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

On this episode of Mythbusters, it is now or never.

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

Adam and Jamie add new life to a classic myth by turning it upside down.

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

Windshield shattered from the impact.

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

As they test if there's even a chance to escape from a car that goes belly up underwater.

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

It's absolutely the scariest thing I've ever done on this show.

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

Ten on the Brown Pants Index.

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

And an explosive movie myth sets the scene for chaos in the kitchen.

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

Holy moly!

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

As Tori Grant and Carrie try stopping a gun from igniting a room full of gas

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

by, believe it or not, shooting through milk.

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

Well, you shot the milk!

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

That's for sure!

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

Who are the Mythbusters?

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

Adam Savage.

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

It's a delicious memory.

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00:00:55,000 --> 00:00:56,000

And Jamie Heineman.

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

When in doubt, see for.

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00:00:58,000 --> 00:01:03,000

Between them more than 30 years of special effects experience.

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00:01:03,000 --> 00:01:06,000

Joining them, Tori Bellachy.

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

All the name of science.

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00:01:07,000 --> 00:01:09,000

Grant Imahara.

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

Nothing to test me!

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00:01:10,000 --> 00:01:12,000

And Carrie Byron.

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

This should be fun.

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00:01:13,000 --> 00:01:16,000

They don't just tell the myths.

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00:01:16,000 --> 00:01:19,000

They put them to the test.

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

We got a problem.

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00:01:29,000 --> 00:01:30,000

What's that?

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

You remember when we filmed the underwater car episode a few years ago?

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00:01:32,000 --> 00:01:35,000

The one where you nearly died inside the car.

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00:01:35,000 --> 00:01:36,000

Exactly.

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00:01:36,000 --> 00:01:39,000

It turns out that we might not have gone far enough in our testing of that episode.

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00:01:39,000 --> 00:01:44,000

We repeatedly had me escape from a car sinking like this in this position, upright.

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00:01:44,000 --> 00:01:48,000

When it turns out, we've heard from a lot of fans and professionals that most cars,

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

when they go in the drink, actually don't sink like that.

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00:01:51,000 --> 00:01:53,000

They actually do what's called turning turtle.

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00:01:53,000 --> 00:01:56,000

They go all the way upside down and sink like that.

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00:01:56,000 --> 00:01:57,000

And so what's the difference?

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00:01:57,000 --> 00:02:02,000

Well, supposedly it's far more disorienting and much more difficult to get out of an upside down car.

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

And so you figure that the techniques you used the last time to get out of the car wouldn't work so well?

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

Yeah, that's exactly what we've got to find out.

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

Coming up to my ankles.

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00:02:12,000 --> 00:02:15,000

The first time we tried, the results were clear cut.

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00:02:15,000 --> 00:02:20,000

If the water's just up to your ankles, it's easy to exit the car.

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

Freedom!

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00:02:21,000 --> 00:02:26,000

But when it passes your knees, the pressure disparity between inside and out

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00:02:26,000 --> 00:02:30,000

means you'll have to wait till the car fills with water.

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00:02:30,000 --> 00:02:33,000

Then open the door and swim to safety.

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00:02:36,000 --> 00:02:38,000

But those tests were done right side up.

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

And according to Operation Star, that's submerged transport accident research,

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00:02:44,000 --> 00:02:49,000

cars sinking in water deeper than 14 feet nearly always turn turtle.

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00:02:50,000 --> 00:02:51,000

So where do we start?

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00:02:51,000 --> 00:02:55,000

Well, it seems that there are two main problems with the upside down sinking car.

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

The first is that when the car turns over, you get totally disoriented and don't know which way is up or down.

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

Okay.

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00:03:02,000 --> 00:03:07,000

The second is that it's much harder to wait for the car to fill up when your air pocket is where your feet are.

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00:03:07,000 --> 00:03:10,000

Let's start with disorientation. I have an idea.

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00:03:10,000 --> 00:03:11,000

Okay.

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00:03:12,000 --> 00:03:15,000

This is Jamie's Wheel of Misfortune,

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00:03:15,000 --> 00:03:22,000

a man-sized hamster tumbler that's purpose-built to not only disorient Adam, but to work underwater.

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

This is it.

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00:03:25,000 --> 00:03:31,000

Adam will come and stand here like so, and I'll rotate him around and around.

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00:03:31,000 --> 00:03:39,000

And when I stop, he can just freely come out like this and he'll swim off in whatever direction he thinks is up.

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00:03:40,000 --> 00:03:43,000

It's a straightforward plan that needs just one more thing.

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00:03:43,000 --> 00:03:46,000

H2O and plenty of it.

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00:03:46,000 --> 00:03:48,000

Okay. Off to the pool.

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00:03:48,000 --> 00:03:54,000

They'll need at least eight feet of water, and this dive school's got ten in the deep end.

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00:03:55,000 --> 00:03:57,000

Let me explain how this thing's going to break down.

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00:03:57,000 --> 00:04:02,000

Jamie and I will walk the disorientation rig into the pool and set it on the bottom.

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00:04:02,000 --> 00:04:08,000

Once it's in place, Jamie will position himself next to the rig in full scuba gear, and I will swim down to it.

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

Put my feet on the paddles, put my hands in the handles, and put on a pair of blindfold goggles that completely negate my ability to see.

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00:04:16,000 --> 00:04:19,000

When I'm ready, Jamie will begin spinning, spinning, spinning.

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00:04:19,000 --> 00:04:28,000

I'll have no idea which direction I'll end up in, but when he stops, he'll tap the rig twice, and I will swim whichever direction I think is up.

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00:04:28,000 --> 00:04:35,000

And if your car crashes at night, hence the blindfold, that could be a whole lot harder than it sounds.

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00:04:38,000 --> 00:04:43,000

You know when you're hanging upside down on the monkey bars and the blood rushes to your head, you feel that pressure?

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00:04:43,000 --> 00:04:48,000

I didn't expect this, but I can feel that pressure under water too.

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00:04:48,000 --> 00:04:58,000

After 30 seconds of blindfolded spinning, Jamie sets Adam adrift, and without hesitation, he heads straight for the surface.

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

In the name of due diligence, they try it again.

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

And again.

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00:05:08,000 --> 00:05:10,000

With exactly the same result.

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00:05:10,000 --> 00:05:13,000

Ha! Found up again!

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00:05:15,000 --> 00:05:17,000

You're three for three, huh?

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00:05:17,000 --> 00:05:20,000

I am. I think it's your turn to try this rig out.

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00:05:20,000 --> 00:05:21,000

I'm game.

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00:05:21,000 --> 00:05:22,000

Alright, let's do it.

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00:05:24,000 --> 00:05:32,000

Adam's efforts are a kick in the teeth for the myth, so let's see if Jamie's internal compass survives the big spin.

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

He'll also do it three times over.

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00:05:38,000 --> 00:05:42,000

We came here to find out if it was possible to lose your sense of direction underwater.

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00:05:42,000 --> 00:05:51,000

And based on our testing, my feeling is that while there are a lot of cues to tell you which way is up, it's really quite easy to get distracted.

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00:05:52,000 --> 00:06:02,000

That blast escape left Jamie geographically embarrassed, so the concept of losing your way upside down now looks like it might hold water.

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

So what do you think?

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00:06:04,000 --> 00:06:11,000

I think it's all about presence of mind, because on one of the tests, I was having problems with my sinuses and I got a little distracted.

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

And for just a moment, when you stopped the rotation, I had no idea which way was up.

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00:06:16,000 --> 00:06:22,000

So you think given all the distractions of car accident, your car going into the drink, there really might be something to this?

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00:06:22,000 --> 00:06:28,000

Yeah, I mean you're in shock, and given a lack of any prominent cues, I don't think you'd have any way to tell.

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00:06:28,000 --> 00:06:36,000

That puts confirming the myth right back in play, but it's also Adam's too easy exit that gives him pause for thought.

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00:06:36,000 --> 00:06:44,000

That tells me something significant. It says that in the interest of eliminating variables, we might have actually created too sterile a testing procedure.

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00:06:44,000 --> 00:06:51,000

That tells me we need one that's less sterile, we need one that's dirtier, if we need to do this in a real car.

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00:06:51,000 --> 00:07:00,000

Now to a myth that bids milk against methane, with a gun in between.

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

Alright, we got an explosive myth this time.

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00:07:03,000 --> 00:07:04,000

Great.

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00:07:04,000 --> 00:07:06,000

This one comes from the movie Kiss the Girls.

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00:07:06,000 --> 00:07:10,000

Cop faces off the bad guy in a kitchen full of gas from the stove.

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00:07:10,000 --> 00:07:19,000

The cop wants to shoot the bad guy, but the bad guy reminds him, if you shoot me, the muzzle flash from your gun will ignite the gas, blowing up the kitchen and killing them both.

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00:07:20,000 --> 00:07:26,000

The bad guy's already snapped the gas line, and he's holding a cigarette lighter.

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

The cop needs to shoot him, but he thinks that the flash from the gun might also ignite the methane.

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00:07:32,000 --> 00:07:41,000

So he shoots at success through the milk, but can shooting through liquid really stop the muzzle flash from igniting the gas?

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00:07:41,000 --> 00:07:43,000

Alright, so what's planned?

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00:07:43,000 --> 00:07:45,000

May I suggest we simply go for it?

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00:07:45,000 --> 00:07:50,000

I mean, build a kitchen, fill it full of gas, shoot the gun from the movie once into milk, and once not.

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00:07:50,000 --> 00:07:54,000

That's great, and then we'll see if it does in fact ignite the gas and blow up the kitchen.

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00:07:57,000 --> 00:08:05,000

So to test the myth that a milk carton will prevent a gun's muzzle flash from igniting a room full of methane, we need to blow up the kitchen.

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00:08:05,000 --> 00:08:11,000

But since none of us are willing to volunteer our own personal kitchens, we need to build one.

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00:08:11,000 --> 00:08:14,000

Now we're going to be filling this kitchen up with methane gas.

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00:08:14,000 --> 00:08:18,000

We don't really know how big of an explosion we're going to get when we ignite the gas.

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00:08:18,000 --> 00:08:23,000

So we're building the kitchen out of plywood in 2x4s. That way we don't have any metal shrapnel.

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00:08:23,000 --> 00:08:28,000

But most importantly, one of the walls is going to be made out of a breakaway plexiglass.

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00:08:28,000 --> 00:08:38,000

So that way we can see what's going on inside the kitchen, and when the gases are ignited, that wall will pop off releasing that pressure wave, so we don't get a huge explosion.

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00:08:38,000 --> 00:08:43,000

But even a mid-range explosion might just smash the windows and singe the neighbors.

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00:08:43,000 --> 00:08:49,000

So the kit kitchen is flat-packed and delivered, some assembly required to the local bomb range.

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00:08:54,000 --> 00:08:59,000

Sometimes the best-order procedure is to just go for it. I mean, find out if we have any merit to the myth at all.

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

Just straight out to the bomb range, recreate the circumstances, and blow the thing up.

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

Custom-made cabinets, time to hang them.

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00:09:07,000 --> 00:09:12,000

To properly restage this movie myth, they'll need more than four walls and a roof.

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

This is a gorgeous stove-sink combo you've picked out.

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00:09:15,000 --> 00:09:18,000

We'll be cooking the gas in no time.

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00:09:18,000 --> 00:09:23,000

With lines like that, you'll need some top-notch actors. And here's our leading man.

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00:09:23,000 --> 00:09:25,000

Come on, it's time to go to work.

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00:09:25,000 --> 00:09:29,000

It's hard to believe, but this sack of bones is our Morgan Freeman.

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00:09:29,000 --> 00:09:32,000

I know. I feel this way every morning, too.

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00:09:33,000 --> 00:09:34,000

Yeah.

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00:09:35,000 --> 00:09:39,000

As for Buster, well, he's been tight-cast again.

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00:09:39,000 --> 00:09:42,000

Okay, handcuffs, just like the guy in the movie.

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00:09:42,000 --> 00:09:45,000

See that? Looks like I knew what I was doing.

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00:09:49,000 --> 00:09:57,000

Now they're ready to dial up the danger with things that go bag, the gun, and the gas.

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00:09:57,000 --> 00:10:02,000

All right, get ready for a big boom.

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

After the break, we'll see if going straight to a full-scale kitchen was really such a hot idea.

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00:10:18,000 --> 00:10:26,000

Carrie Grant and Tori are preparing to see if shooting through milk can really stop a gun from igniting a room full of methane.

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00:10:28,000 --> 00:10:35,000

Now, in the movie, the gas line attached to the stove breaks, so we know it's natural gas.

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00:10:35,000 --> 00:10:41,000

Now, natural gas is about 85% methane gas, which is very flammable.

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00:10:41,000 --> 00:10:45,000

But there's a twist. It's only flammable in certain concentrations.

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00:10:45,000 --> 00:10:51,000

Too little methane means not enough fuel for the fire, but add too much methane,

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00:10:51,000 --> 00:10:55,000

and there's not enough oxygen molecules to sustain combustion.

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00:10:55,000 --> 00:11:03,000

The numerical balance of different substances to cause a reaction is called stoichiometry, and Grant's done his homework.

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00:11:03,000 --> 00:11:08,000

So we know that the perfect stoichiometric ratio of methane in air is 5 to 15%.

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

So we're going to go right in the middle, say 10%.

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

With this volume, which is about 500 cubic feet, we're shooting for 50 cubic feet of methane.

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

With the guys and the gun from the movie and the carton of milk set in place,

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00:11:21,000 --> 00:11:25,000

we're ready to see if this myth is just Hollywood Hocom.

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00:11:25,000 --> 00:11:28,000

We're going to fire the gun through the milk and see what happens.

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00:11:28,000 --> 00:11:36,000

Now, if it works out like the hero thinks and nothing happens, then we're going to try it again, but this time without the milk.

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00:11:36,000 --> 00:11:39,000

And then we'll see if the room goes up like whoosh.

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00:11:40,000 --> 00:11:45,000

To get the right balance of methane to air, they turn on the gas for just 90 seconds.

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00:11:45,000 --> 00:11:49,000

All right, filling up the kitchen with methane gas.

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00:11:49,000 --> 00:11:51,000

One and a half minutes.

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00:11:52,000 --> 00:11:58,000

So here's how it stands. If the kitchen explodes, it's an instant and absolute myth busted.

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

All right, this is methane gas with gun and milk.

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00:12:02,000 --> 00:12:05,000

In three, two, one.

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00:12:07,000 --> 00:12:10,000

Well, you shot the milk.

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

That's for sure.

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00:12:14,000 --> 00:12:17,000

Explosion. Maybe this myth is true.

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00:12:17,000 --> 00:12:22,000

So with milk, there was no gas room boom, which is good news for the myth.

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00:12:22,000 --> 00:12:29,000

But what if the mixture of methane and air was wrong and the room is basically incompressible?

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00:12:29,000 --> 00:12:36,000

Well, it's easy to test because Grant had the foresight to add a road flare hooked up to an

electric match.

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00:12:36,000 --> 00:12:39,000

Here we go with the flare. Three, two, one.

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00:12:44,000 --> 00:12:45,000

Hey, we got something.

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00:12:45,000 --> 00:12:46,000

We got ignition.

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00:12:46,000 --> 00:12:51,000

The flare not only proves a point, it clears the air of the flammable gas.

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

So far, it looks like our villain was wrong.

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

With the gun and the milk, there was no explosion.

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00:13:01,000 --> 00:13:06,000

But with the gun alone, it sparked a blast anyway. It's time to reload.

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

All right, so kitchen is filling.

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00:13:10,000 --> 00:13:14,000

As soon as we hit a minute and 30 seconds, fire the gun.

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00:13:14,000 --> 00:13:17,000

You think the milk stopped the muzzle flash? You think it's going to explode?

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00:13:17,000 --> 00:13:19,000

I don't know, but we're about to find out.

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00:13:19,000 --> 00:13:24,000

We sure are in around about three, two, one.

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00:13:25,000 --> 00:13:29,000

With the muzzle flash unmuffled by milk, nothing happened.

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00:13:29,000 --> 00:13:31,000

Okay. All right, no explosion.

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00:13:31,000 --> 00:13:38,000

If the scene in the movie was based on hard science, that single shot should have triggered a massive explosion.

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00:13:38,000 --> 00:13:42,000

Now to fire the flare to confirm that the gas mix was right.

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00:13:45,000 --> 00:13:46,000

Whoa!

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

So we were at the right ratio.

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00:13:53,000 --> 00:13:56,000

Yet the bullet did not ignite the methane gas.

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00:13:56,000 --> 00:14:01,000

Which means the milk did not stop the muzzle flash from lighting the methane gas.

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

The bad news for this myth is that this did not happen because of muzzle flash from a gun.

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

This happened because of a flare.

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

So what we need to do now is figure out what exactly is going on with this myth

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00:14:19,000 --> 00:14:23,000

and what can possibly cause a roomful of methane to go up.

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00:14:23,000 --> 00:14:29,000

Up next, Adam and Jamie with a car-sinking rig that should take your breath away.

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00:14:29,000 --> 00:14:31,000

There's a lot of moving parts to this one.

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00:14:37,000 --> 00:14:39,000

That pool test was actually pretty interesting.

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00:14:39,000 --> 00:14:43,000

Yeah, it was. There was just a brief moment when I was distracted by my sinuses

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00:14:43,000 --> 00:14:45,000

and I honestly didn't know which way was up.

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00:14:45,000 --> 00:14:49,000

So you think there might actually be something to this story?

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00:14:49,000 --> 00:14:50,000

Yeah.

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00:14:50,000 --> 00:14:53,000

Then I don't think there's anything to do now but go full scale.

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00:14:54,000 --> 00:14:57,000

Adam and Jamie have figured the only fair way to test their myth

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00:14:57,000 --> 00:15:03,000

is to put Adam inside a real car and drop man and machine in a real lake.

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00:15:04,000 --> 00:15:10,000

Well, I am standing on the edge of Pit 232, a former quarry lake in sunny Ion, California

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

which may look familiar to the careful viewer because we shot a couple stories here before.

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

Right out there in the middle, we did this.

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00:15:22,000 --> 00:15:24,000

And then right over there is the ramp where we did this.

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

Now we are about to do this.

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

All right. I only have a couple more breaths here.

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00:15:33,000 --> 00:15:36,000

Except this time we are adding an extra wrinkle of jeopardy just to make sure we've covered all our bases.

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

It's time to sink an upside down car with me in it.

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00:15:55,000 --> 00:16:00,000

Let's face it, a car like this could only benefit from being dropped in a lake.

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

Time will tell if the same holds true for Adam.

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00:16:04,000 --> 00:16:07,000

That's perfect. We can lower it down.

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00:16:07,000 --> 00:16:12,000

In the interests of relative safety and good science, they won't launch the car,

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

dukes of hazard style, off a ramp and into the drink.

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00:16:17,000 --> 00:16:22,000

Instead, to guarantee that the car turns turtle, they'll use a barge,

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00:16:22,000 --> 00:16:27,000

a tow truck, six empty barrels and more rope than a rodeo.

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00:16:27,000 --> 00:16:29,000

Here's the plan in a nutshell.

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00:16:30,000 --> 00:16:35,000

Okay, so we're going to tie a rope to the back bump of our test car on a barge in the middle of the lake.

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00:16:35,000 --> 00:16:38,000

The other end of that rope goes to a pickup truck on the shore,

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00:16:38,000 --> 00:16:43,000

which, at the correct signal, will drive forward pulling our test car off the barge.

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00:16:43,000 --> 00:16:46,000

Now our test car, being a normal car with an engine, is front heavy

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00:16:46,000 --> 00:16:49,000

and its front will hit the water and start sinking.

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00:16:49,000 --> 00:16:54,000

What we're hoping is the forward momentum of the pickup truck pulling our test car

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00:16:54,000 --> 00:16:59,000

from the rear end will actually pull it all the way over until it's upside down.

222

00:16:59,000 --> 00:17:02,000

Just to make sure the car doesn't punch the very bottom of the lake,

223

00:17:02,000 --> 00:17:09,000

we've got six 55 gallon drums making sure that it's secure at a relatively safe depth of 15 feet.

224

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

It's as risky a stunt as they've ever attended.

225

00:17:13,000 --> 00:17:16,000

So Jamie's understandably fussing the detail.

226

00:17:16,000 --> 00:17:21,000

Given that this is a one shot deal, we're going to weld guide rails onto this barge

227

00:17:21,000 --> 00:17:25,000

so we know for sure that the car enters the water the way it's supposed to.

228

00:17:25,000 --> 00:17:31,000

Remember, Adam's inside this thing and so if it goes off the barge cockeyed or anything goes wrong,

229

00:17:31,000 --> 00:17:33,000

it might not be pretty.

230

00:17:40,000 --> 00:17:45,000

Equally ugly is the prospect of sinking into the water.

231

00:17:45,000 --> 00:17:48,000

It's the prospect of sinking all the way to the bottom.

232

00:17:48,000 --> 00:17:56,000

They've welded and strapped tight two clusters of three empty barrels to hop the descent at 15 feet under.

233

00:17:56,000 --> 00:18:01,000

Just over the depth with a star report says most cars turn turtle.

234

00:18:01,000 --> 00:18:04,000

Will it work? Let's ask a buoyancy buffon.

235

00:18:04,000 --> 00:18:09,000

Well, our car weighs about 2600 pounds and half of it is tied to the barge I'm standing on

236

00:18:09,000 --> 00:18:13,000

so I only need to support 1300 pounds of the car with these barrels.

237

00:18:13,000 --> 00:18:20,000

Each one of them displaces 440 pounds of water because it pints a pound the world around.

238

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

All told, that gives me 2500 pounds of buoyancy for 1300 pounds of car.

239

00:18:25,000 --> 00:18:29,000

That's well within my safety margin. That's enough flotation.

240

00:18:29,000 --> 00:18:35,000

Just like last time, they've removed the engine so oils and sundry fluids don't sully the water.

241

00:18:36,000 --> 00:18:40,000

Making up for the lost mass are 12 barbell weights.

242

00:18:41,000 --> 00:18:43,000

Assuming they ever get there.

243

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

Hey Jamie, I need your help. It's too heavy.

244

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

I have it on good authority that it's not that bad. Go for it.

245

00:18:52,000 --> 00:18:58,000

But the weight in the barrel is much the same as a whole car engine so Adam wisely resorts to hand delivery.

246

00:18:58,000 --> 00:19:00,000

Last two. Thank you Adam.

247

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

That's the last of the heavy lifting and it's time for the SS Poseidon to push off.

248

00:19:07,000 --> 00:19:13,000

Bet if you could see into Jamie's brain right now, he's reminiscing about being a barge driver on the Erie Canal.

249

00:19:13,000 --> 00:19:15,000

Back when at First Ope.

250

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

The barge drifts into place at a spot where the water is 50 feet deep.

251

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

Adam's next job is to secure those flotation barrels to the car.

252

00:19:24,000 --> 00:19:28,000

Now it's time to attach the lifeline, my safety system.

253

00:19:28,000 --> 00:19:33,000

The four ropes that will suspend this car upside down exactly 15 feet below the surface of the water.

254

00:19:33,000 --> 00:19:39,000

We've isolated that the worst case scenario for this experiment is that the car somehow detaches from all four of its mooring points,

255

00:19:39,000 --> 00:19:46,000

sinks to the bottom upside down so deep in the silty mud that neither my safety diver nor I can open the doors.

256

00:19:46,000 --> 00:19:55,000

If that happens, we will have to sit down there long enough for safety divers with salvage bags to lift the car enough to open the door and free us.

257

00:19:55,000 --> 00:20:01,000

Between you and me, even though we've accommodated for that, I hope it doesn't happen.

258

00:20:01,000 --> 00:20:06,000

Coming up, the rescue crew readies as Adam prepares to take the plunge.

259

00:20:06,000 --> 00:20:11,000

It is now, or never.

260

00:20:19,000 --> 00:20:25,000

Now just to recap, we filled the kitchen with methane gas, fired a gun into milk, it did not ignite the gas.

261

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

We removed the milk, fired again, it still did not ignite the gas.

262

00:20:29,000 --> 00:20:38,000

So we need to move on to small scale and find out if it's even possible to ignite methane gas using the muzzle flash from a gun.

263

00:20:38,000 --> 00:20:47,000

Before the milk part of this myth can be restaged, they need to show that a flash from the handgun used in the movie could blow up a room in the first place.

264

00:20:47,000 --> 00:20:51,000

Okay, that's a hole.

265

00:20:51,000 --> 00:21:01,000

It failed on the bomb range, but this test in a bulletproof box filmed in super slow motion should at least shed some light on the subject.

266

00:21:01,000 --> 00:21:06,000

Alright, here's what's going on with the muzzle flash and why it might actually ignite a room full of gas.

267

00:21:06,000 --> 00:21:14,000

Now when a gun is fired, only about 30% of the chemical energy from the propellant is converted to the kinetic energy that is the projectile moving down the barrel.

268

00:21:14,000 --> 00:21:20,000

The rest is contained in the propellant gas particle mixture that escapes from the muzzle of the gun.

269

00:21:20,000 --> 00:21:25,000

A significant portion of that is dissipated into that bright muzzle flash that you see.

270

00:21:25,000 --> 00:21:28,000

Alright, so for this size kitchen, I'm only going to fill it up for two seconds.

271

00:21:28,000 --> 00:21:33,000

Filling up kitchen with methane.

272

00:21:33,000 --> 00:21:34,000

Alright, that should be good.

273

00:21:34,000 --> 00:21:35,000

Carrie counts down.

274

00:21:35,000 --> 00:21:39,000

Shooting the gun in three, two, one.

275

00:21:39,000 --> 00:21:47,000

To another big fat failure.

276

00:21:47,000 --> 00:21:51,000

It takes a keen eye to even spot the muzzle flash.

277

00:21:51,000 --> 00:21:55,000

Alright, so the gun fires and if you look here, there is one frame of muzzle flash.

278

00:21:55,000 --> 00:21:58,000

Yeah, that's only a quarter of a millisecond.

279

00:21:58,000 --> 00:22:03,000

And that's not nearly enough ignition energy to spark a kitchen inferno.

280

00:22:03,000 --> 00:22:05,000

Maybe it's time to upgrade the sidearm.

281

00:22:05,000 --> 00:22:07,000

I want to know if a gun can ignite the gas.

282

00:22:07,000 --> 00:22:09,000

Do you think another gun could do this?

283

00:22:09,000 --> 00:22:10,000

Maybe a hotter load.

284

00:22:10,000 --> 00:22:12,000

Yeah, hotter load, bigger muzzle flash.

285

00:22:12,000 --> 00:22:14,000

Sure, that might work.

286

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

Let's try it.

287

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

A hot load means more powder in the cartridge, but there's also a very good reason to switch guns.

288

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

We're having no luck igniting our gas with the gun the hero carried around in the movie.

289

00:22:27,000 --> 00:22:29,000

But there's a little Hollywood mistake here.

290

00:22:29,000 --> 00:22:34,000

Though the hero was carrying a sick sour throughout the entire movie, the villain said he was holding a Glock.

291

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

So that's what we're testing next.

292

00:22:36,000 --> 00:22:39,000

And just for good measure, we're using a hotter load.

293

00:22:39,000 --> 00:22:42,000

The hot load is called a plus P.

294

00:22:42,000 --> 00:22:46,000

So let's see if a new round and the right gun can get the job done.

295

00:22:46,000 --> 00:22:48,000

Okay, loaded.

296

00:22:51,000 --> 00:22:52,000

Alright, we're hot.

297

00:22:52,000 --> 00:22:54,000

Alright.

298

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

Okay, it's ready.

299

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

Here we go.

300

00:22:57,000 --> 00:22:59,000

In three, two, one.

301

00:23:02,000 --> 00:23:04,000

Again, no explosion.

302

00:23:04,000 --> 00:23:08,000

So Carrie burns off the gas with an electric match.

303

00:23:10,000 --> 00:23:16,000

Now it's back to the high speed to check what was way too quick for the naked eye.

304

00:23:16,000 --> 00:23:19,000

Wow, look at how much bigger the muzzle flash is.

305

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

Yeah, but we still didn't get ignition.

306

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

So it's not looking so good for the movie myth.

307

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

But I really do want to see a gun light the gas.

308

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

I think we're going to need a bigger gun.

309

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

And possibly an even hotter load.

310

00:23:32,000 --> 00:23:36,000

And this being Mythbusters, we do have some options.

311

00:23:36,000 --> 00:23:37,000

We're going big.

312

00:23:37,000 --> 00:23:39,000

Really big.

313

00:23:39,000 --> 00:23:41,000

44 Magnum big.

314

00:23:41,000 --> 00:23:44,000

As we found in Adam and Jamie's Myth Handgun Horror,

315

00:23:44,000 --> 00:23:46,000

the flash comes not only out of the muzzle,

316

00:23:46,000 --> 00:23:48,000

but here where the cylinder is.

317

00:23:52,000 --> 00:23:54,000

When you need significant muzzle flash,

318

00:23:54,000 --> 00:23:57,000

this is what you call on.

319

00:23:57,000 --> 00:24:00,000

It stands to reason that this round in this gun

320

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

should spark the biggest flash so far.

321

00:24:03,000 --> 00:24:06,000

And right now, it's all about igniting the gas.

322

00:24:07,000 --> 00:24:10,000

All right, guns loaded and cocked.

323

00:24:12,000 --> 00:24:14,000

Of course, if this fails, well,

324

00:24:14,000 --> 00:24:18,000

it might be time to have a stern word with the screenwriter.

325

00:24:19,000 --> 00:24:20,000

Okay, ready?

326

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

Shooting in three, two, one.

327

00:24:27,000 --> 00:24:28,000

Dang.

328

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

No ignition.

329

00:24:30,000 --> 00:24:32,000

Man, that was a big muzzle flash.

330

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

All right, let's go check out the high speed.

331

00:24:35,000 --> 00:24:36,000

Good thinking.

332

00:24:36,000 --> 00:24:38,000

There's nothing like watching your feathers

333

00:24:38,000 --> 00:24:40,000

in super slow motion.

334

00:24:41,000 --> 00:24:44,000

Even with the larger load, which has more powder,

335

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

we're still not able to ignite the methane.

336

00:24:46,000 --> 00:24:48,000

So I think we moved past the moving myth at this point.

337

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

I think we need the essence of this myth,

338

00:24:50,000 --> 00:24:53,000

which is that a gun can light a room full of gas

339

00:24:53,000 --> 00:24:55,000

and that milk can stop it.

340

00:24:55,000 --> 00:24:56,000

So where do we go?

341

00:24:56,000 --> 00:24:58,000

The myth is busted.

342

00:24:58,000 --> 00:25:01,000

Not even the 44 Magnum could spark the methane,

343

00:25:01,000 --> 00:25:04,000

but the team still has high hopes of a gunshot

344

00:25:04,000 --> 00:25:06,000

exploding a room full of gas.

345

00:25:06,000 --> 00:25:09,000

If they manage to do that, they're right back on track

346

00:25:09,000 --> 00:25:14,000

to see if a carton of ordinary milk can prevent a catastrophe.

347

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

Back on the barge, Adam's immersed in a tangle of sheep shanks and bow lines.

348

00:25:26,000 --> 00:25:29,000

If it looks like a lonely pursuit, you're right.

349

00:25:29,000 --> 00:25:32,000

But he's not doing this just to calm his nerves.

350

00:25:32,000 --> 00:25:34,000

Well, not exactly.

351

00:25:34,000 --> 00:25:36,000

Why am I doing all this by myself?

352

00:25:36,000 --> 00:25:39,000

Well, to me, it's axiomatic.

353

00:25:39,000 --> 00:25:44,000

If your life depends upon the rigging, do your rigging.

354

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

While I'm sitting there waiting for this car to drop over the edge,

355

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

I'm going to be going through the rigging in my mind about a hundred times.

356

00:25:53,000 --> 00:25:56,000

And I'm going to want to be able to picture the whole thing in my brain.

357

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

So I might as well do it myself.

358

00:25:59,000 --> 00:26:02,000

I'm going to be able to picture the whole thing in my mind about a hundred times.

359

00:26:09,000 --> 00:26:14,000

That not right there is going to pull this car to its final resting place.

360

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

But hopefully not me.

361

00:26:19,000 --> 00:26:23,000

Worst case scenario here is that both Adam and our safety diver get knocked out cold

362

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

from all of this violence and this impact.

363

00:26:27,000 --> 00:26:32,000

I don't think that's going to happen, but that would be a bad thing if it does.

364

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

Bad enough of the doom and gloom.

365

00:26:34,000 --> 00:26:37,000

The whole point of this test is to save lives.

366

00:26:37,000 --> 00:26:40,000

If and when the unthinkable happens to you.

367

00:26:40,000 --> 00:26:44,000

We've already done a full episode on a car going into the water.

368

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

Here we go.

369

00:26:47,000 --> 00:26:51,000

We're over an episode that is one of, I think, our proudest moments.

370

00:26:51,000 --> 00:26:55,000

Given that four separate fans have written to us and said that watching that episode

371

00:26:55,000 --> 00:26:59,000

gave them critical information that allowed them to escape when their car went underwater.

372

00:27:01,000 --> 00:27:03,000

Well, it's because of Turning Turtle.

373

00:27:03,000 --> 00:27:08,000

It's because fans wrote to us and said that most cars going in the water turn completely over.

374

00:27:08,000 --> 00:27:13,000

And even though we've sunk a car in the water a dozen times, we wanted to know what happens

375

00:27:13,000 --> 00:27:15,000

when that car goes completely upside down.

376

00:27:15,000 --> 00:27:18,000

Do you become so disoriented that it becomes much harder to escape?

377

00:27:18,000 --> 00:27:20,000

And how then do you escape?

378

00:27:20,000 --> 00:27:22,000

That's what we're going to answer with this setup.

379

00:27:22,000 --> 00:27:30,000

If the myth is correct, at Escape is Impossible, emergency air supplies are fitted for and asked.

380

00:27:30,000 --> 00:27:32,000

That's good.

381

00:27:32,000 --> 00:27:35,000

Alright, I'm going to turn this off for right now.

382

00:27:35,000 --> 00:27:36,000

Yeah.

383

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

And I'm going to turn it on.

384

00:27:37,000 --> 00:27:38,000

I will.

385

00:27:38,000 --> 00:27:39,000

Okay.

386

00:27:39,000 --> 00:27:41,000

I think we're pretty much ready to go.

387

00:27:41,000 --> 00:27:42,000

I don't think that's going anywhere.

388

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

I don't think so.

389

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

Except into the water with you.

390

00:27:53,000 --> 00:27:57,000

Sliding into the backseat is Diver Dawn.

391

00:27:57,000 --> 00:28:01,000

If things really go badly, he's there to save Adam's life.

392

00:28:01,000 --> 00:28:05,000

This is meant to be much harder than when he was right side up.

393

00:28:05,000 --> 00:28:12,000

And once again, he'll wrench on the doors, maybe kick at the windows and try to stay calm.

394

00:28:12,000 --> 00:28:14,000

So what are the various outcomes likely to mean in this test?

395

00:28:14,000 --> 00:28:20,000

Well, if I get to the surface by either breaking the window or resorting to breathable air,

396

00:28:20,000 --> 00:28:22,000

then I would say the fans are totally right.

397

00:28:22,000 --> 00:28:27,000

However, if I'm able to maintain my cool and actually get to the surface without breaking the window,

398

00:28:27,000 --> 00:28:30,000

without resorting to air just by holding my breath and staying calm,

399

00:28:30,000 --> 00:28:32,000

then I would say that the fans are wrong.

400

00:28:32,000 --> 00:28:37,000

And in either case, we have illuminated a whole new feature of cars going into water.

401

00:28:37,000 --> 00:28:40,000

Straight ahead, the perils of cooking with hydrogen.

402

00:28:40,000 --> 00:28:42,000

Holy moly.

403

00:28:42,000 --> 00:28:45,000

But can milk still save the day?

404

00:28:50,000 --> 00:28:56,000

3, 2, 1, go!

405

00:28:56,000 --> 00:29:03,000

In the myth of the gas room boom, pure methane has proved, well, let's say, uncooperative.

406

00:29:03,000 --> 00:29:08,000

Okay, methane's not exploding, but that's a good thing because it's in people's houses.

407

00:29:08,000 --> 00:29:12,000

I don't think this myth is actually going to get anywhere unless we move on to a more explosive gas.

408

00:29:12,000 --> 00:29:16,000

What about hydrogen? It's got a lower ignition energy than methane, 1.15,

409

00:29:16,000 --> 00:29:20,000

and its flammability range in air is 5 to 75%.

410

00:29:20,000 --> 00:29:23,000

Roomful gas, all that.

411

00:29:23,000 --> 00:29:28,000

Remember, the myth that they're trying to test is if milk can suppress a muzzle flash

412

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

and prevent an explosion of volatile gas.

413

00:29:31,000 --> 00:29:36,000

But with methane, the gas used in the movie, they got nowhere fast.

414

00:29:36,000 --> 00:29:39,000

So now, they've changed up to hydrogen.

415

00:29:39,000 --> 00:29:45,000

Now, in these next tests, we're going to use the same guns, the 9mm Glock and the 9mm Sig Sauer,

416

00:29:45,000 --> 00:29:47,000

plus the 44 Magnum.

417

00:29:47,000 --> 00:29:49,000

The only thing that's going to change this time is the gas.

418

00:29:49,000 --> 00:29:55,000

We're using hydrogen. It's more flammable, so hopefully one of these will get that gas to ignite.

419

00:29:55,000 --> 00:30:00,000

Starting off with a Sig Sauer, they're trying to find the perfect gun and round combination.

420

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

Alright, we're locked lowly to ignite the gas without milk,

421

00:30:04,000 --> 00:30:07,000

and then add the milk to see if it stops the explosion.

422

00:30:07,000 --> 00:30:09,000

Alright, filling the tank.

423

00:30:09,000 --> 00:30:16,000

Okay, you fire, and then I'm going to flame if it doesn't ignite.

424

00:30:16,000 --> 00:30:19,000

Here we go. In three, two, one.

425

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

Oh my gosh, it just ignited the gas.

426

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

I can't tell. I think we need to check the high speed.

427

00:30:28,000 --> 00:30:33,000

Always a good plan, as Tori's wishful thinking comes to nothing.

428

00:30:33,000 --> 00:30:36,000

The gun went off, the gas didn't.

429

00:30:36,000 --> 00:30:41,000

Even with the more flammable gas, it still was not enough to be ignited by the muzzle flash.

430

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

Hey, we're just starting. We got another gun.

431

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

Alright.

432

00:30:44,000 --> 00:30:51,000

So next up is the gun they said they used in the movie, but actually didn't, the Glock 17.

433

00:30:51,000 --> 00:30:56,000

Alright, so we are about to fire a high velocity round out of a Glock into the hydrogen.

434

00:30:56,000 --> 00:31:01,000

Now, we saw when we fired it into the methane that the higher velocity round had a bigger muzzle flash,

435

00:31:01,000 --> 00:31:05,000

but I still don't think it's going to be enough to ignite that hydrogen gas.

436

00:31:05,000 --> 00:31:10,000

If Tori's right, this myth might soon die with a whimper, not a bang.

437

00:31:10,000 --> 00:31:13,000

Grant agrees, and he's worked up a theory.

438

00:31:13,000 --> 00:31:18,000

What I think is happening is there's a pressure wave that's pushing all the gas out of the way,

439

00:31:18,000 --> 00:31:22,000

and the part that might ignite it is never meeting the gas.

440

00:31:22,000 --> 00:31:25,000

So, you know what? I think this is never going to happen.

441

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

But you know what they say about famous last words.

442

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

What?

443

00:31:29,000 --> 00:31:36,000

I think that ignited the gas.

444

00:31:36,000 --> 00:31:40,000

Holy moly!

445

00:31:40,000 --> 00:31:43,000

Didn't see that one coming.

446

00:31:49,000 --> 00:31:54,000

Oh my gosh, this myth is looking very plausible.

447

00:31:54,000 --> 00:31:55,000

I guess I was wrong.

448

00:31:55,000 --> 00:32:00,000

There's no doubt that was a blast and a half.

449

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

The tank is in pieces, and so is the high speed camera.

450

00:32:04,000 --> 00:32:07,000

There is a lot of energy right there.

451

00:32:07,000 --> 00:32:10,000

But did you see that? It's incredible.

452

00:32:10,000 --> 00:32:15,000

The gas was ignited from the muzzle flash.

453

00:32:18,000 --> 00:32:21,000

All I know is when Kerry pulled the trigger,

454

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

the blast was so large that I was stunned.

455

00:32:25,000 --> 00:32:28,000

I didn't know what to say. I was just sitting there blinking.

456

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

So they finally nailed the right bullet, the gun and the gas.

457

00:32:34,000 --> 00:32:38,000

But it still bodes no good for that key scene from Kiss the Girls.

458

00:32:38,000 --> 00:32:42,000

Well, it's busted as far as the movie goes, because nobody's cooking with hydrogen.

459

00:32:42,000 --> 00:32:48,000

But the question is, if the essence of this myth is gun igniting gas, can milk stop that?

460

00:32:48,000 --> 00:32:51,000

Maybe we should clean up, reset and try some milk.

461

00:32:51,000 --> 00:32:54,000

We definitely have to take this full scale.

462

00:32:54,000 --> 00:33:01,000

But filling a full-sized room would take 75 times more hydrogen than they used in the small tank.

463

00:33:01,000 --> 00:33:04,000

And that's way too dangerous, even for us.

464

00:33:04,000 --> 00:33:07,000

So the boys have gone mid-scale.

465

00:33:07,000 --> 00:33:12,000

Not too big, not too small, and not too shabby.

466

00:33:13,000 --> 00:33:16,000

Check it out, Kerry. We made you a dollhouse.

467

00:33:16,000 --> 00:33:17,000

Oh my gosh.

468

00:33:17,000 --> 00:33:20,000

We're going to fill up with hydrogen and blow up.

469

00:33:20,000 --> 00:33:23,000

Oh my gosh, I want to keep this. It's adorable.

470

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

She can, but it won't be in mint condition.

471

00:33:25,000 --> 00:33:28,000

This is way more volatile than the methane.

472

00:33:28,000 --> 00:33:32,000

The H in H-bomb stands for hydrogen.

473

00:33:32,000 --> 00:33:37,000

Now, if the milk actually does stop the muzzle flash from igniting the little kitchen,

474

00:33:37,000 --> 00:33:41,000

we have a backup Glock, because we know it can actually do it with muzzle flash.

475

00:33:41,000 --> 00:33:43,000

That's a lot more exciting than a candle.

476

00:33:44,000 --> 00:33:48,000

In effect, the second Glock now takes the place of the road flare.

477

00:33:48,000 --> 00:33:54,000

They raise both guns towards the roof, just in case the ultralight hydrogen settles at the top.

478

00:33:57,000 --> 00:34:00,000

While Kerry rolls out the remote trigger cords,

479

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

Tori and Grant install the see-through roof and the front wall.

480

00:34:04,000 --> 00:34:08,000

And after ensuring a nice, tight seal...

481

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

Filling the kitchen now. Here we go.

482

00:34:12,000 --> 00:34:17,000

Tori counts up to 60, which should fill the room with 6 cubic feet of gas.

483

00:34:17,000 --> 00:34:19,000

Enough to blow it to pieces.

484

00:34:19,000 --> 00:34:22,000

That's assuming the milk muffler doesn't work.

485

00:34:22,000 --> 00:34:24,000

This one's for all the marbles.

486

00:34:25,000 --> 00:34:27,000

All right, kitchen's filled hydrogen for a minute.

487

00:34:27,000 --> 00:34:29,000

We're ready to go.

488

00:34:29,000 --> 00:34:32,000

In three, two, one.

489

00:34:35,000 --> 00:34:37,000

There's no need to shoot twice.

490

00:34:37,000 --> 00:34:43,000

Even with milk at the end of the barrel, the flash from the gun made the room go boom.

491

00:34:44,000 --> 00:34:46,000

Busted! Busted!

492

00:34:46,000 --> 00:34:51,000

So it looks like the milk is not enough to stop the muzzle flash from igniting the hydrogen.

493

00:34:51,000 --> 00:34:54,000

They've not only busted the myth from the movie,

494

00:34:54,000 --> 00:35:00,000

but also smashed the idea of milk stopping a blast in a room that's been properly prized.

495

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

Busted!

496

00:35:06,000 --> 00:35:09,000

We blew this kitchen apart.

497

00:35:09,000 --> 00:35:11,000

The shrapnel 25 feet back.

498

00:35:11,000 --> 00:35:13,000

Yeah, there is milk everywhere.

499

00:35:13,000 --> 00:35:16,000

Clearly milk is not going to be the thing that stops explosion.

500

00:35:18,000 --> 00:35:21,000

Well, it sure doesn't work with hydrogen.

501

00:35:21,000 --> 00:35:24,000

As for the methane, it never exploded at all.

502

00:35:24,000 --> 00:35:27,000

So Morgan had no cause to fret in the first place.

503

00:35:27,000 --> 00:35:30,000

Sure he had the right idea if they were cooking with hydrogen gas.

504

00:35:30,000 --> 00:35:34,000

I mean, we had to go to a gas with such a low ignition energy that it's ridiculous.

505

00:35:34,000 --> 00:35:36,000

We're busted on so many levels.

506

00:35:38,000 --> 00:35:42,000

In the meantime, remember, it's very uncool to mess with methane.

507

00:35:42,000 --> 00:35:44,000

Or to waste milk.

508

00:35:47,000 --> 00:35:48,000

Still to come.

509

00:35:48,000 --> 00:35:53,000

Well, it's all about the amazing Adam Savage underwater and upside down.

510

00:35:53,000 --> 00:35:55,000

I can't open the pass and you're doing it.

511

00:35:58,000 --> 00:36:08,000

Adam and Jamie are finally ready to turn one of their classic experiments upside down.

512

00:36:08,000 --> 00:36:17,000

My goal here is to go underwater, turn turtle and get back to the surface without either breaking the window or resorting to breathable air.

513

00:36:17,000 --> 00:36:23,000

But can he stay calm enough, long enough to make his escape when the cars belly up?

514

00:36:23,000 --> 00:36:25,000

Mike, go ahead and start your engine.

515

00:36:26,000 --> 00:36:27,000

We're about to find out.

516

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

In three, two, one, go.

517

00:36:36,000 --> 00:36:54,000

The plan works to perfection as the car pitches nose first and then settles roofside down.

518

00:36:54,000 --> 00:36:57,000

Adam's initial fears are unfounded.

519

00:36:57,000 --> 00:37:01,000

Both he and Don are so far uninjured.

520

00:37:01,000 --> 00:37:03,000

The car is filling up.

521

00:37:03,000 --> 00:37:06,000

It's definitely totally upside down.

522

00:37:06,000 --> 00:37:09,000

All our safety procedures are working great.

523

00:37:09,000 --> 00:37:10,000

It's slowly filling up.

524

00:37:10,000 --> 00:37:13,000

I'm definitely not going to try for the driver's side door.

525

00:37:13,000 --> 00:37:15,000

I'm going to try for the passenger door.

526

00:37:17,000 --> 00:37:19,000

I can't open the passenger door.

527

00:37:19,000 --> 00:37:23,000

Of course I can't because we're still sinking.

528

00:37:23,000 --> 00:37:25,000

The pressure differential.

529

00:37:25,000 --> 00:37:27,000

That was totally intense.

530

00:37:27,000 --> 00:37:30,000

The windshield shattered from the impact.

531

00:37:31,000 --> 00:37:34,000

We're still about 30 seconds from having turned over.

532

00:37:34,000 --> 00:37:36,000

My safety driver's gone.

533

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

You're okay?

534

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

Excellent.

535

00:37:38,000 --> 00:37:43,000

Inside the car, the pressure in every sense is rapidly rising.

536

00:37:43,000 --> 00:37:47,000

But back on the surface, Jamie's almost buoyant.

537

00:37:47,000 --> 00:37:50,000

I can hear Adam making all sorts of noise inside there.

538

00:37:50,000 --> 00:37:55,000

I don't know what he's saying, but it appears to still be awake and intact.

539

00:37:55,000 --> 00:37:56,000

It's true.

540

00:37:56,000 --> 00:38:01,000

Right now, Adam's unhurt, unfazed, and surprisingly chatty.

541

00:38:01,000 --> 00:38:04,000

Wait for the car to come out so that I can open this door and escape.

542

00:38:04,000 --> 00:38:08,000

Right now, I can actually see out the back window.

543

00:38:08,000 --> 00:38:12,000

I can see daylight, which is really pretty tantalizing, honestly.

544

00:38:12,000 --> 00:38:15,000

It's crucial that Adam stays calm,

545

00:38:15,000 --> 00:38:19,000

especially as a massive curve ball is coming his way.

546

00:38:19,000 --> 00:38:23,000

The upside down car suddenly twists right side up.

547

00:38:25,000 --> 00:38:27,000

The car's turned over again.

548

00:38:27,000 --> 00:38:30,000

My turn over again once we get down.

549

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

Because of the lines we've got on it.

550

00:38:33,000 --> 00:38:35,000

I'm going to try and open with my...

551

00:38:35,000 --> 00:38:36,000

Oh my mind!

552

00:38:36,000 --> 00:38:37,000

No.

553

00:38:39,000 --> 00:38:40,000

Okay.

554

00:38:40,000 --> 00:38:42,000

It's good calm.

555

00:38:42,000 --> 00:38:47,000

Wow, the windshield is totally spraying water out at me.

556

00:38:48,000 --> 00:38:49,000

Woo!

557

00:38:49,000 --> 00:38:53,000

Dude, I did not expect this.

558

00:38:53,000 --> 00:38:56,000

With each passing second, the car fills with water,

559

00:38:56,000 --> 00:39:00,000

but Adam does at least manage to stay with the last pocket of air.

560

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

Let me see if I can open this door.

561

00:39:02,000 --> 00:39:04,000

Ah, no.

562

00:39:04,000 --> 00:39:07,000

I have no access to any doors in this.

563

00:39:07,000 --> 00:39:09,000

I have to wait until this car settles down.

564

00:39:09,000 --> 00:39:12,000

It is taking a long time to sink.

565

00:39:12,000 --> 00:39:14,000

To Adam, it's taking forever,

566

00:39:14,000 --> 00:39:18,000

but in fact, it's only 60 seconds since the car hit the water,

567

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

but things are about to accelerate.

568

00:39:21,000 --> 00:39:24,000

Okay, there's a lot to get caught up in in this car,

569

00:39:24,000 --> 00:39:26,000

and my visibility is about to disappear.

570

00:39:26,000 --> 00:39:27,000

Here we go.

571

00:39:31,000 --> 00:39:35,000

I can hear the last bit of air hissing out the back of the car,

572

00:39:35,000 --> 00:39:38,000

so these guys are pretty close to being totally in the water,

573

00:39:38,000 --> 00:39:40,000

and the car is going to be going down.

574

00:39:40,000 --> 00:39:43,000

And sure enough, just seconds later...

575

00:39:43,000 --> 00:39:46,000

That it's going down.

576

00:39:46,000 --> 00:39:48,000

Here we go.

577

00:39:49,000 --> 00:39:51,000

Oh, boy.

578

00:39:51,000 --> 00:39:56,000

Oh, boy is right, as the car suddenly drops like a stone.

579

00:39:56,000 --> 00:40:01,000

It flips yet again, so it's back upside down.

580

00:40:01,000 --> 00:40:04,000

Remember that Adam's not wearing a dive mask,

581

00:40:04,000 --> 00:40:09,000

so his vision is even more blurred than this.

582

00:40:09,000 --> 00:40:14,000

What's more, there's no air pockets left.

583

00:40:14,000 --> 00:40:19,000

After a worrying period of silence, Adam finally breaks free.

584

00:40:21,000 --> 00:40:25,000

He figures out which way is up and swims to safety.

585

00:40:25,000 --> 00:40:28,000

But did he really survive,

586

00:40:28,000 --> 00:40:32,000

or did he resort to a blast of emergency air?

587

00:40:35,000 --> 00:40:37,000

You all right?

588

00:40:37,000 --> 00:40:38,000

I'm okay.

589

00:40:38,000 --> 00:40:41,000

It's pretty definitive that I died right there.

590

00:40:41,000 --> 00:40:44,000

That means you had to partake of the onboard air supply.

591

00:40:44,000 --> 00:40:47,000

I absolutely had to partake of the onboard air supply.

592

00:40:47,000 --> 00:40:51,000

And I breathed in a little water on the way.

593

00:40:51,000 --> 00:40:55,000

With the car turning and being really unpredictable at its turning,

594

00:40:55,000 --> 00:40:59,000

which I think was actually quite accurate to a real-world scenario...

595

00:40:59,000 --> 00:41:01,000

The car's turned over again.

596

00:41:01,000 --> 00:41:04,000

My air pocket was changing constantly,

597

00:41:04,000 --> 00:41:08,000

and when it finally started to lurch and go under at the end,

598

00:41:08,000 --> 00:41:10,000

it went really, really, really fast.

599

00:41:10,000 --> 00:41:13,000

I had about 10, 15 seconds of warning,

600

00:41:13,000 --> 00:41:15,000

trying to take a really deep breath,

601

00:41:15,000 --> 00:41:16,000

and then I tried opening the door,

602

00:41:16,000 --> 00:41:18,000

and at that point I was completely out of air.

603

00:41:18,000 --> 00:41:20,000

It was just too stressful.

604

00:41:20,000 --> 00:41:23,000

You're in this super confined space, you cannot see anything,

605

00:41:23,000 --> 00:41:25,000

you lose all your bearings.

606

00:41:25,000 --> 00:41:28,000

I couldn't find the handles on the doors without a mask.

607

00:41:28,000 --> 00:41:32,000

His only choice was to take the air offered by diver Don,

608

00:41:32,000 --> 00:41:34,000

and Don had his own problems.

609

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

My safety diver was actually pinned in his seatbelt

610

00:41:36,000 --> 00:41:39,000

and had to use a knife to actually cut himself free.

611

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

The whole time I was under water breathing air,

612

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

I couldn't tell you what part of the car I was in

613

00:41:43,000 --> 00:41:45,000

or what direction was up or down.

614

00:41:45,000 --> 00:41:48,000

The disorientation was complete.

615

00:41:49,000 --> 00:41:51,000

They both lived to tell the tale,

616

00:41:51,000 --> 00:41:54,000

but Adam only got out with the help of canned air,

617

00:41:54,000 --> 00:41:57,000

so the myth that it's next to impossible to escape

618

00:41:57,000 --> 00:42:01,000

when the car turns turtle is confirmed.

619

00:42:05,000 --> 00:42:08,000

The essence of Adam's approach to survival

620

00:42:08,000 --> 00:42:11,000

was exactly the same as the first time around.

621

00:42:11,000 --> 00:42:15,000

Stay as calm as you can for as long as you can.

622

00:42:16,000 --> 00:42:19,000

Staying put till the car fills with water

623

00:42:19,000 --> 00:42:21,000

is still the best tactic,

624

00:42:21,000 --> 00:42:23,000

but the fans were dead right.

625

00:42:23,000 --> 00:42:27,000

Getting out is a whole lot harder when you're upside down.

626

00:42:27,000 --> 00:42:29,000

The difference between this test

627

00:42:29,000 --> 00:42:32,000

and the first time I did this with an upright car

628

00:42:32,000 --> 00:42:34,000

is literally night and day.

629

00:42:34,000 --> 00:42:36,000

So the take home message is?

630

00:42:36,000 --> 00:42:38,000

I don't know about you,

631

00:42:38,000 --> 00:42:40,000

but I am keeping a commercial window breaker

632

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

in my glove compartment from now on.

633

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

Unless you live in the desert.

634

00:42:44,000 --> 00:42:45,000

Exactly.

635

00:42:45,000 --> 00:42:47,000

And remember that technically,

636

00:42:47,000 --> 00:42:49,000

Adam would have drowned in that car.

637

00:42:49,000 --> 00:42:51,000

So if he's recommending a window breaker,

638

00:42:51,000 --> 00:42:54,000

all I can say is the man knows his business.