,160 --> 00:16:55,800

bag of explosives that came out from under the table

167

00:16:58,280 --> 00:17:00,780

Despite Jamie's precautions, what do we do?

168

00:17:01,740 --> 00:17:07,760

What can we do 40 odd pounds of prime to explode dynamite is dangerously detached

169

00:17:08,420 --> 00:17:11,140

It has to be secured and fast

170

00:17:11,780 --> 00:17:14,220

We can cut a bigger hole and crawl through this

171

00:17:16,660 --> 00:17:19,420

Ironically they've got a MacGyver the situation

172

00:17:20,220 --> 00:17:24,220

With the cement already 12 inches deep they can't go through the doors

173

00:17:25,580 --> 00:17:28,300

I'm sorry, but I have to take off the MacGyver

174

00:17:28,620 --> 00:17:36,720

The cement is rapidly setting the Sun is heating the truck interior to a stifling 150 degrees

175

00:17:37,940 --> 00:17:42,220

And there's an unexploded bomb to be manhandled. All right

176

00:17:49,140 --> 00:17:52,340

All in a dangerous day's work for the myth busters

177

00:17:52,860 --> 00:17:58,580

Right, I just remember this is 40 some odd pounds of TNT gonna handle it gently

178

00:17:59,420 --> 00:18:01,860

All right to make sure they match the clip

179

00:18:02,580 --> 00:18:06,780

Thank you. The loose bag has to be submerged under the concrete

180

00:18:07,180 --> 00:18:11,900

So Adam boxes it in and with some two by four screws it down

181

00:18:12,620 --> 00:18:14,620

Yeah, you aren't going anywhere

182

00:18:14,980 --> 00:18:18,700

Before escaping with a brand new pair of concrete boots

183

00:18:22,340 --> 00:18:24,340

Oh

184

00:18:24,660 --> 00:18:26,660

Yes, oh

185

00:18:28,340 --> 00:18:32,500

Yes, ah nice work Houdini, thank you

186

00:18:33,220 --> 00:18:40,460

How to escape upside down out of a container full of concrete and explosion and with that let's clear the area

187

00:18:40,460 --> 00:18:45,460

Let's start pumping MacGyver is back on track to save the day or is he?

188

00:18:45,780 --> 00:18:51,540

This is a new problem like we needed more it might be pushing out the sides of our truck and leaking out

189

00:18:53,220 --> 00:18:54,340

I

190

00:18:54,340 --> 00:19:00,340

32,000 pounds that's 16 tons. I guess is that's more than this truck was built to take wow

191

00:19:01,580 --> 00:19:03,580

That is a lot of pressure on those doors

192

00:19:04,220 --> 00:19:08,900

It's a lot of mail in the clip the truck wasn't affected by the extra weight

193

00:19:08,900 --> 00:19:12,140

But in real life, it's only just holding together

194

00:19:12,380 --> 00:19:16,100

Let's kill it the team has to move fast before it fails

195

00:19:17,100 --> 00:19:22,140

So where we are right now is that we have just just just covered the bomb with concrete

196

00:19:22,140 --> 00:19:26,100

And we are working very hard to as the bomb techs would say de-ask the area

197

00:19:26,460 --> 00:19:29,900

Trying to get all the equipment out then we'll get all the people back to the bunker them. We're gonna blow this

198

00:19:42,060 --> 00:19:45,380

Hey welcome to 1987 here's the problem

199

00:19:46,140 --> 00:19:50,440

MacGyver is confronted with an 84 pound bomb keep it coming

200

00:19:50,740 --> 00:19:54,880

He convinces a local cement mixer to back up to the mail truck and fill it full of cement

201

00:19:59,300 --> 00:20:01,300

The question we want to answer is

202

00:20:01,940 --> 00:20:07,780

You ready to do this what his cement have made any difference. Are you ready? I'm totally ready

203

00:20:08,460 --> 00:20:14,940

In the clip it looks like almost nothing happens at all. Okay wet concrete explosion in

204

00:20:15,340 --> 00:20:22,940

Three like there's a boom in the truck jumps. There's a little fire and that's it to that would be the most ideal outcome

205

00:20:23,500 --> 00:20:25,500

one

206

00:20:27,260 --> 00:20:29,260

Wow

207

00:20:33,060 --> 00:20:36,860

That totally went off and all the dummies are standing

208

00:20:42,260 --> 00:20:44,260

It worked

209

00:20:45,940 --> 00:20:48,580

That were gang blusters did

210

00:20:49,620 --> 00:20:55,780

It's an astonishing result as per the clip the explosion was almost completely smothered

211

00:20:57,100 --> 00:20:59,900

That is amazing. I'm completely blown away

212

00:21:01,100 --> 00:21:04,540

Let's face it some of the stuff we've seen on MacGyver is downright silly

213

00:21:05,460 --> 00:21:14,860

but this one turned out to be actually darned impressive because you know it looks exactly like what we saw in the clip most of it

214

00:21:14,860 --> 00:21:20,820

Appears to have been absorbed by the mass of the concrete. It just absorbed it

215

00:21:22,100 --> 00:21:27,860

This is our debris field. It's one big thing a darned effective technique. I never would have thought it

216

00:21:28,780 --> 00:21:32,380

After inspecting the onlookers the news keeps on getting better

217

00:21:33,100 --> 00:21:39,900

Well, I'm standing here with our shrapnel catchers and what you might notice is there's a great difference between them for this blast and the previous one

218

00:21:42,100 --> 00:21:44,420

Yep every single one of them

219

00:21:45,020 --> 00:21:48,980

Is still standing that was incredible

220

00:21:50,220 --> 00:21:53,540

Maybe the most surprising result we've had in a long time

221

00:21:54,380 --> 00:21:56,380

but oh

222

00:21:56,500 --> 00:22:00,780

Shoot couple of unexploded sticks of TNT there

223

00:22:01,380 --> 00:22:08,980

Cancel the cake and put the confirmed party on hold a closer look reveals the muted explosion was down to a misfire

224

00:22:09,220 --> 00:22:14,740

Not MacGyver it seems the concrete dislodged the detonation cord from the dynamite

225

00:22:14,980 --> 00:22:20,500

Remember how I said that failure is always an option. It is starting to feel like the only option

226

00:22:21,660 --> 00:22:28,460

We found a garbage bag full of unexploded dynamite and then Jamie like a surgeon used the forklift to peel the front

227

00:22:28,660 --> 00:22:30,660

off of this mail van

228

00:22:30,860 --> 00:22:34,580

Stop stop and that's when we found another

229

00:22:35,220 --> 00:22:37,380

garbage bag full of unexploded dynamite

230

00:22:39,580 --> 00:22:44,660

Yeah, our best guess is that we detonated two sticks of dynamite

231

00:22:44,780 --> 00:22:48,980

That's not the blast we were looking for so here's what we've got to do

232

00:22:48,980 --> 00:22:50,980

We have to come up with a methodology for making

233

00:22:51,780 --> 00:22:56,780

Absolutely sure that dynamite goes off when it's under the cement once we have that methodology

worked out

234

00:22:56,780 --> 00:23:03,340

We are going to implement it bring back in a cement truck fill another mail truck with cement and try this for real

235

00:23:03,940 --> 00:23:07,540

Come on up on myth busters. We test deja vu all over again

236

00:23:09,420 --> 00:23:14,040

While the guys get set to fix their MacGyver missteps over at Alameda

237

00:23:14,100 --> 00:23:17,620

It's time to lay the minefield for their hovercraft to cross

238

00:23:18,260 --> 00:23:22,660

So we've chosen a minefield that is about 50 feet long and about eight feet wide

239

00:23:22,980 --> 00:23:30,900

This is not testing whether we can invade these mines. This is testing what happens when we go over them with a hovercraft

240

00:23:31,020 --> 00:23:37,340

So we feel that this configuration should guarantee we're gonna do that every three feet. Okay, there you go

241

00:23:37,900 --> 00:23:44,820

Yep, this deadly dollar sign design will ensure that when the hovercraft crosses it'll hit most of the mines

242

00:23:48,540 --> 00:23:50,540

Now can Jamie dig it

243

00:23:54,660 --> 00:23:56,660

Yes, he can

244

00:23:57,740 --> 00:24:01,220

Nothing makes the Heinemann happier than the right tool for the job

245

00:24:02,980 --> 00:24:04,980

Beautiful

246

00:24:05,020 --> 00:24:09,260

Now you may be wondering why we're doing all of this digging that is a beautiful machine

247

00:24:09,940 --> 00:24:16,260

Because mines usually just put them in and they're sitting there waiting to release their horror upon the world

248

00:24:16,500 --> 00:24:19,340

Our mines are not autonomous mines, right?

249

00:24:19,340 --> 00:24:25,100

Because we actually have to wire them up to a system allowing them to be switches for our air mortars

250

00:24:25,100 --> 00:24:29,260

So allow me to introduce you to our minds. Yes

251

00:24:30,020 --> 00:24:35,180

Remember me building this in the shop. Well now it's got a paint job and a title and a

252

00:24:35,740 --> 00:24:40,100

Wiring bus so that we can wire these mines to our central system

253

00:24:40,180 --> 00:24:44,220

Which will allow us to adjust the pressures they go off at and set off our mortars

254

00:24:45,340 --> 00:24:50,060

And while Jamie spends the day digging the trenches for the 20 mortars and mines

255

00:24:51,700 --> 00:24:53,700

Adam

256

00:24:55,780 --> 00:24:57,780

Decides to test drive the hovercraft

257

00:25:00,260 --> 00:25:02,260

One or two

258

00:25:03,980 --> 00:25:07,980

Or six seven more times

259

00:25:17,660 --> 00:25:23,900

Stop screwing around I'm doing all this digging it's time to get to work. I'll be like I am working Walrus

260

00:25:24,900 --> 00:25:31,500

Hovercraft hijinks aside laying this high-tech minefield is a mammoth today undertaking

261

00:25:37,500 --> 00:25:41,380

I have to tell you this is one of the more complicated builds we have ever embarked upon

262

00:25:41,380 --> 00:25:43,380

We've spent a couple of days now digging

263

00:25:44,300 --> 00:25:45,500

pressurizing mining

264

00:25:45,500 --> 00:25:50,620

Mordering wiring and testing all to what end to build a functional yet non-lethal

265

00:25:51,300 --> 00:25:55,820

Minefield we can test with and the most important part of this minefield is this the mines

266

00:25:55,820 --> 00:26:01,820

They are activated by a small pressure transducer that acts like a scale and we can have it set off the mine at whatever pressure

267

00:26:01,820 --> 00:26:07,100

We decide and when they're activated these fancy mortars that we've buried go poop

268

00:26:08,420 --> 00:26:13,500

At the beating heart of this operation the thing that joins all of our minds and all of our mortars together

269

00:26:13,500 --> 00:26:19,540

It makes them functional is about a half mile of cat five cable all terminating here in this rats nest

270

00:26:19,580 --> 00:26:23,980

Which are honorary myth buster and electronics and metering specialist David Harding claims

271

00:26:24,220 --> 00:26:30,060

Will allow us to adjust our minds to be set off by any pressure that we choose and to find out if their

272

00:26:30,380 --> 00:26:37,220

Complicated setup is working their first testing it on foot cue the designated dead man walking

273

00:26:37,580 --> 00:26:41,580

Now I could just walk out there and step on one, but where's the fun in that?

274

00:26:41,580 --> 00:26:47,300

I'm gonna walk this minefield the line folded while being guided to doom by mr. Heineman

275

00:26:50,380 --> 00:26:52,380

Ha ha ha

276

00:26:55,300 --> 00:26:58,660

All right, okay David arm the system

277

00:26:59,980 --> 00:27:01,980

System is armed

278

00:27:02,060 --> 00:27:07,780

From the control center each mine is calibrated to go boom at 35 pounds of pressure

279

00:27:08,220 --> 00:27:13,780

One light step and Adam will field a full force of a movie effect explosion

280

00:27:14,380 --> 00:27:20,120

This is weird I gotta say I know this is totally safe

281

00:27:20,540 --> 00:27:26,820

Commencing walking the minefield like I won't get hurt by the mortars that we made but it's a little very cracking

282

00:27:35,940 --> 00:27:38,380

Now guarantee your right a little bit

283

00:27:43,780 --> 00:27:45,780

Oh

284

00:28:03,620 --> 00:28:07,820

The minefield is scarily accurate and completely safe

285

00:28:13,820 --> 00:28:21,060

There goes the leg and when Adam recovers from his gruesome fake death

286

00:28:23,780 --> 00:28:26,460

They can reset the field for vehicles

287

00:28:36,780 --> 00:28:43,300

Let me remind you we're testing the myth that a hovercraft can traverse a minefield without incident that it won't set off any of the mines

288

00:28:44,420 --> 00:28:45,580

Oh

289

00:28:45,580 --> 00:28:49,780

But this required us to answer the question of what in fact is a mine

290

00:28:49,860 --> 00:28:55,940

There are thousands of different kinds and they're set off by many different things some are set off by electromagnetism

291

00:28:55,980 --> 00:29:02,380

Some by vibration, but the most common of all minds is set off by pressure. That's the kind we decided to go with

292

00:29:04,140 --> 00:29:07,620

It's effectively a scale with a bomb attached to it

293

00:29:08,620 --> 00:29:10,620

Oh

294

00:29:11,180 --> 00:29:12,740

Are you a big baby?

295

00:29:12,740 --> 00:29:19,460

So after their successful systems test the team recalibrates the mines to an anti-vehicle setting and

296

00:29:20,580 --> 00:29:27,540

Prepares for a control comparison. All right, David. So we set the mines to 300 pounds. All right 300 pounds excellent

297

00:29:28,460 --> 00:29:35,420

Before the hovercraft is sent into battle Adam's Jeep with fake plastic minigun will be used as a control

298

00:29:35,540 --> 00:29:40,740

This is where the rubber meets the road. It's time to do our vehicle versus mines test

299

00:29:41,860 --> 00:29:43,860

All right, Jamie you ready?

300

00:29:44,220 --> 00:29:45,700

Starting the engine

301

00:29:45,700 --> 00:29:51,220

After we see what happens with that it'll be time to move on to sending our hovercraft across the same course

302

00:29:51,900 --> 00:29:57,420

Commence the vehicle mine setting tests in three two one go

303

00:29:59,500 --> 00:30:02,620

The Jeep weighs in at just over 3,000 pounds

304

00:30:06,180 --> 00:30:12,520

Ha ha there goes one and one quarter of its weight 750 pounds is

305

00:30:14,460 --> 00:30:23,260

Focused through the relatively small contact area of each tire easily setting off get my car dusty any of the mines they cross

306

00:30:24,460 --> 00:30:31,300

Now in the case of the hovercraft not all of its weight is concentrated into one small area. Well, that worked quite well

307

00:30:31,300 --> 00:30:33,620

Didn't it I guess now it's time for the hovercraft

308

00:30:34,020 --> 00:30:39,620

So the question here is is that weight or that down pressure that it's exerting on the ground

309

00:30:40,020 --> 00:30:42,020

Enough to set off one of these mines

310

00:30:43,820 --> 00:30:50,440

My prediction is that the hovercraft is gonna make it just fine even though it weighs fully loaded with the person over

311

00:30:50,660 --> 00:30:57,740

600 pounds, I don't see it exerting 300 pounds down on its underskirt. It's just I know it's not gonna happen

312

00:30:58,460 --> 00:31:05,780

We're about to find out with Jamie in the hot seat and a high-tech minefield rigged and ready to blow

313

00:31:06,220 --> 00:31:12,580

Can a hovercraft really float through an anti vehicle minefield? Oh, yeah, here it comes

314

00:31:14,660 --> 00:31:16,660

Oh, yeah

315

00:31:18,180 --> 00:31:20,180

Yeah

316

00:31:20,180 --> 00:31:23,220

Didn't set up a thing that was awesome. Yeah

317

00:31:23,900 --> 00:31:25,900

That was smooth

318

00:31:25,900 --> 00:31:28,460

Explosion-free sailing. Oh, yeah

319

00:31:29,420 --> 00:31:33,580

The S curve layout ensured Jamie crossed a majority of the mines

320

00:31:34,140 --> 00:31:37,020

But not a single one went boom. Yeah

321

00:31:37,500 --> 00:31:42,180

You want to come back around for a second run on my way, maybe a little slower this time

322

00:31:49,700 --> 00:31:54,460

Despite reducing speed giving the mines more time to register the passing hovercraft

323

00:31:54,620 --> 00:31:57,020

The Heinemann gets away unharmed

324

00:32:04,860 --> 00:32:10,500

Well, there you have it we drove across the minefield with a vehicle and we're setting off the mines

325

00:32:12,820 --> 00:32:14,940

The hovercraft not so much

326

00:32:18,540 --> 00:32:22,300

I was right I like being right every now and then

327

00:32:23,300 --> 00:32:30,660

Look it may seem counterintuitive to you that a 600 pound hovercraft can't set off a mine engineered to go off at 300 pounds

328

00:32:30,660 --> 00:32:35,980

But this myth is all about the exact kind of pressure a human foot a car tire

329

00:32:36,500 --> 00:32:38,500

Those are point sources of pressure

330

00:32:38,620 --> 00:32:46,380

But the hovercraft is distributing its weight across its entire footprint across the entire cushion of air that it's riding on

331

00:32:46,500 --> 00:32:48,980

That's why it can't set off our minds

332

00:32:49,580 --> 00:32:57,180

That's why it is the perfect craft for making its way across a minefield, but it's still weighs 600 pounds

333

00:32:58,780 --> 00:33:05,740

How well does it spread that load and can a hovercraft cross any minefield at any pressure setting now

334

00:33:05,740 --> 00:33:10,020

It's the moment of truth our minefield is set to an anti-personnel pressure

335

00:33:10,020 --> 00:33:16,620

That is 35 pounds to trigger our minds. I've already walked it and shown that I'm plenty to trigger it

336

00:33:17,400 --> 00:33:20,300

Okay, Adam you're good to go

337

00:33:20,820 --> 00:33:25,060

All right, here we go traversing a minefield in a hovercraft

338

00:33:26,020 --> 00:33:29,600

Set the anti-personnel setting in three two

339

00:33:46,620 --> 00:33:50,700

Same thing no mine action. Yeah, that is awesome

340

00:33:52,380 --> 00:33:57,300

The mines set to go off at the lightest footstep are once again unmoved

341

00:33:58,540 --> 00:34:02,420

Adam then does his best to linger with several 360s

342

00:34:10,380 --> 00:34:14,820

But the hovercraft and its cushion of air defies death from below

343

00:34:17,180 --> 00:34:19,180

I

344

00:34:22,020 --> 00:34:28,100

This point it's looking mighty good for this myth, but are we done come on you know us

345

00:34:28,500 --> 00:34:33,460

You know we're gonna take it to the most extreme place we can that's what we're about to do

346

00:34:33,580 --> 00:34:38,780

So we've set this to go off at five pounds the Easter Bunny could set this off

347

00:34:39,780 --> 00:34:41,780

Okay

348

00:34:45,020 --> 00:34:51,460

Here we go, it's the ultimate test for this myth the Heinemann and hovercraft are

349

00:34:52,220 --> 00:34:55,180

120 times heavier than each mine's threshold

350

00:34:59,380 --> 00:35:03,340

But once again they float serenely across unharmed

351

00:35:09,660 --> 00:35:14,780

Didn't set off a single mine that is beautiful. I love it. So how does this work?

352

00:35:15,260 --> 00:35:17,260

Well, the answer is in the numbers

353

00:35:17,260 --> 00:35:24,700

If you divide the weight of the hovercraft by the contact area you get about point zero six pounds per square inch of downward pressure

354

00:35:24,980 --> 00:35:27,660

So there's not nearly enough pressure per square inch

355

00:35:31,900 --> 00:35:37,720

Well, I gotta say I think this is about as easy a myth to call as we've ever encountered. Yeah, it's confirmed

356

00:35:37,800 --> 00:35:46,200

Totally confirmed the hovercraft is the absolute vehicle of choice for traversing a minefield sure is I gotta figure out how to get myself

357

00:35:54,200 --> 00:35:56,720

How am I supposed to get out of this minefield?

358

00:35:57,480 --> 00:36:10,240

Coming up on this explosive final season farewell 84 pounds of dynamite 185 pounds of pure man

359

00:36:11,120 --> 00:36:13,120

Jamie brings up

360

00:36:21,280 --> 00:36:26,440

To celebrate the final season this is the myth busters number crunching countdown

361

00:36:27,640 --> 00:36:29,640

I

362

00:36:29,640 --> 00:36:33,880

The show the teens racked up an impressive number of count down

363

00:36:35,520 --> 00:36:37,520

920 of them

364

00:36:38,640 --> 00:36:46,720

They've used 18 tons and more than eight types of explosive the most famous was 850 pounds of anfo

365

00:36:47,720 --> 00:36:49,720

And the biggest

366

00:36:53,000 --> 00:37:00,120

5,000 pounds Jamie wants big bones like mostly it's been an epic orgy of operatic carnage

367

00:37:17,440 --> 00:37:19,440

You

368

00:37:27,680 --> 00:37:29,680

Looks good. All right

369

00:37:30,600 --> 00:37:36,200

Slasting that truck will ever do if you're just tuning in we've been messing stuff up all over the place

370

00:37:38,240 --> 00:37:46,480

Unexploded TNT there and in the process have had a few of our own MacGyver moments. Yes, that's a male truck

371

00:37:46,720 --> 00:37:49,560

Inside of it 84 pounds of dynamite any minute now

372

00:37:50,560 --> 00:37:52,560

We're gonna find out just how MacGyver we are

373

00:37:53,120 --> 00:38:00,760

But first this time they got to ensure everything goes boom the last time we had some bundles of dynamite that we're sitting

374

00:38:01,120 --> 00:38:03,720

Underneath the table. Well, it didn't work so well

375

00:38:04,320 --> 00:38:08,480

Our best guess is that we detonated two sticks of dynamite

376

00:38:09,080 --> 00:38:13,360

This time around I'm gonna be putting our dynamite inside a box

377

00:38:13,360 --> 00:38:19,720

It's made out of one inch plywood and it's gonna be completely sealed and anchored. It's gonna work this time

378

00:38:20,760 --> 00:38:24,160

It will explode, but will the cement smother the blast?

379

00:38:25,840 --> 00:38:28,640

There are a couple of different things to think about that's our package

380

00:38:29,520 --> 00:38:34,520

And the first is that that concrete is heavy and it's gonna absorb a lot of the explosion

381

00:38:34,760 --> 00:38:36,200

84 pounds of dynamite

382

00:38:36,200 --> 00:38:40,480

185 pounds of pure man on the other hand there's something known as water hammer

383

00:38:40,480 --> 00:38:45,080

Push good and that's what happens if you close a tap really quickly and it can deliver a

384

00:38:45,800 --> 00:38:48,680

Hydraulic shock to the plumbing which can actually rupture it

385

00:38:50,000 --> 00:38:58,960

That is beautiful now this concrete could deliver something like a water hammer to the exterior of the truck and busted up really efficiently

386

00:39:00,680 --> 00:39:07,680

Now whether that does it more efficiently than it did without any concrete in the male truck. That's what we're about to test

387

00:39:08,320 --> 00:39:09,600

That's it

388

00:39:09,600 --> 00:39:11,600

Let's cap in and get out of here. Okay

389

00:39:12,480 --> 00:39:16,760

It's been one of the most testing test setups in Mythbusters history

390

00:39:17,920 --> 00:39:20,720

All right, sorry you ready? I'm ready. I'll go ahead and arm it

391

00:39:21,520 --> 00:39:26,240

But they're primed to finally find out if MacGyver is quick thinking cement solution

392

00:39:27,480 --> 00:39:34,680

Would have saved the situation this is MacGyver male truck filled with cement and 84 pounds of dynamite

393

00:39:35,880 --> 00:39:37,880

and three

394

00:39:38,360 --> 00:39:40,360

two

395

00:39:40,680 --> 00:39:42,680

One go

396

00:39:46,760 --> 00:39:48,760

It made a jet straight up

397

00:39:51,920 --> 00:39:53,920

That was a thought

398

00:39:53,920 --> 00:39:55,920

Oh

399

00:40:07,360 --> 00:40:09,360

Trucks all gone

400

00:40:12,600 --> 00:40:16,960

The truck was completely destroyed. Well, there's your problem

401

00:40:17,680 --> 00:40:23,840

But there is evidence that the concrete altered the characteristics and intensity of the explosion

402

00:40:24,640 --> 00:40:29,280

This is really interesting Jamie and that first blast there was a shockwave

403

00:40:32,800 --> 00:40:36,080

And it knocked all the legs of our shrapnel catchers off

404

00:40:36,760 --> 00:40:41,360

But I'm looking at the shrapnel catchers that are nearby. They're mostly intact

405

00:40:41,360 --> 00:40:46,160

So I'm gonna go out on a limb and say there was not a significant shockwave emanating out

406

00:40:46,160 --> 00:40:50,280

It looks like probably most of that force went up and what was coming out was all shrap

407

00:40:51,240 --> 00:40:53,240

This is interesting

408

00:40:55,920 --> 00:41:00,080

Unlike the control this time there's a hole in the ground where the truck used to be Wow

409

00:41:00,240 --> 00:41:06,600

We made a crater and the debris field at 250 feet. It's not nearly as widespread

410

00:41:06,600 --> 00:41:08,680

It's less than half the size of the control

411

00:41:10,520 --> 00:41:12,520

And it makes sense if you think about it

412

00:41:12,600 --> 00:41:19,760

Most of the concrete surrounded the explosive meaning that the energy was directed up and down instead of outward towards their shrapnel catchers

413

00:41:20,840 --> 00:41:24,360

Yep, but although the plywood passers-by weren't ripped apart

414

00:41:26,200 --> 00:41:28,200

They were peppered

415

00:41:29,880 --> 00:41:33,320

Let's face it the concrete may have altered the direction of the pressure wave

416

00:41:35,080 --> 00:41:41,480

But it didn't save the day the shrapnel catchers are riddled with holes the aggregate in the concrete the loose rocks

417

00:41:41,480 --> 00:41:48,200

It all became a lethal shower of death and the truck did not survive in any way like it did in the clip

418

00:41:48,520 --> 00:41:50,520

Found the back door

419

00:41:50,920 --> 00:41:52,920

This one's pretty easy to call

420

00:41:57,320 --> 00:42:04,280

All right, mr. Heidemann time to call this did MacGyver's concrete technique alter the blast it did indeed

421

00:42:04,680 --> 00:42:12,280

Did it protect people in the vicinity? Not at all. No, it doesn't match the clip that we saw on the TV show

422

00:42:12,800 --> 00:42:17,440

No, no, I think the call on this one is pretty clear. It's busted. It's totally busted

423

00:42:18,200 --> 00:42:27,000

You know at this point we've probably blown up more weird crap than anybody alive