

1

00:00:00,000 --> 00:00:04,540

Please don't try anything you're about to see at home.

2

00:00:04,540 --> 00:00:06,540

Where would you call experts?

3

00:00:06,540 --> 00:00:12,040

On this bigger is better episode of Mythbusters.

4

00:00:12,040 --> 00:00:18,280

The team takes four fan favorites to infinity and beyond.

5

00:00:18,280 --> 00:00:20,820

X marks the spot. That's what we're aiming for.

6

00:00:20,820 --> 00:00:24,820

First, can Adam and Janie rip up a weapon from a water heater?

7

00:00:24,820 --> 00:00:27,820

Everything's to blow up. Right here.

8

00:00:28,780 --> 00:00:32,180

Then will they make the Earth move with Earth movers?

9

00:00:32,180 --> 00:00:36,180

I'm Jamie Heineman and I'm gonna thread a needle with an excavator.

10

00:00:36,180 --> 00:00:37,180

Oh, stop!

11

00:00:37,180 --> 00:00:40,920

Meanwhile, Tori Grant and Carrie turn into rocket scientists.

12

00:00:40,920 --> 00:00:42,920

I think we got a winning design here.

13

00:00:42,920 --> 00:00:46,260

To see if a flight by fireworks is really possible.

14

00:00:46,260 --> 00:00:48,760

Give your hands inside the vehicle at all times.

15

00:00:48,760 --> 00:00:53,900

And finally, the gene flings some bling in bird balance 2.0.

16

00:00:53,900 --> 00:00:55,240

I'm eating our supermodel.

17

00:00:55,240 --> 00:01:00,500

As they find out if a longer limo can give them a cliffhanger ending they need.

18

00:01:00,500 --> 00:01:03,500

Look at the back end! It's coming off the ground!

19

00:01:06,240 --> 00:01:09,240

Who are the Mythbusters?

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00:01:09,240 --> 00:01:10,440

Adam Savage.

21

00:01:10,440 --> 00:01:12,120

Eating food cooked with seafor.

22

00:01:12,120 --> 00:01:14,120

And Jamie Heineman.

23

00:01:15,320 --> 00:01:19,820

Between them more than 30 years of special effects experience.

24

00:01:19,820 --> 00:01:21,660

Together with Carrie Byron.

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00:01:21,660 --> 00:01:22,760

Right to over the job.

26

00:01:22,760 --> 00:01:23,900

Tori Bellachy.

27

00:01:23,920 --> 00:01:25,620

We only have one shot at this.

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00:01:25,620 --> 00:01:27,120

And Grant Himahara.

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00:01:27,120 --> 00:01:29,120

That was a great result!

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00:01:29,120 --> 00:01:31,120

They don't just tell the Myth.

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00:01:32,320 --> 00:01:34,320

They put them to the test.

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00:01:40,320 --> 00:01:45,320

Buckle up because on Mythbusters, revenge is a dish best served hot.

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00:01:45,320 --> 00:01:48,220

So revenge or the Myths, what's that about?

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00:01:48,220 --> 00:01:52,280

In this episode we are working off suggestions from fans for stuff that we've already done

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00:01:52,660 --> 00:01:54,660

that we didn't necessarily mess up.

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00:01:54,660 --> 00:01:57,660

But they have a suggestion of a way we can bump it up a level.

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00:01:57,660 --> 00:01:58,660

Ramp it way up.

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00:01:58,660 --> 00:01:59,660

Like what?

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00:01:59,660 --> 00:02:00,660

Hot water heaters.

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00:02:00,660 --> 00:02:02,660

Fans love it when we blow them up.

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00:02:02,660 --> 00:02:07,660

And they've noticed that they make fantastic rockets when you point them vertically.

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00:02:07,660 --> 00:02:11,660

But now they want to know what happens if we point them horizontally.

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00:02:11,660 --> 00:02:14,660

What kind of cannon would a hot water heater make?

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00:02:14,660 --> 00:02:15,660

I like that.

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00:02:15,660 --> 00:02:17,660

All we have to do is take one out to the bomb range.

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00:02:17,660 --> 00:02:19,660

Strap it down, shoot it at something.

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00:02:19,660 --> 00:02:21,660

See what kind of mayhem it causes.

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00:02:21,660 --> 00:02:23,660

That's exactly what I was thinking.

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00:02:23,660 --> 00:02:30,660

Ever since the very first tank turn torpedo, water heaters have become a Mythbusters favorite.

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00:02:31,660 --> 00:02:34,660

And the new fan request is this.

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00:02:34,660 --> 00:02:42,660

If you replace a vertical launch with a horizontal one, can you really create a cannon?

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00:02:44,660 --> 00:02:49,660

To find out the guys wash up at the bomb range armed with their weapon of choice.

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00:02:49,660 --> 00:02:51,660

So how do you want to set this thing up?

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00:02:51,660 --> 00:02:55,660

Well, if the fans want to see a water heater made into a cannon, I guess we've got to lie this thing on its side.

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00:02:55,660 --> 00:03:00,660

And if we're going to shoot it on its side, I feel really strongly that we need to shoot it at something.

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00:03:00,660 --> 00:03:04,660

Well, you want to go find something to shoot at and I'll set this up.

57

00:03:04,660 --> 00:03:05,660

I think it's a great plan.

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00:03:06,660 --> 00:03:13,660

It's a divide and conquer tide plan that sees Jamie getting to grips with their pressure vessel in waiting.

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00:03:13,660 --> 00:03:17,660

We've set off these water heaters before and we've learned a couple of things.

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00:03:17,660 --> 00:03:21,660

The first and most important is that you always want to be able to abort.

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00:03:21,660 --> 00:03:25,660

I think we're losing pressure somewhere. We can't see. We've just got to report.

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00:03:25,660 --> 00:03:27,660

All right. Well, we'll pull the valve.

63

00:03:28,660 --> 00:03:30,660

Sometimes things don't work the way you plan.

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00:03:30,660 --> 00:03:36,660

So in this case, we've got a valve that we can open like so and that'll relieve the pressure.

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00:03:36,660 --> 00:03:40,660

The other thing that we've done is that we put a couple of pressure sensors here.

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00:03:40,660 --> 00:03:48,660

So we'll always know exactly what's in this tank and we won't approach it unless these things are saying zero or unless we've opened the valve.

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00:03:48,660 --> 00:03:52,660

So that's the cannons and here's the cannon fodder.

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00:03:52,660 --> 00:03:55,660

Yep, Adam's become the man with a van.

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00:03:55,660 --> 00:04:02,660

I know it's big and red, so it's kind of like hitting the broad side of the barn, but that's not going to stop me from making a target because targets are pretty.

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00:04:02,660 --> 00:04:06,660

Add with the target taking shape, that just leaves the lock and load.

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00:04:06,660 --> 00:04:10,660

A process which starts with the addition of 30 gallons of water.

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00:04:11,660 --> 00:04:17,660

My favorite things to blow up right here and ends with the unit being hammered into place.

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00:04:18,660 --> 00:04:19,660

Solid.

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00:04:20,660 --> 00:04:25,660

With a mini bulldozer parked in place to further contain the cannon, the heater gets powered up.

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00:04:26,660 --> 00:04:29,660

Shall I walk you through exactly what's going to go down here?

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00:04:30,660 --> 00:04:33,660

Actually, I think it's pretty clear what's going to go down here.

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00:04:34,660 --> 00:04:35,660

I think my work is done.

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00:04:36,660 --> 00:04:42,660

But for any of you at home worried your water heater might also go ballistic, here's some reassurance.

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00:04:43,660 --> 00:04:45,660

Why doesn't this happen in your house every day?

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00:04:46,660 --> 00:04:48,660

Quite frankly because they've designed it not to and here's how.

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00:04:49,660 --> 00:04:53,660

First, they don't restrict either the inlet or the outlet ports of the hot water heater.

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00:04:53,660 --> 00:04:55,660

So that's one place the overpressure can go.

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00:04:55,660 --> 00:05:00,660

Secondly, there's a thermostat in here which when the hot water heater's temperature gets too high,

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00:05:00,660 --> 00:05:04,660

shuts off the power of both heating elements until the water heater cools down.

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00:05:04,660 --> 00:05:11,660

Thirdly and perhaps most importantly is right here when you install a hot water heater you must install an overpressure relief valve.

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00:05:11,660 --> 00:05:15,660

That means when the pressure in here gets too high it goes psssssss.

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00:05:15,660 --> 00:05:19,660

And releases the water thus releasing the pressure from the canister.

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00:05:19,660 --> 00:05:24,660

Needless to say the mythbusters have disabled all of those features.

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00:05:24,660 --> 00:05:27,660

Which is why they've gone to a hunker in the bunker.

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00:05:27,660 --> 00:05:30,660

All we do now is wait. It's about halfway there, about 150 psi.

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00:05:31,660 --> 00:05:32,660

I love this part.

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00:05:33,660 --> 00:05:34,660

This kills me.

93

00:05:35,660 --> 00:05:42,660

From past experience Adam and Jamie know that there's no blow until the pressure goes beyond 300 psi.

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00:05:44,660 --> 00:05:45,660

And 40 minutes later...

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00:05:46,660 --> 00:05:47,660

305 psi.

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00:05:48,660 --> 00:05:50,660

They're right in that butter zone.

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00:05:55,660 --> 00:05:56,660

Oh!

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00:06:00,660 --> 00:06:01,660

Yeah!

99

00:06:02,660 --> 00:06:03,660

That was awesome!

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00:06:03,660 --> 00:06:04,660

That was.

101

00:06:04,660 --> 00:06:09,660

I totally did not expect we would not go over that truck. In fact I would have bet against it.

102

00:06:09,660 --> 00:06:11,660

And we wheeled the little earth the moving machine.

103

00:06:13,660 --> 00:06:18,660

Like a geyser on steroids, the power of the cannon has quite literally blown the van away.

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00:06:18,660 --> 00:06:23,660

And the close inspection of the damage reveals just how forceful their firearm was.

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00:06:25,660 --> 00:06:27,660

I found our projectile.

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00:06:29,660 --> 00:06:31,660

That's the bottom of the hot water heater casing.

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00:06:34,660 --> 00:06:35,660

And that.

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00:06:35,660 --> 00:06:36,660

Oh it's hot!

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00:06:37,660 --> 00:06:40,660

That's the bottom of our hot water heater canister.

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00:06:41,660 --> 00:06:43,660

With debris strewn far and wide.

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00:06:43,660 --> 00:06:45,660

Well that was the windshield.

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00:06:45,660 --> 00:06:47,660

It's definitely mission accomplished.

113

00:06:47,660 --> 00:06:50,660

But let's give Adam and Jamie an idea.

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00:06:51,660 --> 00:06:56,660

Dude, it threw our van on its side and it weighs 5,000 pounds. I would not have called that.

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00:06:56,660 --> 00:07:00,660

Well our little loader weighs 6,000 and it popped a wheelie as well.

116

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

This is maybe a ton of lumber underneath it.

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00:07:03,660 --> 00:07:06,660

So it moved like 12,000 pounds of stuff all from boiling water.

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00:07:06,660 --> 00:07:08,660

It's a pretty effective cannon.

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00:07:08,660 --> 00:07:09,660

Yeah but you know what?

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00:07:09,660 --> 00:07:10,660

I think we can do better.

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00:07:10,660 --> 00:07:11,660

I think you're right.

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00:07:12,660 --> 00:07:15,660

Well that's what the Mythbusters are gunning for next.

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00:07:22,660 --> 00:07:23,660

Next up.

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00:07:23,660 --> 00:07:24,660

A blast from the past.

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00:07:26,660 --> 00:07:27,660

Okay so what have we got?

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00:07:27,660 --> 00:07:29,660

You guys remember Fireworks Man right?

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00:07:29,660 --> 00:07:31,660

Yeah that was like one of the best stories we've ever done.

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00:07:31,660 --> 00:07:33,660

We'll get ready for Fireworks Man the Revenge.

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00:07:33,660 --> 00:07:35,660

Because fans will be watching us.

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00:07:35,660 --> 00:07:37,660

We'll get ready for Fireworks Man the Revenge.

131

00:07:37,660 --> 00:07:40,660

Because fans want us to give this one another try.

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00:07:40,660 --> 00:07:42,660

To see if we can get a successful launch?

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00:07:42,660 --> 00:07:43,660

Exactly.

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00:07:44,660 --> 00:07:52,660

Fireworks Man told the story of a pyro pilot who flew 150 feet courtesy of 500 skyrockets.

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00:07:53,660 --> 00:07:56,660

But when Cary, Tori and Grant put it to the test,

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00:07:58,660 --> 00:08:01,660

their small scale flight wasn't promising.

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00:08:01,660 --> 00:08:03,660

And their large scale launch

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00:08:06,660 --> 00:08:08,660

was even worse.

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00:08:10,660 --> 00:08:13,660

But fans want this tall tail tackled again.

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00:08:16,660 --> 00:08:19,660

Okay so people were disappointed with our flight vehicle the first time around.

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00:08:19,660 --> 00:08:23,660

Arguing that if it were a little more slick, it would have gone the mythical 150 feet.

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00:08:23,660 --> 00:08:26,660

I get that but let's not forget that this was something the guy built in his garage.

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00:08:26,660 --> 00:08:30,660

It was never going to be some carbon fiber super aerodynamic thing.

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00:08:30,660 --> 00:08:32,660

Right but that's what the fans want.

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00:08:32,660 --> 00:08:35,660

This time they want something a little more sophisticated.

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00:08:35,660 --> 00:08:38,660

Alright well why don't we figure out what we did wrong last time,

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00:08:38,660 --> 00:08:40,660

fix it in small scale and then take it to full scale.

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00:08:40,660 --> 00:08:44,660

But this time let's throw some heavy-duty rocket science into it.

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00:08:44,660 --> 00:08:45,660

NASA?

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00:08:45,660 --> 00:08:46,660

Yeah.

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00:08:47,660 --> 00:08:52,660

So step one in Fireworks Man 2 is to work out what went wrong.

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00:08:52,660 --> 00:08:54,660

And Grant's already got that sorted.

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00:08:54,660 --> 00:08:57,660

So the first time we tried this we had two problems.

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00:08:57,660 --> 00:09:03,660

One, the curvature of the surfboard caused lift which causes to exit the ramp early.

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00:09:03,660 --> 00:09:07,660

Second problem, Buster's center of gravity which is this line right here,

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

is above the center of thrust which is this line right here.

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00:09:12,660 --> 00:09:16,660

Now for maximum stability those two should be right on top of each other.

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00:09:16,660 --> 00:09:19,660

In charge of making those improvements is Tori.

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00:09:20,660 --> 00:09:24,660

Who not only addresses the two pivotal flight path problems.

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00:09:24,660 --> 00:09:26,660

Oh Tori that's amazing.

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00:09:26,660 --> 00:09:27,660

Oh thanks Carrie.

162

00:09:27,660 --> 00:09:31,660

But also adds a couple of stability upgrades of his own.

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00:09:31,660 --> 00:09:33,660

Alright so these are the changes that I've made.

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00:09:33,660 --> 00:09:37,660

I have lowered the center of mass that it is in line with the center of thrust.

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00:09:37,660 --> 00:09:41,660

Plus I've added a nose cone to make it more aerodynamic.

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00:09:41,660 --> 00:09:44,660

I'm also adding larger stabilization fins.

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00:09:44,660 --> 00:09:47,660

The last time our fins were too small and it went out of control.

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00:09:47,660 --> 00:09:50,660

So now that the model is done we're going to take it to the wind tunnel

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00:09:50,660 --> 00:09:52,660

and see if this is aerodynamic enough.

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00:09:52,660 --> 00:09:54,660

Kind of like men in black huh?

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00:09:54,660 --> 00:09:58,660

Once inside they pivot their model at its center of gravity.

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00:09:58,660 --> 00:10:00,660

It's looking great.

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00:10:00,660 --> 00:10:05,660

If the model stays put when the wind test starts then their design is stable.

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00:10:05,660 --> 00:10:08,660

But any deviation and it's back to the drawing board.

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00:10:08,660 --> 00:10:10,660

Alright we're set.

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00:10:10,660 --> 00:10:12,660

Okay let's turn on the wind tunnel and see what happens.

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00:10:12,660 --> 00:10:14,660

Bring on the wind!

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00:10:15,660 --> 00:10:20,660

Under the white-full eye of expert Steve Smith the 50-nod wind gets fired up.

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00:10:20,660 --> 00:10:23,660

But their hopes go down.

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00:10:23,660 --> 00:10:25,660

Steady as a rock.

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00:10:25,660 --> 00:10:27,660

Fireworks man!

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00:10:27,660 --> 00:10:29,660

That's what happened last time.

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00:10:29,660 --> 00:10:33,660

Alright so it looks like fireworks man is not stable at all.

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00:10:33,660 --> 00:10:39,660

Yep, flipping a 180 and then waddling in the wind is about as unstable as it gets.

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00:10:39,660 --> 00:10:41,660

What if we put the rockets in the back?

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00:10:41,660 --> 00:10:43,660

That's all I'm saying.

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00:10:43,660 --> 00:10:47,660

So we just tested the new design for our fireworks man in the wind tunnel

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00:10:47,660 --> 00:10:49,660

and so far it is not looking very aerodynamic.

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00:10:49,660 --> 00:10:51,660

But we're not going to give up.

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00:10:51,660 --> 00:10:55,660

Bigger fins hopefully that'll give us stability and that'll be the winning model design.

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00:10:55,660 --> 00:10:59,660

And with those bigger fins glued in place it's time for test two.

192

00:11:01,660 --> 00:11:05,660

Where this time things are looking solid.

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00:11:05,660 --> 00:11:06,660

It's working.

194

00:11:06,660 --> 00:11:07,660

Looks good.

195

00:11:07,660 --> 00:11:10,660

So if it really is stable we should be able to nudge it a little bit

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00:11:10,660 --> 00:11:13,660

and it should restore back to its original flight plan.

197

00:11:13,660 --> 00:11:15,660

Don't nudge it too much.

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00:11:15,660 --> 00:11:17,660

That's stable.

199

00:11:17,660 --> 00:11:18,660

That's awesome.

200

00:11:18,660 --> 00:11:20,660

I think we got a winning design here.

201

00:11:21,660 --> 00:11:22,660

Still to come.

202

00:11:22,660 --> 00:11:24,660

Will fireworks man take flight?

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00:11:24,660 --> 00:11:25,660

X marks the spot.

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00:11:25,660 --> 00:11:27,660

That's what we're aiming for.

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00:11:28,660 --> 00:11:31,660

But next Adam and Jamie unleash the big guns.

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00:11:31,660 --> 00:11:33,660

In three, two, one.

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00:11:34,660 --> 00:11:36,660

What happened? What happened?

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00:11:43,660 --> 00:11:48,660

In revenge of the water cannon, Adam and Jamie have just had a blast.

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00:11:50,660 --> 00:11:52,660

That was freaking awesome.

210

00:11:52,660 --> 00:11:54,660

Yeah it was great wasn't it?

211

00:11:54,660 --> 00:11:58,660

But it wasn't really an honest goodness cannon like with a cannonball.

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00:11:58,660 --> 00:12:00,660

You're right. What do you think it?

213

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

What if we put the water heater inside a really heavy canister with a barrel mounted on it?

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00:12:04,660 --> 00:12:08,660

And let the energy from the exploding hot water heater contained by the canister

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00:12:08,660 --> 00:12:10,660

propel the cannonball forward.

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00:12:10,660 --> 00:12:11,660

Exactly.

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00:12:13,660 --> 00:12:18,660

So now we've seen the awesome power inherent in the hot water heater when he placed it on its side

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00:12:18,660 --> 00:12:20,660

and it's not unimpressive.

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00:12:20,660 --> 00:12:22,660

In fact, it's pretty incredible.

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00:12:22,660 --> 00:12:28,660

We tipped a van over, we knocked a 6,000 pound dicker backwards and lifted 2,000 pounds of railroad ties.

221

00:12:28,660 --> 00:12:35,660

We find ourselves wondering what happens if we took all that energy and focus it and compressed it.

222

00:12:35,660 --> 00:12:37,660

Yeah that's what we're doing next.

223

00:12:37,660 --> 00:12:39,660

We're going to encase this hot water heater and steel.

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00:12:39,660 --> 00:12:45,660

We're going to focus all this energy out of barrel and I think we're going to come out with a pretty darned respectable cannon.

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00:12:45,660 --> 00:12:50,660

So with the design idea sorted, you might say it's full steam ahead.

226

00:12:50,660 --> 00:12:51,660

In we go.

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00:12:51,660 --> 00:12:54,660

First, Jamie dives into the heater containment section.

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00:12:54,660 --> 00:12:56,660

It's nice and cozy in here.

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00:12:58,660 --> 00:13:04,660

Made of half inch thick steel pipe, it should be strong enough, but Jamie's taken no chances.

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00:13:05,660 --> 00:13:11,660

We've taken three heavy passes with a welder on this side of the flange and we're going to do the same on the other side.

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00:13:11,660 --> 00:13:15,660

It may seem kind of overkill, but we've seen what these water heaters can do.

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00:13:16,660 --> 00:13:19,660

Meanwhile, Adam's taken aim with both barrels.

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00:13:20,660 --> 00:13:24,660

For the barrel, I'm using two 20 foot lengths of schedule 40 pipe.

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00:13:24,660 --> 00:13:25,660

That's good.

235

00:13:25,660 --> 00:13:30,660

That 40 foot length should give my cannonball plenty of time to go as fast as possible.

236

00:13:31,660 --> 00:13:32,660

We have clearance.

237

00:13:32,660 --> 00:13:35,660

We want to harness all of this cannon's steam power.

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00:13:35,660 --> 00:13:41,660

Indeed, and after a quick 40 foot paint job, Adam's finished lock stocking barrel.

239

00:13:41,660 --> 00:13:43,660

I think it looks lovely, don't you?

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00:13:43,660 --> 00:13:45,660

Which leaves just one thing.

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00:13:45,660 --> 00:13:47,660

Jamie's base plate catcher.

242

00:13:47,660 --> 00:13:51,660

So we're going to put our water heater inside our canister and wait for it to blow.

243

00:13:51,660 --> 00:13:56,660

Now when it blows, it's bottom, just like this one, is going to rock it towards the front of the canister.

244

00:13:56,660 --> 00:14:00,660

But because we don't want it to plug the hole that lets the steam into the barrel,

245

00:14:00,660 --> 00:14:05,660

we've put a heavy steel plate at the end of the canister so that this thing will tilt

246

00:14:05,660 --> 00:14:10,660

and let the steam flow up and over it and into the barrel without any turbulence.

247

00:14:10,660 --> 00:14:12,660

At least that's the idea.

248

00:14:12,660 --> 00:14:15,660

It's a good idea in theory, but will it work in practice?

249

00:14:15,660 --> 00:14:21,660

Well, back at the bomb range, the steam cannon will have to wait, because first of fire is the control.

250

00:14:22,660 --> 00:14:26,660

Before we fire off our steam cannon, we need to have something to compare it to.

251

00:14:26,660 --> 00:14:33,660

So we've gotten a hold of an honest to goodness traditional Civil War era cannon by the name of Old Moses.

252

00:14:33,660 --> 00:14:35,660

All we need is something to shoot at.

253

00:14:35,660 --> 00:14:38,660

And that's something Adam's already lined up.

254

00:14:39,660 --> 00:14:44,660

This is our target. Four pallets full of hollow, concrete bricks.

255

00:14:44,660 --> 00:14:47,660

What we're hoping is that the bricks will have enough stopping power to halt the cannonball

256

00:14:47,660 --> 00:14:51,660

somewhere along its path within these four pallets so that we get a nice comparative metric

257

00:14:51,660 --> 00:14:54,660

as to how much power the cannon is putting out.

258

00:14:54,660 --> 00:14:57,660

If for some reason the cannonball makes it through all four of these pallets and bricks,

259

00:14:57,660 --> 00:15:01,660

well, we've got a fifth one filled with sand and that is definitely going to stop it.

260

00:15:02,660 --> 00:15:07,660

Alright everybody, this is for real. Cannonball, the control, and three.

261

00:15:07,660 --> 00:15:09,660

Two, one.

262

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

Woo! Yeah!

263

00:15:16,660 --> 00:15:19,660

I can't see what happened. What happened? What happened?

264

00:15:20,660 --> 00:15:22,660

Hit the bricks. Wow!

265

00:15:22,660 --> 00:15:29,660

It sure was a direct hit. But what's important here is not the aim, but the number of bricks destroyed.

266

00:15:29,660 --> 00:15:32,660

That's the benchmark that their steam cannon will be compared to.

267

00:15:33,660 --> 00:15:35,660

And after surveying the damage...

268

00:15:35,660 --> 00:15:37,660

This is it! I got it!

269

00:15:38,660 --> 00:15:39,660

Yep, there it is.

270

00:15:40,660 --> 00:15:43,660

Those numbers are in and they're pretty substantial.

271

00:15:43,660 --> 00:15:44,660

So what have we got?

272

00:15:44,660 --> 00:15:52,660

Well, we had eleven rows penetrated, thirty-seven bricks destroyed, and twenty-three knocked off.

273

00:15:52,660 --> 00:15:54,660

That seems like a pretty good metric to start from.

274

00:15:54,660 --> 00:15:57,660

Yeah, well, we'll see what the steam cannon does.

275

00:15:59,660 --> 00:16:02,660

Later, the Mythbusters fling some bling.

276

00:16:02,660 --> 00:16:07,660

Unbelievable, we finally get a luxury car. And what do we do? We throw it off a cliff.

277

00:16:07,660 --> 00:16:12,660

But next, will fireworks man hit infinity or beyond?

278

00:16:12,660 --> 00:16:14,660

One, three, two, one.

279

00:16:20,660 --> 00:16:22,660

At NASA's wind tunnel...

280

00:16:22,660 --> 00:16:23,660

Bring on the wind!

281

00:16:23,660 --> 00:16:27,660

The new and improved fireworks man is riding high.

282

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

I think we got a winning design here.

283

00:16:29,660 --> 00:16:35,660

Because in a head-to-head stability test, version 2.0 has trounced their original design.

284

00:16:35,660 --> 00:16:36,660

That's awesome!

285

00:16:37,660 --> 00:16:40,660

So now, the team has headed to the middle of nowhere.

286

00:16:42,660 --> 00:16:44,660

For its maiden flight in miniature.

287

00:16:45,660 --> 00:16:46,660

We're here!

288

00:16:46,660 --> 00:16:47,660

Ready for science.

289

00:16:47,660 --> 00:16:50,660

I am so glad we are revisiting fireworks man.

290

00:16:50,660 --> 00:16:53,660

Now we're going to test our small-scale fireworks man.

291

00:16:53,660 --> 00:16:59,660

So far, we've taken it to NASA, we've made a more aerodynamic design, and next we're going to launch it off into the desert.

292

00:16:59,660 --> 00:17:03,660

We laid out our course with a marker every ten feet up to a hundred feet.

293

00:17:03,660 --> 00:17:04,660

This is going to tell us two things.

294

00:17:04,660 --> 00:17:08,660

One, the distance our model travels, and two, if it flies straight.

295

00:17:08,660 --> 00:17:09,660

Which hopefully it does.

296

00:17:09,660 --> 00:17:11,660

It's time for launch.

297

00:17:13,660 --> 00:17:16,660

Alright, so we are all loaded.

298

00:17:16,660 --> 00:17:18,660

Ready to launch.

299

00:17:18,660 --> 00:17:20,660

Okay, here we go.

300

00:17:20,660 --> 00:17:22,660

Small-scale fireworks man.

301

00:17:22,660 --> 00:17:25,660

In three, two, one...

302

00:17:26,660 --> 00:17:28,660

Woo!

303

00:17:29,660 --> 00:17:30,660

Yeah!

304

00:17:31,660 --> 00:17:32,660

That's awesome!

305

00:17:32,660 --> 00:17:33,660

Oh!

306

00:17:34,660 --> 00:17:37,660

I'm not bad to you guys, but I would say that's a successful launch.

307

00:17:37,660 --> 00:17:39,660

We're in that thing with at least 300 feet in the air.

308

00:17:39,660 --> 00:17:42,660

Yeah, I think we got at least 150 feet in distance.

309

00:17:42,660 --> 00:17:46,660

You know, it could have been a little straighter, but this is definitely what we're moving on from.

310

00:17:46,660 --> 00:17:48,660

Yep, I think it's time we take this full scale.

311

00:17:48,660 --> 00:17:49,660

Yeah!

312

00:17:51,660 --> 00:17:53,660

This launch was such a phenomenal success.

313

00:17:55,660 --> 00:17:57,660

But now it's Big Brother Beckett.

314

00:17:58,660 --> 00:17:59,660

Let's go to work.

315

00:17:59,660 --> 00:18:02,660

Well, back at the shop, it's time to get building.

316

00:18:03,660 --> 00:18:08,660

Tori focuses on a full-size flight vehicle, complete with its large wooden fins.

317

00:18:10,660 --> 00:18:11,660

That should hold.

318

00:18:11,660 --> 00:18:13,660

And Gurney inspired passenger capsule.

319

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

Meanwhile, Grant gives the ramp a revamp.

320

00:18:21,660 --> 00:18:25,660

And when we first tried this, we had a minor problem, and that was,

321

00:18:25,660 --> 00:18:29,660

we had a trolley that our shuttle was riding on all the way up the ramp,

322

00:18:29,660 --> 00:18:31,660

but it separated prematurely.

323

00:18:31,660 --> 00:18:34,660

That is not going to happen this time because we're doing away with the trolley,

324

00:18:34,660 --> 00:18:39,660

and we are integrating our wheels directly into our launch vehicle.

325

00:18:39,660 --> 00:18:42,660

So it's going to travel all the way up the ramp,

326

00:18:42,660 --> 00:18:50,660

and by the time it gets to the end, it should be going fast enough that the fins take over and we get a straight launch.

327

00:18:50,660 --> 00:18:56,660

That's the theory, and after a solid day's rocketeering, it's almost time to put it into practice.

328

00:18:57,660 --> 00:19:00,660

But first comes the all-important test on the ramp.

329

00:19:00,660 --> 00:19:01,660

That's awesome!

330

00:19:01,660 --> 00:19:03,660

And the patented Mythbusters makeover.

331

00:19:04,660 --> 00:19:05,660

Best rocket ever.

332

00:19:06,660 --> 00:19:08,660

And with that, it's time to ship out.

333

00:19:08,660 --> 00:19:10,660

This is going to be so sick.

334

00:19:10,660 --> 00:19:14,660

To one of the most iconic Mythbusters locations of all.

335

00:19:15,660 --> 00:19:17,660

Dude, look at this spot!

336

00:19:17,660 --> 00:19:18,660

I think this is perfect.

337

00:19:18,660 --> 00:19:22,660

We put the ramp right here, fireworks man goes launching off into the valley.

338

00:19:23,660 --> 00:19:25,660

I mean, it can't get any better than this.

339

00:19:26,660 --> 00:19:28,660

We're here at a rock quarry in Angels Camp.

340

00:19:28,660 --> 00:19:29,660

Now, we've been here before.

341

00:19:29,660 --> 00:19:31,660

In fact, we blew up our cement truck here.

342

00:19:34,660 --> 00:19:36,660

We pushed cars off the cliff scene.

343

00:19:39,660 --> 00:19:45,660

Now, we're seeing if over 500 skyrockets is enough to send a man 150 feet in the air.

344

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

It's time to put this myth to the test again.

345

00:19:50,660 --> 00:19:53,660

But first comes the on-site setup, starting with the ramp.

346

00:19:53,660 --> 00:19:55,660

Alright, why don't you bring that fork lift in?

347

00:19:56,660 --> 00:20:01,660

Which, once out of the truck, is raised up to a perfect launch angle of 50 degrees.

348

00:20:02,660 --> 00:20:03,660

Little more.

349

00:20:04,660 --> 00:20:05,660

Stop.

350

00:20:05,660 --> 00:20:06,660

Alright.

351

00:20:06,660 --> 00:20:07,660

That looks good.

352

00:20:07,660 --> 00:20:13,660

Then the ramp's secured in place so that it should withstand a full force of launch without falling over.

353

00:20:15,660 --> 00:20:16,660

This feels pretty solid.

354

00:20:16,660 --> 00:20:17,660

I think we're done.

355

00:20:17,660 --> 00:20:19,660

Alright, let's get the fireworks man.

356

00:20:19,660 --> 00:20:22,900

Next up is the

357

00:20:23,660 --> 00:20:25,660

Next, Buster gets dressed for success.

358

00:20:25,660 --> 00:20:26,660

And look at that.

359

00:20:26,660 --> 00:20:27,660

Yeah!

360

00:20:27,660 --> 00:20:28,660

Woohoo!

361

00:20:28,660 --> 00:20:30,660

And strapped into the hot seat.

362

00:20:30,660 --> 00:20:34,660

Remember to keep your hands and arms inside the vehicle at all times.

363

00:20:34,660 --> 00:20:35,660

A quick balance check later.

364

00:20:35,660 --> 00:20:37,660

That's pretty good, right?

365

00:20:37,660 --> 00:20:39,660

All that's left are the fireworks.

366

00:20:39,660 --> 00:20:41,660

All 500 of them.

367

00:20:41,660 --> 00:20:46,660

So we're going to be launching our fireworks man with this giant bank of skyrockets.

368

00:20:46,660 --> 00:20:49,660

Now these skyrockets can go up to 1200 feet, but that's without a load.

369

00:20:49,660 --> 00:20:51,660

We have a 300 pound load.

370

00:20:51,660 --> 00:20:53,660

Now remember they only burn for three seconds.

371

00:20:53,660 --> 00:21:00,660

Hopefully that'll give us enough time to build up enough thrust to get our fireworks man to go over the 150 foot mark that we're looking for.

372

00:21:00,660 --> 00:21:02,660

This way we can confirm this myth.

373

00:21:02,660 --> 00:21:04,660

Confidence may be sky high.

374

00:21:04,660 --> 00:21:05,660

Hey, check it out.

375

00:21:05,660 --> 00:21:06,660

X marks the spot.

376

00:21:06,660 --> 00:21:08,660

That's what we're aiming for.

377

00:21:08,660 --> 00:21:10,660

But the team is still taking precautions.

378

00:21:10,660 --> 00:21:19,660

Just to give you an idea of how dangerous this experiment is, we had to bring in a bomb tech, a power tech, the sheriff's department, NASA, and the fire department.

379

00:21:19,660 --> 00:21:25,660

Because in a few minutes we're about to have a flying flaming potentially exploding man go off that ramp.

380

00:21:25,660 --> 00:21:28,660

Here on Mythbusters you can't be too careful.

381

00:21:28,660 --> 00:21:30,660

Ain't that the truth?

382

00:21:30,660 --> 00:21:36,660

And with everyone retreated for safety, it's go time.

383

00:21:36,660 --> 00:21:38,660

Are you guys ready for this?

384

00:21:38,660 --> 00:21:39,660

Me so.

385

00:21:39,660 --> 00:21:40,660

Yep.

386

00:21:40,660 --> 00:21:45,660

All right, here we go in three, two, one.

387

00:21:50,660 --> 00:21:52,660

I get it.

388

00:21:52,660 --> 00:21:54,660

Holy crap.

389

00:21:57,660 --> 00:22:05,660

In a complete reversal of their previous effort, fireworks man flew straight, true, and then south.

390

00:22:05,660 --> 00:22:10,660

Crash landing head first, 700 feet downstream.

391

00:22:10,660 --> 00:22:12,660

You cannot ask for a better launch.

392

00:22:12,660 --> 00:22:14,660

We had the fireworks man on the ramp.

393

00:22:14,660 --> 00:22:16,660

The rockets all went off at the same exact time.

394

00:22:16,660 --> 00:22:24,660

He got up the ramp, he went off, went straight, and all of a sudden he fired off like a missile going over 150 feet.

395

00:22:24,660 --> 00:22:27,660

We have to confirm this one.

396

00:22:27,660 --> 00:22:28,660

This one was awesome.

397

00:22:35,660 --> 00:22:38,660

So it looks like the adjustments that we made paid off.

398

00:22:38,660 --> 00:22:41,660

I mean we got a much stabler flight and it went a lot further.

399

00:22:41,660 --> 00:22:43,660

So the physics are confirmed.

400

00:22:43,660 --> 00:22:49,660

Yeah, it's confirmed, but you know what? Falling from that height even into water survivability is questionable.

401

00:22:49,660 --> 00:22:51,660

All right, confirm, just not very smart.

402

00:22:51,660 --> 00:22:52,660

Confirmed.

403

00:22:52,660 --> 00:22:54,660

Yeah, confirmed but dangerous.

404

00:22:54,660 --> 00:22:56,660

I'm gonna try that one at home, right?

405

00:23:00,660 --> 00:23:05,660

Next on Mythbusters, will a hot water heater make a viable cannon?

406

00:23:05,660 --> 00:23:07,660

So can tankers.

407

00:23:08,660 --> 00:23:12,660

Please do not try what you are about to see at home.

408

00:23:12,660 --> 00:23:14,660

We're what you call experts.

409

00:23:14,660 --> 00:23:15,660

Can't you tell?

410

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

At the fans request, we've been looking into harnessing the awesome power of exploding hot water heaters.

411

00:23:25,660 --> 00:23:31,660

And so far, without any modification, we got one turned on its side to tip over a 5,000 pound van.

412

00:23:32,660 --> 00:23:35,660

But that's not good enough for us. We want to make a real cannon.

413

00:23:35,660 --> 00:23:43,660

So this time we are sealing a hot water heater inside a heavy steel canister with nothing but a 37 foot barrel as its outlet.

414

00:23:43,660 --> 00:23:45,660

We've already fired a Civil War era cannon.

415

00:23:45,660 --> 00:23:48,660

Give ourselves a metric as to how powerful a cannon should be.

416

00:23:50,660 --> 00:23:52,660

And we're hoping to exceed that.

417

00:23:52,660 --> 00:23:55,660

Assembly is definitely an all hands to the pump affair.

418

00:23:55,660 --> 00:24:03,660

But pretty soon, the cannon's locked, loaded, and zeroed in on the target.

419

00:24:03,660 --> 00:24:08,660

This brick right here, that's where old Moses hit, and that's where our steam cannon is aimed at.

420

00:24:08,660 --> 00:24:15,660

It's heating up now, so sometime in about an hour, well, an hour for me, more like two minutes for you.

421

00:24:15,660 --> 00:24:22,660

In about two minutes for you, we're going to obliterate at least one and a half blocks of concrete bricks.

422

00:24:22,660 --> 00:24:24,660

Yeah, that's the theory.

423

00:24:24,660 --> 00:24:30,660

But unfortunately in 20 minutes for Adam and 20 seconds for you, there's a problem.

424

00:24:31,660 --> 00:24:37,660

In the realm of not being able to plan for every contingency, take a note at our cannon down there,

the blue and white stripes.

425

00:24:37,660 --> 00:24:39,660

See where it's pointed?

426

00:24:39,660 --> 00:24:49,660

A brush fire has just started on the other side of the hill where we're aimed, and we have to stop heating our water heater so it doesn't, you know, shoot any firemen.

427

00:24:49,660 --> 00:24:51,660

Who would have thought of that?

428

00:24:51,660 --> 00:24:55,660

Yep, it's not the fire in the hole they were looking for.

429

00:24:56,660 --> 00:25:03,660

But when the burning push is brought under control, the guys ratchet up the pressure once more.

430

00:25:03,660 --> 00:25:11,660

All right, everybody, we're at 150 PSI, so you can't leave your bunkers, you can't approach the gun. It's a no-go zone.

431

00:25:11,660 --> 00:25:13,660

This time, the PSI climbs steadily.

432

00:25:13,660 --> 00:25:14,660

210.

433

00:25:14,660 --> 00:25:16,660

Just like it's supposed to.

434

00:25:16,660 --> 00:25:17,660

220.

435

00:25:17,660 --> 00:25:22,660

Until it reaches 230 where it suddenly stops.

436

00:25:22,660 --> 00:25:25,660

I just don't understand what's going on with this one.

437

00:25:25,660 --> 00:25:27,660

And then drops.

438

00:25:27,660 --> 00:25:29,660

175.

439

00:25:29,660 --> 00:25:35,660

With the tank falling to a pressure that's safe to stand next to, their only option is to trigger the release valve.

440

00:25:35,660 --> 00:25:36,660

Oh man.

441

00:25:36,660 --> 00:25:37,660

There we go.

442

00:25:37,660 --> 00:25:40,660

And wait for the tank to empty.

443

00:25:40,660 --> 00:25:42,660

It's a rainbow.

444

00:25:42,660 --> 00:25:47,660

It's hardly the cannon chaos they were after, but failure is always an option.

445

00:25:47,660 --> 00:25:53,660

Well, round one was a failure. There's no way around it, so we're going to reset and have another go.

446

00:25:58,660 --> 00:26:03,660

Next, in Revenge of the Myth is another tall story.

447

00:26:03,660 --> 00:26:05,660

Okay, so what have we got?

448

00:26:05,660 --> 00:26:06,660

Bird balance.

449

00:26:06,660 --> 00:26:10,660

Ah, yeah, that's the one where the bird lands on the hood of the precariously balanced car, causing it to tip.

450

00:26:10,660 --> 00:26:13,660

Yes and no. Yes, that's the myth, but no, it can't.

451

00:26:13,660 --> 00:26:15,660

Do people dispute that?

452

00:26:15,660 --> 00:26:20,660

No, but they have a good suggestion that they think is going to send this myth to the max.

453

00:26:20,660 --> 00:26:21,660

What's that?

454

00:26:21,660 --> 00:26:22,660

A limo.

455

00:26:22,660 --> 00:26:23,660

Oh, that's a good idea.

456

00:26:23,660 --> 00:26:27,660

A limo is longer than a regular car, which means the tip of its hood is further from the pivot point.

457

00:26:27,660 --> 00:26:30,660

And therefore, it should be easier to send it over the cliff.

458

00:26:30,660 --> 00:26:34,660

The last time the guys tested this classic car cliffhanger.

459

00:26:34,660 --> 00:26:36,660

Two pigeons, not happening.

460

00:26:36,660 --> 00:26:40,660

Only a farm load of poultry could get the car to pivot.

461

00:26:40,660 --> 00:26:42,660

Oh, yeah!

462

00:26:44,660 --> 00:26:48,660

But the longer the lever, the less weight it takes to tip.

463

00:26:48,660 --> 00:26:53,660

So fans have asked if a lengthy limousine can be unbalanced by a bird.

464

00:26:53,660 --> 00:26:56,660

And that's not their only request.

465

00:26:56,660 --> 00:27:00,660

But there's more. The fans were not satisfied with our clip.

466

00:27:00,660 --> 00:27:03,660

They want to see this car go over an actual cliff.

467

00:27:03,660 --> 00:27:06,660

Okay, well that means real birds are out. We better start preparing some fake birds.

468

00:27:06,660 --> 00:27:09,660

Yeah, and considering how much mass it took last time to send the car over,

469

00:27:09,660 --> 00:27:12,660

I'm going to have to start building the heaviest flying bird there is.

470

00:27:12,660 --> 00:27:14,660

And you know what, in case the big bird doesn't work,

471

00:27:14,660 --> 00:27:17,660

I'll build something that will drop large amounts of poultry.

472

00:27:18,660 --> 00:27:19,660

Sounds good.

473

00:27:19,660 --> 00:27:20,660

Sounds weird.

474

00:27:25,660 --> 00:27:28,660

Now, since we're moving on to a more extreme car, the limo,

475

00:27:28,660 --> 00:27:32,660

it is fitting that we move on to a larger bird, a kori buster.

476

00:27:32,660 --> 00:27:34,660

Now, they are native in Africa.

477

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

They are one of the largest birds known to fly, and they weigh around 40 pounds.

478

00:27:38,660 --> 00:27:42,660

Now, since we don't have them here in North America, I need to make one.

479

00:27:42,660 --> 00:27:46,660

So I have a bag of sand that weighs around 40 pounds.

480

00:27:46,660 --> 00:27:50,660

What I need to do is make it look a little bit more like the bird before we drop it on the limo.

481

00:27:50,660 --> 00:27:53,660

By recreating the world's heaviest flying bird,

482

00:27:53,660 --> 00:27:56,660

Torey's giving this myth a helping hand.

483

00:27:56,660 --> 00:27:59,660

He's also giving it a helping voice.

484

00:28:00,660 --> 00:28:03,660

What do you think? Say hello to my robo bird.

485

00:28:05,660 --> 00:28:10,660

Torey's avian animatronics is firing at all cylinders.

486

00:28:10,660 --> 00:28:11,660

Good kori buster.

487

00:28:11,660 --> 00:28:14,660

But it won't be flying solo.

488

00:28:16,660 --> 00:28:18,660

Okay, so I finished the turkey chandelier.

489

00:28:18,660 --> 00:28:23,660

We can drop up to 40 turkeys onto the hood of the car at 25 pounds apiece.

490

00:28:23,660 --> 00:28:26,660

That's upwards of a thousand pounds of poultry.

491

00:28:26,660 --> 00:28:32,660

Here we go. Fire one. Fire two. Just like that.

492

00:28:33,660 --> 00:28:38,660

With their bird booty in tow, the mythbusters head to the deserts of New Mexico,

493

00:28:38,660 --> 00:28:41,660

where they've traveled in style.

494

00:28:41,660 --> 00:28:46,660

But it is about time we get to ride in style on this show.

495

00:28:46,660 --> 00:28:49,660

All right, I think this is the perfect candidate for an experiment.

496

00:28:49,660 --> 00:28:50,660

Let's push it off a cliff.

497

00:28:50,660 --> 00:28:51,660

It's kind of a shame, don't you think?

498

00:28:51,660 --> 00:28:52,660

Not really.

499

00:28:52,660 --> 00:28:54,660

All we need now are some supermodels.

500

00:28:54,660 --> 00:28:57,660

Well, New Mexico tech may be short on supermodels,

501

00:28:57,660 --> 00:29:01,660

but for cliffs to balance cars on, it's ideal.

502

00:29:01,660 --> 00:29:03,660

All right, as you know, I hate heights.

503

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

It's not so much the heights that I hate, it's falling to your death.

504

00:29:06,660 --> 00:29:07,660

That part I hate.

505

00:29:07,660 --> 00:29:08,660

But this myth calls for heights.

506

00:29:08,660 --> 00:29:10,660

We needed a cliff, and we have the perfect cliff.

507

00:29:10,660 --> 00:29:12,660

This thing is 300 feet tall.

508

00:29:12,660 --> 00:29:15,660

We're going to balance our limo at the edge and see if a bird landing on it.

509

00:29:15,660 --> 00:29:17,660

We'll send it over.

510

00:29:17,660 --> 00:29:19,660

I'm getting out of here.

511

00:29:19,660 --> 00:29:23,660

The good news is that at least Tari won't be in the car when it tips.

512

00:29:23,660 --> 00:29:27,660

Audio, some chachos. Have a nice trap. See you next fall.

513

00:29:27,660 --> 00:29:32,660

But with only one limo, they can't risk losing it before they've even started.

514

00:29:32,660 --> 00:29:35,660

So first, to find its pivot point.

515

00:29:35,660 --> 00:29:37,660

The plan here is to find the butter zone for the tipping point.

516

00:29:37,660 --> 00:29:41,660

To do that, we have a teeter totter, which is a pipe. It's a rounded edge.

517

00:29:41,660 --> 00:29:45,660

We'll find the center of mass of the limousine that way and mark it.

518

00:29:45,660 --> 00:29:47,660

All right, mark it.

519

00:29:47,660 --> 00:29:49,660

Then we're going to lift the limousine up, put it on a slab.

520

00:29:49,660 --> 00:29:52,660

We're going to find the tipping point off of a knife edge.

521

00:29:52,660 --> 00:29:54,660

All right, it looks pretty good.

522

00:29:54,660 --> 00:29:58,660

Somewhere between those two should be our perfect zone for tipping.

523

00:29:58,660 --> 00:30:00,660

Unbelievable. We finally get a luxury car.

524

00:30:00,660 --> 00:30:04,660

And what do we do? We throw it off a cliff.

525

00:30:04,660 --> 00:30:08,660

And to do just that, the car is first hoisted into place.

526

00:30:08,660 --> 00:30:12,660

And then balanced on its predetermined tipping point.

527

00:30:12,660 --> 00:30:14,660

Remember, this is all about the science of the fulcrum.

528

00:30:14,660 --> 00:30:20,660

The further out we are from the fulcrum, the easier it is for a small weight to be able to tip that lever

529

00:30:20,660 --> 00:30:23,660

and basically tip our car off the cliff.

530

00:30:23,660 --> 00:30:27,660

But will the Kory Buster be enough to tip the balance?

531

00:30:27,660 --> 00:30:29,660

The car is perfectly balanced.

532

00:30:29,660 --> 00:30:33,660

We're about to drop our heavy bird, the single bird experiment.

533

00:30:33,660 --> 00:30:35,660

I think we actually have a shot at this one.

534

00:30:35,660 --> 00:30:37,660

I think that car is going to go off the cliff.

535

00:30:37,660 --> 00:30:39,660

All right, you guys ready to do this?

536

00:30:39,660 --> 00:30:45,660

This is the Kory Buster, the heaviest flying bird landing on the front end of the limo.

537

00:30:45,660 --> 00:30:47,660

Okay, here we go.

538

00:30:47,660 --> 00:30:52,660

In five, four, three, two, one.

539

00:30:52,660 --> 00:30:57,660

Coming up next on Mythbusters, I'm not actually really sure.

540

00:30:57,660 --> 00:31:01,660

Plus, Adam and Jamie get exuberant with excavators.

541

00:31:01,660 --> 00:31:04,660

Oh, stop! We might have gotten it.

542

00:31:10,660 --> 00:31:14,660

With cannons behaving chaotically, it's time to switch gears.

543

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

Remember excavator exuberance?

544

00:31:16,660 --> 00:31:20,660

I do. We tried rolling, water skiing and climbing all based on YouTube videos.

545

00:31:20,660 --> 00:31:22,660

And it turned out you could do all those things.

546

00:31:22,660 --> 00:31:24,660

Right. But...

547

00:31:24,660 --> 00:31:25,660

But...

548

00:31:25,660 --> 00:31:29,660

The fans wrote to us and said, with all that time in practice, with those beautiful big excavators,

549

00:31:29,660 --> 00:31:33,660

why couldn't we have come up with our own crazy thing to do with them?

550

00:31:33,660 --> 00:31:35,660

Okay, I like that.

551

00:31:35,660 --> 00:31:39,660

Well, what if you did something counterintuitive, like little things with big machines?

552

00:31:39,660 --> 00:31:43,660

You mean like comically delicate operations with huge pieces of industrial equipment?

553

00:31:43,660 --> 00:31:44,660

Exactly.

554

00:31:44,660 --> 00:31:47,660

I love that. Let's totally do it.

555

00:31:47,660 --> 00:31:53,660

Last time round, Adam and Jamie's excavator viral videos were three for three.

556

00:31:53,660 --> 00:31:56,660

This has got to be one of the strangest things that I've ever done.

557

00:31:56,660 --> 00:32:00,660

As each stunt, based on pure mechanical power, was confirmed.

558

00:32:00,660 --> 00:32:02,660

Holy crap, it's working!

559

00:32:02,660 --> 00:32:05,660

But now, in a viewer request fest...

560

00:32:05,660 --> 00:32:07,660

This is perfect!

561

00:32:07,660 --> 00:32:10,660

...the Mythbusters are taking a different tack.

562

00:32:10,660 --> 00:32:11,660

Oh, yeah.

563

00:32:11,660 --> 00:32:14,660

...the seemingly impossible challenges they've set themselves...

564

00:32:14,660 --> 00:32:16,660

And now for the threat.

565

00:32:16,660 --> 00:32:20,660

Involved not brute force, but delicacy and precision.

566

00:32:20,660 --> 00:32:22,660

See what that'll do it.

567

00:32:22,660 --> 00:32:25,660

Jamie's in the hot seat first.

568

00:32:25,660 --> 00:32:27,660

Granny here's got a problem.

569

00:32:27,660 --> 00:32:31,660

She's a little bit old, a little bit beyond her years, and she can't see very well.

570

00:32:31,660 --> 00:32:34,660

She's got socks to darn, but she can't thread to her needle.

571

00:32:34,660 --> 00:32:38,660

So, beautiful grandson, Jamie's going to help her in the only way he knows how...

572

00:32:38,660 --> 00:32:41,660

With large pieces of heavy industrial machinery.

573

00:32:41,660 --> 00:32:44,660

Now, this poses certain challenges.

574

00:32:44,660 --> 00:32:49,660

First off, the thing is so heavy that once you get it going, it's kind of hard to stop it.

575

00:32:49,660 --> 00:32:53,660

At least, if you're talking, like, tiny, tiny fractions of an inch.

576

00:32:53,660 --> 00:32:55,660

Stop.

577

00:32:55,660 --> 00:32:57,660

Come in.

578

00:32:57,660 --> 00:32:59,660

And the second thing is it controls themselves.

579

00:32:59,660 --> 00:33:02,660

Well, they're just not that fine.

580

00:33:02,660 --> 00:33:04,660

You're nudging the bucket.

581

00:33:04,660 --> 00:33:09,660

So, whether it'll actually make those little delicate movements we need or not,

582

00:33:09,660 --> 00:33:11,660

is anybody's guess at this point.

583

00:33:11,660 --> 00:33:14,660

But after a few minutes of constant communication...

584

00:33:14,660 --> 00:33:15,660

More?

585

00:33:15,660 --> 00:33:17,660

Yeah, a little bit more.

586

00:33:17,660 --> 00:33:20,660

And patented myth buster perseverance...

587

00:33:20,660 --> 00:33:23,660

Anybody's guess...

588

00:33:23,660 --> 00:33:25,660

Oh, so close.

589

00:33:25,660 --> 00:33:27,660

...turns into a mission accomplished.

590

00:33:27,660 --> 00:33:29,660

Oh, stop!

591

00:33:29,660 --> 00:33:31,660

We might have gotten it.

592

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

Yes, it's in!

593

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

Yeah!

594

00:33:35,660 --> 00:33:37,660

Pull it through.

595

00:33:37,660 --> 00:33:40,660

Don't believe it, check this out.

596

00:33:41,660 --> 00:33:46,660

That is one threaded needle with an excavator.

597

00:33:46,660 --> 00:33:48,660

Nice work, Granny.

598

00:33:48,660 --> 00:33:51,660

Now you can get back to work on my socks.

599

00:33:51,660 --> 00:33:54,660

Ha ha ha ha ha ha ha ha ha ha!

600

00:33:54,660 --> 00:33:56,660

That was James Hindemith.

601

00:33:56,660 --> 00:34:01,660

Using a diesel-powered 38,000-pound hydraulic excavator,

602

00:34:01,660 --> 00:34:07,660

Jamie threaded a needle with surgical precision.

603

00:34:07,660 --> 00:34:11,660

Question is, can Adam pull out something more impressive?

604

00:34:11,660 --> 00:34:13,660

Let me walk you through how this is going to go.

605

00:34:13,660 --> 00:34:18,660

I'm going to try and pour a glass of wine from this bottle into this glass using that excavator.

606

00:34:18,660 --> 00:34:20,660

Ha ha ha ha ha ha ha ha!

607

00:34:20,660 --> 00:34:23,660

I've got an attachment on the bucket of my excavator that hopefully will allow me,

608

00:34:23,660 --> 00:34:27,660

with Jamie's help and guidance, to pick up this bottle of wine and tilt it.

609

00:34:27,660 --> 00:34:30,660

When it is properly aimed over the glass, I am going to pull out a paintball gun

610

00:34:30,660 --> 00:34:33,660

and shoot this cap off the bottle of wine,

611

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

hopefully releasing the wine into the glass.

612

00:34:35,660 --> 00:34:39,660

And if all goes well, we'll have a sip to celebrate.

613

00:34:39,660 --> 00:34:43,660

Once again, the Mythbusters do their delicate digger dance.

614

00:34:43,660 --> 00:34:45,660

Am I lined up nice and level?

615

00:34:45,660 --> 00:34:47,660

Back just a hair.

616

00:34:47,660 --> 00:34:51,660

This time easing Adam's wire arm over the bottle.

617

00:34:51,660 --> 00:34:52,660

Looking good!

618

00:34:52,660 --> 00:34:54,660

Yeah, you're clear.

619

00:34:54,660 --> 00:34:56,660

Ha ha ha ha ha ha ha!

620

00:34:56,660 --> 00:34:57,660

Awesome!

621

00:34:57,660 --> 00:34:59,660

Here we go, lifting the bottle of wine.

622

00:34:59,660 --> 00:35:02,660

Showing all the control of an excavator expert,

623

00:35:02,660 --> 00:35:06,660

Adam swiftly gets into position to prepare to pour.

624

00:35:06,660 --> 00:35:09,660

Alright, let's uncork this puppy.

625

00:35:09,660 --> 00:35:11,660

With what else?

626

00:35:11,660 --> 00:35:12,660

A paintball gun.

627

00:35:12,660 --> 00:35:14,660

Safety is off, here we go!

628

00:35:14,660 --> 00:35:15,660

Uncorking!

629

00:35:17,660 --> 00:35:19,660

Hey, Anthony!

630

00:35:19,660 --> 00:35:20,660

You got it!

631

00:35:20,660 --> 00:35:22,660

There it is pouring, baby!

632

00:35:22,660 --> 00:35:23,660

It's perfect!

633

00:35:23,660 --> 00:35:25,660

Ha ha ha ha ha ha!

634

00:35:25,660 --> 00:35:27,660

Mmm!

635

00:35:27,660 --> 00:35:30,660

Ah, tastes like paintball and victory.

636

00:35:30,660 --> 00:35:33,660

While this method of pouring your wine might not be for everyone,

637

00:35:33,660 --> 00:35:36,660

I think that we've definitively proved that if it's just you,

638

00:35:36,660 --> 00:35:40,660

your loved one, and some heavy machinery, it's totally viable, man.

639

00:35:41,660 --> 00:35:42,660

Our videos are in the can.

640

00:35:42,660 --> 00:35:44,660

You think they're gonna go viral?

641

00:35:44,660 --> 00:35:47,660

Only one way to find out, and that's to upload them to the net and wait.

642

00:35:47,660 --> 00:35:48,660

Well, let's do it.

643

00:35:48,660 --> 00:35:49,660

Okay.

644

00:35:54,660 --> 00:35:57,660

Coming right up, Bird Balance reaches its cliffhanger finale.

645

00:35:58,660 --> 00:36:00,660

Oh, it's coming off the ground!

646

00:36:00,660 --> 00:36:04,660

And will Adam and Jamie's loose cannon fire?

647

00:36:04,660 --> 00:36:06,660

310, 320.

648

00:36:06,660 --> 00:36:08,660

Go f\*\*\*!

649

00:36:15,660 --> 00:36:18,660

Precariously perched 300 feet up,

650

00:36:18,660 --> 00:36:22,660

the Mythbusters limo is fixed for its cliffhanger finale.

651

00:36:22,660 --> 00:36:24,660

Let's let him stabilize for a second.

652

00:36:25,660 --> 00:36:29,660

But will the 40-pound buster tip it over the edge?

653

00:36:29,660 --> 00:36:30,660

Okay, here we go.

654

00:36:30,660 --> 00:36:33,660

In 3, 2, 1...

655

00:36:37,660 --> 00:36:40,660

Despite the wind, it's a bullseye with the bird,

656

00:36:40,660 --> 00:36:42,660

but there's no shift to the slant.

657

00:36:42,660 --> 00:36:44,660

I thought it was gonna go.

658

00:36:44,660 --> 00:36:48,660

We had the advantage of the lever, the super heavy bird, and the wind going nuts.

659

00:36:48,660 --> 00:36:49,660

I can't believe it didn't tip.

660

00:36:49,660 --> 00:36:51,660

All right, let's get some more birds.

661

00:36:51,660 --> 00:36:52,660

All right, I got just a thing.

662

00:36:53,660 --> 00:36:56,660

Yep, it's time for Grant's reinforcements.

663

00:36:56,660 --> 00:36:58,660

This is the turkey chandelier.

664

00:36:58,660 --> 00:37:02,660

It holds 40 turkeys, each one weighing about 25 pounds.

665

00:37:02,660 --> 00:37:06,660

We've got a rope with an individual quick release to each one,

666

00:37:06,660 --> 00:37:10,660

so you can drop them one by one and see how many turkeys it takes

667

00:37:10,660 --> 00:37:12,660

to send the limo over the cliff.

668

00:37:13,660 --> 00:37:15,660

You guys ready for the turkey chandelier?

669

00:37:15,660 --> 00:37:17,660

All right, turkey's away!

670

00:37:18,660 --> 00:37:22,660

One by one, the out-of-date turkeys tumble into position

671

00:37:22,660 --> 00:37:24,660

on the very front of the hook.

672

00:37:24,660 --> 00:37:26,660

I smashed the windshield.

673

00:37:26,660 --> 00:37:30,660

And just like last time, the number of birds the car can hold

674

00:37:30,660 --> 00:37:33,660

is taking everyone by surprise.

675

00:37:33,660 --> 00:37:36,660

It's amazing how much weight the car can take.

676

00:37:37,660 --> 00:37:42,660

In actual fact, it's not until there's 500 pounds of poultry

677

00:37:42,660 --> 00:37:44,660

that the limo starts to lean.

678

00:37:45,660 --> 00:37:47,660

Look at the back end!

679

00:37:47,660 --> 00:37:49,660

It's coming off the ground!

680

00:37:49,660 --> 00:37:51,660

24!

681

00:37:51,660 --> 00:37:53,660

I think it's about to go up!

682

00:37:53,660 --> 00:37:55,660

All right, one more, drop one more.

683

00:37:55,660 --> 00:37:56,660

26!

684

00:37:56,660 --> 00:37:58,660

At last, we have liftoff.

685

00:37:59,660 --> 00:38:00,660

Woo!

686

00:38:00,660 --> 00:38:01,660

Woo!

687

00:38:01,660 --> 00:38:02,660

Yeah!

688

00:38:02,660 --> 00:38:04,660

Ah!

689

00:38:06,660 --> 00:38:07,660

Woo!

690

00:38:07,660 --> 00:38:09,660

Woo!

691

00:38:09,660 --> 00:38:10,660

Woo!

692

00:38:10,660 --> 00:38:12,660

It's amazing!

693

00:38:12,660 --> 00:38:13,660

Woo!

694

00:38:13,660 --> 00:38:15,660

That was awesome!

695

00:38:15,660 --> 00:38:17,660

Awesome for sure.

696

00:38:17,660 --> 00:38:22,660

But one cori-bustard and 26 turkeys for 700 pounds in weight

697

00:38:22,660 --> 00:38:27,660

means that this myth is busted not once, but twice.

698

00:38:28,660 --> 00:38:31,660

Anyway, you look at this, it's not going to happen.

699

00:38:31,660 --> 00:38:34,660

For one, it's very difficult to get perfectly balanced

700

00:38:34,660 --> 00:38:35,660

on the edge of a cliff.

701

00:38:35,660 --> 00:38:37,660

And even if you are perfectly balanced,

702

00:38:37,660 --> 00:38:39,660

it's not going to take one bird to send you over,

703

00:38:39,660 --> 00:38:41,660

two birds or three birds or five birds,

704

00:38:41,660 --> 00:38:43,660

it's going to take many, many birds.

705

00:38:43,660 --> 00:38:45,660

And even with a really long limo,

706

00:38:45,660 --> 00:38:49,660

it took 26 turkeys to send us over the cliff.

707

00:38:49,660 --> 00:38:51,660

This one is busted.

708

00:38:53,660 --> 00:38:55,660

Let's get out of here.

709

00:38:55,660 --> 00:38:57,660

Importantly, how are we getting home?

710

00:38:57,660 --> 00:38:58,660

That was our ride.

711

00:38:58,660 --> 00:39:01,660

Job, turkey, turkey, job, turkey!

712

00:39:01,660 --> 00:39:03,660

Fire!

713

00:39:06,660 --> 00:39:11,660

With wildfires and pressure leaks,

714

00:39:11,660 --> 00:39:13,660

so can tankers.

715

00:39:13,660 --> 00:39:16,660

the water heater's first mission was a failure.

716

00:39:16,660 --> 00:39:17,660

It's a rainbow!

717

00:39:17,660 --> 00:39:21,660

But having replaced the culprit, a misfiring heating element,

718

00:39:21,660 --> 00:39:23,660

we are good, everything's hooked up.

719

00:39:23,660 --> 00:39:26,660

The mythbusters are nearly set for take two.

720

00:39:26,660 --> 00:39:28,660

You can see Jamie and me zapped back in time.

721

00:39:28,660 --> 00:39:30,660

The second time would be like,

722

00:39:30,660 --> 00:39:32,660

well, it can provide you with the ultimate weapon.

723

00:39:32,660 --> 00:39:34,660

As long as you've got a day to set it up

724

00:39:34,660 --> 00:39:36,660

and your enemy doesn't move for six hours at a time

725

00:39:36,660 --> 00:39:38,660

and you don't mind a one day reload,

726

00:39:38,660 --> 00:39:40,660

we will smite them.

727

00:39:40,660 --> 00:39:42,660

Luckily, it's not the efficiency they're testing.

728

00:39:42,660 --> 00:39:44,660

It's the cannon's power.

729

00:39:44,660 --> 00:39:46,660

Well, everything's bolted in place

730

00:39:46,660 --> 00:39:47,660

and the thing is heating up.

731

00:39:47,660 --> 00:39:48,660

Should we get to safety?

732

00:39:48,660 --> 00:39:50,660

I think it's time.

733

00:39:50,660 --> 00:39:53,660

Well, this is the second time we're attempting to set off

734

00:39:53,660 --> 00:39:56,660

the hot water heater inside our closed canister cannon.

735

00:39:56,660 --> 00:39:58,660

And hopefully the results will be far more spectacular

736

00:39:58,660 --> 00:40:00,660

than the first time.

737

00:40:00,660 --> 00:40:02,660

I hope this works.

738

00:40:02,660 --> 00:40:06,660

Remember that should this cannon go off...

739

00:40:06,660 --> 00:40:07,660

200.

740

00:40:07,660 --> 00:40:10,660

They'll compare the subsequent brick destruction...

741

00:40:10,660 --> 00:40:11,660

210.

742

00:40:11,660 --> 00:40:14,660

...to their earlier Civil War cannon tests.

743

00:40:14,660 --> 00:40:16,660

There she is!

744

00:40:16,660 --> 00:40:18,660

And to ensure an accurate comparison,

745

00:40:18,660 --> 00:40:22,660

the distance between the barrel and bricks is identical,

746

00:40:22,660 --> 00:40:23,660

26 feet.

747

00:40:23,660 --> 00:40:25,660

Things are starting to happen really quickly now.

748

00:40:25,660 --> 00:40:28,660

We're increasing about a PSI every six seconds.

749

00:40:28,660 --> 00:40:30,660

That's fast.

750

00:40:30,660 --> 00:40:33,660

This time with no spontaneous combustion...

751

00:40:33,660 --> 00:40:34,660

280.

752

00:40:34,660 --> 00:40:36,660

...or strange pressure plummets...

753

00:40:36,660 --> 00:40:37,660

290.

754

00:40:37,660 --> 00:40:40,660

Things are finally cooking with gas.

755

00:40:40,660 --> 00:40:41,660

300.

756

00:40:41,660 --> 00:40:43,660

300 PSI?

757

00:40:43,660 --> 00:40:44,660

Yup.

758

00:40:44,660 --> 00:40:45,660

310.

759

00:40:45,660 --> 00:40:47,660

320.

760

00:40:47,660 --> 00:40:49,660

Oh, f\*\*\*!

761

00:40:49,660 --> 00:40:51,660

Oh...

762

00:40:55,660 --> 00:40:57,660

Wow!

763

00:40:57,660 --> 00:40:59,660

Wow, that was like a...

764

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

Boom!

765

00:41:00,660 --> 00:41:02,660

And then it was a fire hose.

766

00:41:02,660 --> 00:41:05,660

It sure was both wet and wild,

767

00:41:05,660 --> 00:41:07,660

as their cannon finally went crazy.

768

00:41:07,660 --> 00:41:11,660

But how's the all-important damage shape up?

769

00:41:11,660 --> 00:41:16,660

Wow, it doesn't look like it made it past the first pallet.

770

00:41:16,660 --> 00:41:18,660

I think that's the ball right there.

771

00:41:18,660 --> 00:41:19,660

Where is that?

772

00:41:19,660 --> 00:41:20,660

Where is it?

773

00:41:20,660 --> 00:41:21,660

Well, there it is.

774

00:41:21,660 --> 00:41:22,660

Please!

775

00:41:22,660 --> 00:41:23,660

Ah!

776

00:41:24,660 --> 00:41:25,660

That was...

777

00:41:25,660 --> 00:41:27,660

Really, really lovely.

778

00:41:27,660 --> 00:41:29,660

I'm a little sad that it didn't go farther.

779

00:41:29,660 --> 00:41:32,660

But it still went respectably deep.

780

00:41:32,660 --> 00:41:34,660

Respectably deep is right.

781

00:41:34,660 --> 00:41:37,660

Because while it may be true that the steam cannon had less

782

00:41:37,660 --> 00:41:40,660

destructive power than its gunpowder counterpart,

783

00:41:40,660 --> 00:41:43,660

the damage is dramatic.

784

00:41:43,660 --> 00:41:46,660

That means it's an effective cannon.

785

00:41:46,660 --> 00:41:47,660

It's not practical.

786

00:41:47,660 --> 00:41:50,660

It's not easy to move around a 40-foot cannon

787

00:41:50,660 --> 00:41:52,660

and wait hours for it to go off.

788

00:41:52,660 --> 00:41:53,660

But it's pretty dangerous.

789

00:41:53,660 --> 00:41:55,660

It's a serious cannon.

790

00:41:55,660 --> 00:41:57,660

Well, that was a cannon ball.

791

00:41:57,660 --> 00:41:59,660

That was a cannon.

792

00:41:59,660 --> 00:42:01,660

It did its destructive thing.

793

00:42:01,660 --> 00:42:03,660

And I think we proved our point.

794

00:42:03,660 --> 00:42:05,660

I think mission is fully accomplished.

795

00:42:05,660 --> 00:42:07,660

All right, well, let's get out of here.

796

00:42:07,660 --> 00:42:09,660

We gotta figure out something else to do with hot water heaters.

797

00:42:09,660 --> 00:42:10,660

I love those things.