



Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

ANNOUNCER

You're listening to Behind the Wheels with Doug Mason, Dave Walters, and Mike Yagley. This is a show where we talk about heavy truck and medium duty axle ends. Doug, Dave, and Mike bring close to 100 years of experience and expertise in the transportation business.

Join us once a month to learn new things about axle ends. Sponsored by Alcoa® Wheels, the global leader in aluminum wheel innovation.

MIKE YAGLEY

Okay.

DOUG MASON

We are hot here at 2020 TMC.

MIKE YAGLEY

Welcome to TMC 2020 the Alcoa Wheels booth. We have a lot of stuff going on here. One of the things we've got going is this podcast. This is a new activity for Alcoa Wheels. We're getting this podcast going, and we're going to be going live today and having some of this material potentially to show up on air. I'm Mike Yagley.

DOUG MASON

And I'm Doug Mason and this is Behind the Wheels with Alcoa Wheels. And wait a minute, Mike, it's been a long time since you've been back to TMC, isn't it?

MIKE YAGLEY

It is. I have not been here at TMC for several years. I've been out wandering the world and this is my first time back here in TMC.

DOUG MASON

What is your first impression? I mean, you weren't here in Atlanta, you probably were in Orlando maybe or something like that.

MIKE YAGLEY

I was down in Orlando as a matter of fact. You're right, I was down in Orlando last time, much smaller. The exhibits were nothing like this. Really is a huge difference how much has changed. A lot of the same quality of work. The real quality work happens in those meetings. The meetings that were today actually. For somebody like me, that's what I really enjoy. I got a lot out of that and the quality of that has always been good.

DOUG MASON

That's the wonderful thing about TMC, quite honestly, that I've really enjoyed. It's such a technical focus for the fleets to make sure that everything that we and all the other suppliers are working on really have an impact for them.



1616 Harvard Ave. Cleveland, OH 44105

| 1-800-242-9898


| www.alcoawheels.com

 facebook.com/alcoawheels

 youtube.com/AlcoaWheelsNorthAmerica

 alcoawheels

 [@alcoawheels](https://alcoawheels)

 Listen to Our Podcast
Behind the Wheels

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

MIKE YAGLEY

And that brings up a good point. One of the problems when I was in Europe when I was in Asia, I continually had problems with understanding what was going on with the fleets. What is happening on the fleet level? You can go talk to one fleet, two fleets, you can talk to fleets, and they'll talk to you, but there is no such thing as TMC in Europe. There is no such thing as TMC in Asia, China, anywhere in Asia. And it causes all sorts of problems for the suppliers. It's really hard to get a bead on what-

DOUG MASON

Well, just some of the standardization, I imagine, be very difficult too.

MIKE YAGLEY

It's difficult to get word out to the fleets on the proper way to maintain their vehicles. One of the big problems I was running into is I had the same discussion over and over and over again because nobody really understood how to maintain their vehicles. There's a funny thing in China. There's a missionary in China. He was in China for 20 years, and somebody was asking, so what's China like? And he said, "You can say anything about China and it's going to be true." That really does capture it.

MIKE YAGLE

Some of the best-maintained fleets I've ever seen were in China and some of the worst maintained fleets I have ever seen were in China. China is such a big place that you can't make a blanket statement about it. You've got to go out there and you've got to actually talk about specifics. And what would be great is something like TMC that would introduce a higher level of standardization to someplace like China that everybody would have some idea. And actually, whenever I went there, I would spend a lot of time talking to the fleets and talking to the OEMs saying, "You guys really need something like TMC."

DOUG MASON

Well, it's where the OEMs and the fleets really come together.

MIKE YAGLEY

And the suppliers. And so it's a great organization and you don't really realize how good it is until you go without it.

DOUG MASON

You sat in some of the technical sessions today?

MIKE YAGLEY

I did. Unfortunately, the technical sessions I sat in on, they were running with a lot of administrative stuff. The one that I really wanted to be in, I got waylaid, and I ended up coming in a little bit late and I caught just the tail end of it. What I saw was a great discussion but wanted to be a part of more of those. There was a great discussion on the S2?

DOUG MASON

S2 tire and wheel.

MIKE YAGLEY

Yeah, but that's always a good discussion. As a wheel guy plenty to see, and plenty to talk here about. So one of the things that I thought we could talk about just to start out, there are basically two different mounting systems out there, and we've mentioned this in the first podcast. We talked about the hub piloted system, and we briefly referenced the stud piloted system. We sort of brought it up as just something that's there, but we didn't really talk about it.

DOUG MASON

Yeah. It is a smaller market segment, specifically in North America. A lot of medium-duty. Isuzu that type of thing.

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

MIKE YAGLEY

And that's one of the things you have in the medium-duty environment, you know the Japanese pretty much dominate the medium-duty sector, even here in the US. You've got, like you said, Isuzu, Hino's pretty big.

DOUG MASON

Mitsubishi.

MIKE YAGLEY

Mitsubishi's big. Of course, the big dog is going to be Ford and GM. They're going to dominate that space but their-

DOUG MASON

Ford owns it pretty much.

MIKE YAGLEY

That's sort of an Econoline, they've got the Econoline vans but I'll tell you, I see an awful lot of hub piloted Asian vehicles out and just driving around. And I don't know, I wouldn't say, I don't know if it's the majority but it seems like a lot. Do you have any idea of what the-

DOUG MASON

Not the percentages, no, but I mean with the Isuzu and the Hino they are significantly... All the cab overs are pretty much dominated by the ball seat we would call it. And so there is a big difference between the ball seat and the standard that we would utilize on a 10x285.75 two-piece flange not set up.

MIKE YAGLEY

So when you did a lot of studies, we were looking at some of the stud piloted systems out there, and you were looking at-

DOUG MASON

Well the hard thing about the stud piloted systems, at least what I could find is there's not a lot of standards around it. Like the SAJ 1965 really mentions a ball seat and kind of looks at the proof loads that type of thing that are needed, but really doesn't have a torque tension set up that we do. There's a strong standard around the two-piece flange nuts that are so common. Most every truck in this place here would have the two-piece flange nut set up.

MIKE YAGLEY

Yeah, it'd be hard to find a stud pilot system in this place.

DOUG MASON

I think so. But the problem there was is as we were trying to validate different systems, there really was no standard for torque tension. Even looking at the Japanese standards, they would go through all of the sizes. They would go through all of the setups. Dimensions were all there, but there was really no clear torque tension set up or standard between them. And there's different torque requirements for each of them as well. And so that's one area that hasn't really been strongly standardized. And I don't know if there's really going to be a driving force for that because of the fact that most of the systems, here again, are two-piece flange nuts.

MIKE YAGLEY

I don't know how easy it would... I mean it seems like it would be very, very difficult to standardize by itself. Just the technical challenges of standardizing without giving out proprietary information. When I think of a stud piloted system, I'm thinking about the coatings on the studs. I'm thinking about the-

DOUG MASON

Coatings on the nuts is-

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

MIKE YAGLEY

On the coatings on the nuts.

DOUG MASON

And the way it wears off.

MIKE YAGLEY

Right. I'm thinking about all that technology that's bound into that system and it's going to be, at least to me, it seems like that's a lot to agree on. It's not to say they couldn't. I mean we have in North America, we've done that work. We've agreed on Phosphates and oil and how that needs to act, and so forth. And how the torque tension curve looks and all that. I mean, we've been able to nail that down.

DOUG MASON

And actually I'd been able to globalize that between Europe and North America very consistent specifications.

MIKE YAGLEY

For hub pilot only.

DOUG MASON

For hub piloted only, yes.

MIKE YAGLEY

Yeah. Once you get into the stud piloted systems, man, it is just... And it's one of those things that it's a smaller market like you mentioned. It's a smaller market and so there's not the incentive to put that much work into it. I think everybody sees that stud pilot is the past and hub pilot is the future. How much work do we really want to put into standardizing? If you're a mechanic out there and you're working in medium-duty, you really have to be aware that you've got to go out and look at the standard for the vehicle that you're looking at. You have to go back to the manufacturer, the OEM manufacturer. And there's two things that if I'm talking to a mechanic, two things would worry me. If they're working on a stud piloted system, are they torquing it to that specific OEM standard? And then are they purchasing the OEM nuts? I don't know that you can really count on having just some nut that looks like it's dimensionally going to work and-

DOUG MASON

Well that's been proven. Like you said, in the testing that we did previously, we had a number of different manufacturers were trying to produce an aftermarket system. And what we did is we utilized the OEM as the standard and did all of the torque tension testing with that and then did an A-B comparison between that and the aftermarket manufacturer. And we did not find consistency between them.

MIKE YAGLEY

Even from OEM to OEM, right. I mean when you took-

DOUG MASON

Different coatings and different setups.

MIKE YAGLEY

Yeah, exactly. You take a Hino nut put it on an Isuzu, threads are the same, the stud is the same, but the torque tension is completely different.

DOUG MASON

Yeah, and the torquing setup, I mean, it's very different too, if you're not used to it. You've got that inner cap nut and the outer cap nut set up between the wheels. And so being able to torque that down properly, and knowing how to torque it in the right sequence, it's more difficult than a standard system. Although we do have a torque set up here going on. I don't know if there's any walking by who are interested in trying they're lucky at figuring out how to torque a wheel.

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

MIKE YAGLEY

We'll have to snag some people and give them a shot at this. One of the things going back to when you talk about the inner nut and the outer nut, I don't know if people know how that works. Do you want to run through that real quick?

DOUG MASON

Yeah. I mean it's a standard dual system, right. Then we're talking about the rear-drive wheels where you've got an inner dual and an outer dual. The unique thing is obviously, in a standard two-piece flange nut you have the stud and one nut, right. You put both wheels on, you torque it down in the proper sequence. Everything's good to go. But when you're talking about the ball seat system, you put the inner dual on, you put the outer cap or the inner cap on, excuse me, and you get that torqued properly. Then you put the outer dual on and then you have another outer cap nut that holds that wheel in place. So you've got more interfaces going on.

MIKE YAGLEY

It seems like, and if I remember right, you did some studies where it was really difficult because the torque of that... Because what happens is that there's thread on that inner cap nut, right?

DOUG MASON

Correct.

MIKE YAGLEY

Let's go through this again. You put the wheel on, you put the inner cap nut on. And the inner cap nut is both threaded on the inside and the outside of that cap.

DOUG MASON

Yup, it takes up the outer.

MIKE YAGLEY

And so then that holds down that inner dual and then you torque on that outer cap nut and it's being torqued to the inner cap nut.

DOUG MASON

Correct.

MIKE YAGLEY

And so that by itself seems like it'd be very, very difficult to control what the torque tension is of the whole system.

DOUG MASON

Well, you got a couple of sets going on there, right?

MIKE YAGLEY

Yeah, you've got a lot of variables all happening at once, and this is part of the reason it's so important to follow the manufacturer's recommendations.

Doug Mason

Yeah and another thing you've got to be careful of too when you get in that situation is the stud lengths, right?

MIKE YAGLEY

Right.

DOUG MASON

That's one of the things that's also very unique about the ball seat system is if you have a steel wheel setup, inner dual outer dual, or if you have an aluminum inner-outer dual, you have a different cap nut.

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

MIKE YAGLEY

Oh, that's right.

DOUG MASON

Yeah, you have to-

MIKE YAGLEY

Do you want to talk a little bit about why that is.

DOUG MASON

It's more for an alignment set up more or less and to keep them separated. So you have the aluminum inner cap nut actually has a lip on it that goes into the aluminum bore, all right. The nut bore area.

MIKE YAGLEY

Okay.

DOUG MASON

And so that basically helps with the alignment of the aluminum wheel and that setup or the overall thickness obviously is much bigger in the aluminum wheel.

MIKE YAGLEY

I knew that the thickness played a role here.

DOUG MASON

Yeah. And so you also have that in the steer as well. The steer also has a, I'll call it a sleeve that extends into the bolt hole land area. So that is the difference between them as well. And so people can get confused and go well I can just go ahead and use an aluminum wheel with the standard nuts that I had delivered with the steel wheels I had, and that's not the case.

MIKE YAGLEY

Right, you have to actually go out and buy those aluminum stud piloted dual. I mean everything gets way more complicated once you go to stud piloted. And the thing is that they're still out there. There's still a lot of stud piloted wheels out there that are being sold today. I don't know if-

DOUG MASON

Yeah, I have no idea the percentage. Is medium-duty, like you said is the biggest taker of all that.

MIKE YAGLEY

And that's going to be mostly steel. That's mostly going to be steel guys who are going to have to deal with this, but it's still a pretty good size market. This actually gets me thinking about our mutual friend John Kinsler. I was sitting down with John, and we were talking about the hub piloted system. And he was telling me about when he was part of the team that developed the hub pilot system, wrote the SAE specifications on it. It was sort of interesting, they were driving up and down... And I'm going to say it was-

DOUG MASON

It was on I-80.

MIKE YAGLEY

Was it?

Doug Mason

It was I-80.

MIKE YAGLEY

Wasn't I-80?

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

DOUG MASON

Yeah. Yup. Because of the corridor. Yup, the 80-90.

MIKE YAGLEY

Was it?

DOUG MASON

Yep.

MIKE YAGLEY

Okay. Well I was under the impression that it was up in Michigan.

DOUG MASON

No, it was just South of the border. They were running along the 80-90 through Indiana and Ohio.

MIKE YAGLEY

Okay. Oh, that's right. Because was he in Indiana back in those days?

DOUG MASON

No, no. He'd still been in the Detroit area.

MIKE YAGLEY

Okay. They would torque it up, and then they'd drive with it for a little while and then-

DOUG MASON

That's how they figured out the whole SAJ 1965 setup.

MIKE YAGLEY

Yeah. I actually sat down with him and went through some of those papers.

DOUG MASON

Oh, really?

MIKE YAGLEY

Yeah, and actually, I made copies of everything that he did and I've got a big file.

DOUG MASON

I don't know if he wants to know that.

MIKE YAGLEY

That's true.

DOUG MASON

Hey, we got our first contestant on the Torque It Up. Let's see if he's going to do it in the right sequence here.

MIKE YAGLEY

It's looking promising.

DOUG MASON

He looks like he knows what he's doing. This is good.

MIKE YAGLEY

I think he's getting a little bit of help.

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

DOUG MASON

For anybody who is listening, we have a torquing competition going on over here. You can win different prizes if you can complete the process.

MIKE YAGLEY

This puts you in the running for a Yeti cooler and, all sorts of-

DOUG MASON

Oh, a set of Alcoa wheels.

MIKE YAGLEY

And the grand prize is a full set of Alcoa wheels for your truck.

CROWD

Make sure you got that right.

MIKE YAGLEY

So-

DOUG MASON

All right. He did it. He finished it up. Good job. Now he gets to spin the wheel of fortune, I think. We've got all kinds of activities in the booth today.

MIKE YAGLEY

Yeah, we do. Yeah, we do.

DOUG MASON

So we were still talking about studs and nuts and all that type of thing. One other thing I wanted to just point out as well, for those who are out there, again about the stud length, right. We kind of got off the topic there, but for a ball seat system, if you change from a steel to an aluminum, all of a sudden your stud length obviously is going to be such that it's not going to extend as far into the wheel surface, right?

MIKE YAGLEY

Right.

DOUG MASON

And so the concern there is if you do not have enough stud length that you're going to have a fulcrum that's too large for what's there, and you can actually break the studs. You can have issues with the inner cap nuts and other cap nuts as well.

MIKE YAGLEY

Right.

CROWD

I'll wait.

DOUG MASON

Oh, that's okay. We understand this is a working show here. We've got Buddy Bazel working away at untorquing a wheel properly. I don't know if he's doing it right, but he's working at it.

DOUG MASON

So anyway again that stud length is important so that you're not going to have issues on the road, and you're not going to obviously break any studs off.

MIKE YAGLEY

So you're still talking about stud piloted system? That's actually on every system out there, stud length is a huge deal.

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

DOUG MASON

The thing is with a stud length on a standard two-piece flange nut is very obvious if you've got full engagement, right?

MIKE YAGLEY

Yeah.

DOUG MASON

You can see the studs either flush or proud or it could be below the surface.-

MIKE YAGLEY

Yeah, you can count the threads.

DOUG MASON

Yeah, you can count the threads and in some states that's important. I know that there's some OEMs that require one, two, three threads showing. And so that's a system where it's easy to tell if you've got a proper stud length, but a ball seat system, you can't see it. Once you put that inner cap nut on, you have no idea where that stud is relative to the outer cap nut or the outer wheel, right?

MIKE YAGLEY

Right.

DOUG MASON

So it's basically a hidden situation. And you can get into a similar situation with what we call sleeve nuts for a two-piece flange nut that has a sleeve on it.

MIKE YAGLEY

Yup.

DOUG MASON

We see that a lot in the transit industry where they'll have a larger bolt hole diameter to accommodate a sleeve that will go into that bolt hole that actually has threads on it so that you can get more thread engagement in a situation where the stud perhaps isn't long enough to stick through the top and show full thread engagement in the nut body.

MIKE YAGLEY

That was actually developed I think in Europe when they were transitioning from steel to aluminum.

DOUG MASON

It's still very, very common over there, not just in the transit industry but in over the road as well.

MIKE YAGLEY

What we call here in North America, the bus wheels because really those 10x335 bolt circle with the 32 millimeter bolt holes, that's almost unique. Well, it is pretty much unique here in North America to just the bus end district. But in Europe that's everything. Actually, I shouldn't say Europe-

DOUG MASON

Not everything, but it's a large percentage, a very large percentage.

MIKE YAGLEY

That's the equivalent of the 10x285.75 system that we have here.

DOUG MASON

Yes, yeah.

MIKE YAGLEY

And that goes for not just Europe, that's Asia, that's South America.

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

DOUG MASON

Oh, you're talking about just the bolt system itself.

MIKE YAGLEY

The bolt system.

DOUG MASON

Yeah, that's right. It predominates. I was talking about the sleeve nut situation over there. It's much higher than here, but-

MIKE YAGLEY

Even the sleeve nuts, they do the same thing in China for example. The sleeve nuts are very popular with the-

DOUG MASON

I think the reason for most of that is they're still primarily on steel in these countries, and they're transitioning over to the aluminum. The aluminum take rate is much lower in Europe and Asia than it is here in North America.

MIKE YAGLEY

That could be.

DOUG MASON

And so you have a situation where you want to flip a steel wheel over to an aluminum wheel in Europe more than likely your studs not long enough. And so, in that case, you can go with the 32 millimeter bolt hole. You can use a sleeve nut. But again, you have to still have enough stud length to extend into that nut body enough so you're not coming into a situation where you're going to break studs.

MIKE YAGLEY

I think there's a perception, and it might even be accurate that the 32 millimeter bolt hole with a cap nut is a more robust system. Basically, going back to the studies that were done, Oh, I'm going to say almost 10 years ago on wheel offs.

DOUG MASON

Okay. Yeah, no that was a wheel torque solution situation.

MIKE YAGLEY

Alcoa came out with the wheel torque solutions, but there was a much bigger study that was done by one of the big fleets that looked into this.

DOUG MASON

Was it a waste fleet, right?

MIKE YAGLEY

I think it was, yeah. I know it was. But what they did was that they found that movement. If there's any problems with the torque, that it creates movement of the wheel and if you put a sleeve in there, it doesn't have to be a cap nut, it could be any sort of sleeve that cuts down that motion. Reduces the probability of a wheel off.

DOUG MASON

Yeah, coming loose.

MIKE YAGLEY

Right, and so there's a perception that's again I should say there's data that follows up that perception, but even without that data, what I saw in China, for example, were fleets that had plenty of thread, but they insisted on having cap nuts if they were in the bus applications.

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

DOUG MASON

Oh, I see what you're saying. So they were using the sleeves regardless just because they felt that it was a more robust system for them.

MIKE YAGLEY

Yeah.

DOUG MASON

Okay.

MIKE YAGLEY

Exactly. So that was one of the things that... It's funny, I mean I've brought up, I spent a lot of-

DOUG MASON

Just to go on that note a little bit further too, there's some OEMs in Europe actually have their own nut that they use for their vehicle that actually has a small sleeve in it that doesn't really extend that far, but it centers the wheel and that's kind of what you're talking about, right?

MIKE YAGLEY

That's Volvo, right? Volvo, has-

DOUG MASON

Yeah, I think it's Volvo.

CROWD

32 millimeter bolt holes.

DOUG MASON

Yes, 32 millimeter bolt holes. You got it.

DOUG MASON

Yeah, so that's a positive thing. And you don't know if that'll take off in North America at all. I know that we're working on a spec expanding what SAJ 694 to include because that has all the interface systems.

MIKE YAGLEY

Well actually, you're right, we're going to be putting a cap nut in there so it's going to get a little bit more visibility.

DOUG MASON

Well there'll be some standards around it here in North America which will be good as well. I know that there were some companies who were bringing in the system, but they were not bringing it in properly. And so by having this specification here in North America, it'll mirror the specification that they have in Europe as a DIN specification currently. And that, I think standardizes us more globally, which I think is a benefit. That's kind of what TMC is trying to do is standardize things here in North America. And we'd like to relay that stuff over to Europe and Asia as well. And we can also bring some of the good practices that are in Europe and elsewhere into North America as well. Make it better for the industry overall.

MIKE YAGLEY

Absolutely. There's so much that's going on globally and there's so much opportunity for that crosstalk for a little bit of information to come back from Europe. I know when I was traveling in Europe there was a lot of interest in what's happening here and there was also a lot of interest specifically in TMC. I think TMC did try to break into Europe, but the European market is you don't have the big fleets.

DOUG MASON

It's more splintered, it's lot smaller. Is it the same thing in China as well?

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

MIKE YAGLEY

China is the same thing. Although China is developing quickly to be very much more like the US. I think China's going to be more likely to hit that sort of US model. And Europe typically because everything is... If you think of let's say Germany, I don't think Germany is as big as California, for example. And so what you end up with is people aren't driving as long. You don't have the long haul. Although the EU has broken down a lot of those barriers-

DOUG MASON

Yeah, there is some fleets that are going, I mean I was working with a fleet that was going from Italy into Spain.

MIKE YAGLEY

Right, so that is happening, but then you still have the problems with language. You still have the problems with people understanding one another. Trust is another big thing. So there are a lot of barriers to getting a truly completely European system pulled together. But China has the advantage. It's much more like the US all one language, lots of long haul. Over-

DOUG MASON

Very long haul.

MIKE YAGLEY

A very long haul. And, so I think China is better positioned for something like TMC because what you really need are strong fleets. Otherwise-

DOUG MASON

Well there're going to drive it, right.

MIKE YAGLEY

Right, you need a small number of strong fleets to drive something like this and that just doesn't exist in Europe. But it does exist. It is coming up quickly. I mean, I know of 10,000 truck fleets that were, three years ago, we're 100 truck fleets. You're just seeing this huge growth there and a huge consolidation. And, so I don't know how long it's going to be, but if China continues to be stable, there's a lot of questions around that. If China continues to be politically stable and everything else, then I could see them having something like a TMC that would really be valuable for them. That's one of those things I think that there'd be a lot of huge benefit. And then you'd bring from China into the US a lot of knowledge. If there was some sort of-

DOUG MASON

Some sharing situation.

MIKE YAGLEY

Sharing. But even there they have the barrier of the 10x335 system. Also the Europeans and the Americans, for example, aerodynamics. Just take a look at aerodynamics. You would think that the Europeans and the North Americans would have roughly similar ideas on aerodynamics, right? But the European standard for measuring aerodynamics is dramatically different from the North American standard for measuring aerodynamics. Now I've read through the specs, but I'm not an aerodynamic expert. But the way it looks to me is that North America takes into account acceleration and deceleration. So it takes into-

DOUG MASON

The whole cycle.

MIKE YAGLEY

The whole cycle, where the Europeans have chosen, last time I looked, the Europeans have chosen to look at it from a perspective of, well, there's a lot of variables that are going on when you're accelerating a lot of variables that are going on and when you're decelerating, we want to be in that sweet spot where we know we have rock-solid confidence in the data that we're getting. And so they've taken a completely different way of doing it.

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

DOUG MASON

So just at highway speed, basically is what they're looking at.

MIKE YAGLEY

Just at highway speed, and so what you end up with is two completely different ways to measure the exact same thing. And that's just aerodynamics. You start looking at something like 10x335, 10x285-

DOUG MASON

There's definitely a different philosophy.

MIKE YAGLEY

Completely different philosophy. So you're not measuring the same thing anymore. You're measuring two different things. When you're talking about a European system and all the different maintenance issues they're dealing with, a lot of it's going to transition over, but the technology is so different. I don't know how much, it'd be great to have an engine guy here who's very familiar with it.

DOUG MASON

Just with impact, yeah. I don't have any idea.

MIKE YAGLEY

I have no idea either. That would be an interesting discussion, but now one of the things I think I shared with you, that paper I was looking at where there are some researchers in Europe who are partnering with researchers in North America on aerodynamics specifically, and they're trying to understand how can we speak the same language because they're recognizing there's a lot of benefit typically because the North Americans have taken into account-

DOUG MASON

Oh Hey, we got some more competitors here. This is great. Two of them. Let's go guys.

DOUG MASON

Come on. Let's see how you can do it. This is good. You get a chance to win a Yeti cooler and a set of wheels.

DOUG MASON

So anyway, back to Europe. So then if they were trying to torque up at 10x335 would it be any different?

MIKE YAGLEY

No, that would not be any different. You're right, that would not be any different. What I'm trying to get at is that there are efforts to commonize where we can. I'm using this aerodynamic discussion as a-

DOUG MASON

Yeah, I don't think they're ever going to standardize on the bolt circle. That's just so ingrained now between the two, but it's interesting here in North America we run both.

MIKE YAGLEY

We do.

DOUG MASON

And I don't know if that's true in Europe.

MIKE YAGLEY

No.

DOUG MASON

I don't think run. They run somewhat, 8x275 which would be standard over here with North America. So you get more into the smaller wheels. There'd be some more commonization, but on the 22.5 x 8.25 or 22.5 x 9 it's the 10x335 in Europe and 10x285.75 here, right?

Behind the Wheels Podcast Transcription

Bonus Episode 11: Stud Piloted Wheels and the Value of Systems Standardization

MIKE YAGLEY

Yeah, the thing is the only market that I know of in the whole world, and I'm sure there are more, but the only one I know of that uses both 10x335 and 10x285.75 is Vietnam.

DOUG MASON

Oh, really.

MIKE YAGLEY

Yeah, because what Vietnam they do is they buy the third-hand trucks from wherever they can get them in the world. So they're picking up trucks from North America. They're picking up trucks from Europe, South America, wherever.

DOUG MASON

So wait, help me out. In China, it's 10x285.75?

MIKE YAGLEY

No, 10x335.

DOUG MASON

Okay, that's what I thought. Okay, they followed Europe.

MIKE YAGLEY

They followed the whole world. When Japan in 2010 Japan made the decision they were going to go to hub piloted. Up until that point, Japan was always stud pilot. And they just lived right to stud piloted, and they were the last man standing when it came to stud piloted in heavy-duty applications.

DOUG MASON

And they flipped to 10x335?

MIKE YAGLEY

In 2010. The funniest thing is that they did it all as one. The whole country flipped. On January 1st, 2010, all the OEMs flipped to the 10x335 hub piloted system.

DOUG MASON

We'd have a hard time doing that here.

MIKE YAGLEY

We would have a hard time doing it. I think it's probably a good time to take a break.

DOUG MASON

Okay.

ANNOUNCER

Sponsored by Alcoa® Wheels, the global leader in aluminum wheel innovation, manufacturing and technology. Inventing the first forged aluminum wheel in 1948, it's team of experts continue to develop the most lightweight, efficient, and high-performing commercial vehicle aluminum wheel products, bringing you revolutionary innovations like Alcoa Dura-Bright® wheels, Alcoa Dura-Black™ wheels, the new Alcoa wheels hub bore technology, and the lightest truck wheel on the market, Alcoa Ultra ONE®, 22.5 x 8.25 wheel. Alcoa Wheels, the global leader in aluminum wheel innovation.