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00:00:00,000 --> 00:00:12,240

On this episode of Mythbusters, can a cardboard box become a lethal missile?

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00:00:12,240 --> 00:00:16,400

Or is it a tissue of lies?

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00:00:16,400 --> 00:00:21,000

And on the straight and arrow, the guys take aim at some archery folklore.

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

So close!

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

So close!

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

Who are the Mythbusters?

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

Adam Savage.

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

I reject your reality and substitute my own.

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

And Jamie Heineman.

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

We're either going to die or we're going to fly.

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

Between them more than 30 years special effects experience.

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

That was intense.

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00:00:42,000 --> 00:00:54,000

They don't just tell the myths, they put them to the test.

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

If this show is taught as anything, it's that when Mythbuster and automobile meet head-on,

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00:00:59,000 --> 00:01:08,000

the result is usually carnage for the car.

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00:01:08,000 --> 00:01:10,000

So what's on the menu today?

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00:01:10,000 --> 00:01:18,000

Let's see, one car, a bunch of crash barriers, a very nervous looking buster, and a tissue box?

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00:01:18,000 --> 00:01:21,000

Oh boy, this doesn't look good.

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

Damn it.

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00:01:25,000 --> 00:01:28,000

This one is called the killer tissue box.

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00:01:28,000 --> 00:01:30,000

What are you doing up there anyway?

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00:01:30,000 --> 00:01:32,000

I got some new stilts.

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00:01:32,000 --> 00:01:34,000

And...

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00:01:34,000 --> 00:01:36,000

Just doing a blueprint on stilts.

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00:01:36,000 --> 00:01:42,000

Anyway, killer tissue box says that this tissue box could potentially be deadly.

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00:01:42,000 --> 00:01:47,000

That in an auto accident, if it's sitting on the back shelf of your car, when you collided with something,

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00:01:47,000 --> 00:01:53,000

it would be propelled forward with enough force to actually kill you when it hit your head.

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00:01:54,000 --> 00:01:57,000

What, 60 miles an hour or so?

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00:01:57,000 --> 00:01:59,000

Something like that.

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

Let's try.

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

I don't think this is going to kill you.

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

No, I didn't really feel it.

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00:02:04,000 --> 00:02:06,000

Try again.

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00:02:08,000 --> 00:02:10,000

Okay, starting to feel around about there.

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00:02:10,000 --> 00:02:12,000

Don't we do this full scale?

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

Alright, why not?

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

Now the simplest and most spectacular way to test this myth would be to place a tissue box on the rear shelf of a car,

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

get Buster behind the wheel, and crash the vehicle at high speed.

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00:02:24,000 --> 00:02:26,000

And you know what?

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00:02:26,000 --> 00:02:28,000

That's exactly what the myth Busters are going to do.

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00:02:28,000 --> 00:02:34,000

One of the things that we have done in the past because it's easier to do is to simply drop cars

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00:02:34,000 --> 00:02:37,000

to determine what kinds of impacts we get.

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00:02:38,000 --> 00:02:44,000

In this case, gravity is an important thing because when the impact occurs,

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00:02:44,000 --> 00:02:47,000

the object is sooner or later going to fall.

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00:02:47,000 --> 00:02:58,000

You know, the question is whether it'll, what speed do we have to achieve for the thing to go relatively straight from the back shelf right into the back of the head.

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00:02:58,000 --> 00:03:06,000

And we can't test that in any other way than to actually get out there on a road and try this.

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00:03:07,000 --> 00:03:09,000

Here's our victimized vehicle.

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00:03:09,000 --> 00:03:14,000

This poor old fury's been left to the myth Busters' tender mercies before.

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00:03:17,000 --> 00:03:23,000

In the drive shaft pole vault myth, Jamie rigged the fury to operate by remote control.

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00:03:23,000 --> 00:03:28,000

But this time he doesn't want to sacrifice valuable and delicate equipment,

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00:03:28,000 --> 00:03:34,000

so they settle on a more primitive form of remote control, otherwise known as towing.

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00:03:34,000 --> 00:03:38,000

They'll still have to control the fury's steering so Adam sketches out a plan.

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00:03:38,000 --> 00:03:44,000

The bar is, the wheel is attached to the car here and the steering comes down like this, right?

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00:03:44,000 --> 00:03:49,000

We're going to attach a bar to the wheel that comes out here on each side.

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00:03:49,000 --> 00:03:56,000

There'll be a pin here and a crossbar and we're going to pull from this point forward.

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00:03:56,000 --> 00:04:03,000

And this means that if this moves, this actually helps the car steer directly towards where it's being pulled.

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00:04:03,000 --> 00:04:09,000

And to be honest, this point won't be forward of the front of the car so it shouldn't affect the crash.

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00:04:09,000 --> 00:04:13,000

Building the steering rig will be Grant's responsibility.

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

So here's our killer tissue box.

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00:04:20,000 --> 00:04:24,000

Don't want to measure its distance to your head here.

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00:04:24,000 --> 00:04:26,000

All right.

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00:04:26,000 --> 00:04:30,000

It looks just about 42 inches.

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00:04:30,000 --> 00:04:34,000

You know, I was thinking about tissue box flying in a car crash,

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00:04:34,000 --> 00:04:38,000

and I was thinking anything that's moving forward is also going to be affected by gravity, so it's going to go down.

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00:04:39,000 --> 00:04:44,000

But we've got a lip on this back that the back seat creates, and that's pretty universal from my experience.

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00:04:44,000 --> 00:04:46,000

That's a nice little ski jump there.

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00:04:46,000 --> 00:04:52,000

Yeah, it's going to give it a little bit of something like that, so it might actually hit you right in the head there.

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

Okay.

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00:04:53,000 --> 00:04:57,000

Being a classic car, the Fury has bench seats and no head risks.

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00:04:57,000 --> 00:05:02,000

There's nothing protecting the driver's cranium from the cardboard killer lurking in the back.

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00:05:02,000 --> 00:05:10,000

But as this crash test footage graphically shows, modern vehicles offer a precious little protection when back seat items go ballistic.

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00:05:10,000 --> 00:05:15,000

And Buster's cousins were only doing 30 miles per hour.

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00:05:15,000 --> 00:05:23,000

It may seem like a freak occurrence, but in the United States in 2001 there were an estimated 13,000 people that were injured

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00:05:23,000 --> 00:05:27,000

by unrestrained objects in the back of the car during an accident.

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00:05:27,000 --> 00:05:35,000

Well, we found two cases in Australia where drivers were impaled through their seat by their very own golf umbrellas.

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00:05:35,000 --> 00:05:43,000

And here in the United States there was a young woman who was injured while leaving her local shopping center in a minor fender bender,

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00:05:43,000 --> 00:05:46,000

and she was killed by the groceries she had just purchased.

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00:05:46,000 --> 00:05:48,000

Food for thought.

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00:05:50,000 --> 00:05:56,000

Now with Grant Harder at work modifying the Fury steering, Adam and Jamie have time to think.

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00:05:56,000 --> 00:05:59,000

And that usually spells trouble.

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

What's the plan?

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

Well, obviously we are prepared to crash a full-sized car with a tissue box in it,

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

but we don't just want to test a tissue box, we want to test a variety of objects.

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00:06:10,000 --> 00:06:15,000

And we don't have enough cars to crash one for every object we want to test.

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00:06:15,000 --> 00:06:20,000

So I think it's a perfect opportunity for us to build a repeatable crash test rig

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00:06:20,000 --> 00:06:26,000

where we can see how each of these objects reacts under the worst-case scenario crash conditions

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00:06:26,000 --> 00:06:29,000

without destroying our rig every time we use it.

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00:06:29,000 --> 00:06:34,000

The rig will have to be lightweight, yet able to handle huge G-forces.

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00:06:34,000 --> 00:06:39,000

Even in low-speed collisions, people can be subjected to around 80 Gs.

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00:06:39,000 --> 00:06:43,000

Astronauts pull only eight at lift-off.

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00:06:43,000 --> 00:06:46,000

Now, what materials should they use?

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00:06:46,000 --> 00:06:54,000

Jamie's wondering around the metal supply shop like an art buff in a gallery.

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00:06:54,000 --> 00:06:58,000

Six or seven inch square piece, that's pretty cool.

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00:06:58,000 --> 00:07:02,000

Steel will guarantee strength, but make the rig heavy to tow.

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00:07:02,000 --> 00:07:08,000

Aluminum is much lighter, but then there's a chance the sled will disintegrate on its first run.

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

What I've decided to do, which is different by the way than Adam's choice,

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00:07:13,000 --> 00:07:23,000

is to simply take an aluminum I-beam and attach it to the underside of a 4x8 sheet of aluminum, a diamond plate.

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00:07:23,000 --> 00:07:26,000

And we'll do a little bit of reinforcement on it.

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00:07:26,000 --> 00:07:32,000

Weight is actually fairly critical with this thing because the heavier it is, the harder it's going to be to stop.

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00:07:32,000 --> 00:07:35,000

We'd have to go with a really heavy cable at some point.

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00:07:35,000 --> 00:07:41,000

I'm trying to keep things really solid and robust and yet light.

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00:07:43,000 --> 00:07:57,000

The only bad thing that can happen is all those rip and I just don't see it happening.

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00:07:57,000 --> 00:07:58,000

Are you going to cut this off?

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00:07:58,000 --> 00:07:59,000

No.

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00:07:59,000 --> 00:08:04,000

The rig will be attached to the tow vehicle using a breakaway hitch made of wood.

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

It should be strong enough to support the weight of the rig during acceleration,

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

but weak enough to break at the point of impact.

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

Can't help thinking these guys must have built a mean go-kart.

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00:08:18,000 --> 00:08:22,000

Adam adds a rear shell for our tissue box to sit on.

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00:08:22,000 --> 00:08:24,000

Now they need a target.

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00:08:24,000 --> 00:08:31,000

In the past, the mythbusters have used ballistics gel to mold recognizably human targets.

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00:08:31,000 --> 00:08:37,000

But for this high-speed experiment, Adam's opting for a slab of gel in a box.

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00:08:37,000 --> 00:08:44,000

This is one of the boxes that's actually going to hold my ballistics gel on the front of this car.

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00:08:44,000 --> 00:08:49,000

You can see it's got a lip in here and the lip is so that when I pour ballistics gel up to the top,

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00:08:49,000 --> 00:08:52,000

it's actually captured by this mold.

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00:08:52,000 --> 00:08:54,000

It's never going to get released from that.

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00:08:54,000 --> 00:09:01,000

Hopefully, when this car stops at 50 miles an hour, the ballistics gel is not going to tear itself out of the mold.

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00:09:04,000 --> 00:09:06,000

Right, the crash test vehicle is ready.

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00:09:06,000 --> 00:09:10,000

It's time to take this show on the road.

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

Adam and Jamie have found the perfect place to test the killer tissue box myth.

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00:09:19,000 --> 00:09:23,000

We're in Alameda, California on an unused naval airstrip.

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00:09:23,000 --> 00:09:28,000

And we need this because we need a long, straight, open run.

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00:09:28,000 --> 00:09:31,000

They've got a thousand feet of cable.

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00:09:31,000 --> 00:09:33,000

One end is attached to the crash test vehicle.

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00:09:33,000 --> 00:09:39,000

The other is attached to three concrete barriers, each weighing 4,000 pounds.

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00:09:41,000 --> 00:09:43,000

The barriers will act as an anchor.

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00:09:43,000 --> 00:09:49,000

When that cable is pulled straight, their combined weight will bring the crash sled to a very sudden stop.

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00:09:49,000 --> 00:09:51,000

Slow it down.

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00:09:55,000 --> 00:10:02,000

For serious grunt up front, they've hired a pickup, which will tow the sled up the runway at highway speed.

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

The first thing that I need to do is test how fast I can get this car going at about a thousand feet.

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

Because that is the length of cable that we've purchased for testing this myth.

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00:10:17,000 --> 00:10:22,000

Oh, cool. That's 75 miles an hour at about a thousand feet.

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00:10:23,000 --> 00:10:26,000

Adam makes some final adjustments to the crash test rig.

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00:10:26,000 --> 00:10:31,000

Well, we've got our back seat here and we've got our ballistics gel making a head here.

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00:10:31,000 --> 00:10:40,000

The tissue box is going to go on the back shelf and on impact, it's going to travel forward and hopefully hit our ballistics gel with our meter here,

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00:10:40,000 --> 00:10:42,000

which has got one inch markings.

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00:10:42,000 --> 00:10:47,000

We should be able to see exactly what its velocity is and calculate how much force it's imparting to someone's head.

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00:10:50,000 --> 00:10:52,000

Time for a test run.

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00:10:55,000 --> 00:10:59,000

This is when we find out if all our hard work is for naught.

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00:11:01,000 --> 00:11:08,000

The truck hits 60 miles per hour. When the sled reaches the end of its tether, it should stop dead.

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

The cable snaps and the crash sled is like a dog lit off its leash.

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00:11:18,000 --> 00:11:21,000

Damn it! Can we get a break please?

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00:11:22,000 --> 00:11:26,000

How about we try that again? It's obvious we need a stronger connection.

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00:11:26,000 --> 00:11:30,000

So this time Jamie loops the cable through a hole in the eye beam.

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00:11:30,000 --> 00:11:32,000

Oh, I hope this works.

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00:11:32,000 --> 00:11:33,000

Take two.

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00:11:33,000 --> 00:11:35,000

I hope this works.

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00:11:35,000 --> 00:11:39,000

We've got 200 pounds of metal on the move at 60 miles per hour.

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00:11:45,000 --> 00:11:48,000

Crash cart and cable part company again.

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00:11:50,000 --> 00:11:52,000

I don't know what we're going to do.

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00:11:53,000 --> 00:11:58,000

This time though, the cable ripped an 18 inch tear in the aluminum eye beam.

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00:11:58,000 --> 00:12:02,000

It's also taken a sizable chunk out of Jamie's ego.

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00:12:02,000 --> 00:12:04,000

That's my mistake.

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00:12:04,000 --> 00:12:06,000

I just...

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00:12:06,000 --> 00:12:09,000

It makes sense now seeing what it does.

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00:12:09,000 --> 00:12:14,000

You know, I should have done the math. I should have done the engineering on it.

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

I didn't do the engineering and I didn't do the math because I thought I understood what was going on and I thought I made a good rig.

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00:12:21,000 --> 00:12:24,000

But I was wrong. I should have done it.

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00:12:24,000 --> 00:12:28,000

The cart is as light and as sturdy as it could possibly be, I think.

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00:12:28,000 --> 00:12:34,000

But his method for holding the cable to the rig just did not hold up.

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00:12:34,000 --> 00:12:40,000

I mean, it's really kind of shocking to both of us what the cable did to 18 inches of quarter inch aluminum.

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00:12:40,000 --> 00:12:44,000

That means the tissue box experiment will have to be postponed.

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

Tomorrow's another day.

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00:12:46,000 --> 00:12:49,000

Unfortunately, it also happens to be Saturday.

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00:12:49,000 --> 00:12:52,000

And that's got one Mythbuster myth.

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00:12:52,000 --> 00:12:55,000

I'm not happy at all about coming back on Saturday.

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00:12:55,000 --> 00:12:59,000

You know, this is the last experiment we're doing this week.

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00:12:59,000 --> 00:13:02,000

It's supposed to be done by now. It's a sunset.

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

And you know, we're all pretty tired.

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00:13:05,000 --> 00:13:07,000

So nobody likes coming on a Saturday.

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00:13:07,000 --> 00:13:09,000

But we've got to get this thing finished.

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

Cry me a river, Adam.

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

Thank you.

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00:13:19,000 --> 00:13:21,000

No!

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00:13:26,000 --> 00:13:29,000

While Adam and Jamie go back to the drawing board,

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00:13:29,000 --> 00:13:32,000

Tori and Carrie have gone back in time.

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00:13:32,000 --> 00:13:37,000

Carrie, I'm starting to feel like Robin Hood's Merry Men. Why are we dressed like this?

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00:13:37,000 --> 00:13:42,000

Well, we've come to the Renaissance Fair because we need to investigate a very classic Hollywood myth.

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00:13:42,000 --> 00:13:43,000

Robin Hood and an arrow.

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00:13:43,000 --> 00:13:47,000

So this myth, we're talking about actually taking one arrow and splitting it with another one.

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

But our definition is going to be very Hollywood.

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00:13:49,000 --> 00:13:51,000

We want to go from the tail to the tip.

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

Well, guys, you've come to the right place.

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00:13:53,000 --> 00:13:58,000

At the Toulouse County Renaissance Fair, there's no shortage of would-be Robin Hoods,

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00:13:58,000 --> 00:14:02,000

already and raring, to loosen arrow or two.

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00:14:02,000 --> 00:14:09,000

And it's a fair bet that our anachronistic archers are familiar with this little piece of movie history.

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00:14:09,000 --> 00:14:15,000

It's the 1938 classic, *The Adventures of Robin Hood*, starring Errol Flynn.

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00:14:15,000 --> 00:14:22,000

Finding himself up against it in an archery contest, Flynn *Let's Fly*, producing the shot of a lifetime.

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00:14:22,000 --> 00:14:24,000

He's split bowtower!

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00:14:24,000 --> 00:14:27,000

Now that's what I call shafting your opponent.

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00:14:27,000 --> 00:14:29,000

But is it possible?

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00:14:29,000 --> 00:14:32,000

Or have we been Robin Hood-winged?

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00:14:32,000 --> 00:14:36,000

Our very own little John and made Marion issue a decree.

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00:14:36,000 --> 00:14:38,000

Harry, Harry!

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00:14:38,000 --> 00:14:43,000

All the archers in the land!

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00:14:43,000 --> 00:14:47,000

This is the Myth Buster Challenge.

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00:14:47,000 --> 00:14:56,000

Is there any archer so skilled as to split a wooden arrow completely in twain from knock to tip?

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00:14:56,000 --> 00:15:03,000

Any archer capable of completing his task shall be awarded a kiss from the fair ma-

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00:15:03,000 --> 00:15:05,000

Sorry?

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00:15:05,000 --> 00:15:06,000

Yes!

201

00:15:06,000 --> 00:15:08,000

Okay, yeah, you're not going to get that.

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00:15:08,000 --> 00:15:09,000

My mistake.

203

00:15:09,000 --> 00:15:16,000

What you will get is the coveted Myth Busters Golden Arrow, our highest archery honor.

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00:15:16,000 --> 00:15:20,000

God save the archers!

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00:15:20,000 --> 00:15:24,000

God save Myth Busters!

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00:15:24,000 --> 00:15:27,000

16 archers accept the challenge.

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00:15:27,000 --> 00:15:30,000

We'll come back later to see how they get on.

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00:15:30,000 --> 00:15:36,000

But of course, it's not the Myth Buster way to just stand back and let someone else take potshots at the myth.

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

The build teams up to its own arrow-splitting antics.

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00:15:40,000 --> 00:15:42,000

Oh!

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00:15:42,000 --> 00:15:49,000

At Pacifica Archery in Daly City, California, the guys pick up a few basics.

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00:15:49,000 --> 00:15:51,000

So what is the definition of a longbow?

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00:15:51,000 --> 00:15:58,000

One piece of wood, okay, where the string doesn't touch the limb when it's strong.

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00:15:58,000 --> 00:15:59,000

See here?

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00:15:59,000 --> 00:16:01,000

That was just on each point.

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00:16:01,000 --> 00:16:02,000

It's not touching.

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00:16:02,000 --> 00:16:03,000

Help.

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00:16:03,000 --> 00:16:11,000

If you only have these guys heard the myth, they have a whole bunch of composite arrows which have been rear-ended Robin Hood style.

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

Archers call it telescoping, and it's about a one in three thousand shot.

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00:16:17,000 --> 00:16:26,000

Modern arrows like these are designed not to split, so the guys will have to use a good old-fashioned wooden shaft for their test.

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00:16:26,000 --> 00:16:33,000

But they know it's possible to fire one arrow into another.

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00:16:33,000 --> 00:16:35,000

Hey you guys, look at this.

223

00:16:35,000 --> 00:16:37,000

I split the feathers.

224

00:16:37,000 --> 00:16:39,000

I didn't split the arrow, but I split the feathers.

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00:16:39,000 --> 00:16:41,000

Wow, look at that.

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00:16:41,000 --> 00:16:43,000

That's getting really close.

227

00:16:43,000 --> 00:16:44,000

Do you think we can do some practice?

228

00:16:44,000 --> 00:16:46,000

I think maybe we might be able to.

229

00:16:46,000 --> 00:16:50,000

This chronograph is designed to measure arrow speed.

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00:16:50,000 --> 00:16:54,000

It has two light sensors, one at each end.

231

00:16:54,000 --> 00:16:58,000

The chronograph measures the time it takes for the arrow to pass between them.

232

00:16:58,000 --> 00:17:01,000

Once it knows that, it can then calculate speed.

233

00:17:01,000 --> 00:17:04,000

It's 243 feet per second.

234

00:17:04,000 --> 00:17:10,000

If Robin Hood ever did split an arrow, he did it using a bow like this.

235

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

We know from the excavation of a ship called the Mary Rose that long bows were the weapon of choice in Robin Hood's day,

236

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

and they were usually made from a wood called U that's spelled Y-E-W.

237

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

When the bows excavated from that site, tell us that they averaged between 90 and 180 pounds of pull strength on those bows,

238

00:17:31,000 --> 00:17:35,000

although the larger ones were mostly used under siege conditions for armor piercing.

239

00:17:35,000 --> 00:17:39,000

Modern bows rarely go above 60 pounds of pull strength.

240

00:17:39,000 --> 00:17:43,000

But using a long bow takes a great deal of skill.

241

00:17:43,000 --> 00:17:49,000

If the guys hope to have any chance of splitting an arrow, they might have to employ a little modern technology.

242

00:17:49,000 --> 00:17:53,000

Compound bows are made from aluminum and fiberglass.

243

00:17:53,000 --> 00:18:00,000

Once the bow has been cocked, a pulley system kicks in, which takes the weight of the draw and makes it easier to aim.

244

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

Our chances of splitting an arrow are going to be much higher with a compound bow.

245

00:18:05,000 --> 00:18:10,000

It's got higher accuracy because you don't have to be fighting it in order to aim.

246

00:18:10,000 --> 00:18:15,000

Once the cams kick in, you can easily aim it.

247

00:18:15,000 --> 00:18:22,000

Plus, it's got much higher speed, so all of that kinetic energy is going to be going towards splitting the arrow.

248

00:18:22,000 --> 00:18:30,000

While the build team have been delving into the world of archery, Adam and Jamie have been boning up on their folklore.

249

00:18:30,000 --> 00:18:34,000

Turns out the split arrow myth wasn't a Hollywood invention.

250

00:18:34,000 --> 00:18:39,000

Adam, did you know that there is no direct evidence that Robin Hood ever existed?

251

00:18:39,000 --> 00:18:49,000

Well, the first reference to him is a late medieval poem titled A Guest of Robin Hood, but there is no mention of arrow splitting in that poem.

252

00:18:49,000 --> 00:18:57,000

The first mention of arrow splitting, I believe, was in a work called Ivanhoe written by Sir Walter Scott in 1818.

253

00:18:57,000 --> 00:19:05,000

That's the Victorian era, and the Victorians were notorious for their hunger for anything that smacked of a fairy tale.

254

00:19:05,000 --> 00:19:10,000

And it's probably that era where this story built itself into such mythical proportions.

255

00:19:36,000 --> 00:19:42,000

Going on what we saw the last time these guys picked up a bow and arrow, he might be right.

256

00:19:42,000 --> 00:19:50,000

At the end of the ancient death ray experiment, they were using flaming arrows to try and satellite their homemade Roman tri-ree.

257

00:19:50,000 --> 00:19:54,000

But the only thing to go up in smoke was their reputations.

258

00:19:58,000 --> 00:20:01,000

At least this time, Tori will be using his own bow.

259

00:20:01,000 --> 00:20:03,000

Did you actually go hunting with that bow?

260

00:20:03,000 --> 00:20:08,000

I didn't actually hunt it with this. It was just for target practice, but my dad got it for me for Christmas.

261

00:20:10,000 --> 00:20:14,000

The first arrow strikes the target, and straight away, there's a problem.

262

00:20:14,000 --> 00:20:16,000

I'm wondering if that's going in too deep.

263

00:20:16,000 --> 00:20:22,000

Carrie used hay as backing. Question is, is the hay letting in too much arrow?

264

00:20:22,000 --> 00:20:29,000

See how deep it's going into the hay, and I think our chances of splitting the arrow are better if there's more arrow exposed.

265

00:20:29,000 --> 00:20:32,000

So the hay's out, replaced by foam.

266

00:20:33,000 --> 00:20:36,000

Take two on the target arrow.

267

00:20:36,000 --> 00:20:42,000

I think this is good because it's sticking out far enough, and it looks pretty perpendicular to the target.

268

00:20:42,000 --> 00:20:45,000

And you hit it the same hole twice. That's pretty amazing.

269

00:20:45,000 --> 00:20:46,000

Well, that's a good sign, right?

270

00:20:46,000 --> 00:20:51,000

That's a great sign. Also on the high speed, the block only moved a minimal amount.

271

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

Not nearly as much as the hay target.

272

00:20:53,000 --> 00:20:54,000

This is much better than the hay target.

273

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

Perfect. Let's get to splitting.

274

00:20:56,000 --> 00:21:02,000

Using modern aluminum arrows, Tori starts trying to split this myth right down the middle.

275

00:21:03,000 --> 00:21:10,000

Get almost there.

276

00:21:10,000 --> 00:21:21,000

Yeah, right.

277

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

No luck. Maybe if he moves closer.

278

00:21:24,000 --> 00:21:27,000

I need all the help I can get at this point.

279

00:21:27,000 --> 00:21:39,000

You got a really tight grouping, but it's above the target arrow.

280

00:21:39,000 --> 00:21:40,000

Yep, really?

281

00:21:40,000 --> 00:21:43,000

Yep.

282

00:21:43,000 --> 00:21:49,000

He's getting close.

283

00:21:49,000 --> 00:21:50,000

Are you ready?

284

00:21:50,000 --> 00:21:51,000

He's kissing it.

285

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

Real close.

286

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

I didn't split it. I definitely hit it.

287

00:21:56,000 --> 00:21:57,000

Look at that, dude.

288

00:21:57,000 --> 00:21:58,000

Oh, nice.

289

00:21:58,000 --> 00:22:15,000

I chipped off the glancing blow.

290

00:22:15,000 --> 00:22:19,000

More arrows, more close calls, but no Robin Hood.

291

00:22:19,000 --> 00:22:21,000

Time for a change of tactics.

292

00:22:21,000 --> 00:22:27,000

My feeling is if we switch to the broad head arrow tips, our likelihood of splitting an arrow is much greater.

293

00:22:27,000 --> 00:22:34,000

Because right now, these arrow heads are just, I don't think, they're not a good design for splitting an arrow.

294

00:22:34,000 --> 00:22:36,000

Seriously, look at that. It's like throwing pencils at it.

295

00:22:36,000 --> 00:22:50,000

This time, they're also going to shorten the odds of a split by giving Tori a whole Sherwood forest to fire at.

296

00:22:50,000 --> 00:22:52,000

Oh, I got a split.

297

00:22:52,000 --> 00:22:53,000

Did you?

298

00:22:53,000 --> 00:22:54,000

Yeah.

299

00:22:54,000 --> 00:22:55,000

Let's see.

300

00:22:55,000 --> 00:22:58,000

I mean, it didn't split it right down the middle, but it definitely...

301

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

Oh, yeah, look at that.

302

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

Look at that.

303

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

It definitely split it about, like, six inches down.

304

00:23:03,000 --> 00:23:05,000

That won't do, I'm afraid.

305

00:23:05,000 --> 00:23:09,000

We want to see an arrow cleft in twain, my friends.

306

00:23:09,000 --> 00:23:15,000

The problem seems to be the human factor.

307

00:23:15,000 --> 00:23:17,000

I can't hit one of them.

308

00:23:17,000 --> 00:23:22,000

We're going to have to figure out some kind of mechanical system to get an accurate shot every time.

309

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

Can't you make a robot?

310

00:23:24,000 --> 00:23:25,000

I think so.

311

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

Let's make a robot.

312

00:23:27,000 --> 00:23:28,000

All right.

313

00:23:28,000 --> 00:23:30,000

A robot. Why not?

314

00:23:30,000 --> 00:23:38,000

In no time, Grant's whipping up an arrow shooting rig, designed to make the exact same shot every time.

315

00:23:38,000 --> 00:23:41,000

So the bow goes here.

316

00:23:41,000 --> 00:23:45,000

String gets pulled, clipped into this thing.

317

00:23:45,000 --> 00:23:47,000

Winch motor here.

318

00:23:47,000 --> 00:23:49,000

Winch line here.

319

00:23:49,000 --> 00:23:52,000

Pulls it back.

320

00:23:52,000 --> 00:23:56,000

And then this is the quick release.

321

00:23:56,000 --> 00:23:59,000

And that will release the string.

322

00:23:59,000 --> 00:24:01,000

Perfect shot every time.

323

00:24:01,000 --> 00:24:07,000

Music

324

00:24:07,000 --> 00:24:11,000

For this to work, the bow will have to remain rock steady for every shot.

325

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

So the bracket holding it in place has to be perfect.

326

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

Music

327

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

Like a glove.

328

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

Music

329

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

It's time to unveil the arrow bot.

330

00:24:28,000 --> 00:24:32,000

Here we go. Three, two, one.

331

00:24:32,000 --> 00:24:34,000

Dude, that rocks.

332

00:24:34,000 --> 00:24:35,000

Nice. Nice.

333

00:24:35,000 --> 00:24:39,000

Now let's see if the arrow bot can hit the same spot.

334

00:24:40,000 --> 00:24:43,000

Oh, that's sweet.

335

00:24:43,000 --> 00:24:45,000

Looks like we could be on to something.

336

00:24:45,000 --> 00:24:48,000

Oh, dude. That's amazing.

337

00:24:48,000 --> 00:24:50,000

It's really close.

338

00:24:50,000 --> 00:24:52,000

Nice work, brother.

339

00:24:52,000 --> 00:24:58,000

This is probably going to show us if it is in fact possible to split an arrow, because we're having it so it's dialed in.

340

00:24:58,000 --> 00:25:03,000

And hopefully it will be shooting exactly in the same spot every single time.

341

00:25:03,000 --> 00:25:05,000

With a human, I don't think that's possible.

342

00:25:05,000 --> 00:25:08,000

The first shot will be taken from 20 feet.

343

00:25:08,000 --> 00:25:10,000

The wooden target arrows put in place.

344

00:25:10,000 --> 00:25:13,000

The pointed tips are off, broad heads are on.

345

00:25:13,000 --> 00:25:15,000

Right, we're all set.

346

00:25:18,000 --> 00:25:22,000

Oh, it's so close. So close.

347

00:25:22,000 --> 00:25:24,000

Nice grouping, Grant.

348

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

Thanks, dude.

349

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

Even so, the trajectory of each arrow still varies slightly.

350

00:25:29,000 --> 00:25:33,000

So they're going to try the old bundle of arrows trick again.

351

00:25:33,000 --> 00:25:38,000

This time the target shafts are so close together there's barely any space between them.

352

00:25:38,000 --> 00:25:41,000

I think we're going to split an arrow from knock to tip.

353

00:25:41,000 --> 00:25:44,000

I think we've got the optimal setup right here.

354

00:25:44,000 --> 00:25:46,000

The shooter is positioned.

355

00:25:46,000 --> 00:25:49,000

We've got a bundle of arrow shafts.

356

00:25:49,000 --> 00:25:53,000

I think the odds are very high that we'll be able to split an arrow.

357

00:25:53,000 --> 00:25:57,000

That was before Grant saw this high-speed camera footage.

358

00:25:57,000 --> 00:26:00,000

It's a matter of arrow dynamics.

359

00:26:00,000 --> 00:26:02,000

Arrows don't fly straight.

360

00:26:02,000 --> 00:26:05,000

They flex and twist in the air.

361

00:26:05,000 --> 00:26:12,000

So the question is, could one ever strike straight enough to carve another shaft straight down the middle?

362

00:26:15,000 --> 00:26:18,000

Three, two, one.

363

00:26:20,000 --> 00:26:23,000

Three, two, one.

364

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

Three, two, one.

365

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

That was way off.

366

00:26:29,000 --> 00:26:32,000

But hang on, guys. Those aren't real arrow shafts, are they?

367

00:26:32,000 --> 00:26:36,000

We got this doweling from the hardware store.

368

00:26:36,000 --> 00:26:41,000

But what we've discovered is that we actually should use arrow shafts.

369

00:26:41,000 --> 00:26:46,000

True arrow shafts that have the correct humidity, that have the correct grain.

370

00:26:46,000 --> 00:26:53,000

And hopefully with these new cedar arrow shafts, we'll have better results at trying to split.

371

00:26:53,000 --> 00:26:57,000

The cedar shafts are screwed in place. Let's try it again.

372

00:26:57,000 --> 00:27:00,000

Three, two, one.

373

00:27:02,000 --> 00:27:05,000

Somehow the arrow found a way between the shafts.

374

00:27:05,000 --> 00:27:10,000

That was a beautiful shot. But don't have a split arrow.

375

00:27:10,000 --> 00:27:13,000

Three, two, one.

376

00:27:15,000 --> 00:27:19,000

Another test, and this time a partial split.

377

00:27:19,000 --> 00:27:22,000

That is the best stone here, right here.

378

00:27:22,000 --> 00:27:25,000

Now, just fill off this bottom one.

379

00:27:25,000 --> 00:27:28,000

Three, two, one.

380

00:27:29,000 --> 00:27:31,000

That was a good shot.

381

00:27:31,000 --> 00:27:35,000

Grant's rig is right on target, but still no Robin Hood.

382

00:27:35,000 --> 00:27:37,000

Just a growing pile of kindling.

383

00:27:37,000 --> 00:27:40,000

Three, two, one.

384

00:27:40,000 --> 00:27:43,000

There's another big piece.

385

00:27:48,000 --> 00:27:52,000

We got a little bit of a split here. I'm going to go ahead and peel this off.

386

00:27:53,000 --> 00:27:56,000

But, you know, still not a Robin Hood.

387

00:27:56,000 --> 00:28:01,000

Tari thinks the amount of kinetic energy being delivered to the target might be too great.

388

00:28:01,000 --> 00:28:06,000

I don't know, I'm just thinking that this might be too powerful and it's just splintering them instead of actually splitting them.

389

00:28:06,000 --> 00:28:10,000

The solution? Move the rig back.

390

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

But now the wind is becoming a factor, and they're not hitting anything.

391

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

Oh gosh darn it.

392

00:28:18,000 --> 00:28:23,000

This myth is fast becoming one ye olde pain in the arrow shaft.

393

00:28:23,000 --> 00:28:26,000

Makes you wonder how they did it in the movie, doesn't it?

394

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

Well, they did have this guy on set.

395

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

Howard Hill was an uncannily accurate archer, arguably the best of all time.

396

00:28:34,000 --> 00:28:40,000

This modern day Robin Hood won 196 field tournaments in a row.

397

00:28:40,000 --> 00:28:44,000

And the distance is 30 feet.

398

00:28:44,000 --> 00:28:49,000

Hill did a lot of work in Hollywood, and his own movie showed just how good he was.

399

00:28:49,000 --> 00:28:53,000

Every shot was its own special effect.

400

00:28:53,000 --> 00:28:59,000

And as though to prove his skill, he cuts a string at 12 paces.

401

00:28:59,000 --> 00:29:04,000

If anyone was capable of splitting an arrow, it was Howard.

402

00:29:04,000 --> 00:29:10,000

When he's run out of ways to shoot with his hands, he holds the bow with his feet.

403

00:29:10,000 --> 00:29:17,000

But there's no evidence that he took the movie shot.

404

00:29:17,000 --> 00:29:27,000

One thing's for sure, Carrie and her cohorts could really do with Howard's help right about now.

405

00:29:27,000 --> 00:29:32,000

Adam and Jamie are trying to solve the case of the killer tissue box.

406

00:29:32,000 --> 00:29:37,000

Their new crash test vehicle came unstuck, prompting a rethink.

407

00:29:37,000 --> 00:29:44,000

Adam, I've been running the numbers and that 200 pound cart going 70 miles an hour has an enormous amount of force.

408

00:29:44,000 --> 00:29:51,000

It I believe comes out to about 35,000 foot pounds of kinetic energy that it's applying.

409

00:29:51,000 --> 00:29:55,000

Well, I mean the problem we have is we can't make our sled any lighter.

410

00:29:55,000 --> 00:29:57,000

I mean it weighs a couple hundred pounds.

411

00:29:57,000 --> 00:29:59,000

There's no place to actually remove any weight.

412

00:29:59,000 --> 00:30:06,000

I think the only option open to us is to slow down our testing speed and do all of these tests at like 45 miles.

413

00:30:07,000 --> 00:30:15,000

Okay, and I had another thought and that was that we can use some heavy nylon strapping or something like that and wrap it around that whole I-beam.

414

00:30:15,000 --> 00:30:18,000

And maybe that'll distribute the load a little bit more.

415

00:30:18,000 --> 00:30:24,000

I think that's great and I think between those two things we should actually get some good tests out of this rig.

416

00:30:24,000 --> 00:30:28,000

Back at Alameda, the crash rig gets a makeover.

417

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

Jamie?

418

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

Yeah.

419

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

I think this is a really good solution.

420

00:30:33,000 --> 00:30:38,000

These straps have a combined braking force of 40,000 pounds.

421

00:30:39,000 --> 00:30:41,000

We are good to go on this end.

422

00:30:41,000 --> 00:30:43,000

Give us a countdown on your call.

423

00:30:43,000 --> 00:30:44,000

Okay.

424

00:30:44,000 --> 00:30:46,000

Right, let's give it another go.

425

00:30:48,000 --> 00:30:54,000

As another precaution, Jamie's going to lower the towing speed to 45 miles per hour.

426

00:30:54,000 --> 00:30:57,000

Come on, come on, come on.

427

00:30:58,000 --> 00:30:59,000

Right there.

428

00:30:59,000 --> 00:31:01,000

I wanted to stop right there.

429

00:31:02,000 --> 00:31:03,000

Yeah!

430

00:31:04,000 --> 00:31:06,000

That's what I'm talking about!

431

00:31:06,000 --> 00:31:09,000

Perfect, the crash rig stopped right on cue.

432

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

The cables stayed attached.

433

00:31:15,000 --> 00:31:23,000

To give you some idea of the force involved, the 4,000 pound concrete barrier was dragged along like a piece of styrofoam.

434

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

Jamie, that was perfect.

435

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

Exactly 45 miles an hour, over.

436

00:31:29,000 --> 00:31:32,000

Mythbusters now has a mostly working crash test sled.

437

00:31:32,000 --> 00:31:34,000

I'm very pleased, yeah.

438

00:31:35,000 --> 00:31:37,000

Finally, we're ready to do some crash testing.

439

00:31:37,000 --> 00:31:41,000

Here are some objects you might find on the rear shelf of someone's car.

440

00:31:42,000 --> 00:31:44,000

Well, this one's definitely the heaviest.

441

00:31:44,000 --> 00:31:45,000

Right.

442

00:31:45,000 --> 00:31:48,000

And so there's an argument to be said there that it could crush your head.

443

00:31:48,000 --> 00:31:51,000

This one also is fairly heavy.

444

00:31:52,000 --> 00:31:55,000

I'd say it's a toss up between these two.

445

00:31:55,000 --> 00:31:59,000

And then this one's also, maybe this one could break your neck even if it didn't crush your skull.

446

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

That thing's about right up there with the Kleenex box.

447

00:32:02,000 --> 00:32:08,000

Well, if the myth is correct, this Kleenex box is at the top of our lethality pyramid.

448

00:32:09,000 --> 00:32:12,000

This little guy weighs just 125 grams.

449

00:32:12,000 --> 00:32:20,000

But remember, in a sudden impact, small objects can pack a big wallop, up to 30 times their own weight.

450

00:32:21,000 --> 00:32:25,000

Unfortunately, on this run, the bobblehead's not going anywhere.

451

00:32:25,000 --> 00:32:30,000

The bobblehead fell over into the fence of screws and did not move over.

452

00:32:30,000 --> 00:32:34,000

At a certain speed, I'm sure that a bobblehead could be lethal,

453

00:32:34,000 --> 00:32:37,000

but I don't think that speed is 45 miles an hour.

454

00:32:37,000 --> 00:32:40,000

Maybe we'll have more luck with the subwoofer.

455

00:32:41,000 --> 00:32:44,000

The crash rig slams to a halt.

456

00:32:44,000 --> 00:32:50,000

The subwoofer keeps on going, striking the ballistics gel at 45 miles per hour.

457

00:32:51,000 --> 00:32:55,000

But at this way, you'd really be able to feel the beat.

458

00:32:55,000 --> 00:33:00,000

Just like we thought it might, the knob that describes the subwoofer,

459

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

is the one that's going to be the most powerful.

460

00:33:03,000 --> 00:33:06,000

You'd really be able to feel the beat.

461

00:33:06,000 --> 00:33:11,000

Just like we thought it might, the knob that describes the seat over the back shelf,

462

00:33:11,000 --> 00:33:16,000

that like one inch little riser kicked this up and you can see it go up.

463

00:33:16,000 --> 00:33:19,000

But it pretty much would hit you dead on in the head.

464

00:33:19,000 --> 00:33:23,000

We'll have to crunch the numbers to find out how hard, but it was a pretty good hit.

465

00:33:23,000 --> 00:33:25,000

What if a hatchet hit ya?

466

00:33:26,000 --> 00:33:28,000

You want to catch this? Check this out.

467

00:33:34,000 --> 00:33:40,000

At 45 miles per hour, it'd be like something out of a B-grade slasher film.

468

00:33:40,000 --> 00:33:43,000

Oh my god! Dude!

469

00:33:44,000 --> 00:33:47,000

Look, the ax head's out on the other side of the board.

470

00:33:47,000 --> 00:33:50,000

Not in a million years could we have done it that good.

471

00:33:50,000 --> 00:33:56,000

Well, I think it's safe to say that you don't want to be carrying hatchets on your rear shelf.

472

00:33:56,000 --> 00:34:02,000

This is your head. This is your head with an ax in it. Are we clear?

473

00:34:03,000 --> 00:34:08,000

Well, we still have the fire extinguisher and the bowling ball to try.

474

00:34:09,000 --> 00:34:12,000

A fresh gel cartridge is screwed in place.

475

00:34:23,000 --> 00:34:25,000

That looked like a perfect hit.

476

00:34:26,000 --> 00:34:32,000

For one kilogram, fire extinguisher probably wouldn't be fatal, but it would definitely ruin your day.

477

00:34:32,000 --> 00:34:36,000

It definitely didn't cut too deep. That's probably a really nice cushion for it.

478

00:34:36,000 --> 00:34:41,000

I'm pretty sure that could have gotten you a concussion or something like that if you got hit by it.

479

00:34:41,000 --> 00:34:47,000

But we can't really prove it by the blow-stix gel. We'll have to look at the high-speed footage.

480

00:34:47,000 --> 00:34:49,000

Oh, there you go. There's your proof.

481

00:34:49,000 --> 00:34:51,000

There's your proof. Took a real hit there.

482

00:34:51,000 --> 00:34:56,000

Yeah, if I whacked you on the back of the head hard enough to do that, you'd be hurting.

483

00:34:58,000 --> 00:35:00,000

Now the bowling ball.

484

00:35:03,000 --> 00:35:07,000

Actually, it's more like a cannonball.

485

00:35:16,000 --> 00:35:20,000

Remember, Jamie was only doing 45 miles per hour.

486

00:35:26,000 --> 00:35:28,000

I think a rig has held up admirably.

487

00:35:28,000 --> 00:35:35,000

I'm not sure if it will hold up to 70 miles an hour, but it's time to see what a tissue box does at the worst possible speed.

488

00:35:36,000 --> 00:35:37,000

Alright, let's do it.

489

00:35:37,000 --> 00:35:41,000

They put the rig back together. The tissue box is put in place.

490

00:35:42,000 --> 00:35:47,000

Okay, this is the 70-mile-an-hour test. This is maximum speed. Over.

491

00:35:47,000 --> 00:35:53,000

Okay, and going in five, four, three, two, one.

492

00:35:55,000 --> 00:35:57,000

Find out if this is actually deadly.

493

00:35:59,000 --> 00:36:04,000

Jamie ups the pace to almost 70 miles per hour.

494

00:36:10,000 --> 00:36:14,000

The box of tissues imparts almost 50-foot pounds.

495

00:36:14,000 --> 00:36:19,000

But at 323 grams, it just doesn't have enough mass to do much damage.

496

00:36:20,000 --> 00:36:22,000

There's just no way. I mean, we tested a whole bunch of stuff.

497

00:36:22,000 --> 00:36:25,000

The bowling ball went right through this whole rig. Tissue box.

498

00:36:26,000 --> 00:36:32,000

It might be like ow, you know, but I'm guessing that the ow from the airbag is going to be a lot worse.

499

00:36:37,000 --> 00:36:41,000

Jamie, I think killer tissue box is definitively busted.

500

00:36:41,000 --> 00:36:49,000

Even if you had a decorative plastic or metal cover on this thing, it just doesn't have the mass to inflict lethal damage.

501

00:36:49,000 --> 00:37:04,000

But we should point out to our viewers that anything that is sharp or weighs over a couple of pounds or so is not something you want to have unrestrained in the back of the car, even in the back seat, because it could be, if not lethal, definitely dangerous.

502

00:37:04,000 --> 00:37:16,000

Absolutely, but I think the final word on this should be left to Buster, who is living proof such as it is, that in a head-on 70-mile-an-hour collision, this is the very least of your worries.

503

00:37:20,000 --> 00:37:29,000

Our trio is still trying to split an arrow. They've moved Grant's rig back indoors.

504

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

We had to move the rig inside because it turns out the wind is really becoming a factor with these arrows, and our accuracy is totally off.

505

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

So we've moved everything inside, and we're going to try this experiment again.

506

00:37:41,000 --> 00:37:50,000

Our current thinking is that there's too much kinetic energy. One of two possibilities is our fired arrow comes in and hits a target arrow and just shatters it.

507

00:37:50,000 --> 00:38:01,000

The other possibility, and this is Tori's theory, is that the fired arrow comes in and hits a target arrow, which flexes, and it doesn't allow us to get a clean shot down the middle.

508

00:38:01,000 --> 00:38:09,000

So hopefully, by reducing the amount of velocity, we can reduce the kinetic energy and get a clean split right down the middle.

509

00:38:12,000 --> 00:38:16,000

Still nothing.

510

00:38:16,000 --> 00:38:23,000

We've given up. Obviously, from any distance, we're not getting the accuracy that we need in order to split the arrow.

511

00:38:23,000 --> 00:38:27,000

We're going to take accuracy out of the equation and move into the end of an arrow.

512

00:38:27,000 --> 00:38:32,000

We're going to put the machine right on it, fire it, and see if that is able to split an arrow.

513

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

They set up for a point-blank shot. Will the target split, or might Tori be on the lookout for a new bow?

514

00:38:41,000 --> 00:38:48,000

There's a minor possibility we might break Tori's bow, but the producer has agreed to buy Tori a new bow.

515

00:38:48,000 --> 00:38:50,000

Everyone takes cover.

516

00:38:59,000 --> 00:39:02,000

It's split in around six inches.

517

00:39:02,000 --> 00:39:06,000

Looks like there could be a split in the build team as well.

518

00:39:06,000 --> 00:39:18,000

Guys, in my mind, this is busted. I mean, there's no way anybody's going to be able to do this on command if we're right up against it with every possible accuracy established.

519

00:39:18,000 --> 00:39:21,000

I just, I'm thinking this is busted right here personally.

520

00:39:21,000 --> 00:39:23,000

Now they're splitting hairs.

521

00:39:23,000 --> 00:39:29,000

Well, the only problem is that how we define it is, is it possible? We didn't add the on-demand part.

522

00:39:29,000 --> 00:39:35,000

Yeah, but that is the myth. I mean, he has to be able to do it one right after the other. Otherwise, it's just a fluke.

523

00:39:35,000 --> 00:39:37,000

It is a fluke.

524

00:39:37,000 --> 00:39:42,000

On a fluke, but that's not the myth. On a fluke, that's just, that's just silly.

525

00:39:42,000 --> 00:39:49,000

I think it's too soon to call it busted. I think it is possible. Maybe it's not, but I just think it's too soon to call it busted.

526

00:39:49,000 --> 00:39:58,000

I'm willing to give it another shot, but you guys are going to have to prove to me that this is possible on-demand for me to actually personally feel it's confirmed or plausible whatsoever.

527

00:39:58,000 --> 00:40:07,000

Back in the days of yore at the Tulare County Renaissance Fair, 16 noble archers have accepted the Mythbusters challenge.

528

00:40:07,000 --> 00:40:14,000

Whom, so ever, can split a wooden arrow from knock to tip shall claim the coveted golden arrow.

529

00:40:19,000 --> 00:40:22,000

Each contestant gets three shots.

530

00:40:29,000 --> 00:40:35,000

When that doesn't work, they all fire information.

531

00:40:35,000 --> 00:40:38,000

I don't know, I didn't see any splitting arrows.

532

00:40:56,000 --> 00:41:02,000

The target's got more bristles than a porcupine, but there's still not a split arrow in sight.

533

00:41:03,000 --> 00:41:05,000

How many of you have done it before?

534

00:41:05,000 --> 00:41:07,000

I've done, I've done...

535

00:41:07,000 --> 00:41:08,000

Some archery, you mean?

536

00:41:08,000 --> 00:41:09,000

No, I split the arrow.

537

00:41:09,000 --> 00:41:10,000

Not splitting all the way down?

538

00:41:10,000 --> 00:41:11,000

Not all the way down to the head.

539

00:41:11,000 --> 00:41:14,000

Half, only half way.

540

00:41:14,000 --> 00:41:21,000

Travis Fletcher is master of an archery guild whose members shoot at Renaissance fairs all over the state.

541

00:41:21,000 --> 00:41:24,000

He has his own ideas about the origin of the myth.

542

00:41:24,000 --> 00:41:30,000

The splitting of the arrow was actually more likely an archery game that was used in order to train the archers.

543

00:41:30,000 --> 00:41:36,000

It was called slusting the wand, where an arrow would have been set as a vertical target.

544

00:41:38,000 --> 00:41:40,000

Either in the ground or against a tree.

545

00:41:40,000 --> 00:41:45,000

And then the archers would have attempted to split the arrow or slit the arrow with theirs.

546

00:41:47,000 --> 00:41:51,000

We came here to see if any archer could split an arrow and it doesn't look like it's going to happen.

547

00:41:51,000 --> 00:41:53,000

Yeah, you know what, I'm starting to think that this is impossible.

548

00:41:53,000 --> 00:41:56,000

Looks like we're going to have to take the golden arrow home with us.

549

00:41:56,000 --> 00:41:57,000

Oh, that's too bad.

550

00:41:58,000 --> 00:42:03,000

And we are locked and loaded.

551

00:42:03,000 --> 00:42:07,000

Back at Mythbuster HQ, they're still trying to split an arrow.

552

00:42:07,000 --> 00:42:10,000

It took less time to split the arrow.

553

00:42:10,000 --> 00:42:12,000

And three, two...

554

00:42:12,000 --> 00:42:16,000

Once again, they've got arrow and target shaft touching.

555

00:42:16,000 --> 00:42:18,000

Look at the angle, it just kind of carved it out.

556

00:42:18,000 --> 00:42:21,000

Tori and Grant study the high speed shot.

557

00:42:21,000 --> 00:42:28,000

The blade of the arrow is just basically following the grain of the wood and just popping out where it ends.

558

00:42:28,000 --> 00:42:32,000

Yeah, also I see that the arrow is kind of flexing on impact.

559

00:42:32,000 --> 00:42:40,000

Yeah, maybe what we should do is make a channel so that way the shooting arrow follows that all the way down the target arrow and it has no chance of moving.

560

00:42:40,000 --> 00:42:45,000

Right, they're like totally aligned and then as it goes through, you get a straight split.

561

00:42:45,000 --> 00:42:46,000

Yeah, okay.

562

00:42:47,000 --> 00:42:51,000

Some might call it thorough, some might call it cheating.

563

00:42:51,000 --> 00:42:57,000

Grant fashions a thin tube that encases both arrow and target, holding them in exact alignment.

564

00:42:57,000 --> 00:43:03,000

Hopefully, the arrow will be guided all the way along the target shaft, splitting it right down the middle.

565

00:43:03,000 --> 00:43:05,000

Three, two, one.

566

00:43:06,000 --> 00:43:07,000

They try a copper tube.

567

00:43:10,000 --> 00:43:12,000

Three, two, one.

568

00:43:13,000 --> 00:43:18,000

They try carbon fiber, but nothing can stop that arrow from following the grain.

569

00:43:18,000 --> 00:43:24,000

So as far as I'm concerned with all of our testing, which I believe was extremely thorough, I'm calling this one busted.

570

00:43:24,000 --> 00:43:36,000

You cannot split an arrow from the tail to the tip and unless somebody can come out of the woodworks with either a video or does it right in front of my eyes on command one after the other, I'm saying this is busted.

571

00:43:36,000 --> 00:43:38,000

I'm totally with you, busted.

572

00:43:38,000 --> 00:43:40,000

Busted with a capital B.

573

00:43:43,000 --> 00:43:55,000

Adam and Jamie have busted the killer tissue box myth, but if you think that's going to stop them destroying the fury, you're sadly mistaken.

574

00:43:55,000 --> 00:43:57,000

Can you help me?

575

00:43:58,000 --> 00:44:04,000

That car is going to be total on the tarmac at top speed straight into these crash barriers.

576

00:44:05,000 --> 00:44:13,000

It's kind of important that they be lined up just so because each one of these only weighs about as much as the car does and the car is going to be traveling quite quickly.

577

00:44:13,000 --> 00:44:23,000

So with that in mind, we've overlapped them and put one in the back of them so that they'll hopefully not move too far with the impact.

578

00:44:23,000 --> 00:44:28,000

Before they get too carried away, they'll have to make sure Grant's steering rig works.

579

00:44:28,000 --> 00:44:30,000

That means a test tow.

580

00:44:30,000 --> 00:44:40,000

The worst-case scenario is that we start up with the truck dragging the fury and the fury goes way off and smacks into something of value, like a crew member.

581

00:44:40,000 --> 00:44:46,000

To make sure that doesn't happen, Adam's volunteered to get behind the wheel of the fury.

582

00:44:49,000 --> 00:44:55,000

Last time I was in this car, Jamie lost control of it with his RC controller and sent me through a fence.

583

00:44:57,000 --> 00:44:59,000

Cut to shot of Adam going through fence.

584

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

Jamie!

585

00:45:12,000 --> 00:45:14,000

This is working beautifully.

586

00:45:17,000 --> 00:45:19,000

Jamie guns the pick-up.

587

00:45:22,000 --> 00:45:24,000

I'm in a car and I'm not touching anything.

588

00:45:25,000 --> 00:45:27,000

What did it do?

589

00:45:27,000 --> 00:45:29,000

Were you still having to steer it at all?

590

00:45:29,000 --> 00:45:30,000

I didn't have to touch it.

591

00:45:30,000 --> 00:45:31,000

Oh man, that's great.

592

00:45:31,000 --> 00:45:33,000

Yeah, it was absolutely beautiful.

593

00:45:33,000 --> 00:45:36,000

Well, that's what I wanted to hear.

594

00:45:36,000 --> 00:45:41,000

It veered off by about a half a degree when you were moving and then you started moving forward and it corrected.

595

00:45:41,000 --> 00:45:44,000

So, I mean, it's exactly what we wanted it to do.

596

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

Let's crash this puppy.

597

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

All right.

598

00:45:46,000 --> 00:45:49,000

They just have to replace Adam with another dummy.

599

00:45:49,000 --> 00:45:53,000

For one spuster, you should feel right at home.

600

00:45:53,000 --> 00:45:58,000

And now, the final and perhaps deadliest component of this test.

601

00:45:58,000 --> 00:46:00,000

The tissues.

602

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

Okay.

603

00:46:01,000 --> 00:46:04,000

This is actually really scary.

604

00:46:04,000 --> 00:46:06,000

You know, we did a test.

605

00:46:06,000 --> 00:46:13,000

It seems like it's working okay, but 4,000 pounds of car rolling kind of on its own at 50, 60, 70 miles an hour is a scary thing.

606

00:46:13,000 --> 00:46:16,000

And we've got to kind of thread a needle with the end of it.

607

00:46:16,000 --> 00:46:21,000

So, this is just, I'm going to be way back down there.

608

00:46:21,000 --> 00:46:22,000

That's all I know.

609

00:46:22,000 --> 00:46:25,000

One end of the cable is attached to the fury.

610

00:46:25,000 --> 00:46:31,000

The lines then threaded through holes in the barriers and the other end tied to the pickup.

611

00:46:34,000 --> 00:46:36,000

Jamie floors the accelerator.

612

00:46:36,000 --> 00:46:38,000

The car looks great.

613

00:46:38,000 --> 00:46:43,000

The fury chews up tarmac and hits the barrier at more than 60 miles per hour.

614

00:46:47,000 --> 00:46:49,000

Cubatic laughter.

615

00:46:49,000 --> 00:46:51,000

Thank you, gentlemen.

616

00:46:51,000 --> 00:46:53,000

Have a good day.

617

00:46:53,000 --> 00:46:54,000

Thank you.

618

00:46:54,000 --> 00:46:55,000

Thank you.

619

00:46:55,000 --> 00:46:56,000

Thank you.

620

00:46:56,000 --> 00:46:57,000

Thank you.

621

00:46:57,000 --> 00:46:58,000

Thank you.

622

00:46:58,000 --> 00:46:59,000

Thank you.

623

00:46:59,000 --> 00:47:00,000

Thank you.

624

00:47:00,000 --> 00:47:01,000

Thank you.

625

00:47:01,000 --> 00:47:02,000

Thank you.

626

00:47:02,000 --> 00:47:03,000

Thank you.

627

00:47:03,000 --> 00:47:04,000

Thank you.

628

00:47:04,000 --> 00:47:05,000

Thank you.

629

00:47:05,000 --> 00:47:06,000

Thank you.

630

00:47:09,000 --> 00:47:10,000

Yeah.

631

00:47:10,000 --> 00:47:13,000

At the point of impact, the front of the fury leapt up in the air,

632

00:47:13,000 --> 00:47:17,000

so the tissue box's trajectory took it into the back of the seat,

633

00:47:17,000 --> 00:47:19,000

instead of Buster's noggin.

634

00:47:19,000 --> 00:47:22,000

So, Grant, what's the time to reset and do this one again?

635

00:47:22,000 --> 00:47:23,000

Yeah,

636

00:47:23,000 --> 00:47:25,000

it's going to take a little bit more than twenty minutes I think.

637

00:47:25,000 --> 00:47:27,000

Oh, let's see.

638

00:47:27,000 --> 00:47:28,000

Okay.

639

00:47:28,000 --> 00:47:30,000

What was your speed and impact?

640

00:47:30,000 --> 00:47:32,000

Sixty-five miles an hour.

641

00:47:32,000 --> 00:47:34,600

Finally, the box survived intact.

642

00:47:34,600 --> 00:47:36,400

The cardboard's not crumpled.

643

00:47:36,400 --> 00:47:38,200

There's not even a single torn tissue.

644

00:47:38,200 --> 00:47:42,200

Let's see, is there a buster-shaped head imprint on this?

645

00:47:42,200 --> 00:47:43,200

No.

646

00:47:43,200 --> 00:47:44,720

Well, it looks pretty good.

647

00:47:44,720 --> 00:47:48,040

You know, that's a good indication that this is really deadly, though, that it's the one

648

00:47:48,040 --> 00:47:51,280

thing in the car that's tough enough to survive an impact.

649

00:47:51,280 --> 00:47:55,320

Grant plugs into the accelerometer implanted in Buster's head.

650

00:47:55,320 --> 00:47:57,800

114.8 Gs.

651

00:47:57,800 --> 00:47:59,800

114.8?

652

00:47:59,800 --> 00:48:00,800

Yeah.

653

00:48:00,800 --> 00:48:04,080

Dude, that's very significant.

654

00:48:04,080 --> 00:48:05,080

Very significant.

655

00:48:05,080 --> 00:48:09,880

Remember, an astronaut pulls only 8 Gs during lift-off.

656

00:48:09,880 --> 00:48:13,760

This came out of the accelerometer, and what I've got right here is interesting.

657

00:48:13,760 --> 00:48:18,320

At 100 milliseconds, I'm already said it's a peak of 115.

658

00:48:18,320 --> 00:48:20,280

That's the modulus of all three axes.

659

00:48:20,280 --> 00:48:27,240

And here, in the Z direction, I have about 75, and in the X direction, I have about 90.

660

00:48:27,360 --> 00:48:31,160

So Z being top of the head, and X being side to side.

661

00:48:31,160 --> 00:48:34,560

So I think he must have turned and smacked his head on the dash.

662

00:48:34,560 --> 00:48:35,560

I think so.

663

00:48:35,560 --> 00:48:39,880

So you think maybe it's that buster was trying to twist out of the way of the deadly tissue

664

00:48:39,880 --> 00:48:43,160

box as it was making its way like a bullet towards the windshield.

665

00:48:43,160 --> 00:48:49,480

Well, if that's the case, then clearly the second spike has to be the tissue box sitting

666

00:48:49,480 --> 00:49:04,800

buster in the head.

667

00:49:04,800 --> 00:49:07,920

Monday nights are about to burn rubber.

668

00:49:07,920 --> 00:49:12,960

Coming soon, Top Gear, the motoring show with its foot on the pedal and its tongue in its

669

00:49:12,960 --> 00:49:15,120

cheek, only on SBS.