

1

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

1

2

00:01:00,000 --> 00:01:18,040

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

3

00:01:30,000 --> 00:01:46,400

Jamie when we're all done making mythbusters, how would you like us to be remembered?

4

00:01:46,400 --> 00:01:53,040

How about for our promotion of critical thought and how do you think we will be remembered for blowing crap up?

5

00:01:53,040 --> 00:01:59,060

Yep, that is why and this our final season. We're devoting an entire episode to an explosion special

6

00:01:59,060 --> 00:02:05,020

What's on the docket? Well, we are finally going to tackle an explosive. We have never had any experience with before

7

00:02:05,860 --> 00:02:07,860

Landmines like this

8

00:02:09,560 --> 00:02:17,440

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

9

00:02:18,380 --> 00:02:24,500

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

10

00:02:25,380 --> 00:02:30,140

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

11

00:02:30,580 --> 00:02:35,380

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

12

00:02:36,540 --> 00:02:38,940

When he gets it above the bomb the bomb goes off

13

00:02:40,820 --> 00:02:45,080

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

14

00:02:45,740 --> 00:02:50,260

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

15

00:02:50,940 --> 00:02:52,000

three

16

00:02:52,000 --> 00:02:58,680

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

17

00:03:01,680 --> 00:03:04,680

And to sign off their final season in style

18

00:03:06,680 --> 00:03:12,360

They're putting a MacGyver spin on an old mythbusters favorite

19

00:03:16,960 --> 00:03:21,440

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

20

00:03:22,040 --> 00:03:26,800

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

21

00:03:27,080 --> 00:03:33,000

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

00:03:33,320 --> 00:03:35,040

I own California

23

00:03:35,040 --> 00:03:37,040

That seems about right

24

00:03:39,040 --> 00:03:45,840

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

25

00:03:45,840 --> 00:03:49,720

Obviously will be full of wet cement, but their first class will be empty. Yes

26

00:03:49,960 --> 00:03:54,560

The mythbusters postal service the Skeletal Bird with dynamite in his talents

27

00:03:55,840 --> 00:04:01,920

Why are we detonating an empty mail truck? Well, that's because we can't know if MacGyver's actions had any effect on the blast

28

00:04:01,920 --> 00:04:05,000

Unless we have something to compare it to that's our control

29

00:04:05,520 --> 00:04:10,120

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

30

00:04:10,240 --> 00:04:14,280

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

31

00:04:15,280 --> 00:04:19,600

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

32

00:04:19,760 --> 00:04:27,040

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

33

00:04:28,000 --> 00:04:34,780

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

34

00:04:35,680 --> 00:04:40,640

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

35

00:04:41,560 --> 00:04:47,800

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

36

00:04:48,160 --> 00:04:54,120

Between us and the blasts so that we can see if chunks of metal fly off. Well, it kills someone standing that far away

37

00:04:56,120 --> 00:04:58,120

Let's mull it up

38

00:05:01,080 --> 00:05:04,680

Well, it's universally agreed that MacGyver brought

39

00:05:05,800 --> 00:05:11,280

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

40

00:05:12,440 --> 00:05:14,200

business in the front

41

00:05:14,200 --> 00:05:15,880

party in the real

42

00:05:15,880 --> 00:05:18,240

The second parameter is the pressure wave

43

00:05:18,440 --> 00:05:23,960

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

44

00:05:23,960 --> 00:05:29,280

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

45

00:05:29,280 --> 00:05:32,120

That way we'll meet our pressure transducer

46

00:05:32,120 --> 00:05:39,000

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

00:05:39,000 --> 00:05:45,040

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

48

00:05:45,480 --> 00:05:52,360

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

00:05:52,360 --> 00:05:54,660

Between the control and the cement blast

50

00:05:58,720 --> 00:06:02,800

Mr. Heidemann you ready? Okay arming and ready

51

00:06:03,840 --> 00:06:10,240

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

52

00:06:11,760 --> 00:06:13,520

two

53

00:06:13,520 --> 00:06:15,020

one

54

00:06:15,020 --> 00:06:17,020

two

55

00:06:18,020 --> 00:06:20,020

Boo

56

00:06:24,100 --> 00:06:31,260

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

57

00:06:37,780 --> 00:06:39,780

Yep, you've got hail

58

00:06:39,780 --> 00:06:41,780

a

59

00:06:42,300 --> 00:06:44,300

Hail of metal shrapnel

60

00:06:44,580 --> 00:06:50,660

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

61

00:06:53,020 --> 00:06:55,300

It's pure carnage for our

62

00:06:57,300 --> 00:06:59,820

Legs and hands and mullets everywhere

63

00:06:59,820 --> 00:07:13,060

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

64

00:07:13,660 --> 00:07:15,660

But what about the pressure sensors? Oh?

65

00:07:18,660 --> 00:07:23,780

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

66

00:07:24,700 --> 00:07:28,340

with the cables for the pressure transducers shredded even at

67

00:07:28,940 --> 00:07:34,020

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

68

00:07:34,740 --> 00:07:39,900

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

69

00:07:40,700 --> 00:07:45,980

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

70

00:07:45,980 --> 00:07:49,540

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

71

00:07:50,060 --> 00:07:55,260

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

00:07:55,340 --> 00:07:59,900

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

73

00:08:02,260 --> 00:08:04,260

This is a story of firsts

74

00:08:05,700 --> 00:08:10,200

Over the years the team has tackled every conceivable explosive tech

75

00:08:12,260 --> 00:08:14,500

Except one landmines

76

00:08:18,020 --> 00:08:23,060

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

77

00:08:26,260 --> 00:08:30,380

Supposedly a hovercraft is perfect for safely traversing a minefield

78

00:08:31,020 --> 00:08:34,420

Because it evenly distributes its weight on a cushion of air

79

00:08:36,620 --> 00:08:40,540

To find out the truth our novice riders require lessons

80

00:08:40,540 --> 00:08:46,380

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

81

00:08:55,900 --> 00:08:58,620

Once in the driver's seat Adam discovers

82

00:09:00,220 --> 00:09:02,580

It's surprisingly easy to handle

83

00:09:04,980 --> 00:09:06,980

These haven't way too much fun

84

00:09:07,260 --> 00:09:12,200

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

85

00:09:12,820 --> 00:09:16,620

Could possibly power through a minefield without mishap

86

00:09:19,180 --> 00:09:24,860

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

87

00:09:24,900 --> 00:09:29,420

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

88

00:09:37,740 --> 00:09:45,620

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

89

00:09:45,620 --> 00:10:00,340

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

90

00:10:02,380 --> 00:10:06,060

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

91

00:10:09,020 --> 00:10:12,580

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

92

00:10:15,660 --> 00:10:21,220

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

93

00:10:23,540 --> 00:10:25,540

Coming up on mythbusters

94

00:10:26,220 --> 00:10:28,220

This explosive

95

00:10:30,980 --> 00:10:32,980

Final season spectacular

96

00:10:35,780 --> 00:10:42,460

Turns back the clock hey welcome 1987 and tests the team's limits. Whoo. All right

97

00:10:42,820 --> 00:10:44,820

Of acrobatic ingenuity

98

00:10:54,980 --> 00:10:56,980

Back at the beginning go

99

00:10:58,260 --> 00:11:03,220

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

100

00:11:06,620 --> 00:11:08,620

Or

101

00:11:09,860 --> 00:11:11,860

Often didn't go according to plan

102

00:11:13,100 --> 00:11:20,020

Is my missing an eyebrow over a decade later

103

00:11:21,620 --> 00:11:24,540

And the mythbusters have up the explosive anti

104

00:11:25,420 --> 00:11:26,700

and

105

00:11:26,700 --> 00:11:29,940

covered every combination of tech and target

106

00:11:32,780 --> 00:11:34,780

Except one

107

00:11:35,060 --> 00:11:40,500

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

108

00:11:40,620 --> 00:11:47,260

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

109

00:11:48,300 --> 00:11:50,300

PVC tubing

110

00:11:51,380 --> 00:11:58,980

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

111

00:11:59,620 --> 00:12:01,620

Now they won't blow up

112

00:12:01,820 --> 00:12:04,660

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

113

00:12:04,980 --> 00:12:12,100

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

114

00:12:12,180 --> 00:12:14,180

Person steps on it like 150 pounds

115

00:12:15,780 --> 00:12:22,620

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

116

00:12:22,620 --> 00:12:30,060

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

117

00:12:30,420 --> 00:12:31,860

except for explosives

118

00:12:31,900 --> 00:12:35,460

While Adam makes the housing for the programmable pressure trigger

119

00:12:37,980 --> 00:12:44,860

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

120

00:12:45,900 --> 00:12:52,380

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

121

00:12:53,620 --> 00:12:58,740

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

122

00:12:59,060 --> 00:13:04,380

Right with Jamie's mortar assembled and loaded with fake rubble. It's ready for a demo

123

00:13:10,100 --> 00:13:12,100

That's great looks pretty good to me

124

00:13:14,620 --> 00:13:21,060

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

125

00:13:21,580 --> 00:13:24,780

So here is the function of our mine

126

00:13:24,980 --> 00:13:31,400

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

127

00:13:31,400 --> 00:13:36,220

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

128

00:13:36,980 --> 00:13:38,980

That will work just like a real thing

129

00:13:40,460 --> 00:13:45,460

So while the team mass produces 20 accurate and programmable landmines

130

00:13:47,100 --> 00:13:49,100

It's back to the MacGyver myth

131

00:13:49,580 --> 00:13:52,540

Adam and Jamie want to know if this cement solution is

132

00:13:53,300 --> 00:13:55,300

cinematically scientific

133

00:13:56,060 --> 00:13:58,600

Or a made for TV tall tail

134

00:14:11,220 --> 00:14:14,540

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

135

00:14:15,140 --> 00:14:22,620

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

136

00:14:24,700 --> 00:14:27,620

But we do have a plan B

137

00:14:28,700 --> 00:14:34,780

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

138

00:14:36,140 --> 00:14:42,900

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

far the shrapnel flow

139

00:14:42,900 --> 00:14:46,580

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

140

00:14:48,100 --> 00:14:50,740

First we marked out the more sizable pieces on foot

141

00:14:51,260 --> 00:14:55,620

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

142

00:14:55,860 --> 00:15:02,420

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

143

00:15:02,420 --> 00:15:05,860

Couple of years. This is called a DJI inspire one

144

00:15:06,420 --> 00:15:11,060

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

145

00:15:11,780 --> 00:15:17,540

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

146

00:15:18,500 --> 00:15:20,500

675 feet

147

00:15:21,700 --> 00:15:24,820

That stat replacing the pressure transducer data

148

00:15:27,460 --> 00:15:29,460

Qtruck number two

149

00:15:33,180 --> 00:15:35,740

This is our 84 pounds of dynamite and

150

00:15:35,980 --> 00:15:41,100

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

151

00:15:41,980 --> 00:15:46,140

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

152

00:15:46,860 --> 00:15:49,020

Similar to the shelves in the original clip

153

00:15:49,420 --> 00:15:53,500

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

154

00:15:54,460 --> 00:15:59,660

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

155

00:15:59,980 --> 00:16:05,180

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

156

00:16:07,420 --> 00:16:09,420

MacGyver

157

00:16:10,940 --> 00:16:12,940

I like this one maybe I'm gonna try it out

158

00:16:13,580 --> 00:16:17,820

Our mulleted hero springs into action and perfect right there

159

00:16:18,780 --> 00:16:25,980

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

160

00:16:27,660 --> 00:16:29,500

It's coming out

161

00:16:30,380 --> 00:16:32,780

It looks kind of like a cow taking a dump

162

00:16:37,420 --> 00:16:40,620

It really does look like a cow taking a dump and I've never even seen that

163

00:16:41,980 --> 00:16:47,900

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

164

00:16:50,300 --> 00:16:55,340

Look at the uh back of explosives that came out from under the table

165

00:16:56,220 --> 00:16:57,820

Oh

166

00:16:57,820 --> 00:17:00,300

Despite jamie's precautions. What do we do?

167

00:17:01,580 --> 00:17:07,420

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

168

00:17:08,380 --> 00:17:10,860

It has to be secured and fast

169

00:17:11,580 --> 00:17:13,820

We can cut a bigger hole and crawl through this

170

00:17:15,980 --> 00:17:18,940

Ironically they've got a MacGyver the situation

171

00:17:20,060 --> 00:17:23,900

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

172

00:17:24,300 --> 00:17:27,740

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

173

00:17:29,580 --> 00:17:36,380

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

174

00:17:37,820 --> 00:17:42,140

And there's an unexploded bomb to be manhandled. All right, I'm in

175

00:17:45,980 --> 00:17:47,980

Oh

176

00:17:49,020 --> 00:17:51,900

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

177

00:17:52,700 --> 00:17:56,300

All right, I just remember this is 40 some odd pounds of tnt

178

00:17:57,020 --> 00:17:59,020

Gonna handle it gently

179

00:17:59,340 --> 00:18:01,420

All right to make sure they match the clip

180

00:18:02,380 --> 00:18:03,340

Thank you

181

00:18:03,340 --> 00:18:06,300

The loose bag has to be submerged under the concrete

182

00:18:07,020 --> 00:18:11,500

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

183

00:18:12,460 --> 00:18:14,460

Yeah, you aren't going anywhere

184

00:18:14,540 --> 00:18:18,380

Before escaping with a brand new pair of concrete boots

185

00:18:22,140 --> 00:18:24,140

Oh

186

00:18:24,460 --> 00:18:26,460

Yes

187

00:18:28,140 --> 00:18:30,140

Yes

188

00:18:30,220 --> 00:18:32,220

Nice work Houdini. Thank you

189

00:18:33,020 --> 00:18:36,940

How to escape upside down out of a container full of concrete and explosive

190

00:18:37,900 --> 00:18:44,940

And with that let's clear the area. Let's start pumping MacGyver is back on track to save the day or is he

191

00:18:45,580 --> 00:18:51,100

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

192

00:18:52,860 --> 00:18:58,860

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

193

00:18:59,660 --> 00:19:01,420

Wow

194

00:19:01,420 --> 00:19:03,420

That is a lot of pressure on those doors

195

00:19:04,060 --> 00:19:05,340

It's a lot of mail

196

00:19:05,340 --> 00:19:11,980

In the clip the truck wasn't affected by the extra weight, but in real life. It's only just holding together

197

00:19:12,220 --> 00:19:15,820

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

198

00:19:16,860 --> 00:19:18,860

So where we are right now is that we have just

199

00:19:19,260 --> 00:19:25,660

Just just covered the bomb with concrete and we are working very hard to as the bomb techs would say de-ask the area

200

00:19:26,140 --> 00:19:29,420

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

201

00:19:41,820 --> 00:19:44,780

Hey welcome to 1987 here's the problem

202

00:19:45,660 --> 00:19:49,820

MacGyver is confronted with an 84 pound bomb keep it coming

203

00:19:50,460 --> 00:19:54,300

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

204

00:19:59,020 --> 00:20:01,020

The question we want to answer is

205

00:20:01,660 --> 00:20:07,340

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

206

00:20:08,300 --> 00:20:14,460

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

207

00:20:15,100 --> 00:20:20,220

Three like there's a boom and the truck jumps. There's a little fire and that's it two

208

00:20:21,020 --> 00:20:23,580

That would be the most ideal outcome one

209

00:20:27,020 --> 00:20:29,020

Wow

210

00:20:32,780 --> 00:20:36,300

That totally went up and all the dummies are standing

211

00:20:42,060 --> 00:20:44,060

It worked

212

00:20:45,740 --> 00:20:48,060

That were gang blusters it did

213

00:20:49,180 --> 00:20:55,260

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

214

00:20:56,620 --> 00:20:59,420

That is amazing. I'm completely blown away

215

00:21:00,620 --> 00:21:04,060

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

216

00:21:05,020 --> 00:21:13,420

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

217

00:21:13,740 --> 00:21:20,300

Most of it appears to have been absorbed by the mass of the concrete it it just absorbed it

218

00:21:21,820 --> 00:21:27,340

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

219

00:21:28,380 --> 00:21:31,980

After inspecting the onlookers the news keeps on getting better

220

00:21:32,860 --> 00:21:39,420

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

221

00:21:39,580 --> 00:21:48,380

Yep, every single one of them is still standing. That was incredible

222

00:21:49,980 --> 00:21:53,100

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

223

00:21:54,140 --> 00:21:55,740

but

224

00:21:55,740 --> 00:22:00,300

Oh shoot a couple of unexploded sticks of tnt there

225

00:22:00,860 --> 00:22:08,780

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

226

00:22:09,020 --> 00:22:14,220

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

227

00:22:14,540 --> 00:22:19,900

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

228

00:22:21,420 --> 00:22:27,980

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

229

00:22:28,460 --> 00:22:30,460

off of this mail van

230

00:22:30,540 --> 00:22:32,540

Stop stop

231

00:22:32,620 --> 00:22:36,860

And that's when we found another garbage bag full of unexploded dynamite

232

00:22:37,740 --> 00:22:39,740

Is that the other bag? Yep

233

00:22:40,300 --> 00:22:46,940

Our best guess is that we detonated two sticks of dynamite. That's not the blast we were looking for so

234

00:22:47,580 --> 00:22:50,540

Here's what we've got to do. We have to come up with a methodology for making

235

00:22:51,260 --> 00:22:56,220

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

236

00:22:56,220 --> 00:22:57,980

We are going to implement it

237

00:22:57,980 --> 00:23:02,860

Bring back in a cement truck fill another mail truck with cement and try this for real

238

00:23:03,660 --> 00:23:07,020

Come on up on mythbusters. We test deja vu all over again

239

00:23:09,180 --> 00:23:11,980

While the guys get set to fix their MacGyver missteps

240

00:23:12,620 --> 00:23:17,180

Over at Alameda, it's time to lay the minefield for their hovercraft to cross

241

00:23:17,980 --> 00:23:22,220

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

242

00:23:22,780 --> 00:23:26,940

This is not testing whether we can invade these mines. This is testing

243

00:23:27,420 --> 00:23:30,460

What happens when we go over them with the hovercraft?

244

00:23:30,780 --> 00:23:36,780

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

245

00:23:37,660 --> 00:23:44,460

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

246

00:23:48,380 --> 00:23:50,380

Now can janey dig it?

247

00:23:54,380 --> 00:23:56,380

Yes, he can

248

00:23:57,340 --> 00:24:00,700

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

249

00:24:02,300 --> 00:24:04,300

Beautiful

250

00:24:04,780 --> 00:24:09,020

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

251

00:24:09,580 --> 00:24:15,820

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

252

00:24:16,300 --> 00:24:18,860

Our mines are not autonomous mines, right?

253

00:24:18,860 --> 00:24:25,020

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

254

00:24:25,820 --> 00:24:28,860

Allow me to introduce you to our mines. Yes

255

00:24:29,660 --> 00:24:34,300

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

256

00:24:34,940 --> 00:24:39,580

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

257

00:24:39,900 --> 00:24:43,660

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

258

00:24:45,100 --> 00:24:49,740

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

259

00:24:51,340 --> 00:24:53,340

Adam

260

00:24:55,340 --> 00:24:57,340

Decides to test drive the hovercraft

261

00:25:00,140 --> 00:25:02,140

One or two

262

00:25:03,740 --> 00:25:07,660

Or six or seven more times

263

00:25:14,140 --> 00:25:19,660

I keep waiting for janey to come on over and go stop screwing around i'm doing all this digging

264

00:25:19,740 --> 00:25:23,420

It's time to get to work. I'll be like i am working walrus

265

00:25:25,020 --> 00:25:30,940

Hovercraft high jinx aside laying this high tech minefield is a mammoth two-day undertaking

266

00:25:37,340 --> 00:25:40,940

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

267

00:25:41,020 --> 00:25:44,860

We've spent a couple of days now digging pressurizing mining

268

00:25:44,940 --> 00:25:50,620

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

269

00:25:50,700 --> 00:25:54,380

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

270

00:25:54,860 --> 00:25:58,780

The mines they are activated by a small pressure transducer that acts like a scale

271

00:25:58,860 --> 00:26:06,540

And we can have it set off the mine at whatever pressure we decide and when they're activated these fancy mortars that we bury go poo

272

00:26:08,220 --> 00:26:12,940

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

273

00:26:12,940 --> 00:26:19,100

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

274

00:26:19,260 --> 00:26:23,580

Which our honorary myth buster and electronics and metering specialist david hearting claims

275

00:26:23,980 --> 00:26:27,820

Will allow us to adjust our minds to be set off by any pressure that we choose

276

00:26:28,380 --> 00:26:31,340

And to find out if their complicated setup is working

277

00:26:31,740 --> 00:26:36,700

They're first testing it on foot cue the designated dead man walking

278

00:26:37,340 --> 00:26:41,100

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

279

00:26:41,420 --> 00:26:46,780

I'm going to walk this minefield blindfolded while being guided to doom by mr. Heineman

280

00:26:47,260 --> 00:26:49,260

Don't worry. I'll watch your step

281

00:26:55,100 --> 00:27:00,380

All right, okay david armed the system system is armed

282

00:27:01,820 --> 00:27:07,340

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

283

00:27:07,900 --> 00:27:13,180

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

284

00:27:14,140 --> 00:27:16,140

This is weird

285

00:27:16,940 --> 00:27:19,660

I gotta say I uh know this is totally safe

286

00:27:20,220 --> 00:27:26,300

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

287

00:27:35,740 --> 00:27:37,900

I'll guarantee your right a little bit

288

00:27:43,180 --> 00:27:45,180

Oh

289

00:28:00,380 --> 00:28:07,340

All right, okay, there's just a flesh one the minefield is scarily accurate and completely safe

290

00:28:13,500 --> 00:28:15,500

There goes the leg

291

00:28:17,420 --> 00:28:20,620

And when adam recovers from his gruesome fake death

292

00:28:23,580 --> 00:28:25,980

They can reset the field for vehicles

293

00:28:36,300 --> 00:28:42,540

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

294

00:28:43,900 --> 00:28:45,180

Woo

295

00:28:45,180 --> 00:28:49,100

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

296

00:28:49,420 --> 00:28:53,420

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

297

00:28:53,580 --> 00:28:56,460

Some are set off by electromagnetism some by vibration

298

00:28:56,540 --> 00:29:01,420

But the most common of all mines is set off by pressure. That's the kind we decided to go

299

00:29:02,140 --> 00:29:03,660

Oh

300

00:29:03,660 --> 00:29:06,860

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

301

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

Oh

302

00:29:10,700 --> 00:29:12,300

Oh, you big baby

303

00:29:12,300 --> 00:29:18,380

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

304

00:29:19,580 --> 00:29:26,780

And prepares for a control comparison. All right, david. So we set the mines to 300 pounds. All right 300 pounds excellent

305

00:29:27,820 --> 00:29:34,620

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

306

00:29:35,020 --> 00:29:40,060

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

307

00:29:41,420 --> 00:29:43,420

All right, jayme you ready

308

00:29:43,500 --> 00:29:45,020

Starting the engine

309

00:29:45,020 --> 00:29:50,540

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

310

00:29:51,180 --> 00:29:56,700

Commence the vehicle mine setting test in three two one go

311

00:29:59,020 --> 00:30:02,060

The jeep weighs in at just over 3 000 pounds

312

00:30:06,860 --> 00:30:08,380

There goes one

313

00:30:08,380 --> 00:30:11,660

And one quarter of its weight 750 pounds

314

00:30:13,500 --> 00:30:19,100

Is focused through the relatively small contact area of each tire easily setting off

315

00:30:19,580 --> 00:30:22,620

Get my car dusty any of the mines they cross

316

00:30:23,980 --> 00:30:29,100

Now in the case of the hovercraft not all of its weight is concentrated into one small area

317

00:30:29,340 --> 00:30:32,940

Well, that worked quite well, didn't it? I guess now it's time for the hovercraft

318

00:30:33,580 --> 00:30:38,940

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

319

00:30:39,340 --> 00:30:41,340

Enough to set off one of these mines

320

00:30:43,340 --> 00:30:46,940

My prediction is that the hovercraft is going to make it just fine

321

00:30:47,180 --> 00:30:50,700

Even though it weighs fully loaded with the person over 600 pounds

322

00:30:51,020 --> 00:30:56,940

I don't see it exerting 300 pounds down on its underskirt. It's just I don't it's not going to happen

323

00:30:57,900 --> 00:31:05,100

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

324

00:31:05,740 --> 00:31:12,060

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

325

00:31:14,300 --> 00:31:16,300

Oh, yeah

326

00:31:17,740 --> 00:31:19,500

Yeah

327

00:31:19,500 --> 00:31:22,460

It didn't set up a thing that was awesome. Yeah

328

00:31:23,420 --> 00:31:26,620

That was smooth explosion-free sailing

329

00:31:27,180 --> 00:31:28,940

Oh, yeah

330

00:31:28,940 --> 00:31:32,940

The s-curve layout ensured janey crossed a majority of the mines

331

00:31:33,660 --> 00:31:41,500

But not a single one went boom. Yeah, you want to come back around for a second run on my way?
Maybe a little slower this time

332

00:31:46,380 --> 00:31:48,380

Yeah

333

00:31:48,940 --> 00:31:56,300

Despite reducing speed giving the mines more time to register the passing hovercraft the hinderman gets away unharmed

334

00:31:57,580 --> 00:31:59,820

Not a thing that was beautiful

335

00:32:01,180 --> 00:32:03,180

Yeah

336

00:32:04,300 --> 00:32:09,820

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

337

00:32:12,380 --> 00:32:14,380

The hovercraft not so much

338

00:32:18,060 --> 00:32:21,660

I was right. I like being right every now and then

339

00:32:21,660 --> 00:32:29,900

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

340

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

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

341

00:32:34,540 --> 00:32:35,980

A car tire

342

00:32:35,980 --> 00:32:37,980

Those are point sources of pressure

343

00:32:38,140 --> 00:32:45,660

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

344

00:32:45,980 --> 00:32:48,300

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

345

00:32:49,180 --> 00:32:53,500

That's why it is the perfect craft for making its way across a minefield

346

00:32:54,380 --> 00:32:56,620

But it still weighs 600 pounds

347

00:32:58,380 --> 00:33:04,460

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

348

00:33:04,860 --> 00:33:09,260

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

349

00:33:09,340 --> 00:33:15,900

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

350

00:33:16,700 --> 00:33:19,580

Okay, adam you're good to go

351

00:33:20,380 --> 00:33:24,460

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

352

00:33:25,500 --> 00:33:30,140

Set the anti-personnel setting in three two here we go

353

00:33:45,980 --> 00:33:50,300

Same thing no mine action. Yeah, that is awesome

354

00:33:51,900 --> 00:33:56,700

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

355

00:33:57,900 --> 00:34:04,540

Adam then does his best to linger with several 360s. Yeah, can you hold it in one spot?

356

00:34:09,900 --> 00:34:14,060

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

357

00:34:16,620 --> 00:34:18,620

Ha ha ha ha

358

00:34:21,500 --> 00:34:24,940

At this point it's looking mighty good for this myth, but are we done?

359

00:34:25,740 --> 00:34:27,740

Come on, you know us

360

00:34:28,060 --> 00:34:32,700

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

361

00:34:33,100 --> 00:34:35,660

So we've set this to go off at five pounds

362

00:34:36,380 --> 00:34:38,380

The easter bunny could set this off

363

00:34:39,100 --> 00:34:41,100

Ha ha

364

00:34:44,060 --> 00:34:47,900

Okay, here we go, it's the ultimate test for this myth

365

00:34:48,700 --> 00:34:54,460

The Heinemann and hovercraft are 120 times heavier than each mine's threshold

366

00:34:58,940 --> 00:35:02,640

But once again they float serenely across unharmed

367

00:35:09,020 --> 00:35:14,060

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

368

00:35:14,700 --> 00:35:16,700

Well, the answer is in the numbers

369

00:35:16,860 --> 00:35:24,060

If you divide the weight of the hovercraft by the contact area you get about 0.06 pounds per square inch of downward pressure

370

00:35:24,460 --> 00:35:27,020

So there's not nearly enough pressure per square inch

371

00:35:31,420 --> 00:35:37,020

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

372

00:35:37,180 --> 00:35:45,820

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

373

00:35:53,740 --> 00:35:56,220

How am I supposed to get out of this minefield?

374

00:36:03,100 --> 00:36:06,380

Coming up on this explosive final season farewell

375

00:36:06,780 --> 00:36:09,500

84 pounds of dynamite 185 pounds of pure man

376

00:36:10,540 --> 00:36:13,660

Jamie brings the big boom one go

377

00:36:15,180 --> 00:36:17,180

Yep

378

00:36:21,100 --> 00:36:25,980

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

379

00:36:28,540 --> 00:36:30,540

Synonymous with the show

380

00:36:30,540 --> 00:36:33,500

The teams racked up an impressive number of countdowns

381

00:36:34,460 --> 00:36:36,460

920 of them

382

00:36:38,460 --> 00:36:46,300

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

383

00:36:48,060 --> 00:36:50,060

And the biggest

384

00:36:51,740 --> 00:36:59,660

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

385

00:37:03,500 --> 00:37:05,500

So

386

00:37:27,020 --> 00:37:29,020

Looks good. All right

387

00:37:29,340 --> 00:37:35,260

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

388

00:37:37,100 --> 00:37:42,540

Unexploded tnt there and in the process have had a few of our own MacGyver moments

389

00:37:43,740 --> 00:37:48,620

Yes, that's a male truck inside of it 84 pounds of dynamite any minute now

390

00:37:49,820 --> 00:37:51,820

We're gonna find out just how MacGyver we are

391

00:37:52,460 --> 00:37:56,620

But first this time they got to ensure everything goes boom

392

00:37:56,940 --> 00:38:02,780

The last time we had some bundles of dynamite that were sitting underneath a table. Well, it didn't work so well

393

00:38:03,740 --> 00:38:07,500

Our best guess is that we detonated two sticks of dynamite

394

00:38:08,380 --> 00:38:12,460

This time around i'm going to be putting our dynamite inside a box

395

00:38:12,540 --> 00:38:16,940

It's made out of one inch plywood and it's going to be completely sealed and anchored

396

00:38:17,660 --> 00:38:19,660

It's going to work this time

397

00:38:20,060 --> 00:38:23,260

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

398

00:38:23,980 --> 00:38:25,980

Oh

399

00:38:26,300 --> 00:38:28,300

That's our package

400

00:38:28,940 --> 00:38:33,500

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

401

00:38:33,820 --> 00:38:39,500

84 pounds of dynamite 185 pounds of pure man on the other hand. There's something known as water hammer

402

00:38:39,740 --> 00:38:44,220

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

403

00:38:44,780 --> 00:38:48,620

Hydraulic shock to the plumbing which can actually rupture it. Ha ha ha ha

404

00:38:49,340 --> 00:38:50,940

That is beautiful

405

00:38:50,940 --> 00:38:57,980

Now this concrete could deliver something like a water hammer to the exterior of the truck and busted up really efficiently

406

00:38:58,300 --> 00:38:59,980

There we go

407

00:38:59,980 --> 00:39:06,780

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

408

00:39:07,660 --> 00:39:08,860

That's it

409

00:39:08,860 --> 00:39:10,860

Let's cap in get out of here. Okay

410

00:39:11,820 --> 00:39:15,820

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

411

00:39:17,260 --> 00:39:19,740

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

412

00:39:20,940 --> 00:39:25,180

But they're primed to finally find out if magaibur's quick thinking cement solution

413

00:39:26,780 --> 00:39:28,780

Would have saved the situation

414

00:39:29,020 --> 00:39:33,740

This is magaibur mail truck filled with cement and 84 pounds of dynamite

415

00:39:35,340 --> 00:39:37,340

And three

416

00:39:37,740 --> 00:39:39,740

two

417

00:39:39,980 --> 00:39:41,980

One go

418

00:39:46,140 --> 00:39:48,140

It made a jet straight up

419

00:39:51,180 --> 00:39:53,180

That was a thud

420

00:40:06,540 --> 00:40:08,540

Truck's all gone

421

00:40:11,900 --> 00:40:14,380

The truck was completely destroyed

422

00:40:15,020 --> 00:40:17,020

Well, there's your problem

423

00:40:17,020 --> 00:40:22,860

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

424

00:40:23,980 --> 00:40:28,380

This is really interesting. Jamie and that first blast there was a shock wave

425

00:40:32,140 --> 00:40:35,180

And it knocked all the legs of our shrapnel catchers off

426

00:40:36,060 --> 00:40:38,620

But i'm looking at the shrapnel catchers that are nearby

427

00:40:39,180 --> 00:40:45,180

They're mostly intact. So i'm going to go out on a limb and say there was not a significant shock wave emanating out

428

00:40:45,180 --> 00:40:49,420

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

429

00:40:51,740 --> 00:40:53,740

This is interesting

430

00:40:55,100 --> 00:40:59,180

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

431

00:40:59,580 --> 00:41:05,660

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

432

00:41:05,820 --> 00:41:07,820

It's less than half the size of the control

433

00:41:09,820 --> 00:41:11,820

And it makes sense if you think about it

434

00:41:11,820 --> 00:41:18,780

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

435

00:41:19,820 --> 00:41:23,420

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

436

00:41:25,260 --> 00:41:27,260

They were peppered

437

00:41:28,860 --> 00:41:32,380

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

438

00:41:34,140 --> 00:41:40,460

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

439

00:41:40,540 --> 00:41:47,180

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

440

00:41:47,820 --> 00:41:49,820

found the back door

441

00:41:50,220 --> 00:41:52,220

This one's pretty easy to call

442

00:41:56,540 --> 00:42:03,420

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

443

00:42:03,900 --> 00:42:06,620

Did it protect people in the vicinity?

444

00:42:07,180 --> 00:42:08,060

Not at all

445

00:42:08,060 --> 00:42:11,340

No, does it match the clip that we saw on the tv show?

446

00:42:12,140 --> 00:42:16,460

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

447

00:42:21,660 --> 00:42:26,060

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

