



Behind the Wheels Podcast Transcription

Season 2 Episode 7

Loading: A Heavy Responsibility Part 2

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

Welcome to another episode of Behind the Wheels. I'm Mike Yagley.

DOUG MASON

I'm Doug Mason.

DAVE WALTERS

And I'm Dave Walters.

MIKE YAGLEY

Now that we have some understanding of what's happening with the vehicle, what's happening with the wheel, let's talk about the things that affect loading. And Dave, I want to start off with the spread axle. You know, let's start off there and let's get into that with a little bit more detail.

DAVE WALTERS

The trailer flatbed market, especially, they are on some reefers spread axles, but mostly flatbeds, some reefers. And you can understand if you're hauling, have some beefs or something like that, why you would have them in reefer sometimes. But you know in flatbeds, say you're picking up a coil steel, you have to make sure that your load limits on each axle. So, if you set that coil too far back or too far forward, you're going to get a different loading. So, a spread axle was designed to help these guys and it's really designed to do a couple of things. The first is we can move this up or back to scale this out correctly, so, that's very important to spread axles in the flatbed market. If you're hauling different size loads every time, whatever you're picking up, you got to understand that you got to scale these out. So, that's really important to have spread axles on it if you're not a dedicated spread actual fleet.

MIKE YAGLEY

Yeah, that's one of the things you brought up, there are some of those spread axle fleets out there who are shipping the same things over and over again and they know where to place them. They know where to put the axles. They know it's a machine there, but that's very rare to have a fleet that has that kind of customers, that kind of customer base. Typically, I think, and correct me if I'm wrong, but the spread axle guys, the flatbed guys, are really having to do those calculations practically every time they load up, isn't that right?



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DAVE WALTERS

A lot of them, yes. The big fleets, they basically have computer simulators saying, if you put this way to coil steel on this part, this is where it's all going, you know what I mean? They really know that. And, but a lot of times its hit and miss with some of these guys, they don't have that background. And you've got to understand that you can move the whole set of axles on some trailers. The tandems, you can slide them forward, backwards. Spread axles, you can take the one, move it up, move it back. And you know, it's just trying to get the load right because they are going to run portable scales on you. They're going to weigh each axle. It's not the total weight of the vehicle. Now, they run a lot of portables. So, they're going to weigh certain axles and you better be within limits.

MIKE YAGLEY

Another area that we've seen affect unloading was the fifth axle, I mean the fifth wheel position. Doug, you want to talk a little bit about that?

DOUG MASON

Yeah, a little bit on that, sure. The fifth wheel positioning, and Dave, you can corroborate this, but typically that's really not touched much. It's just set up and it is where it is, but it can be used to affect the loading primarily between the steer and the drives. And so, if you obviously move the fifth wheel forward, you're going to be placing more weight on your steer axle. And obviously you push it back more on your drives. And there may be instances where that's needed based on what's being hauled. You could move a little bit of that weight to the steer axle. As you were saying, Dave, maybe they've got a 20,000 pound up there. They're running 10,000-pound wheels, more than 18,000 with 9,000-pound wheels. And what they're running in their truck is not, it needs to be distributed forward so that they can balance out each of the axles all the way through.

DOUG MASON

So, it's important to understand that because we have had some fleets not really understanding that where they've moved it forward because they wanted to reduce the distance between the trailer and the tractor from an aerodynamic perspective, and did not understand that that was impacting their loading on their steer axle, and actually putting them over. I mean, they've only got a 12,000- or 14,000-pound steer and they moved it forward enough to create an issue. So, I don't know Dave if you've seen that as well, but that would be the concern there is to really understand that just moving that, a slot or two can make a difference of 400 plus pounds moving forward or more.

DAVE WALTERS

What I would always say is back when you had the 12,000-pound axles, that affected that a lot more by shifting that ahead. And before the show, we kind of discussed car carriers and I would always say, car carriers can get some weight on the front steer axles because if they're hauling X amount of cars and they put one of the big cars or the big SUV's upfront, they can get weighed on the steer axle. So, I mean, those are all things that really go into this. And we actually had in the car carrier industry where we had to upgrade them into a stronger wheel because they're a lot different than most carrying loads on the steer axles, where most people really find it hard getting weighed up there. And they're one of the few that can. I think of fire trucks, actually, they're running 20,000, 22,000 pounds front axles because they're carrying X amount of water. They put all their personnel in a cab and it's all on the steer. You know what I mean? So, the configuration of products are different.

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That's something, this fifth wheel positioning issue. I've seen predominantly on cab-overs. Once you go to a cab-over design, that steer axle is practically hugging the fifth wheel. There's not a whole lot of room between them, where in North America, typically we don't have cab-overs and there's a lot of room. And so, you don't see the same effect, but once you go to the cab-over design, you really have to be careful about where you place that fifth wheel. Because once you go too far forward, that's going to just overload that steer axle. And then the steer axle, also, it's got to deal with all the lateral loading. You know, when you steer, when you actually go through a turn that those side loads, that steer axle is going to get beat up pretty hard if you have a cab-over design and you have your fifth wheel too far forward. At least that's what I've seen. I don't know if anybody else has any comments on that one.

DAVE WALTERS

Yeah, in Europe cab-overs are dominant. And when you look at European trucks and the loading, they're so much different. So, they're basically having to run, a lot of times, a nine inch on the steers just to carry the load. It's a different animal. So, I mean, when you go into, I'm thinking like my experience of watching tri-axle coal trucks go up and down through my town where I used to live, and they would have to pick up their lift axle to make the corners. And all of a sudden you pick up the lift axle to turn; here you're loaded to maximum every time, or a lot of times a little over in my years. The weight that the steer axles had to carry was just ungodly. You're turning, you're picking up an axle, putting, transferring that load, and making a turn, so you're like, wow, okay.

DAVE WALTERS

But if you got them on the right wheel, that's where wide base really became prevalent. And then they had no trouble whatsoever. Like I said, there's a lot of applications. And when you start getting your lift axles and your propped axles and all these other different axles that can transfer a load from one to the other, and you can pick that up. And then when they engineer these products, they take in account that that's the load, not when we pick up X amount and transfer it to someplace else. So, a lot of difference when you get into what I would say, lift axles and trailing axles, you can pick up. So, mostly in the vocation industries, you see those a lot.

MIKE YAGLEY

Oh yeah, well, probably the most common problem we see. And Dave, I'd like you to talk a little about this inflation pressure, managing inflation pressure and how not having control of your inflation pressure and what that does to loading. What do you see out in the field when it comes to inflation pressure, especially in a dual applications?

DAVE WALTERS

You know, I do a lot of tech talk with TMC and that, and it's really funny because wheel guys talk to work and then tire guys talk inflation. Number one issue. So, inflation is so critical. Every tire company has charts that they tell you what inflation pressure you should be running with the load that's on that tire. You shouldn't say, well, I run a hundred PSI. Well, no, you should actually calculate your load and then go down the chart and then just say, maybe I should be running 115 with the loads I'm running. So, there's actually charts that they put out to tell you what inflation you should run to get the maximum tire life. That's a critical, critical thing, tire wear with not running then the right inflation. Because if you're overloading that tire, your wear is going to definitely be different. So that's why they put out these charts.

MIKE YAGLEY

One of the things we see all the time is customers not having control of their inflation pressure for whatever reason. And maybe letting that inner dual get a little bit low, but inflated, having good inflation on the outer dual. And what that does is it transfers the load from instead of having the load shared equally between the inner dual and the outer dual, the load's going to be mostly carried by the outer dual. That can have a huge impact on overloading a wheel, can't it Dave?

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DAVE WALTERS

Absolutely. And you know, in the market now, most of the trailers I see they run an active inflation system. So, basically, they use the air system off the tractor to run it to the wheels to keep them inflated. So, when you use an active inflation system, which most people are in the industry now, because again, inflation is so critical. You see that, but unfortunately the systems are really not adaptable yet to the tractor. And that's very critical to still maintain air pressure on those. So now there are tire monitoring systems that can tell you, "Hey, you've got a low tire." So, I mean, there's so many advances to tell you or warn you, "Hey, you've got a low tire and you need to check this," because, I always say, fuels your largest cost, tires is your second largest cost and maintenance. And do you want to get maximum tire wear or not? You know, every 30 seconds you're paying because you're under inflated or whatnot, that's why pressure monitoring systems have really started to spark the interest.

DOUG MASON

Right. And it just gives some perspective on this too. If you have a 15 PSI difference, you're going to shift about 500 pounds from the inner to the outer dual. But as that increases, let's say you get up to 30 PSI, which can happen, you're talking 1500 pounds or more. And it's an exponential situation, so that's why you're saying Dave, it's so critical to keep those pressures similar. Cause every PSI you change it, exponentially shifts that load. And we've seen that issue in our warranty. When we take a look at different fleets and things that are going on, when there's a lot of load on that outer dual, we'll start seeing failure modes consistent with an inner dual not being inflated properly. So not only is it tire life, but it also gets into the wheel life as well, by not taking care of it.

MIKE YAGLEY

The one area that a lot of people don't think about is loading and unloading strategies. And honestly, I think the part of the reason they don't think about it is because it's really hard to fix. That's one of these things that when you're loading and unloading, it's hard to rebalance your load. You know, it's just not something, it would take a lot of time, but that does affect overloading. And I don't know, I'll leave it open to either one of you to talk about that.

DOUG MASON

Well, just as I'm sure Dave's got some other examples as well, but just one example in particular, again, going to Europe and they do a lot of side loading in Europe because of obviously the area constraints they have. And in the side loaded trucks, the way you load, and unload can have a big impact on the overloading, whether you start taking them out.

DOUG MASON

In this particular instance this was a fleet that was having issues or having cracks on their wheels. And we come to find out they're carrying large liquid containers, we'll call them. And the way that they were loading and unloading them was creating a significant amount of a load transfer. As they were unloading, they were creating a high load condition on one side of the axles, and so in discussing with them the situation, they learn how to unload it in the proper fashion whereby they did not overload the axle. So, in that particular case, it was quite interesting because they're unloading from the side, as you noted, Mike, on a regular drive van that we have here, you got to go in the back and go out the back. These guys could unload in any way they wanted as long as they had set it up properly. So, that was kind of an interesting instance that I had seen.

MIKE YAGLEY

Yeah, the one I always think about is in Japan, there was some customers who were loading and unloading fish that was packed in ice. And as they had these pallets, many pallets of fish packed in ice. And as they took them out, the center of gravity for the load was moving further and further and further forward. So, when they were fully loaded, it was sort of a weird situation when they were completely fully loaded, the axles were fine. None of the axles were overloaded. They have actually two steer axles on this thing. They had the first steer axle. And then right at the front of the trailer, it was a rigid body. Right at the front of the box, they had a second axle and both of them had the steer capability.

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MIKE YAGLEY

So they both were single tire applications. And so, as they unloaded from the back, the load from all those water, that ice packed fish, the center of gravity was moving further and further forward and more and more of that load was being taken by that second steer axle. And so practically the whole load was just being carried by that second steer axle that was right there at the front of the box. And they started breaking those things. They started breaking the wheels right at that second steer axle. It was an unusual situation, and we were looking at it and they were swearing up and down, "We're not overloading, we're not overloading." And, we had to bring out a portable scale and show them that the way they were unloading their product was causing an overload situation on that second steer axle.

MIKE YAGLEY

I don't know if that's something that we would see a whole lot here in the U.S., because of the way our vehicles are designed, but it is something to keep in mind. Like you brought up Doug, the side loading and there are all sorts of unusual loading strategies that are out there. This is not a real common one that causes a problem, but it's something that if you're seeing a problem, it might be something to keep in mind. How are you loading this thing? And how are you unloading it? And are you creating an overload condition just because of the way you're handling your load?

DAVE WALTERS

The thing that I will add in America, here's the American ingenuity. If they're going to overload a vehicle, and this could be in packaging, delivery service, or LTL or whatever. Their theory is the bulk of that load that we're loading, we'll empty that very first customer, then we'll be all right. So, they take a calculated risk of running overloaded to the customer that has the bulk of the load on there. They get rid of that, and they feel really good about it.

MIKE YAGLEY

That's smart.

DAVE WALTERS

You know, hey, let's get rid of the heaviest load first and then we're okay. [crosstalk 00:17:24]

MIKE YAGLEY

I was just going to say, what that also does is it puts the heaviest load right at the back of the trailer. And so, it's right over the dualies. And so, it's got plenty of load carrying capacity right there. So that's real smart.

DAVE WALTERS

That's the common practice. Every time that I'd go out to a fleet, and again, I guess my years of getting to know these guys really well. The one time I said something about, you're a big customer, there's no way you can overload. And he's like, "Sometimes, maybe five miles." I said, "what do you mean?" Well, we got too much for a truck. We just draw all the big stuff on the back and get rid of it first.

MIKE YAGLEY

That gets back into our static and dynamic loading. Cause you know, the problem is it's overloading, but it's overloading at a distance. And so, if you keep that distance short, then I'm not advocating overloading. But if you want to minimize the damage, you just get that load off of the vehicle as quickly as possible. Well, great discussion guys. I think that does it.

MIKE YAGLEY

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