

1

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

on this episode of Mythbusters.

2

00:00:07,000 --> 00:00:20,000

Doctors Heinemann and Savage raid the arch-ives for a movie myth about a bike flip.

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00:00:20,000 --> 00:00:26,000

If you poke a pole in the front spokes, will it really flip out?

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00:00:26,000 --> 00:00:29,000

Timing was perfect.

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

If you say so, Junior.

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00:00:31,000 --> 00:00:40,000

And Carrie Grant and Tori are breaking bad to test tall tales of prison breaks.

7

00:00:40,000 --> 00:00:48,000

They want to know if you can repel the freedom using bedsheets, toilet paper and hair.

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00:00:48,000 --> 00:00:58,000

Who are the Mythbusters?

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

Adam Savage.

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

That's 100% wacky right there.

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00:01:02,000 --> 00:01:03,000

And Jamie Heinemann.

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00:01:03,000 --> 00:01:04,000

Pain is your friend.

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

Between them more than 30 years of special effects experience.

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00:01:09,000 --> 00:01:12,000

Joining them, Carrie Byron.

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

Let's do it.

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

Grant Imahara.

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00:01:14,000 --> 00:01:16,000

Danger, warning, warning.

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00:01:16,000 --> 00:01:18,000

And Tori Belleggi.

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00:01:18,000 --> 00:01:20,000

Okay, you want to play a rough little golfer?

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00:01:20,000 --> 00:01:22,000

They don't just tell the Myths.

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00:01:22,000 --> 00:01:40,000

They put them to the test.

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00:01:40,000 --> 00:01:43,000

Let me guess.

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00:01:43,000 --> 00:01:44,000

Indiana Jones?

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00:01:44,000 --> 00:01:45,000

Yes.

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00:01:45,000 --> 00:01:48,000

Cast your mind back to Indiana Jones and the last crusade.

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00:01:48,000 --> 00:01:51,000

Indy and his father are racing away from the Nazis on a motorcycle.

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00:01:51,000 --> 00:01:55,000

Nazis come up alongside them and are bound to get them, but Indy doesn't have a weapon.

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00:01:55,000 --> 00:01:59,000

Quickly thinking he grabs a flagpole, jams it in the front spokes of the Nazi motorcycle hand.

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00:01:59,000 --> 00:02:04,000

The motorcycle flips up in the air, end over end, bad time for the Nazi.

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

Exactly.

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00:02:05,000 --> 00:02:07,000

That is our movieman.

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00:02:07,000 --> 00:02:10,000

It's a classic scene from the silver screen.

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00:02:10,000 --> 00:02:18,000

The doctors Jones, junior and senior are being chased by the third Reich on bikes.

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00:02:18,000 --> 00:02:27,000

But a flagpole in the front wheel of the nearest Nazi and a motorcycle flip out sees our hero escape with a trademark cheesy grid.

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00:02:27,000 --> 00:02:35,000

This one's really interesting from a physics sense because when I look at that scene, it doesn't seem awkward or out of place.

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00:02:35,000 --> 00:02:42,000

But it does beg the question, is it really that easy to redirect all the energy that's going this way to going that way?

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00:02:42,000 --> 00:02:49,000

I'm thinking that we break it down to its constituent components, test each one and then put them all back together for a full sized finale.

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00:02:49,000 --> 00:02:50,000

This'll be fun.

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

It's been years since I've been on a motorcycle.

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00:02:52,000 --> 00:02:55,000

Ever since that gang, right?

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00:02:55,000 --> 00:03:01,000

So first things first, it's a motorcycle myth and we'll be needing a...

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00:03:01,000 --> 00:03:02,000

That's a bike.

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

Exactly.

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

Oh, it's lovely.

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

I actually rode across a country in one of these things.

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00:03:08,000 --> 00:03:09,000

No way.

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00:03:09,000 --> 00:03:12,000

I'm just reeling from learning something about you I didn't know.

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00:03:12,000 --> 00:03:14,000

Seems that there's a never ending supply of those.

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00:03:14,000 --> 00:03:18,000

It's a single cylinder four cycle, we call them a thumper.

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

It's not like, it's like an old fashioned bike.

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00:03:22,000 --> 00:03:27,000

Okay, it may be old fashioned, but the movie bikes are vintage World War II.

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00:03:27,000 --> 00:03:28,000

I know what you're saying.

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00:03:28,000 --> 00:03:32,000

You're saying this really doesn't look like a vintage World War II era motorcycle.

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00:03:32,000 --> 00:03:42,000

And it is, in fact it's from 1981, but it is the exact model of bike used by the stuntmen to perform their stunts for Indiana Jones and the last crusade.

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00:03:42,000 --> 00:03:49,000

Which means that it and not some vintage bike is the perfect test platform for us for this myth.

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00:03:49,000 --> 00:03:55,000

Now that that's sorted, let's kick things off as Adam and Jamie focus on the first aspect of the myth.

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00:03:55,000 --> 00:04:05,000

Since this myth is all about the poking of a flagpole into the spokes of a motorcycle, one of the things we want to know is how fast can we poke a flagpole?

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00:04:05,000 --> 00:04:09,000

Because once they know the speed of a human flagpole poke,

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00:04:11,000 --> 00:04:12,000

Nice tiger.

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00:04:12,000 --> 00:04:17,000

They can calibrate their remaining tests to just that.

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00:04:17,000 --> 00:04:19,000

It's plain funny to let you exert yourself like that.

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00:04:19,000 --> 00:04:22,000

I don't know why exactly, it just is.

63

00:04:22,000 --> 00:04:23,000

I comment.

64

00:04:23,000 --> 00:04:25,000

Whatever floats your goat.

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00:04:25,000 --> 00:04:32,000

And the high comedy on the high speed reveals the magic number to be 30 miles per hour.

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00:04:32,000 --> 00:04:34,000

Q part two of the experiment.

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

A remote control flagpole thruster.

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00:04:37,000 --> 00:04:43,000

You might remember this puppy right here from birds on a truck because this was our pigeon catcher.

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00:04:43,000 --> 00:04:46,000

Yep, it's not a prop from Mad Max.

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00:04:46,000 --> 00:04:48,000

It really is a pigeon catcher.

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00:04:50,000 --> 00:04:52,000

Not that it caught any pigeons.

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00:04:52,000 --> 00:04:59,000

It has an air reservoir, it has a valve, it has everything we need to shoot the stick into the wheels of the motorcycle.

73

00:04:59,000 --> 00:05:02,000

I just need to change the barrel a bit and we'll be good to go.

74

00:05:02,000 --> 00:05:06,000

In three, two, one.

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00:05:11,000 --> 00:05:16,000

Yeah, that looked a tad faster than 30 miles an hour to me.

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00:05:16,000 --> 00:05:18,000

But let's see what Adam thinks.

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00:05:23,000 --> 00:05:25,000

That might be a little too fast.

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00:05:25,000 --> 00:05:27,000

That's what I said.

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00:05:27,000 --> 00:05:28,000

Is everybody okay?

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00:05:31,000 --> 00:05:32,000

That's dangerous.

81

00:05:32,000 --> 00:05:34,000

Yeah, we might have to tune that one back.

82

00:05:34,000 --> 00:05:39,000

The only problem that we're finding with this rig is that it seems to be giving us too much bang for our buck right now.

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00:05:39,000 --> 00:05:40,000

What?

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00:05:42,000 --> 00:05:44,000

That's 143 miles per hour.

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00:05:44,000 --> 00:05:46,000

Almost no pressure in this tank.

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00:05:46,000 --> 00:05:53,000

This valve is so big that the stick is still going at like 50 miles an hour, which is way faster than either of us could throw the flagpole.

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

I'm not going to get tired of that.

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00:05:57,000 --> 00:06:01,000

And so to get the speed they need around 30 miles per hour,

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00:06:01,000 --> 00:06:05,000

This is an exceedingly weird operation.

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00:06:05,000 --> 00:06:08,000

They add some hose to decrease the pressure.

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

Firing in three, two, one.

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00:06:12,000 --> 00:06:14,000

That might be it.

93

00:06:14,000 --> 00:06:16,000

That's it. That's the butter zone.

94

00:06:16,000 --> 00:06:20,000

12 psi, we get 28 and a half miles per hour.

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00:06:20,000 --> 00:06:21,000

That's perfect.

96

00:06:21,000 --> 00:06:25,000

As odd as this sounds, after destroying their wooden backstop,

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00:06:25,000 --> 00:06:31,000

they finally got the X pigeon catcher throwing a flagpole at a realistic speed.

98

00:06:31,000 --> 00:06:44,000

This might sound crazy, but a lot of the fans are saying that you can actually make rope out of toilet paper,

99

00:06:44,000 --> 00:06:48,000

and it'll be strong enough that you can scale down a jail wall and escape.

100

00:06:48,000 --> 00:06:50,000

Toilet paper, are you serious?

101

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

Alright, well if we're going to do that, I think we should do the all-time classic, making a rope out of bed sheets.

102

00:06:55,000 --> 00:06:59,000

I know it's kind of out there, but let's also do the Rapunzel version of this, where you make a rope out of hair.

103

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

Ew.

104

00:07:02,000 --> 00:07:10,000

Any prison break worth its place in urban folklore involves a death-defying descent from a great height,

105

00:07:10,000 --> 00:07:14,000

including these fan-side fables.

106

00:07:14,000 --> 00:07:23,000

Desperate convicts, eager to be ex-convicts, have escaped jail with the apparent aid of cell-made ropes of toilet paper and bed sheets.

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00:07:23,000 --> 00:07:30,000

And if you include Rapunzel's luscious locks, that's three hair-brained escape plans to test.

108

00:07:30,000 --> 00:07:32,000

So how are we going to test this?

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00:07:32,000 --> 00:07:37,000

Why don't we each take one of the materials, make our ropes, and see which one of us makes it down the side of the building.

110

00:07:37,000 --> 00:07:39,000

And may the best rope win.

111

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

Wait, wait, I want bed sheets then.

112

00:07:41,000 --> 00:07:42,000

Too late!

113

00:07:42,000 --> 00:07:45,000

Yes, in a vertical-inducing finale...

114

00:07:45,000 --> 00:07:48,000

Oh my god, I'm going to throw up.

115

00:07:48,000 --> 00:07:57,000

Our fun-loving criminals will find out for real if the ropes made from their mythical materials will aid in a bet their jailbreak.

116

00:07:57,000 --> 00:08:00,000

Stupidest idea ever.

117

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

Or send them plummeting to their doom.

118

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

But before all that, let's take you back to the beginning.

119

00:08:07,000 --> 00:08:13,000

Where Carrie's plan for a braided escape is giving her a bad hair day.

120

00:08:13,000 --> 00:08:15,000

Is this not the most disgusting thing you've ever seen?

121

00:08:15,000 --> 00:08:18,000

An entire box of just hair?

122

00:08:18,000 --> 00:08:26,000

Yes, coming in at number one on the weirdest raw material chart are 50 human hair ponytails.

123

00:08:26,000 --> 00:08:30,000

I have to break out of a building that's 14 stories high.

124

00:08:30,000 --> 00:08:35,000

So I have to make a rope that is 140 feet long.

125

00:08:35,000 --> 00:08:39,000

I think the difficulty here is not going to necessarily be the strength of the hair, because this feels really strong.

126

00:08:39,000 --> 00:08:42,000

I think it's going to be where the hair splices together.

127

00:08:42,000 --> 00:08:47,000

I have to come up with some sort of knotting or braiding system that it won't slide apart and, you know, 100 feet down.

128

00:08:47,000 --> 00:08:49,000

I'm not just going to plummet to the earth.

129

00:08:49,000 --> 00:08:51,000

And it's gross.

130

00:08:51,000 --> 00:08:56,000

Meanwhile, Grant's mythical method is a little more conventional and a film fugitive favorite.

131

00:08:56,000 --> 00:09:04,000

So in order to make sure we have maximum authenticity here, we've gotten these bed sheets from our friends in Alameda County.

132

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

And they're actual county jail linens.

133

00:09:07,000 --> 00:09:11,000

But he's not only keeping it real, he's keeping it simple.

134

00:09:11,000 --> 00:09:23,000

My plan is to extend them lengthwise so that they're the full seven feet long, and then hold it into a rope type shape and knot them together.

135

00:09:23,000 --> 00:09:32,000

And finally, Tori, who has some serious tensile strength issues with his authentic one-ply prison issue tissue.

136

00:09:32,000 --> 00:09:36,000

There you have it. It's not strong enough.

137

00:09:36,000 --> 00:09:38,000

But he's a man with a plan.

138

00:09:38,000 --> 00:09:45,000

If you look at the toilet paper, it's perforated for your convenience of pulling off one sheet at a time.

139

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

Already, it's got this built-in weak leak.

140

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

So I think twisting it, rolling it will give me the extra strength that I need.

141

00:09:52,000 --> 00:09:58,000

Look at that. The same amount of toilet paper just wrapped up is strong enough to now hold the three kilos.

142

00:09:58,000 --> 00:10:01,000

So this is the way I'm going to make my toilet paper rope.

143

00:10:08,000 --> 00:10:17,000

The last crusade to hold Hollywood to scientific account has given the team some memorable moments of movie mayhem.

144

00:10:17,000 --> 00:10:19,000

The boat is on the ground.

145

00:10:19,000 --> 00:10:31,000

But on this last crusade, the team are tackling the tall tale that a stick between the spokes can cause a head over handlebars flip.

146

00:10:31,000 --> 00:10:38,000

So far, they've got their bike and rigged a remote control flagpole thruster.

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00:10:38,000 --> 00:10:40,000

So what's next?

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00:10:40,000 --> 00:10:46,000

When this bike is moving at highway speeds, the spokes are going so fast you can hardly see them.

149

00:10:46,000 --> 00:10:54,000

So what we need to find out is whether it's possible for a human to thrust a stick into those spokes fast enough to get them cleanly through there.

150

00:10:54,000 --> 00:10:58,000

And then once that occurs, what happens to the wheel?

151

00:10:58,000 --> 00:11:05,000

And to get the wheel spinning at chase scene speeds, 50 miles per hour, Adam whips up a dynamometer.

152

00:11:05,000 --> 00:11:10,000

So the dynamometer is fully built and constructed, ready to spin this wheel up and I'm going to explain...

153

00:11:10,000 --> 00:11:12,000

I don't really need to explain how it works, do I?

154

00:11:12,000 --> 00:11:17,000

The motor drives the chain, drives the wheel, spins it up to speed, we poke it with the stick, it's pretty straightforward.

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00:11:17,000 --> 00:11:21,000

And now it's time for the old spoken poke test.

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00:11:21,000 --> 00:11:27,000

So with the bike secured, this test is all about the space between the spokes and not the full flip.

157

00:11:28,000 --> 00:11:29,000

This is going to be cool.

158

00:11:29,000 --> 00:11:34,000

Will a flagpole thrust realistic speed actually penetrate the wheel?

159

00:11:34,000 --> 00:11:37,000

Three, two, one.

160

00:11:37,000 --> 00:11:39,000

Apparently not.

161

00:11:39,000 --> 00:11:41,000

Well that was a bit of a let down.

162

00:11:41,000 --> 00:11:44,000

Yes, the stick just bounced right back out.

163

00:11:44,000 --> 00:11:53,000

And after a second test under the same conditions, produces a similar result, the guys decide they're missing the point.

164

00:11:53,000 --> 00:11:57,000

On the stick and on the wheel.

165

00:11:57,000 --> 00:11:59,000

And they want to aim the stick back towards here.

166

00:11:59,000 --> 00:12:02,000

Like the movie, the guys were aiming at three o'clock.

167

00:12:02,000 --> 00:12:09,000

But as that last test showed, in the time it takes to hit the spokes at ten o'clock, the flagpole can wobble free.

168

00:12:09,000 --> 00:12:11,000

So take three.

169

00:12:11,000 --> 00:12:14,000

Only this time, they're targeting nine o'clock.

170

00:12:14,000 --> 00:12:15,000

Firing.

171

00:12:15,000 --> 00:12:18,000

Three, two, one.

172

00:12:18,000 --> 00:12:19,000

Perfect.

173

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

Penetration.

174

00:12:20,000 --> 00:12:21,000

Wheel stoppage.

175

00:12:21,000 --> 00:12:25,000

And as a bonus, some controlled mayhem.

176

00:12:25,000 --> 00:12:27,000

We broke some stuff.

177

00:12:27,000 --> 00:12:30,000

We successfully stopped the wheel with the stick.

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00:12:30,000 --> 00:12:31,000

And that's great.

179

00:12:31,000 --> 00:12:34,000

That's 15 pounds coming to a dead stop from 50 miles an hour.

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00:12:34,000 --> 00:12:37,000

But this was a stationary test.

181

00:12:37,000 --> 00:12:44,000

When we go out on the road with this, there are hundreds of pounds in this bike, plus the rider that want to keep on going.

182

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

And that's where the real fun is going to start.

183

00:12:46,000 --> 00:12:54,000

So it turns out it actually is possible to get a flagpole in between the spokes of a motorcycle wheel while it's going 50 miles an hour.

184

00:12:54,000 --> 00:13:02,000

Yeah, you know, I don't see anything holding us up from putting this motorcycle on a trailer, dragging it behind a truck, and trying this test full size at speed.

185

00:13:02,000 --> 00:13:05,000

And then if there's any truth at all to this myth, bikes get an airborne.

186

00:13:05,000 --> 00:13:06,000

Exactly.

187

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

So it's full scale ahead, and the plan in the can looks a lot like this.

188

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

At the push of a button, the bike and buster will begin freewheeling.

189

00:13:16,000 --> 00:13:20,000

That in turn will trigger the flagpole flinger.

190

00:13:20,000 --> 00:13:23,000

And jam the stick into the spokes.

191

00:13:23,000 --> 00:13:28,000

And to get things rolling in the right direction, Adam's reinventing the wheel.

192

00:13:28,000 --> 00:13:33,000

Well, the first problem I think we've got to solve is exemplified by taking a look at this footage again.

193

00:13:33,000 --> 00:13:34,000

Yeah, see that?

194

00:13:34,000 --> 00:13:42,000

Okay, the hubbed, spoked wheel, it's not really ideal for us to shove a stick into because those spokes are not going to stay put.

195

00:13:42,000 --> 00:13:47,000

We need a wheel that can stay put under continued abuse for repeated tests.

196

00:13:47,000 --> 00:13:49,000

And we're going to use steel plate to do it.

197

00:13:49,000 --> 00:13:52,000

We've had two of these, plasma cut at a quarter inch steel plate.

198

00:13:52,000 --> 00:13:59,000

We're going to bolt them to one of the motorcycle rims, have a tire put back on it, and a couple of flange mounted pillow blocks on the axle,

199

00:13:59,000 --> 00:14:02,000

and that ought to hold up to everything we can throw at it.

200

00:14:02,000 --> 00:14:06,000

The road warrior would be proud.

201

00:14:06,000 --> 00:14:09,000

This thing is absolutely as solid as a rock.

202

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

It's perfect.

203

00:14:15,000 --> 00:14:17,000

For the prison break parable.

204

00:14:17,000 --> 00:14:19,000

This place can't hold me.

205

00:14:19,000 --> 00:14:21,000

Grant Iron Man Imahara.

206

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

We're busting out of here, see?

207

00:14:23,000 --> 00:14:25,000

Carrie Knuckles Byron.

208

00:14:25,000 --> 00:14:26,000

Come on.

209

00:14:26,000 --> 00:14:27,000

I was free.

210

00:14:27,000 --> 00:14:30,000

And Don Salvatore Bellegi.

211

00:14:30,000 --> 00:14:31,000

I'm not telling you.

212

00:14:31,000 --> 00:14:35,000

Are pretending to be put away in order to break out.

213

00:14:35,000 --> 00:14:37,000

Prisoners, step in, lock down.

214

00:14:37,000 --> 00:14:47,000

They're going to find out if you can affect an escape with ropes made of bed sheets, toilet paper, and hair.

215

00:14:47,000 --> 00:14:52,000

In my collection of hair, I've gathered from the shower and all the rat tails I've been stealing.

216

00:14:52,000 --> 00:14:57,000

I will have no problem making a rope and getting out of here.

217

00:14:57,000 --> 00:15:01,000

But despite being forced to use authentic cell-made materials.

218

00:15:01,000 --> 00:15:03,000

Gordon, I got diarrhea.

219

00:15:03,000 --> 00:15:04,000

I need more toilet paper.

220

00:15:04,000 --> 00:15:09,000

The guys won't really have to prepare their escape in their cells.

221

00:15:09,000 --> 00:15:12,000

They get to do that back at the shop.

222

00:15:12,000 --> 00:15:18,000

Where Tori has worked out that if he twists one ply prison-issue tissue, it becomes less fragile.

223

00:15:18,000 --> 00:15:19,000

Look at that.

224

00:15:19,000 --> 00:15:20,000

Pretty cool.

225

00:15:20,000 --> 00:15:22,000

But can it really be made into rope?

226

00:15:22,000 --> 00:15:26,000

As you can see, I'm twisting the toilet paper into little strings.

227

00:15:26,000 --> 00:15:28,000

Once I have enough strings, I'll weave it into a rope.

228

00:15:28,000 --> 00:15:31,000

And hopefully that will be strong enough to hold my weight.

229

00:15:31,000 --> 00:15:33,000

And that'll be my ticket out of this joint.

230

00:15:33,000 --> 00:15:38,000

This process is taking a long time, but let's face it, I'm in jail.

231

00:15:38,000 --> 00:15:40,000

I got nothing but time.

232

00:15:40,000 --> 00:15:43,000

Someday I'll be free.

233

00:15:43,000 --> 00:15:51,000

It may be time-consuming, but before modern manufacturing techniques, this is exactly how real rope was made.

234

00:15:51,000 --> 00:15:54,000

Fibers of material were twisted into yarns.

235

00:15:54,000 --> 00:15:59,000

A few of these yarns were twisted in the opposite direction to form threads.

236

00:15:59,000 --> 00:16:04,000

And again, several of these were counter-twisted to form rope.

237

00:16:04,000 --> 00:16:09,000

So it might sound crazy, but Tori could be onto something.

238

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

I'm going to get out of jail no time.

239

00:16:11,000 --> 00:16:17,000

Meanwhile, Carrie's about to find out if her plan for a great escape is even viable.

240

00:16:17,000 --> 00:16:24,000

I'm a little nervous about the strength of the hair, so I've got a knotted piece here that I was

actually just going to try my weight on.

241

00:16:24,000 --> 00:16:31,000

I'm really kind of nervous about this, because of that factor.

242

00:16:33,000 --> 00:16:40,000

Maybe I need to find some inmates with some less healthy, slippery hair, some good fried-out bleach-blond inmates.

243

00:16:40,000 --> 00:16:46,000

Yeah, or maybe, just like a conventional rope, you can braid a number of those single strands together.

244

00:16:46,000 --> 00:16:52,000

I'm going to take three braids and tie them all into one braid, so that it's sort of how rope works,

245

00:16:52,000 --> 00:16:58,000

where if one fails, it has two more to kind of depend on, and hopefully that can give it more strength.

246

00:16:58,000 --> 00:17:03,000

Unfortunately, I'm getting claw hands from, like, all the braiding.

247

00:17:04,000 --> 00:17:09,000

And that just leaves Grant, who got lucky with the least labor-intensive material.

248

00:17:09,000 --> 00:17:15,000

The bed sheet is beautiful because you can go to the prison laundry still as many as you need.

249

00:17:15,000 --> 00:17:21,000

You don't need 100 years to make your bed sheet rope neat about, I don't know, maybe two hours.

250

00:17:22,000 --> 00:17:25,000

And you're climbing your way to freedom.

251

00:17:25,000 --> 00:17:29,000

However, the toilet paper plan is taking a lot, lot longer.

252

00:17:29,000 --> 00:17:31,000

I need to spread my wings and fly.

253

00:17:31,000 --> 00:17:43,000

So to speed things up, our crafty criminal uses his mastermind to good effect by twisting multiple strands at once and cheat it.

254

00:17:43,000 --> 00:17:47,000

So I've taken five sheets of toilet paper, twisted them together to create this.

255

00:17:47,000 --> 00:17:51,000

Now I'm going to take three of these, wrap them together, and then take that and wrap that together,

256

00:17:51,000 --> 00:17:55,000

and hopefully create a rope that's going to be strong enough to hold up my weight.

257

00:17:55,000 --> 00:17:59,000

But before I do that, I'm going to do a little magic.

258

00:18:13,000 --> 00:18:15,000

The Amazing Balichi!

259

00:18:15,000 --> 00:18:20,000

Meanwhile, over in Grant's cell, he's testing to see if the sheets can take the strain.

260

00:18:20,000 --> 00:18:25,000

So what we have here is a single, standard Alameda County bed sheet,

261

00:18:25,000 --> 00:18:31,000

not tied at the top, threaded through 150 pounds of weight, which is equivalent to my body weight.

262

00:18:31,000 --> 00:18:35,000

And as you can see, it's actually doing quite well so far.

263

00:18:35,000 --> 00:18:40,000

Outside in the exercise yard, Tori is also ready for a strength test.

264

00:18:42,000 --> 00:18:43,000

This might work!

265

00:18:43,000 --> 00:18:47,000

Carrie, however, is still desperately braiding and plating.

266

00:18:47,000 --> 00:18:52,000

She's more concerned about the hair's joints and splices than its tensile strength.

267

00:18:53,000 --> 00:19:00,000

After all, keratin, the major protein component of hair, is as hard as nails, literally.

268

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

It's also the stuff that forms horns, claws, and hoofs.

269

00:19:04,000 --> 00:19:08,000

The question is, will it also make rope?

270

00:19:09,000 --> 00:19:14,000

Jamie and Adam are flipping out.

271

00:19:14,000 --> 00:19:16,000

That might be a little too fast.

272

00:19:16,000 --> 00:19:24,000

Testing the movie myth that jamming a stick between the spokes will cause a motorcycle flip out.

273

00:19:24,000 --> 00:19:27,000

But they've got a tough build ahead.

274

00:19:27,000 --> 00:19:35,000

In order to go full scale with this, we need to both be able to hold this bike and let go of it at very precise timing.

275

00:19:35,000 --> 00:19:41,000

So we're going to start by building a trailer that holds it upright, that on the push of a button releases it,

276

00:19:41,000 --> 00:19:45,000

and then once it's released, will fire a stick right through those front spokes.

277

00:19:47,000 --> 00:19:50,000

In engineering terms, there's a mountain to climb,

278

00:19:50,000 --> 00:19:55,000

and what better way to show the passage of time than a montage.

279

00:20:01,000 --> 00:20:04,000

And a cross dissolve later, the rig is ready to roll.

280

00:20:04,000 --> 00:20:06,000

But before the cameras do,

281

00:20:06,000 --> 00:20:09,000

Wouldn't I married you if I knew you were so heavy?

282

00:20:09,000 --> 00:20:12,000

The team needs a change of scenery.

283

00:20:12,000 --> 00:20:13,000

Ready?

284

00:20:13,000 --> 00:20:14,000

Yep, let's go.

285

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

And the location they've chosen is, surprise, the disused runway at Alameda.

286

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

It's a good day for a motorcycle accident.

287

00:20:22,000 --> 00:20:23,000

I think so.

288

00:20:23,000 --> 00:20:24,000

Let's make it few.

289

00:20:25,000 --> 00:20:29,000

Unlikely to have a motorcycle accident is Jamie.

290

00:20:29,000 --> 00:20:33,000

Our very own cross country motorbiking myth buster.

291

00:20:33,000 --> 00:20:35,000

But Adam, let's trade.

292

00:20:35,000 --> 00:20:37,000

Well, that's a different story.

293

00:20:40,000 --> 00:20:41,000

How do I do this?

294

00:20:43,000 --> 00:20:45,000

I'm not so sure this is a good idea.

295

00:20:47,000 --> 00:20:48,000

Adam on a motorcycle.

296

00:20:51,000 --> 00:20:53,000

Even with seat belts, I worry about Adam.

297

00:20:57,000 --> 00:20:58,000

Are you done yet?

298

00:20:58,000 --> 00:20:59,000

We got some work to do.

299

00:20:59,000 --> 00:21:00,000

Let's get busy.

300

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

All right, let's do it.

301

00:21:02,000 --> 00:21:03,000

Oh, oh.

302

00:21:04,000 --> 00:21:08,000

So while Jamie reassembles the trailer and release rig,

303

00:21:08,000 --> 00:21:11,000

Adam brightens up the bike for its big scene.

304

00:21:12,000 --> 00:21:14,000

And then it gives Buster, hey little buddy,

305

00:21:14,000 --> 00:21:18,000

our soon to be crash victim, matching safety wear.

306

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

You're not going to prison, you're going on a ride.

307

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

And with Buster's ride secured to the trailer,

308

00:21:25,000 --> 00:21:27,000

he's ready for a test run.

309

00:21:27,000 --> 00:21:29,000

This may look pretty straightforward,

310

00:21:29,000 --> 00:21:31,000

but it's a pretty complicated rig.

311

00:21:31,000 --> 00:21:33,000

And there's a lot of little things which we're not sure

312

00:21:33,000 --> 00:21:36,000

exactly how they might react to getting up to speed.

313

00:21:36,000 --> 00:21:37,000

So that's the first thing we're going to do.

314

00:21:37,000 --> 00:21:40,000

Get the whole rig up to speed and just see how it runs.

315

00:21:40,000 --> 00:21:45,000

But before they even get up to speed, Buster looks like he's DUI.

316

00:21:45,000 --> 00:21:46,000

Well, now that's a problem.

317

00:21:46,000 --> 00:21:48,000

Yeah, that's what we wanted to see.

318

00:21:49,000 --> 00:21:51,000

For those of you playing along at home,

319

00:21:51,000 --> 00:21:53,000

here's what we were trying to do and here's where it went wrong.

320

00:21:53,000 --> 00:21:56,000

We were attempting to pull the motorcycle by the handlebars.

321

00:21:56,000 --> 00:21:59,000

When you're riding a motorcycle, that's an excellent way to steer it.

322

00:21:59,000 --> 00:22:02,000

But when you're pulling on it, you're effectively pulling it

323

00:22:02,000 --> 00:22:05,000

from behind its axle and that makes it very difficult

324

00:22:05,000 --> 00:22:09,000

because any slop in that system means the bike wants to do everything

325

00:22:09,000 --> 00:22:11,000

but travel in a straight line.

326

00:22:11,000 --> 00:22:13,000

It's slowly creeping over.

327

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

So we are going to modify our rig to pull the bike

328

00:22:16,000 --> 00:22:18,000

from exactly on its axle.

329

00:22:18,000 --> 00:22:20,000

We're going to put in a three-quarter inch rod

330

00:22:20,000 --> 00:22:21,000

that is about two feet long.

331

00:22:21,000 --> 00:22:23,000

We're going to put it up on a little shelf.

332

00:22:23,000 --> 00:22:24,000

That's too far.

333

00:22:24,000 --> 00:22:26,000

Now it's got to come back.

334

00:22:26,000 --> 00:22:28,000

We're still going to use the same release system we have

335

00:22:28,000 --> 00:22:30,000

but that should make the wheel travel straight

336

00:22:30,000 --> 00:22:34,000

and true and allow us to drag this thing all day long and do our testing.

337

00:22:34,000 --> 00:22:38,000

So after several hours of hard work, it's crises averted.

338

00:22:38,000 --> 00:22:40,000

Looking pretty good from my perspective.

339

00:22:40,000 --> 00:22:42,000

And happy is back.

340

00:22:42,000 --> 00:22:43,000

So the new rig is set.

341

00:22:43,000 --> 00:22:47,000

We are bringing the truck in and we're ready for what is still to be

342

00:22:47,000 --> 00:22:48,000

our first test run.

343

00:22:48,000 --> 00:22:51,000

But honestly, actually it's been great trying to solve this problem

344

00:22:51,000 --> 00:22:53,000

in the field with little scraps of metal.

345

00:22:53,000 --> 00:22:55,000

I feel very positive.

346

00:22:55,000 --> 00:22:57,000

That's if it works.

347

00:22:57,000 --> 00:23:00,000

And with the truck easing up to 25 miles per hour.

348

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

I don't see any problem with that.

349

00:23:02,000 --> 00:23:06,000

Buster stays upright and has no problems keeping in line.

350

00:23:06,000 --> 00:23:07,000

So we've had a few setbacks.

351

00:23:07,000 --> 00:23:09,000

We've tweaked and tuned the rig.

352

00:23:09,000 --> 00:23:11,000

Now it's time to start the mayhem.

353

00:23:11,000 --> 00:23:13,000

Start the mayhem!

354

00:23:17,000 --> 00:23:18,000

Chailed for science.

355

00:23:18,000 --> 00:23:22,000

Carrie, Grant and Tori are going a little stir crazy.

356

00:23:22,000 --> 00:23:25,000

Man, I gotta get out of here.

357

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

If only we could figure out a way to escape.

358

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

If only we had a rope or something.

359

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

Yes, they're putting three mythical rope making materials to the test.

360

00:23:34,000 --> 00:23:40,000

The hair's been braided, the toilet paper twisted, and the sheets rolled and knotted.

361

00:23:40,000 --> 00:23:45,000

Which means our ingenious inmates are ready to become outmates.

362

00:23:45,000 --> 00:23:50,000

And the coop they'll be flying from is the Alameda County Courthouse Jail.

363

00:23:50,000 --> 00:23:55,000

They have to repel from the roof using only their cell-made ropes.

364

00:23:59,000 --> 00:24:02,000

Alright you guys, it's a moment of truth for our prison escape ropes.

365

00:24:02,000 --> 00:24:08,000

We've got 100% human hair, toilet paper rope, and the old school classic bed sheet.

366

00:24:08,000 --> 00:24:11,000

Well since yours is probably the most likely to work, maybe you should go first.

367

00:24:11,000 --> 00:24:15,000

She shows how it's done, and then this way we can test out the SWAT team safety mechanism.

368

00:24:15,000 --> 00:24:17,000

Fine, I will!

369

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

Good luck man.

370

00:24:19,000 --> 00:24:21,000

Alright, freedom!

371

00:24:21,000 --> 00:24:22,000

Freedom!

372

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

I'm going first, I like that.

373

00:24:25,000 --> 00:24:29,000

So Grant, the nominated human guinea pig, is first up.

374

00:24:29,000 --> 00:24:32,000

But rest assured, he's in safe hands.

375

00:24:32,000 --> 00:24:36,000

Jack Tucker and Mike Norton are SWAT team repel masters.

376

00:24:36,000 --> 00:24:42,000

And they've rigged a harness and rope system that will allow Grant to climb unassisted.

377

00:24:42,000 --> 00:24:44,000

Unless he falls.

378

00:24:44,000 --> 00:24:46,000

I got full confidence in the SWAT guys.

379

00:24:46,000 --> 00:24:49,000

They specialize in two things, repelling and kicking ass.

380

00:24:49,000 --> 00:24:51,000

So I feel completely safe.

381

00:24:51,000 --> 00:24:54,000

Yeah, real safe.

382

00:24:54,000 --> 00:24:57,000

Well that certainly gets the juices flowing.

383

00:24:57,000 --> 00:25:02,000

Um, yeah it's a little bit different perspective up here.

384

00:25:07,000 --> 00:25:09,000

Okay, I can do this.

385

00:25:09,000 --> 00:25:17,000

With every inch of that terrifying drop playing on his mind, Grant forces himself to focus on prepping for the climb.

386

00:25:17,000 --> 00:25:20,000

So this is the moment of truth for my bed sheet rope.

387

00:25:20,000 --> 00:25:26,000

And you actually escape using a bed sheet and not having break.

388

00:25:26,000 --> 00:25:28,000

Hehehehehehe.

389

00:25:28,000 --> 00:25:31,000

Okay, it's long enough.

390

00:25:31,000 --> 00:25:33,000

Hehehehehe.

391

00:25:33,000 --> 00:25:36,000

Okay.

392

00:25:36,000 --> 00:25:43,000

So careful observers may note that I'm wearing in addition to my standard prison garb a safety harness.

393

00:25:43,000 --> 00:25:50,000

Now the important thing is that the safety harness is only in case the rope breaks or there's some other problem.

394

00:25:50,000 --> 00:25:52,000

Okay you guys, ready to go.

395

00:25:52,000 --> 00:25:56,000

The bed sheet will be holding my entire weight the whole time.

396

00:25:56,000 --> 00:25:58,000

Here I go.

397

00:25:58,000 --> 00:26:00,000

Alright.

398

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

Grant's first careful steps are onto a convenient ledge just over the edge.

399

00:26:04,000 --> 00:26:07,000

Holy sheet that's high.

400

00:26:07,000 --> 00:26:12,000

But from here on in it's down to Grant and those knotted bed sheets.

401

00:26:12,000 --> 00:26:14,000

Alright you guys ready?

402

00:26:14,000 --> 00:26:16,000

Ready.

403

00:26:16,000 --> 00:26:18,000

Here we go with the old school bed sheet.

404

00:26:18,000 --> 00:26:20,000

Be careful little buddy.

405

00:26:20,000 --> 00:26:24,000

Despite the concern below, the early signs are good.

406

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

He's doing the walk down the wall thing.

407

00:26:26,000 --> 00:26:28,000

It looks like he's done this before.

408

00:26:28,000 --> 00:26:30,000

You broken out of jail before?

409

00:26:30,000 --> 00:26:33,000

Wow, those are holding up.

410

00:26:33,000 --> 00:26:35,000

The bed sheets are holding up.

411

00:26:35,000 --> 00:26:37,000

He's getting tired.

412

00:26:37,000 --> 00:26:38,000

Oh man.

413

00:26:38,000 --> 00:26:42,000

The question now is can Grant hold himself up?

414

00:26:42,000 --> 00:26:44,000

Oh, oh, oh.

415

00:26:44,000 --> 00:26:45,000

God.

416

00:26:45,000 --> 00:26:46,000

He's just hanging.

417

00:26:46,000 --> 00:26:47,000

He's just hanging.

418

00:26:47,000 --> 00:26:49,000

Hang on buddy.

419

00:26:49,000 --> 00:26:50,000

Don't let go.

420

00:26:50,000 --> 00:26:52,000

You're almost free.

421

00:26:52,000 --> 00:26:53,000

Atta boy.

422

00:26:53,000 --> 00:26:54,000

This sucks.

423

00:26:54,000 --> 00:26:55,000

You can do it.

424

00:26:55,000 --> 00:27:00,000

I've got climbing experience but there's nothing to hold onto up there except for the rope.

425

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

Pretend like your life depends on it.

426

00:27:02,000 --> 00:27:04,000

Because it kind of does.

427

00:27:04,000 --> 00:27:09,000

So thank god that I got those big knots in there because if I didn't have that, it'd be done.

428

00:27:09,000 --> 00:27:11,000

Oh Grant, you're doing so good.

429

00:27:11,000 --> 00:27:13,000

You're almost there dude.

430

00:27:13,000 --> 00:27:14,000

You're halfway there.

431

00:27:14,000 --> 00:27:16,000

The sheets are totally holding you up.

432

00:27:16,000 --> 00:27:21,000

There were a couple places where I couldn't quite get a foothold and the rope just slipped in my hands

433

00:27:21,000 --> 00:27:25,000

and that's where I got these hideous rope burns which are really, really hurting.

434

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

Look at the pain in his face.

435

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

Freedom's like 20 feet away.

436

00:27:29,000 --> 00:27:30,000

Yeah.

437

00:27:30,000 --> 00:27:31,000

Ow.

438

00:27:31,000 --> 00:27:32,000

Ow.

439

00:27:32,000 --> 00:27:36,000

Yes, yes, yes, yes.

440

00:27:36,000 --> 00:27:37,000

Let go.

441

00:27:37,000 --> 00:27:39,000

You're there dude.

442

00:27:39,000 --> 00:27:40,000

Yeah.

443

00:27:40,000 --> 00:27:42,000

I'm free.

444

00:27:42,000 --> 00:27:43,000

I'm free.

445

00:27:43,000 --> 00:27:45,000

Good fun.

446

00:27:45,000 --> 00:27:47,000

Freedom.

447

00:27:47,000 --> 00:27:50,000

But with a bad case of rope burns.

448

00:27:50,000 --> 00:27:57,000

The good news is I can totally see why they put this in movies because the entire time the bed sheet was solid.

449

00:27:57,000 --> 00:28:02,000

There was no ripping, no tearing, no giving way of the bed sheet.

450

00:28:02,000 --> 00:28:07,000

That was solid and you know I had been in a little bit better physical condition.

451

00:28:07,000 --> 00:28:10,000

Probably would have gotten down that no problem.

452

00:28:10,000 --> 00:28:16,000

And what that means is that scaling the jailhouse wall with a bed sheet rope is confirmed.

453

00:28:16,000 --> 00:28:18,000

I'm free.

454

00:28:21,000 --> 00:28:32,000

For those playing along at home, here's where we stand so far in the myth that jamming a flagpole into the front spokes of the motorcycle will cause it to flip up in the air.

455

00:28:32,000 --> 00:28:43,000

We have gotten a motorcycle wheel up to 50 miles an hour and found out that yes, a human is totally capable of jamming a flagpole into that front wheel and stopping it.

456

00:28:43,000 --> 00:28:45,000

We broke some stuff.

457

00:28:45,000 --> 00:28:52,000

The question now is if you're doing that to a motorcycle that's moving, will it have the effect that the myth states?

458

00:28:52,000 --> 00:28:57,000

The bike immediately stops and starts to cartwheel while going up in the air.

459

00:28:57,000 --> 00:28:58,000

Now we're going to see what happens for real.

460

00:28:58,000 --> 00:29:01,000

Okay, that's where we've been, but where are we going?

461

00:29:01,000 --> 00:29:03,000

So this is how this works.

462

00:29:03,000 --> 00:29:10,000

We're sitting on the back of a flatbed truck moving down the runway and when I press this switch, I set into action a whole series of events.

463

00:29:10,000 --> 00:29:14,000

The first series of events, he sets into action and our electrons moving down this wire.

464

00:29:14,000 --> 00:29:17,000

Those electrons working so hard and beautifully, we get to this motor and start at the spin.

465

00:29:17,000 --> 00:29:21,000

This motor mounted to this entire custom belt rig meant to hold this motorcycle in an upright position.

466

00:29:21,000 --> 00:29:22,000

We'll start this all thread spinning.

467

00:29:22,000 --> 00:29:25,000

This all thread is mounted to a nut in the center of the handlebars keeping it attached to the rig.

468

00:29:25,000 --> 00:29:28,000

The nut in reverse will release the bike from the rig.

469

00:29:28,000 --> 00:29:31,000

When the bike releases from the rig, it'll trip this little blast switch.

470

00:29:31,000 --> 00:29:39,000

The brass switch will then send a signal to this two inch pilot valve holding back 25 pound per square inch of pressure inside the schedule 40 accumulation tag between custom belt.

471

00:29:39,000 --> 00:29:43,000

The air once released will travel down this flexible hose into this cannon behind the Hickory stick,

472

00:29:43,000 --> 00:29:46,000

sending the Hickory stick through the smokes of a custom built motorcycle wheel,

473

00:29:46,000 --> 00:29:53,000

stopping the motorcycle on a dime, sending it up into the air and hopefully having everybody cheering for science.

474

00:29:53,000 --> 00:30:02,000

And with the crowd expectant, the team set up and step up for the first test at 25 miles per hour.

475

00:30:02,000 --> 00:30:03,000

You know what I hope?

476

00:30:03,000 --> 00:30:04,000

I hope it works.

477

00:30:04,000 --> 00:30:05,000

Me too.

478

00:30:05,000 --> 00:30:06,000

Alright, let's start it.

479

00:30:06,000 --> 00:30:14,000

Buster looking every inch a crash test biker tailgates the truck ready for his moment of glory.

480

00:30:14,000 --> 00:30:20,000

And once the team are at test speed, Adam calls it.

481

00:30:20,000 --> 00:30:23,000

Firing in three, two, one.

482

00:30:23,000 --> 00:30:26,000

That went through and stopped the wheel.

483

00:30:26,000 --> 00:30:28,000

Okay, we'll stop.

484

00:30:28,000 --> 00:30:29,000

Slow down and stop.

485

00:30:29,000 --> 00:30:40,000

It all happened pretty fast, but a quick look at the high speed confirms the Rube Goldberg-esque rig worked like a dream.

486

00:30:40,000 --> 00:30:43,000

Jamie hit the switch, Buster was released.

487

00:30:43,000 --> 00:30:45,000

I see it clicking the switch.

488

00:30:45,000 --> 00:30:49,000

The cannon fired and the flagpole was jammed into the spokes.

489

00:30:49,000 --> 00:30:53,000

Dude, the timing is just dead on.

490

00:30:53,000 --> 00:30:55,000

Giving Buster a taste of asphalt.

491

00:30:55,000 --> 00:30:57,000

How you doing, buddy?

492

00:30:57,000 --> 00:31:01,000

But there was no sign of the mythical flip.

493

00:31:01,000 --> 00:31:04,000

It couldn't be better, but I didn't see no biker flippo.

494

00:31:04,000 --> 00:31:09,000

Yep, no biker flippo, more of a biker topolo.

495

00:31:09,000 --> 00:31:11,000

So what's next?

496

00:31:11,000 --> 00:31:17,000

The next thing we're going to do is ramp the speed up a little bit so that the bike will tend to want to stay upright for longer.

497

00:31:17,000 --> 00:31:22,000

And we'll probably get a little more energy in the process, which means a bigger flip if we're going to get one at all.

498

00:31:22,000 --> 00:31:24,000

So it's take two.

499

00:31:24,000 --> 00:31:26,000

Holding up well.

500

00:31:26,000 --> 00:31:29,000

And this time they take the truck to 40.

501

00:31:29,000 --> 00:31:33,000

Okay, firing in three, two, one, go.

502

00:31:33,000 --> 00:31:36,000

Oh!

503

00:31:36,000 --> 00:31:38,000

Okay, he can stop.

504

00:31:38,000 --> 00:31:40,000

Stop, stop.

505

00:31:40,000 --> 00:31:46,000

So the additional momentum didn't help the bike get airborne.

506

00:31:46,000 --> 00:31:53,000

Instead, that extra energy was used to snap the flagpole in half.

507

00:31:53,000 --> 00:31:57,000

You know what? That right there is the test.

508

00:31:57,000 --> 00:31:59,000

That's the test.

509

00:31:59,000 --> 00:32:02,000

And it didn't work. It broke the stick.

510

00:32:02,000 --> 00:32:04,000

I think that was the circumstances of the myth right there.

511

00:32:04,000 --> 00:32:06,000

We got the bike going at 40 miles per hour.

512

00:32:06,000 --> 00:32:08,000

We got the stick firing perfectly into the spokes.

513

00:32:08,000 --> 00:32:13,000

It didn't stop the bike, it didn't flip the bike, and it broke the stick.

514

00:32:13,000 --> 00:32:15,000

So what's next?

515

00:32:15,000 --> 00:32:20,000

Stronger stick. That was the circumstances. Let's try and get the results with a big, fat steel stick.

516

00:32:20,000 --> 00:32:22,000

Steel it is.

517

00:32:22,000 --> 00:32:27,000

And now, just like Buster, the myth is down, but not quite out.

518

00:32:29,000 --> 00:32:35,000

Carrie, Tori and Grant have had success with the first of their repel to freedom tests.

519

00:32:35,000 --> 00:32:38,000

Yeah! They're free!

520

00:32:38,000 --> 00:32:40,000

I'm free!

521

00:32:40,000 --> 00:32:44,000

This myth is absolutely confirmed, and I love it when myth circumfirms.

522

00:32:44,000 --> 00:32:48,000

The rope did not break. You can make a bed sheet rope and escape from jail.

523

00:32:48,000 --> 00:32:50,000

Let's not air this in the prisons.

524

00:32:50,000 --> 00:32:52,000

The first one down, literally.

525

00:32:52,000 --> 00:32:54,000

I'm free!

526

00:32:54,000 --> 00:32:56,000

With two to go.

527

00:32:56,000 --> 00:32:59,000

Now that the sheets are confirmed, it's time to see if all your hard work is going to pay off.

528

00:32:59,000 --> 00:33:01,000

You look kind of nervous. Are you okay?

529

00:33:01,000 --> 00:33:03,000

I am kind of nervous.

530

00:33:03,000 --> 00:33:05,000

Good luck. See you on the outside.

531

00:33:05,000 --> 00:33:08,000

I'm not afraid of heights, but I'm really afraid of falling.

532

00:33:08,000 --> 00:33:14,000

And I'm not a mountain climber. This will be the first time I really will have done anything remotely like this.

533

00:33:14,000 --> 00:33:16,000

So, yeah, I'm nervous.

534

00:33:16,000 --> 00:33:18,000

Oh my God, I'm going to throw up.

535

00:33:20,000 --> 00:33:26,000

And no wonder she's nervous. It's clear hair isn't exactly an ideal rope making material.

536

00:33:26,000 --> 00:33:34,000

I was watching her form the rope, and there were many times where she had to take it apart because she would test it and it would just go whoosh.

537

00:33:34,000 --> 00:33:43,000

She's got multiple strands, you know, forming a big, thick rope of hair, but at this point my confidence isn't especially high.

538

00:33:43,000 --> 00:33:45,000

And neither is Carrie's.

539

00:33:45,000 --> 00:33:47,000

Whose hairball idea is this?

540

00:33:47,000 --> 00:33:53,000

Well, it's a hair brain plan for sure, but it's too late to turn back now.

541

00:33:53,000 --> 00:33:58,000

We're about to find out if that hairy lifeline will cut it.

542

00:33:58,000 --> 00:34:04,000

Oh, it's looking pretty good so far, actually.

543

00:34:04,000 --> 00:34:06,000

Well, the hair is holding up.

544

00:34:06,000 --> 00:34:07,000

That's great.

545

00:34:07,000 --> 00:34:09,000

It's incredible how strong it is.

546

00:34:09,000 --> 00:34:11,000

Whoa!

547

00:34:11,000 --> 00:34:20,000

It defies belief, but Carrie's descent is being supported by nothing more than a 140 feet long

triple braided ponytail.

548

00:34:20,000 --> 00:34:22,000

How's it going, Carrie?

549

00:34:22,000 --> 00:34:23,000

I see split ends.

550

00:34:23,000 --> 00:34:24,000

You should have used conditioner.

551

00:34:24,000 --> 00:34:26,000

They're split ends!

552

00:34:26,000 --> 00:34:31,000

Hair care issues aside, Carrie's descent is going spectacularly well.

553

00:34:31,000 --> 00:34:32,000

You're almost free!

554

00:34:32,000 --> 00:34:38,000

The redundancy of the three separate braids seems to have solved the splice slipping problem.

555

00:34:38,000 --> 00:34:40,000

Oh, yeah!

556

00:34:40,000 --> 00:34:44,000

And her technique of sliding instead of climbing is just perfect.

557

00:34:44,000 --> 00:34:46,000

Yeah!

558

00:34:46,000 --> 00:34:48,000

You did it!

559

00:34:48,000 --> 00:34:50,000

The hair didn't break.

560

00:34:50,000 --> 00:34:53,000

I've got to say I'm totally amazed.

561

00:34:53,000 --> 00:34:54,000

My hands?

562

00:34:54,000 --> 00:34:55,000

Little jacked.

563

00:34:55,000 --> 00:35:04,000

This rope is composed of hair that's braided, and if you look at it, it's actually kind of springy, which is just crazy.

564

00:35:04,000 --> 00:35:07,000

It's effective, disgusting, but effective.

565

00:35:07,000 --> 00:35:08,000

Yeah!

566

00:35:08,000 --> 00:35:10,000

Oh my god, that was so scary!

567

00:35:10,000 --> 00:35:11,000

Yeah.

568

00:35:11,000 --> 00:35:12,000

And the hair didn't break!

569

00:35:12,000 --> 00:35:14,000

I can't believe it didn't break.

570

00:35:14,000 --> 00:35:21,000

It was like I'd slide, grab a knot, slide, grab a knot, but the whole time I was just like, it's coming, it's coming, it's coming, it's coming, it's coming, it's coming, it's coming, it's coming, it's coming, it's coming.

571

00:35:21,000 --> 00:35:27,000

The only part that got really hairy, I would say, was actually there's a portion in the middle where the hair is really thin,

572

00:35:27,000 --> 00:35:33,000

and I actually watched a little piece of hair go like this.

573

00:35:33,000 --> 00:35:37,000

And I was just like going faster, going faster.

574

00:35:37,000 --> 00:35:43,000

Then when I was right close to the ground and I had about a foot, then I kind of dropped a little bit.

575

00:35:43,000 --> 00:35:47,000

That's the only time I actually felt the rope kind of, the belay, was the last foot.

576

00:35:47,000 --> 00:35:52,000

The whole time, that was sheer human hair strength.

577

00:35:52,000 --> 00:35:54,000

Incredible, but true.

578

00:35:54,000 --> 00:35:59,000

But unlike the bedsheets, the guys are reluctant to call this one confirmed.

579

00:35:59,000 --> 00:36:01,000

The hair worked, and it didn't break.

580

00:36:01,000 --> 00:36:05,000

It's not the most practical technique, but I mean, if you can get that amount of hair and braid it together,

581

00:36:05,000 --> 00:36:08,000

you can make rope and escape.

582

00:36:08,000 --> 00:36:12,000

Yeah, unless your name's Rapunzel, getting that amount of hair could be an issue.

583

00:36:12,000 --> 00:36:17,000

But as a mythical rope making material, it does actually work.

584

00:36:22,000 --> 00:36:28,000

On the motorcycle movie myth, Adam and Jamie are having a flipping good time.

585

00:36:28,000 --> 00:36:30,000

I haven't seen no Michael Flippo.

586

00:36:30,000 --> 00:36:34,000

There's been no sign of the mythical head over handlebars flip.

587

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

Okay, you can stop.

588

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

So they decided to beef things up a bit.

589

00:36:39,000 --> 00:36:42,000

So at 40 miles an hour, Hickory didn't really cut it.

590

00:36:42,000 --> 00:36:46,000

So this time we're going to use a steel pipe.

591

00:36:46,000 --> 00:36:53,000

This is about eight times as heavy, and it's going to do something pretty violent.

592

00:36:53,000 --> 00:36:57,000

But that extra weight necessitates a couple of tweaks to the rig.

593

00:36:57,000 --> 00:37:03,000

We're going to up the pressure quite a bit to about 80 psi, where we were doing about 20 or 25.

594

00:37:03,000 --> 00:37:06,000

And I'm going to lubricate it a little bit.

595

00:37:06,000 --> 00:37:12,000

And since we forgot to bring the lard, the lunch table had a little leftover mayo, so I'm going to try that.

596

00:37:12,000 --> 00:37:16,000

Sometimes you just need a little extra lubrication.

597

00:37:16,000 --> 00:37:19,000

Too bad we forgot the lard.

598

00:37:21,000 --> 00:37:22,000

I feel funny.

599

00:37:22,000 --> 00:37:30,000

With Jamie's steel pole nicely lubricated, the team is ready for what it hopes will be the final spoke poke.

600

00:37:30,000 --> 00:37:32,000

Hopefully this is the itch shot.

601

00:37:32,000 --> 00:37:36,000

This is either going to look this motorcycle or put it once in for all that's totally not possible.

602

00:37:36,000 --> 00:37:38,000

I hope this works.

603

00:37:38,000 --> 00:37:40,000

What's not to work?

604

00:37:42,000 --> 00:37:44,000

Oh, so many things.

605

00:37:44,000 --> 00:37:52,000

But if it goes according to plan, Buster will soon be taking a short, dizzying flight with a mandatory crash landing.

606

00:37:52,000 --> 00:37:56,000

Okay, pulling three, two, one, go!

607

00:38:02,000 --> 00:38:04,000

Give me five there.

608

00:38:07,000 --> 00:38:13,000

Another smooth execution by the rig, and you could say the guys are pleased.

609

00:38:13,000 --> 00:38:15,000

Well, that seemed to work just beautifully.

610

00:38:15,000 --> 00:38:17,000

It doesn't get any prettier than that.

611

00:38:17,000 --> 00:38:19,000

And the bike did not flip.

612

00:38:19,000 --> 00:38:22,000

No, the tire skidded. You know, that's it. That's the perfect test.

613

00:38:22,000 --> 00:38:26,000

It's forward momentum. It doesn't transfer immediately to vertical momentum.

614

00:38:26,000 --> 00:38:29,000

It makes all the sense in the world now that I've seen it happen.

615

00:38:29,000 --> 00:38:34,000

You know, you could stop the bad guy that way if you happen to have a steel kite, but it's not getting airborne.

616

00:38:34,000 --> 00:38:37,000

It just won't happen. It's going to do exactly that.

617

00:38:37,000 --> 00:38:40,000

Dude, that totally worked. We can aide.

618

00:38:40,000 --> 00:38:46,000

The most important thing to keep in mind about this test is the traction between this wheel and the road surface.

619

00:38:46,000 --> 00:38:48,000

Nice work, Buster!

620

00:38:48,000 --> 00:38:54,000

If you bring the wheel to a dead stop, like you will if you put a stick between the spokes, it's going to skid.

621

00:38:54,000 --> 00:38:58,000

You're going to lose control. It'll slip out from under the bike and it's all over.

622

00:38:58,000 --> 00:39:01,000

It will not get it airborne like it did in the movie.

623

00:39:01,000 --> 00:39:04,000

Oh, so satisfying.

624

00:39:04,000 --> 00:39:08,000

So, no bike old flippo, even with the mayo.

625

00:39:08,000 --> 00:39:14,000

You know what we have to do though now? We have to finish on a bike that's doing a flip.

626

00:39:14,000 --> 00:39:16,000

Hook or my crook, we have to finish with that.

627

00:39:16,000 --> 00:39:19,000

Physics one, movies zero.

628

00:39:19,000 --> 00:39:25,000

And so it's back to the shop to square the account and find out the physics of film effects.

629

00:39:25,000 --> 00:39:30,000

Dude, check this out. It looks like this whole scene is just a trick of editing.

630

00:39:30,000 --> 00:39:33,000

You can see that when the bike takes off, it's totally stationary.

631

00:39:33,000 --> 00:39:38,000

And if I frame forward a couple frames, you can see a small explosion underneath.

632

00:39:38,000 --> 00:39:40,000

That's a classic Hollywood slide of hand.

633

00:39:40,000 --> 00:39:45,000

Yeah, it's pretty clear that if we're going to do this Hollywood style, we're going to need some explosives to get that bike in the air.

634

00:39:45,000 --> 00:39:46,000

We need a boom.

635

00:39:46,000 --> 00:39:47,000

Exactly.

636

00:39:47,000 --> 00:39:54,000

Yep, so the key is TNT. And with that in mind, our special effects specialists get back to work.

637

00:39:54,000 --> 00:40:02,000

This is what is known as a mortar. Now this is what is going to make the bike do what we couldn't do with a stick through the spokes.

638

00:40:02,000 --> 00:40:12,000

We're going to fill this with gunpowder. We're going to put it underneath the bike and it's going to fire a bunch of black powder shooting the bike way up in the air and spinning while it does it.

639

00:40:12,000 --> 00:40:18,000

To survive that black powder powered flight, the bike gets a once over for matter.

640

00:40:18,000 --> 00:40:27,000

This may look like an ordinary bike, sure, but in fact this bike has now realized the dream of all bikes, which is to be a stunt bike.

641

00:40:27,000 --> 00:40:34,000

I've reinforced its skeletal structure so that it can be punched from behind the engine and fly up in the air to glory.

642

00:40:34,000 --> 00:40:38,000

Sounds great, unless your name happens to be Buster.

643

00:40:42,000 --> 00:40:46,000

To get to the bottom of the toilet paper jailbreak.

644

00:40:46,000 --> 00:40:49,000

Oh, this prison food's killing me.

645

00:40:49,000 --> 00:40:53,000

You need to put more fiber in the damn food.

646

00:40:53,000 --> 00:41:00,000

Tari has taken a swipe at making a rope from genuine one-ply perforated prison poop paper.

647

00:41:00,000 --> 00:41:06,000

So my toilet paper rope is done. It's taken me a long time and it looks like rope. However, it's still only toilet paper.

648

00:41:06,000 --> 00:41:09,000

So I'm hoping it's going to be strong enough to hold up my weight.

649

00:41:09,000 --> 00:41:12,000

His chances are made of paper.

650

00:41:12,000 --> 00:41:15,000

Is Escape Techniques paper thin?

651

00:41:15,000 --> 00:41:19,000

We've got to get out of here. We've got to put us in the loot bin.

652

00:41:19,000 --> 00:41:24,000

Toilet paper rope, Escape? Probably the stupidest idea ever.

653

00:41:24,000 --> 00:41:27,000

It's not that stupid. You've got stupider ideas.

654

00:41:27,000 --> 00:41:30,000

I'm going to kick your butt if I survive, Grant.

655

00:41:30,000 --> 00:41:33,000

Watch that first step. She's a doozy.

656

00:41:33,000 --> 00:41:40,000

And that first step is also the crucial moment when nothing but toilet paper is taking Tari's weight.

657

00:41:40,000 --> 00:41:43,000

Oh my god.

658

00:41:44,000 --> 00:41:51,000

But incredibly, a few expletives aside, it's all going according to plan. Sort of.

659

00:41:51,000 --> 00:41:57,000

Toilet paper is used to wipe your butt, not climb down a building.

660

00:41:57,000 --> 00:42:02,000

It seems the real issue with the tissue is finding a firm grip.

661

00:42:02,000 --> 00:42:04,000

I'm off.

662

00:42:08,000 --> 00:42:10,000

You okay?

663

00:42:10,000 --> 00:42:14,000

And that, right there, is why we hired the SWAT team.

664

00:42:14,000 --> 00:42:17,000

Tori slipped.

665

00:42:17,000 --> 00:42:22,000

And if it wasn't for the safety harness, he was a gunner.

666

00:42:22,000 --> 00:42:25,000

But aside from that sudden and terrifying drop...

667

00:42:25,000 --> 00:42:27,000

Yes, dude, you're almost there.

668

00:42:27,000 --> 00:42:33,000

Tori and the toilet paper hold firm and make it safely to Tara Ferma.

669

00:42:33,000 --> 00:42:35,000

Freedom!

670

00:42:37,000 --> 00:42:39,000

You did it!

671

00:42:39,000 --> 00:42:41,000

There's no...

672

00:42:41,000 --> 00:42:45,000

Who would have thought toilet paper works to escape?

673

00:42:45,000 --> 00:42:49,000

I'm amazed. I'm amazed that the toilet paper did not break.

674

00:42:49,000 --> 00:42:51,000

Freedom!

675

00:42:51,000 --> 00:42:54,000

At least while he was making his way down.

676

00:42:54,000 --> 00:42:57,000

I'm free. I can't walk, but I'm free.

677

00:42:57,000 --> 00:43:00,000

Yeah, it broke, but it didn't break during the test.

678

00:43:00,000 --> 00:43:04,000

And so Tari gives toilet paper his seal of approval.

679

00:43:04,000 --> 00:43:10,000

I am totally convinced that toilet paper used as a rope is a plausible way to escape from prison.

680

00:43:10,000 --> 00:43:14,000

You saw it. It didn't break. It stretched a lot, but it didn't break.

681

00:43:14,000 --> 00:43:16,000

It was incredible. Toilet paper.

682

00:43:16,000 --> 00:43:18,000

It worked! We're free!

683

00:43:18,000 --> 00:43:21,000

That was amazing! Two plausibles and it confirmed!

684

00:43:21,000 --> 00:43:23,000

Hair, toilet paper, and bedsheets!

685

00:43:23,000 --> 00:43:26,000

All right, I'll see you guys in Mexico in a month.

686

00:43:26,000 --> 00:43:29,000

Welcome back. Here's where we stand.

687

00:43:29,000 --> 00:43:34,000

We have already busted the myth that if you jam a flagpole into the smokes of a motorcycle at speed,

688

00:43:34,000 --> 00:43:36,000

that it will flip end over end.

689

00:43:36,000 --> 00:43:38,000

Totally not possible within the laws of physics.

690

00:43:38,000 --> 00:43:43,000

Now Jamie and I are going to do it Hollywood style with our favorite tool, explosives.

691

00:43:43,000 --> 00:43:46,000

In Hollywood also, geeky television show hosts,

692

00:43:46,000 --> 00:43:49,000

and the most popular show host,

693

00:43:49,000 --> 00:43:51,000

are the Hollywood TV hosts.

694

00:43:51,000 --> 00:43:56,000

And to make sure this silver scene recreation is spot on,

695

00:43:56,000 --> 00:44:01,000

the bike and Buster get a makeover by the wardrobe department.

696

00:44:01,000 --> 00:44:03,000

It looks good!

697

00:44:03,000 --> 00:44:06,000

And Buster is given no credit for his work.

698

00:44:06,000 --> 00:44:10,000

And the only thing that's not a good thing is that he's not a good guy.

699

00:44:10,000 --> 00:44:12,000

And he's not a good guy.

700

00:44:12,000 --> 00:44:14,000

And he's not a good guy.

701

00:44:14,000 --> 00:44:16,000

And he's not a good guy.

702

00:44:16,000 --> 00:44:18,000

And the wardrobe department.

703

00:44:18,000 --> 00:44:20,000

It looks good!

704

00:44:20,000 --> 00:44:24,000

And Buster is given no choice about his participation in the upcoming stunt.

705

00:44:24,000 --> 00:44:27,000

This is how the old Hollywood stuntman used to do it.

706

00:44:27,000 --> 00:44:30,000

Wire me in, they'd scream.

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00:44:30,000 --> 00:44:33,000

Buster's old school.

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00:44:33,000 --> 00:44:37,000

With our very own member of the third rike on his bike,

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00:44:37,000 --> 00:44:40,000

the guys with the help of Matt the Pyro,

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00:44:40,000 --> 00:44:43,000

prepare the mortar that'll send Buster into the air.

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00:44:43,000 --> 00:44:46,000

We've got this mortar with a plate right on top of it.

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00:44:46,000 --> 00:44:49,000

That plate is welded to the bottom of the motorcycle.

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00:44:49,000 --> 00:44:50,000

It's very secure.

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00:44:50,000 --> 00:44:53,000

When that gunpowder goes off, the plate is going to go up,

715

00:44:53,000 --> 00:44:56,000

and that's all there is to it, except for one thing.

716

00:44:56,000 --> 00:45:00,000

And that is any air in the mortar would compress.

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

Going back on?

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00:45:01,000 --> 00:45:04,000

So to deal with that problem, we've put sand in there.

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00:45:04,000 --> 00:45:06,000

The sand will not compress,

720

00:45:06,000 --> 00:45:09,000

and it also adds a certain mass

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00:45:09,000 --> 00:45:11,000

that will literally push the bike up in the air

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00:45:11,000 --> 00:45:15,000

without us having to use massive quantities of explosives,

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00:45:15,000 --> 00:45:17,000

which would cause other problems.

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00:45:17,000 --> 00:45:19,000

With Jamie applying the finishing touches,

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00:45:19,000 --> 00:45:23,000

Adam takes delivery of the final piece of the puzzle.

726

00:45:23,000 --> 00:45:25,000

Dude, I totally want one of these.

727

00:45:25,000 --> 00:45:28,000

So now, Adam's got the ride to go with the outfit.

728

00:45:28,000 --> 00:45:29,000

Awesome.

729

00:45:29,000 --> 00:45:32,000

Look, it's got a seat for Jamie and everything.

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00:45:32,000 --> 00:45:42,000

Q won very happy geeky TV host.

731

00:45:42,000 --> 00:45:47,000

Have you ever heard of Dirty Castle?

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00:45:47,000 --> 00:45:52,000

And with that out of his system, it's stunt time.

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00:45:52,000 --> 00:45:54,000

It's like nerd fantasy camp.

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00:45:54,000 --> 00:45:58,000

Okay, here's how the MythBusters big-budget movie shot is going to prank them.

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00:45:58,000 --> 00:46:00,000

Jamie and I, we start in motorcycle and cycle

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00:46:00,000 --> 00:46:03,000

about 100 feet behind our stunt cycle.

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00:46:03,000 --> 00:46:04,000

We're going to drive right past it,

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00:46:04,000 --> 00:46:06,000

and then we get 100 feet ahead of it.

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00:46:06,000 --> 00:46:08,000

The pyro's going to detonate the charge in this.

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00:46:08,000 --> 00:46:11,000

Our stunt buster is going to fly up in the air and over end,

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00:46:11,000 --> 00:46:13,000

and the long lens that we're shooting it from

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00:46:13,000 --> 00:46:16,000

is going to make it look like we're a lot closer to the explosion

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00:46:16,000 --> 00:46:18,000

than we actually are.

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00:46:18,000 --> 00:46:20,000

You ready, old man?

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00:46:20,000 --> 00:46:23,000

You got a taste for adventure?

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00:46:23,000 --> 00:46:25,000

Here we go.

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00:46:28,000 --> 00:46:32,000

So everyone, including Buster, is all set.

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00:46:32,000 --> 00:46:34,000

Adam and Jamie roll up to speed,

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00:46:34,000 --> 00:46:37,000

and Matt waits with his finger on the detonator.

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00:46:37,000 --> 00:46:40,000

To get the shot, the timing, camera angle,

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00:46:40,000 --> 00:46:47,000

and flight of the bike has to be just so.

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00:46:47,000 --> 00:46:50,000

And that couldn't have gone better.

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00:46:50,000 --> 00:46:52,000

Well, the timing was perfect.

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00:46:52,000 --> 00:46:56,000

If you say so, Junior.

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00:46:56,000 --> 00:46:59,000

Well, let's check the footage.

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00:46:59,000 --> 00:47:02,000

The mortar exploded as Adam and Jamie hit their mark,

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00:47:02,000 --> 00:47:06,000

and Buster, the chasing Nazi with a stick in the spokes,

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00:47:06,000 --> 00:47:10,000

goes head over handlebars.

759

00:47:10,000 --> 00:47:12,000

Ha, ha, ha.

760

00:47:12,000 --> 00:47:14,000

Awesome.

761

00:47:14,000 --> 00:47:16,000

I'm seeing it go ass over teakettle.

762

00:47:16,000 --> 00:47:18,000

That's exactly what it looks like in the movie.

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00:47:18,000 --> 00:47:20,000

Yep, as a quick comparison confirms,

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00:47:20,000 --> 00:47:22,000

the guy's got the shot.

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00:47:22,000 --> 00:47:24,000

It's beautiful.

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00:47:24,000 --> 00:47:26,000

So you may watch this and still think,

767

00:47:26,000 --> 00:47:28,000

I think it could happen if the motorcycle

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00:47:28,000 --> 00:47:30,000

went into the right conditions.

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00:47:30,000 --> 00:47:33,000

Let me point out, this stick in the wheel

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00:47:33,000 --> 00:47:35,000

made the motorcycle skid.

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00:47:35,000 --> 00:47:37,000

How much energy did it take to make the bike

772

00:47:37,000 --> 00:47:39,000

go completely vertical?

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00:47:39,000 --> 00:47:42,000

Enough energy to crush this 3 eighths inch

774

00:47:42,000 --> 00:47:45,000

thick steel plate and crack the frame

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

in like 19 different places.

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

That's a hell of a lot more energy

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00:47:49,000 --> 00:47:51,000

than you can generate with a wooden stick.

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00:47:51,000 --> 00:47:53,000

Myth Busted.

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00:47:56,000 --> 00:47:58,000

And now Buster, for doing such a good job,

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00:47:58,000 --> 00:48:00,000

gets his reward. He really likes it this way.

781

00:48:00,000 --> 00:48:02,000

Nice work, Buster.

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00:48:02,000 --> 00:48:04,000

Nice work.

783

00:48:04,000 --> 00:48:06,000

Ha, ha, ha.

784

00:48:21,000 --> 00:48:23,000

Thanks for watching.