

1

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

Give me that.

2

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

Yeah, my turn.

3

00:01:13,000 --> 00:01:15,000

I didn't even think that was possible.

4

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

Why is he here?

5

00:01:46,000 --> 00:01:49,000

I don't know, but I would just get on with it.

6

00:01:49,000 --> 00:01:54,000

So, I could be mistaken, but I'm getting the sense that we're doing something with guns?

7

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

You are totally right.

8

00:01:55,000 --> 00:02:02,000

Specifically shooters with seemingly supernatural abilities with guns.

9

00:02:02,000 --> 00:02:11,000

Later on, we've got a story about a guy who fires bullets that he holds in his hand while he holds his hand in a fire.

10

00:02:11,000 --> 00:02:13,000

So, the bullets are like between his fingers?

11

00:02:13,000 --> 00:02:20,000

Exactly, but first up, we have a sort of a classic movie hitman trope in which hitman is tracking his guy.

12

00:02:20,000 --> 00:02:24,000

His guy goes behind the wall, but it turns out to be no barrier for the hitman.

13

00:02:24,000 --> 00:02:28,000

He knows where he is, tracks him, shoots through the wall, and right through his prey.

14

00:02:28,000 --> 00:02:33,000

So, we want to find out whether or not a bullet would go through a wall easily,

15

00:02:33,000 --> 00:02:37,000

and whether you can actually track somebody behind the wall without seeing them.

16

00:02:37,000 --> 00:02:42,000

Exactly. I've been wanting to do this story for so long, it is going to be awesome.

17

00:02:42,000 --> 00:02:55,000

Now, when we're talking about shooting through walls, the word wall could mean many, many different things

18

00:02:55,000 --> 00:02:58,000

based on when and where the building you're in was actually constructed.

19

00:02:58,000 --> 00:03:00,000

Ah, too big, too big.

20

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

The walls could be made of different materials, and they could have lots of different things inside them.

21

00:03:05,000 --> 00:03:06,000

Starting to look like something.

22

00:03:06,000 --> 00:03:09,000

We want a broad representation of walls to shoot at.

23

00:03:09,000 --> 00:03:13,000

So, I've assembled all the materials walls have been built out of over the last hundred years.

24

00:03:13,000 --> 00:03:16,000

The house I grew up in was all lath and plaster.

25

00:03:16,000 --> 00:03:18,000

Ah, the old crafts.

26

00:03:18,000 --> 00:03:22,000

As well as a lot of the things, electrical boxes, insulation.

27

00:03:22,000 --> 00:03:23,000

I hate fiberglass insulation.

28

00:03:23,000 --> 00:03:27,000

Wiring and plumbing that you'd find inside those walls.

29

00:03:27,000 --> 00:03:31,000

Hey, that's awesome, it fits. When does that ever happen?

30

00:03:31,000 --> 00:03:38,000

With this, we should be able to make the targets that we need to find out just how bulletproof or not walls actually might be.

31

00:03:38,000 --> 00:03:40,000

Almost ready for shooting.

32

00:03:41,000 --> 00:03:44,000

Now it's ready for shooting, and so am I.

33

00:03:44,000 --> 00:03:51,000

Decided to come in costume as the man in black, the man of mystery, the man you don't want to see at your doorstep.

34

00:03:53,000 --> 00:03:56,000

Normally when we're using guns, we come to a firing range.

35

00:03:58,000 --> 00:04:05,000

But because we're going to be firing into walls, these bullets may behave well unpredictably.

36

00:04:05,000 --> 00:04:06,000

I think it looks pretty good.

37

00:04:06,000 --> 00:04:13,000

So instead of using the normal targeting range, we're going to go off to one end where we can safely control what happens.

38

00:04:15,000 --> 00:04:20,000

It's time to introduce you to the ammunition and pistol we'll be using today for the experiment.

39

00:04:20,000 --> 00:04:23,000

The bullets we'll be firing are standard high velocity hollow point rounds.

40

00:04:23,000 --> 00:04:30,000

They'll be fired from a standard double action nine millimeter pistol used by the military and law enforcement of the world over.

41

00:04:30,000 --> 00:04:33,000

And also a staple of action movie heroes.

42

00:04:33,000 --> 00:04:34,000

Here we go.

43

00:04:36,000 --> 00:04:52,000

And you know that's true because you heard it from the hitman.

44

00:04:52,000 --> 00:04:53,000

Did I pull that off?

45

00:04:55,000 --> 00:05:05,000

The panel will be shooting into is composed of the kinds of things that you would find in a standard wall from sheet rock to a solid wood stud sheet metal stud.

46

00:05:05,000 --> 00:05:09,000

Sections with plumbing fixtures and lastly an electrical box.

47

00:05:09,000 --> 00:05:13,000

Now we'll be firing bullets out of this nine millimeter pistol into those sections.

48

00:05:13,000 --> 00:05:15,000

I guess that ought to do it.

49

00:05:15,000 --> 00:05:20,000

Of course for safety, we'll be triggering this from behind the blast shields.

50

00:05:21,000 --> 00:05:23,000

Now we don't just want to shoot at walls.

51

00:05:23,000 --> 00:05:26,000

We also want to witness what happens when the bullet and the wall meet.

52

00:05:26,000 --> 00:05:31,000

Thus we've set our high speed camera perched carefully above looking down through the inside of the wall.

53

00:05:31,000 --> 00:05:36,000

We've also chosen an extremely high frame rate of 17,000 frames per second.

54

00:05:36,000 --> 00:05:39,000

That's one of the highest frame rates we've ever used on the show.

55

00:05:39,000 --> 00:05:43,000

All will be known by this ring.

56

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

And with a steel backstop.

57

00:05:45,000 --> 00:05:47,000

It makes a cool noise when a bullet hits it.

58

00:05:47,000 --> 00:05:51,000

There's six in one interior wall mockup is ready to go.

59

00:05:51,000 --> 00:05:55,000

Will any of them halt a Hollywood hitman?

60

00:05:55,000 --> 00:05:57,000

First up a blast from the past.

61

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

Laugh and plaster.

62

00:05:59,000 --> 00:06:04,000

I actually think the laugh and plaster is going to do pretty good in slowing the forward progress of the bullet.

63

00:06:04,000 --> 00:06:05,000

Range is hot.

64

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

Whether it stops completely, I can't say.

65

00:06:07,000 --> 00:06:08,000

Count it down.

66

00:06:08,000 --> 00:06:11,000

But I do think it's going to provide a nice bury.

67

00:06:11,000 --> 00:06:18,000

Okay, nine millimeter into laugh and plaster in three, two, one.

68

00:06:18,000 --> 00:06:31,000

Well, it did the classic small entry wound, larger exit wound, but it looks like it came out pretty straight.

69

00:06:31,000 --> 00:06:39,000

With a bullet's trajectory unaffected and the velocity hardly hindered,

70

00:06:39,000 --> 00:06:44,000

the oldie wall would have provided no protection for our hitman's hidden target.

71

00:06:44,000 --> 00:06:47,000

And that sounds good for the myth.

72

00:06:47,000 --> 00:06:50,000

It would have made a resounding clang when it hit this backstop.

73

00:06:50,000 --> 00:06:54,000

I guess that means that you would probably get penetrated by that bullet.

74

00:06:54,000 --> 00:06:55,000

Up next.

75

00:06:55,000 --> 00:06:57,000

All right, let's slide this puppy down.

76

00:06:57,000 --> 00:07:01,000

Will this more modern eco-friendly fortification fare any better?

77

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

This test is against two layers of drywall.

78

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

Range is high with about three and a half inches of fiberglass insulation between them.

79

00:07:10,000 --> 00:07:11,000

Nice.

80

00:07:11,000 --> 00:07:14,000

Right through the square, heard the ding of the steel.

81

00:07:14,000 --> 00:07:16,000

Couldn't have gone better.

82

00:07:17,000 --> 00:07:19,000

More good news for the myth.

83

00:07:19,000 --> 00:07:29,000

Two targets taken down and no sign the bullet has been significantly slowed or in any way altered.

84

00:07:29,000 --> 00:07:31,000

Love that sound.

85

00:07:31,000 --> 00:07:39,000

A result replicated when the sheet metal and wooden studs are also found to be duds.

86

00:07:39,000 --> 00:07:41,000

But now it gets interesting.

87

00:07:41,000 --> 00:07:45,000

Next up is the first time our bullets are going to encounter an actual object inside the wall,

88

00:07:45,000 --> 00:07:47,000

and that is copper plumbing.

89

00:07:47,000 --> 00:07:49,000

We're going to hit it right there.

90

00:07:49,000 --> 00:07:52,000

And this is the reason for all of our safety shields.

91

00:07:52,000 --> 00:07:55,000

The bullet could spatter in a lot of different directions when it hits this.

92

00:07:55,000 --> 00:07:59,000

Firing in three, two, one.

93

00:07:59,000 --> 00:08:07,000

Oh, that looks like a perfect hit.

94

00:08:07,000 --> 00:08:09,000

A perfect hit through and through.

95

00:08:09,000 --> 00:08:13,000

With the bullets trajectory and speed only marginally affected,

96

00:08:13,000 --> 00:08:18,000

the myth that a hit man can hit his hidden target is still looking good.

97

00:08:18,000 --> 00:08:21,000

But what about the toughest target yet?

98

00:08:21,000 --> 00:08:24,000

A steel junction box.

99

00:08:24,000 --> 00:08:26,000

Oh!

100

00:08:31,000 --> 00:08:32,000

Oh, yes!

101

00:08:32,000 --> 00:08:37,000

Oh, you're going to love this.

102

00:08:37,000 --> 00:08:43,000

The whole story of the bullets stoppage is apparent in this one shot, which we will cut to right.

103

00:08:46,000 --> 00:08:53,000

It took a solid piece of steel in exactly the right place to halt the bullet's momentum and disperse its kinetic energy.

104

00:08:53,000 --> 00:08:57,000

But clearly, this is the exception and not the rule.

105

00:08:57,000 --> 00:08:59,000

The myth is on track.

106

00:08:59,000 --> 00:09:04,000

I have to say I'm pretty surprised at the results that only one of our in-wall obstacles, the electrical box,

107

00:09:04,000 --> 00:09:08,000

actually stopped the bullet called the rest made it through.

108

00:09:08,000 --> 00:09:13,000

Now what that means for the myth is walls are okay to shoot through if you're a hit man.

109

00:09:13,000 --> 00:09:17,000

From my vantage point, it's looking pretty good for the myth.

110

00:09:20,000 --> 00:09:27,000

And so it's back to the shop where our hard to please professional is waiting for an update.

111

00:09:27,000 --> 00:09:28,000

So is that it?

112

00:09:28,000 --> 00:09:32,000

No, no, no. We actually have a few more tests to do before we finally call shooting through walls,

113

00:09:32,000 --> 00:09:34,000

but we're now jumping to the second story in this episode.

114

00:09:34,000 --> 00:09:36,000

It's from a movie called Shoot Him Out.

115

00:09:36,000 --> 00:09:39,000

I am dead on about who you are, right?

116

00:09:39,000 --> 00:09:41,000

Say that again.

117

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

I said I am dead.

118

00:09:44,000 --> 00:09:45,000

Stop.

119

00:09:45,000 --> 00:09:47,000

That part of it you got right.

120

00:09:47,000 --> 00:09:52,000

At the end of the movie, our hero is cornered. It looks like he is dead. He doesn't even have a gun.

121

00:09:52,000 --> 00:09:57,000

But what the bad guy doesn't know is that the hero has a handful of bullets shoved between his fingers.

122

00:09:57,000 --> 00:10:00,000

He thrusts his hand into the fire and two seconds later,

123

00:10:03,000 --> 00:10:05,000

no more bad guy.

124

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

What was that?

125

00:10:12,000 --> 00:10:14,000

We were reenacting the movie.

126

00:10:14,000 --> 00:10:19,000

Oh, wait. What we want to find out is one, can bullets go off that fast in a fire?

127

00:10:19,000 --> 00:10:22,000

Two, if they can, could you aim them?

128

00:10:22,000 --> 00:10:24,000

And three, are they remotely lethal?

129

00:10:24,000 --> 00:10:28,000

So which one of you geniuses is going to stick his hand in the fire?

130

00:10:28,000 --> 00:10:32,000

Well, we haven't thought that far ahead yet.

131

00:10:32,000 --> 00:10:36,000

Well, whatever. I've got a plane to catch.

132

00:10:37,000 --> 00:10:39,000

Shall we start testing?

133

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

Sure.

134

00:10:41,000 --> 00:10:50,000

For that, Adam and Jamie hit their all-time favorite location to cause a commotion.

135

00:10:50,000 --> 00:10:51,000

Lots of goats.

136

00:10:51,000 --> 00:10:54,000

They don't seem to mind the fact that my jacket is made out of them.

137

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

To set off this myth, the first item on the menu is a controlled fire.

138

00:11:01,000 --> 00:11:06,000

Even a simple fire can be fraught with difficulties and dangers that are unforeseen.

139

00:11:06,000 --> 00:11:10,000

That's why one, we've come out here to the Alleywood County Sheriff's bomb range to set this fire.

140

00:11:10,000 --> 00:11:16,000

Two, we've put it in a barbecue and three, Jamie and I are wearing all the proper safety equipment

to make sure nothing gets out of control.

141

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

Safety is always of the first priority to us. We don't like to let anything get out of control.

142

00:11:21,000 --> 00:11:24,000

All right, that's more like it. That's a nice little fire.

143

00:11:24,000 --> 00:11:30,000

After the flames have died down, it's time to get cooking and they're starting out hands-free.

144

00:11:30,000 --> 00:11:36,000

But they're also playing it safe. The single round being baked has had the projectile removed.

145

00:11:36,000 --> 00:11:42,000

The empty case and primer will react to the heat, but no one's in danger of being shot.

146

00:11:42,000 --> 00:11:46,000

Yet, question is, will the ignition match the movie?

147

00:11:46,000 --> 00:11:51,000

Now there are three things that we will be testing in this fire test with the bullet shell casings.

148

00:11:51,000 --> 00:11:52,000

You ready to do this?

149

00:11:52,000 --> 00:11:53,000

Yeah.

150

00:11:53,000 --> 00:11:55,000

One is, will the shell casing go off in the fire?

151

00:11:55,000 --> 00:11:59,000

Two, will it go off exactly where our hero is holding his hand in the film clip?

152

00:11:59,000 --> 00:12:03,000

He holds his hand just about three inches above the logs, right in there.

153

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

And three, will it go off in two seconds?

154

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

Okay, shell casing test in three, two, one.

155

00:12:17,000 --> 00:12:19,000

That's longer than two seconds.

156

00:12:19,000 --> 00:12:20,000

Five.

157

00:12:21,000 --> 00:12:26,000

We know that the chemical in the bullet primer ignites at about 300 degrees or above.

158

00:12:26,000 --> 00:12:27,000

Fifteen.

159

00:12:27,000 --> 00:12:29,000

That's just where he was holding his hand.

160

00:12:29,000 --> 00:12:37,000

But the thing is, it's surrounded by metal, and that metal is insulating it from the 1500 degree plus heat in the fire.

161

00:12:39,000 --> 00:12:40,000

Twenty.

162

00:12:40,000 --> 00:12:42,000

Jeez, I'm crowded.

163

00:12:43,000 --> 00:12:44,000

Twenty-five.

164

00:12:44,000 --> 00:12:46,000

It's right in the fire.

165

00:12:46,000 --> 00:12:52,000

Now, eventually the metal does heat up, and it gets that primer to its 300 degree plus.

166

00:12:52,000 --> 00:12:53,000

There it goes.

167

00:12:53,000 --> 00:12:54,000

And it goes off.

168

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

Forty-three seconds.

169

00:12:57,000 --> 00:12:58,000

Forty-three seconds.

170

00:12:58,000 --> 00:13:01,000

That's a lot.

171

00:13:01,000 --> 00:13:04,000

It did go off, but it took its sweet time.

172

00:13:05,000 --> 00:13:08,000

Time our Hollywood hero would not have had.

173

00:13:09,000 --> 00:13:11,000

But Adam and Jamie aren't giving up.

174

00:13:11,000 --> 00:13:15,000

Up next, it's go big, but not at home.

175

00:13:24,000 --> 00:13:26,000

The movie, shoot him up.

176

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

Looks like it's being shot down.

177

00:13:35,000 --> 00:13:40,000

Well, the results of our movie parameter test are in, and the two-second time is totally out.

178

00:13:41,000 --> 00:13:42,000

Forty-three seconds.

179

00:13:42,000 --> 00:13:46,000

The fire gets a lot hotter inside among the hot coals.

180

00:13:46,000 --> 00:13:51,000

I think we should do another test to find out if there's any place in this fire where we can get the bullet to go off in two seconds.

181

00:13:51,000 --> 00:13:53,000

And frankly, I predict we totally will.

182

00:13:54,000 --> 00:13:57,000

So for test two, Jamie stokes the fire.

183

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

Mommy, I don't like barbecues at Jamie's house.

184

00:13:59,000 --> 00:14:07,000

Because this time they're baking the bullet deep among the coals, a temperature differential from test one of 800 degrees.

185

00:14:07,000 --> 00:14:08,000

All right, sir, you ready?

186

00:14:08,000 --> 00:14:09,000

I'm ready.

187

00:14:09,000 --> 00:14:10,000

I'm going all the way in this time.

188

00:14:10,000 --> 00:14:12,000

Looking for the hot spot.

189

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

Looking for something close to two seconds.

190

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

Three, two, one.

191

00:14:19,000 --> 00:14:20,000

Two.

192

00:14:22,000 --> 00:14:29,000

Four, five, six, seven, eight, nine, ten.

193

00:14:31,000 --> 00:14:33,000

Those didn't sound like regular seconds.

194

00:14:33,000 --> 00:14:35,000

What kind of seconds were you counting there?

195

00:14:35,000 --> 00:14:39,000

Two, four, five, six, seven, eight, nine, ten.

196

00:14:40,000 --> 00:14:41,000

What kind of seconds are those?

197

00:14:42,000 --> 00:14:43,000

Who counts like that?

198

00:14:44,000 --> 00:14:45,000

What was the time?

199

00:14:46,000 --> 00:14:47,000

Ten seconds.

200

00:14:47,000 --> 00:14:48,000

Ten seconds.

201

00:14:49,000 --> 00:14:56,000

I think we've definitively proven that there's no way a bullet is going to go off in that fire in two seconds flat.

202

00:14:56,000 --> 00:14:57,000

Yeah.

203

00:14:57,000 --> 00:15:00,000

I mean, it will go off, but not in two seconds.

204

00:15:01,000 --> 00:15:12,000

Even exposed to the hottest heart of the fire, at temperatures no human hand could survive, the primer did not reach its flash point in anything like the time it took in the movie.

205

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

I think we could use a hand on this story.

206

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

But although one facet of this film fable is an obvious fiction, the guys aren't done yet.

207

00:15:21,000 --> 00:15:26,000

Well, it's true that the timing of the hand in fire is busted.

208

00:15:26,000 --> 00:15:31,000

Nevertheless, I've got to find out whether bullets fired in that manner are both accurate and lethal.

209

00:15:31,000 --> 00:15:35,000

So to do that, I need a hand that I can heat up safely.

210

00:15:35,000 --> 00:15:36,000

Yep.

211

00:15:36,000 --> 00:15:40,000

Dr. Franken-Honneman is making a heat-resistant human hand.

212

00:15:40,000 --> 00:15:45,000

Well, I've got a good start with the grinder, but from here on in, it's mostly going to be blacksmithing.

213

00:15:52,000 --> 00:15:59,000

One of the joys of doing this kind of work is, first, there was nothing, and then there was something.

214

00:16:00,000 --> 00:16:06,000

That's something being an adjustable, articulated hand able to realistically grip bullets between each finger.

215

00:16:06,000 --> 00:16:11,000

Detailed and disturbing work the doctor clearly enjoys.

216

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

I've left a texture that is not unlike the wrinkles in my finger, and where it kind of smooths out over the knuckle.

217

00:16:21,000 --> 00:16:23,000

I've done that with a blob of weld.

218

00:16:23,000 --> 00:16:31,000

It's all very fast and crude, but it gives it a strangely organic look for it being all metal.

219

00:16:31,000 --> 00:16:42,000

For added accuracy, it fits like a, you know what, a leather glove that grips like skin is heat-molded onto the metal skeleton.

220

00:16:42,000 --> 00:16:52,000

And to gauge human-like strength, position number one between the thumb and index finger, Adam sets a calibration benchmark with his own grip.

221

00:16:52,000 --> 00:17:00,000

8.1 pounds. This force cage here holds what's called a peak value. That is the most amount of weight that it took since you last pressed zero.

222

00:17:00,000 --> 00:17:08,000

Now, I will put the bullet on this string on the force cage and hold it between two fingers as hard as I can until it lets go.

223

00:17:08,000 --> 00:17:14,000

Ah! Ow! Ow! And then I read that value, enter it into this chart.

224

00:17:15,000 --> 00:17:22,000

With the data handed over, Jamie mechanically matches Adam's grip strength to his metal digits.

225

00:17:22,000 --> 00:17:27,000

A couple of minor adjustments, and I think we should be all set.

226

00:17:27,000 --> 00:17:30,000

And this myth is all set to go off.

227

00:17:30,000 --> 00:17:31,000

It's perfect.

228

00:17:31,000 --> 00:17:39,000

But first, there's some unfinished business for a wall shooting hitman.

229

00:17:39,000 --> 00:17:50,000

Now that we've determined exactly how porous walls are, and that bullets will most likely make it through them, it's time to deal with what's on the other side.

230

00:17:50,000 --> 00:17:57,000

So, you are the good guy, the camera, you're people watching TV, and you're looking at a wall, and there's a bad guy behind.

231

00:17:57,000 --> 00:18:03,000

Whereas he, oh, there he is! Now that bad guy is going to move behind the wall and you've got to shoot him. How are you going to do that?

232

00:18:03,000 --> 00:18:12,000

We figured there's two methods that you could use. One is, you could watch him run behind and make an assumption that he's going to maintain his speed, bang, and try and shoot him.

233

00:18:12,000 --> 00:18:22,000

Or, you could listen for the sound of his footsteps and use your natural powers of triangulation to make an assumption about where he is and shoot there.

234

00:18:22,000 --> 00:18:29,000

I'm not sure if either one of those is going to work, but in either case it's going to require a rig with a motorized dude on it.

235

00:18:29,000 --> 00:18:36,000

What's the dude? How are you doing, dude? He's not a very handsome dude. Something kind of like this.

236

00:18:36,000 --> 00:18:47,000

So, bullets can penetrate an interior wall, but is hitting your target as easy as Hollywood would have us believe.

237

00:18:47,000 --> 00:18:49,000

That is so weird.

238

00:18:49,000 --> 00:18:54,000

To find out, the team is testing two mythical methods.

239

00:18:54,000 --> 00:18:57,000

First up, target tracking.

240

00:18:57,000 --> 00:19:06,000

Here's how this test is going to work. Our target, that's me, will always start every test by moving from a visible position to an obscured position.

241

00:19:06,000 --> 00:19:13,000

The operator will be able to control the position of the target with this joystick and he'll be able to see what he's doing through this monitor.

242

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

The shooter must use trajectory tracking and their intuition to surmise where the target might be behind the wall and attempt to shoot them through the wall.

243

00:19:23,000 --> 00:19:30,000

Dude, there are two restrictions to this test. One is, shooter can't start shooting until the target's past that yellow and black line.

244

00:19:30,000 --> 00:19:36,000

All the action happens on that side. And, only one bullet at a time.

245

00:19:36,000 --> 00:19:43,000

This first test is going to be pretty basic. I'm going to be moving the target at what amounts to walking speed continuously.

246

00:19:43,000 --> 00:19:45,000

Jamie, you ready to start this?

247

00:19:45,000 --> 00:19:47,000

I am.

248

00:19:48,000 --> 00:19:56,000

Gun is loaded. Safety is off. Range is hot.

249

00:19:56,000 --> 00:19:59,000

Alright, count me down, sir.

250

00:19:59,000 --> 00:20:04,000

Three, two, one.

251

00:20:04,000 --> 00:20:21,000

Stop. Let's see if I hit him. I'm going to go inspect.

252

00:20:21,000 --> 00:20:24,000

Well, it turns out with velocity tracking of an obscured target.

253

00:20:25,000 --> 00:20:37,000

A perfect hit. I'm actually pretty good. I got myself in the face on the first try. A perfect hit.

254

00:20:37,000 --> 00:20:41,000

But maybe Adam got lucky. It's Jamie's turn.

255

00:20:41,000 --> 00:20:45,000

Okay. Range is hot.

256

00:20:48,000 --> 00:20:51,000

Time to double down on the data.

257

00:20:54,000 --> 00:20:56,000

Let's go see if you hit me.

258

00:20:56,000 --> 00:21:03,000

With nothing to go on but the projected trajectory of the target, how did Hanuman the hitman fare?

259

00:21:03,000 --> 00:21:09,000

Yeah. Nice. Right there. Took out my left lung.

260

00:21:09,000 --> 00:21:15,000

Adam and I both got what might have been kill shots on our first go, but that was following a consistent movement.

261

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

So, that obviously is the best case scenario.

262

00:21:19,000 --> 00:21:23,000

Oh, look at that. Nice little boo boo.

263

00:21:23,000 --> 00:21:29,000

The reality is going to be more like somebody is starting and stopping. Who knows what they're doing back there.

264

00:21:29,000 --> 00:21:34,000

And the only thing you might have to go on is sound.

265

00:21:34,000 --> 00:21:37,000

So, that's what we're going to try next.

266

00:21:49,000 --> 00:21:52,000

The hitman.

267

00:21:52,000 --> 00:21:55,000

Give me that.

268

00:21:58,000 --> 00:22:01,000

The ultimate Hollywood anti-hero.

269

00:22:01,000 --> 00:22:07,000

With a seemingly supernatural ability, he always gets his mark.

270

00:22:10,000 --> 00:22:13,000

Or does he?

271

00:22:13,000 --> 00:22:16,000

Sounds like it's time for test two.

272

00:22:16,000 --> 00:22:21,000

The test is going to be pretty much like the last one, except that the target is going to be moving all over the place.

273

00:22:21,000 --> 00:22:25,000

And the only thing that the shooter will have to go by is the sound of footsteps.

274

00:22:25,000 --> 00:22:28,000

Can I hear a test of that?

275

00:22:32,000 --> 00:22:38,000

With the fake footstep audio coming from a speaker attached to the target.

276

00:22:43,000 --> 00:22:45,000

I can kind of hear it go.

277

00:22:45,000 --> 00:22:47,000

The setup is complete.

278

00:22:47,000 --> 00:22:51,000

In theory, I thought this would be pretty cool. In practice, it's far cooler.

279

00:22:53,000 --> 00:22:56,000

What do you think? One shot this time? Or how about three shots?

280

00:22:56,000 --> 00:22:58,000

Yeah, let's have the ante.

281

00:22:58,000 --> 00:22:59,000

Okay, cool. All right, so are you ready?

282

00:22:59,000 --> 00:23:00,000

I'm ready.

283

00:23:00,000 --> 00:23:06,000

You're wondering how we're going to do a test about hearing for footsteps when we're hearing protection to protect ourselves from the sound of the gun going off.

284

00:23:06,000 --> 00:23:08,000

Excellent. Sounds loud and clear.

285

00:23:09,000 --> 00:23:14,000

And I think the other things I use are military grade and they have really cool feature.

286

00:23:14,000 --> 00:23:21,000

Actual microphones that play sound into the muff so I can hear stuff in the world until a gunshot happens and then they cut out to protect me from the loud sounds.

287

00:23:21,000 --> 00:23:25,000

Also it's two separate sound chips. One on the right, one on the left.

288

00:23:25,000 --> 00:23:27,000

I actually can fully triangulate while wearing these.

289

00:23:27,000 --> 00:23:29,000

So that's what we'll be wearing for this test.

290

00:23:29,000 --> 00:23:34,000

Oh, what's that over there?

291

00:23:34,000 --> 00:23:36,640

I must admit, I'm a little surprised that both Jamie and I

292

00:23:36,640 --> 00:23:39,140

got successful kill shots on the first test.

293

00:23:39,140 --> 00:23:39,940

Ha!

294

00:23:39,940 --> 00:23:41,480

Ha, ha, ha, ha!

295

00:23:41,480 --> 00:23:42,840

A perfect hit!

296

00:23:42,840 --> 00:23:45,360

But on the second one, I personally

297

00:23:45,360 --> 00:23:47,440

think it's going to be a lot harder

298

00:23:47,440 --> 00:23:51,120

to triangulate the sound of footsteps behind a barrier.

299

00:23:51,120 --> 00:23:52,320

Count me in, sir.

300

00:23:52,320 --> 00:23:54,120

I'm giving myself only a 20% chance

301

00:23:54,120 --> 00:23:55,400

of actually hitting this thing.

302

00:23:55,400 --> 00:23:57,800

Three, two, one.

303

00:23:57,800 --> 00:24:13,720

MUSIC

304

00:24:13,720 --> 00:24:16,720

Let's see if I hit him.

305

00:24:16,720 --> 00:24:20,800

Adam acoustically and intuitively tuned in to his target's

306

00:24:20,800 --> 00:24:22,800

tread and took him out.

307

00:24:22,800 --> 00:24:24,480

Oh, looks like you got him.

308

00:24:24,480 --> 00:24:25,800

No way.

309

00:24:25,800 --> 00:24:26,800

Oh, no, I'm sorry.

310

00:24:26,800 --> 00:24:28,120

No, or not.

311

00:24:28,120 --> 00:24:29,200

No, that was there before.

312

00:24:29,200 --> 00:24:30,200

That was from this, yes.

313

00:24:30,200 --> 00:24:31,320

Oh.

314

00:24:31,320 --> 00:24:32,040

Adam missed.

315

00:24:32,040 --> 00:24:33,760

He survived this time, Savage.

316

00:24:33,760 --> 00:24:36,400

And you'll notice that he clustered three of his shots

317

00:24:36,400 --> 00:24:39,080

in one small area.

318

00:24:39,080 --> 00:24:41,280

I'm not so sure that's the best approach.

319

00:24:41,280 --> 00:24:45,440

If I were doing this, which I'm about to, I'm ready.

320

00:24:45,440 --> 00:24:48,640

I think I'd be inclined to do a sweep across an area

321

00:24:48,640 --> 00:24:51,200

to try and bracket in the sound.

322

00:24:51,200 --> 00:24:54,760

Because we can hear the sounds, but pinpointing it,

323

00:24:54,760 --> 00:24:55,520

not so much.

324

00:24:55,520 --> 00:25:05,520

MUSIC

325

00:25:05,520 --> 00:25:09,080

Despite the benefit of being able to adapt his tactics,

326

00:25:09,080 --> 00:25:12,080

you missed him entirely.

327

00:25:12,080 --> 00:25:14,640

Jamie missed as well.

328

00:25:14,640 --> 00:25:17,720

So while you can easily shoot through a wall,

329

00:25:17,720 --> 00:25:21,840

the real world detail of the prey's unpredictable position

330

00:25:21,840 --> 00:25:24,320

makes hitting a moving target tough.

331

00:25:24,520 --> 00:25:26,720

And this myth is on the ropes.

332

00:25:26,720 --> 00:25:27,520

So what do you think?

333

00:25:27,520 --> 00:25:29,480

Have we answered the question of shooting people

334

00:25:29,480 --> 00:25:30,480

on the other side of the walls?

335

00:25:30,480 --> 00:25:31,520

How easy it is?

336

00:25:31,520 --> 00:25:34,400

Well, mechanical moving targets are all well and good,

337

00:25:34,400 --> 00:25:38,160

but I don't think there's any substitute for the real thing.

338

00:25:38,160 --> 00:25:40,680

I think we ought to shoot at each other.

339

00:25:40,680 --> 00:25:41,680

Maybe.

340

00:25:45,680 --> 00:25:47,800

Not with real guns, right?

341

00:25:47,800 --> 00:25:48,960

Well, OK.

342

00:25:48,960 --> 00:25:49,680

Paintball guns.

343

00:25:49,680 --> 00:25:50,640

Paintball guns.

344

00:25:50,640 --> 00:25:53,880

OK, I think we can do that test.

345

00:25:53,880 --> 00:25:57,720

A new test, a new day, and a new location

346

00:25:57,720 --> 00:26:00,400

for a spot of hitman elimination.

347

00:26:00,920 --> 00:26:01,480

GUNSHOT

348

00:26:02,920 --> 00:26:05,280

PINK BELL

349

00:26:05,480 --> 00:26:07,160

BELL

350

00:26:07,200 --> 00:26:08,440

DONG

351

00:26:13,480 --> 00:26:14,800

DISH Jinger

352

00:26:15,520 --> 00:26:16,720

DIST ■

353

00:26:17,440 --> 00:26:28,680

DIST

354

00:26:28,680 --> 00:26:37,520

morning morning shall we get to work yeah let's do we have brought you to an

355

00:26:37,520 --> 00:26:41,820

abandoned machine shop in Mare Island California to put all the disparate

356

00:26:41,820 --> 00:26:46,640

elements of this story back together for a nice violent fun-filled family

357

00:26:46,640 --> 00:26:52,760

friendly finale so it's time we ramp things up and use live human targets

358

00:26:52,760 --> 00:26:58,600

that are moving namely Adam and I that's right it's you and me Heinemann

359

00:26:58,600 --> 00:27:01,600

suit up

360

00:27:03,480 --> 00:27:08,480

am I out? awk for it

361

00:27:09,320 --> 00:27:16,040

for this gunfight head-to-head so freaking cool Adam and Jamie are putting

362

00:27:16,040 --> 00:27:21,140

the human back into the experimental equation this last test is a classic

363

00:27:21,140 --> 00:27:24,980

cat and mouse this is building a hitman fantasy camp Jamie and I are gonna

364

00:27:24,980 --> 00:27:29,260

stalk each other through a labyrinth created of walls making hallways rooms

365

00:27:29,260 --> 00:27:36,100

doorways we must try and win this stalking contest by shooting each other

366

00:27:36,100 --> 00:27:41,060

through one or more of the walls of our lab our walls are made of paper our

367

00:27:41,060 --> 00:27:49,820

weapons paintball guns with help from their origami army go ahead Willie pivot

368

00:27:50,460 --> 00:27:57,180

and an artistic finishing touch or two lovely the eight room assassins arena is

369

00:27:57,180 --> 00:28:04,220

ready for the showdown but it won't be a free-for-all these are the rules first

370

00:28:04,220 --> 00:28:07,980

there's no time limit the winner is the first one to shoot the other through a

371

00:28:07,980 --> 00:28:13,780

wall we each only have one eight round clip so every shot counts finally during

372

00:28:13,780 --> 00:28:16,540

the test we are not allowed to travel beyond the boundaries of the

373

00:28:16,580 --> 00:28:23,540

experimental space and with the rules laid down Adam and Jamie are all set for a

374

00:28:23,540 --> 00:28:26,540

hitman hunt

375

00:28:33,620 --> 00:28:42,180

to test Hollywood's idea of a handheld shoot them up the mythbusters need

376

00:28:42,220 --> 00:28:54,220

bullets a helping hand it's perfect and dry experimental conditions doesn't rain

377

00:28:54,220 --> 00:29:02,540

all week and then when we go out to shoot it's raining so let me introduce

378

00:29:02,540 --> 00:29:06,420

you to a little bit of how mythbusters conducts a shoot in the pouring rain

379

00:29:06,420 --> 00:29:11,580

we've actually set up 400 square feet of tent city here in the middle of our

380

00:29:11,620 --> 00:29:15,900

muddy field right there is our high-speed camera off that's an expensive laptop and

381

00:29:15,900 --> 00:29:18,740

our hundred thousand dollar high-speed camera the important cables were running

382

00:29:18,740 --> 00:29:21,940

up through the rafters there is where Jamie now will be standing behind the

383

00:29:21,940 --> 00:29:25,700

blast chamber shields that's our experimental setup hopefully it's dry

384

00:29:25,700 --> 00:29:30,540

enough to actually get this experiment off so if you hold bullets in a fire

385

00:29:30,540 --> 00:29:37,180

they're gonna take a lot longer than two seconds to go off 10 seconds but at

386

00:29:37,220 --> 00:29:41,020

this point we haven't established what exactly they'll do when they do go off

387

00:29:41,020 --> 00:29:45,700

and in the movie the bullets are shown to be lethal so that's what we've got a

388

00:29:45,700 --> 00:29:51,660

test now mythbusters during the monsoon season despite the deluge the team has a

389

00:29:51,660 --> 00:29:57,180

handle on the situation and is all set to fire up for this test we've got a

390

00:29:57,180 --> 00:30:01,220

single bullet mounted on the hand right here and I'm gonna have a single flame

391

00:30:01,260 --> 00:30:08,660

coming out of this tiny copper tube let's try quickly when I pull on a cord

392

00:30:08,660 --> 00:30:13,580

the flame will swing in and we'll set off the bullet that's it you're right on

393

00:30:13,580 --> 00:30:18,620

the bullet you're right on the bullet this time the round is live come on

394

00:30:18,620 --> 00:30:25,300

bullet come on bullet with primer powder and projectile intact I just blew out

395

00:30:25,540 --> 00:30:31,300

this program is rated thrust frustrating in theory they'll use the high-speed

396

00:30:31,300 --> 00:30:40,300

camera to capture the bullet speed you're good still lit still lit oh it just

397

00:30:40,300 --> 00:30:44,700

blew out in practice that's not happening this goes to show best laid

398

00:30:44,700 --> 00:30:49,140

plans of mice and men are often screwed up by the grain so it turns out our tiny

399

00:30:49,140 --> 00:30:54,340

little flame wasn't concentrated enough the torchhead we're gonna use this time

400

00:30:54,380 --> 00:30:59,380

is called a pencil torch and that means that it literally has a point on it that

401

00:30:59,380 --> 00:31:05,780

similar to a pencil point Jamie you're good to light it and I'm gonna aim that

402

00:31:05,780 --> 00:31:11,820

right at the cap and I think that'll get us where we need to go there it is

403

00:31:11,820 --> 00:31:25,500

that worked a lot better that was like within 10 seconds that's what I wanted

404

00:31:25,500 --> 00:31:31,740

excellent at last there's fire in the hole but what does the data say flame

405

00:31:31,900 --> 00:31:44,980

placement looks perfect let me see if I can't get a rough idea of speed here

406

00:31:45,180 --> 00:31:53,340

bullets moving at 82 miles per hour yeah question is why is it going so slow when

407

00:31:53,340 --> 00:31:58,660

you pull the trigger of a loaded gun the bullet inside basically explodes the

408

00:31:58,660 --> 00:32:02,940

resulting shockwave travels down the barrel and propels the bullet out but

409

00:32:02,940 --> 00:32:07,220

without the gun to enclose and back up the cartridge there's nothing to prevent

410

00:32:07,220 --> 00:32:11,300

it from simply expanding and rocketing backwards instead of pushing the bullet

411

00:32:11,300 --> 00:32:16,260

forwards hence the low speeds of the bullet with no barrel to contain the

412

00:32:16,260 --> 00:32:21,780

energy it disperses and the bullet comes out at 10% of its usual velocity I

413

00:32:21,780 --> 00:32:26,100

don't think that's gonna be lethal but for due diligence let's put our dummy

414

00:32:26,100 --> 00:32:33,940

in there and see what happens to him sure why not okay your days are numbered

415

00:32:33,940 --> 00:32:39,820

dude so will a handheld bullet accurately hit a target with lethal impact okay

416

00:32:39,820 --> 00:32:50,220

coming in that's it it's on I can hear it going I don't know if it hit him the

417

00:32:50,220 --> 00:32:56,060

early signs for accuracy are not good I don't see any bullet holes I don't see

418

00:32:56,060 --> 00:33:00,260

any bullet holes nor do I see any bullets this is a job for the high-speed

419

00:33:00,260 --> 00:33:05,900

camera bang oh it went way down

420

00:33:06,060 --> 00:33:15,020

boink is it bounced off actually it looks like it's still there this is

421

00:33:15,020 --> 00:33:19,940

right about where it looks like it hits right well see any reason why I shouldn't

422

00:33:19,980 --> 00:33:25,020

excavate I don't see any reason why you shouldn't excavate high-speed says bullet

423

00:33:25,020 --> 00:33:28,820

entered the dude we should cut him open and find a bullet let's see okay there

424

00:33:28,820 --> 00:33:40,580

it is whoa no way embedded in his chest amazing it's a satisfying and surprising

425

00:33:40,580 --> 00:33:45,460

result but with such shallow penetration it wouldn't have been lethal merely

426

00:33:45,460 --> 00:33:51,660

painful if only our hero could hold his burning fleshy hand in a fire until it

427

00:33:51,660 --> 00:33:59,300

melted and kept that pressure on well he might have just injured the villain that

428

00:33:59,300 --> 00:34:04,060

is awesome all right let's count down the components of this story bullets going

429

00:34:04,060 --> 00:34:08,620

off in a fire in two seconds or less busted okay what about the lethality or

430

00:34:08,620 --> 00:34:12,220

danger of those bullets after that well it is where it starts to get a little

431

00:34:12,260 --> 00:34:18,540

interesting but now it's still busted it's still totally busted

432

00:34:20,100 --> 00:34:27,660

that's one myth done and busted but still to come a head-to-head hitman

433

00:34:27,660 --> 00:34:38,020

showdown deep in an underground bunker

434

00:34:38,780 --> 00:34:50,460

Jamie and Adam captured an exquisite world exclusive we've just taken a shot

435

00:34:50,460 --> 00:34:55,740

with a high-speed camera called the Phantom of a bullet exiting a gun at 73,000

436

00:34:55,740 --> 00:35:03,140

frames per second 73,000 I seriously had no idea it would be that lovely oh my

437

00:35:03,180 --> 00:35:08,500

gotta go back and watch it again the artifacts that you start to be able to

438

00:35:08,500 --> 00:35:13,740

see mushroom clouds and little rivulets of gases and fire forming on flame fronts

439

00:35:13,740 --> 00:35:17,260

of pressure waves and stuff and not sure many people in the world have ever even

440

00:35:17,260 --> 00:35:23,140

looked at it's just really cool yep it's

441

00:35:33,180 --> 00:35:35,980

it's showtime

442

00:35:38,220 --> 00:35:44,140

one by one our would-be hitman are guided silently to separate random

443

00:35:44,140 --> 00:35:47,260

locations in the arena

444

00:35:52,700 --> 00:36:00,540

catahal wood hitman gentlemen really locate and liquidate a wall hidden target

445

00:36:00,580 --> 00:36:06,300

are you ready with supernatural like acoustic ability and intuition in three

446

00:36:06,300 --> 00:36:14,780

two one go it's a stalk to the death to find out

447

00:36:30,540 --> 00:36:57,900

oh I'm hit it got my gun hand got me right in the wrist I've been looking

448

00:36:57,900 --> 00:37:02,260

forward to this test for a while that was far more scary and hair-raising and

449

00:37:02,260 --> 00:37:07,620

exciting than I ever imagined it would be that's just stunning you might

450

00:37:07,620 --> 00:37:12,780

recall from our earlier testing to track somebody moving behind a wall was fairly

451

00:37:12,780 --> 00:37:17,940

easy to do as long as you can anticipate their movement now in this first game I

452

00:37:17,940 --> 00:37:23,660

remembered that I peeked out the doorway just in time to see him move behind a

453

00:37:23,700 --> 00:37:29,780

wall and so I was able to actually track his movement fire through the wall and I

454

00:37:29,780 --> 00:37:36,140

hit him that was beautiful it worked just like we learned so the combination of a

455

00:37:36,140 --> 00:37:42,380

preliminary visual cue audio location and intuition does make it possible to

456

00:37:42,380 --> 00:37:48,180

pop your opponent good news for the myth but Adam's not giving up yet nicely

457

00:37:48,220 --> 00:38:01,300

done best out of three okay this is too much fun to give up after one try love

458

00:38:01,300 --> 00:38:09,980

this game that's the cue for a fun and fear-filled test to looking down on this

459

00:38:09,980 --> 00:38:15,580

test from above I'm struck by a couple things one how lovely it is with all the

460

00:38:15,580 --> 00:38:20,380

colors in all of the labyrinth go

461

00:38:22,620 --> 00:38:31,580

but perhaps the most diabolically scary part of this test to me was the quiet I

462

00:38:33,580 --> 00:38:39,940

open my eyes I don't see Jamie I hear little creaks but that doesn't

463

00:38:39,940 --> 00:38:45,300

necessarily help because you're waiting somebody else out you know that they

464

00:38:45,340 --> 00:38:48,940

want to kill you and even though this is for play it doesn't make it any less of

465

00:38:48,940 --> 00:38:53,100

an adrenaline rush to know that someone's got your number and they're looking for

466

00:38:53,100 --> 00:39:01,860

you and you are looking for them it is really really thrilling in a way that few

467

00:39:01,860 --> 00:39:07,060

tests that we have done on this show really deliver

468

00:39:07,060 --> 00:39:19,780

I'm hit I'm hit I'm hitting the leg this whole test came together quite

469

00:39:19,780 --> 00:39:27,500

beautifully that was scary as hell because in our earlier mechanical

470

00:39:27,500 --> 00:39:31,660

testing we found only one technique that was effective you got me right in the

471

00:39:31,820 --> 00:39:37,340

knee that is a totally incapacitating hit well you know that's my personal style

472

00:39:37,340 --> 00:39:42,620

you know it sends a message but here with real human subjects I found I had to

473

00:39:42,620 --> 00:39:47,340

put all of those techniques together I used a little bit of sound to roughly

474

00:39:47,340 --> 00:39:51,460

locate where they were at once I did get any kind of hint of how they were

475

00:39:51,460 --> 00:39:56,660

moving I tracked them and then I spray and putting all of those techniques

476

00:39:56,820 --> 00:40:04,060

together allowed me to win you've nailed it I'm dead two out of two I'd say you

477

00:40:04,060 --> 00:40:09,300

are the absolute winner sir congratulations thank you that was an

478

00:40:09,300 --> 00:40:13,380

awesome contest well it would seem that just like the rest of the world it is

479

00:40:13,380 --> 00:40:20,140

very difficult for me to get a bead on James Franklin Heineman he seems to be a

480

00:40:20,140 --> 00:40:22,820

fan of shooting people in the joints maybe that's from when he used to be a

481

00:40:22,940 --> 00:40:27,420

shark I don't know but I couldn't hit him once how do you want to call it I

482

00:40:27,420 --> 00:40:30,940

gotta say I'm surprised but I think the hit men are on to something shooting

483

00:40:30,940 --> 00:40:35,500

through walls has far more efficacy than I began this myth believing yeah I

484

00:40:35,500 --> 00:40:39,700

agree interior walls don't offer much protection do they're far more porous

485

00:40:39,700 --> 00:40:51,460

than anyone thought let's get out of here you coming sure oh yeah back across

486

00:40:51,500 --> 00:40:55,980

town it's time to settle accounts

487

00:41:04,940 --> 00:41:15,460

you're going shooting through walls confirmed shoot them up busted see you

488

00:41:15,460 --> 00:41:18,780

on the next bounce boys

489

00:41:21,460 --> 00:41:25,860

trust that guy now that do I let's get inside