



Behind the Wheels Podcast

Episode 3: Commercial Vehicle Safety Alliance (CVSA): Out of Service Explained

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.

DAVE WALTERS

I'm Dave Walters.

DOUG MASON

I'm Doug Mason.

MIKE YAGLEY

So, we've spent a couple of episodes talking a little bit about holding things together. This next episode is going to be about the CVSA out of service condition, which is a huge issue for the industry, and there's a lot of misunderstanding about what a CVSA out of service condition is. So, we'll spend this episode, next half hour or so walking through that and explain that to you. Dave, you want to kick off and tell us a little bit about CVSA?

DAVE WALTERS

Yes, I certainly will. I'm actually a member of CVSA and they have two meetings every year. They have meetings where we all come together, vendors, the officer's, the inspections, the fleets, and we discuss about what is a violation, what's not a violation. Violations are so different than the actual out of service criteria, and we're going to talk a lot about those later. The key is that CVSA is we come together to try to keep the safety of the roads together. CVSA are mostly... it's state by state, so this state might have these violations. Out of service criteria is everybody, everybody agrees on out of service. So, if they red tag your truck, that means hey they all agree on these are things that should be.

DAVE WALTERS

So, violations are different. So, everybody will say, well I got, red tagged. Well did they put the sticker on your truck and say it cannot be moved until it was repaired. No. That's a violation. So, there are differences, but CVSA is an organization that everybody talks about and what are most of them? Most of them are state police officers. What they do is at the end of their career, and this is just generalizing, they take this CVSA job because it's kind of a daylight shift all the time. Yes, you may have to crawl under trucks and measure brake chambers and stuff like that. But, they're mostly state police officers that chose to do that. There are some of them that have not.



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MIKE YAGLEY

Well, it makes sense. I mean, if you're going to have an organization... what the... Let's take a step back here. CVSA, what does that stand for?

DAVE WALTERS

Commercial Vehicle Safety Association.

MIKE YAGLEY

That's a group of, like you mentioned, it's industry folks. It's regulatory folks. It's-

DAVE WALTERS

Fleets.

MIKE YAGLEY

It's the fleets. So, all of them coming together and talking about what is safe, and what is most critically safe. So that's where the CVSA is all about.

DOUG MASON

There's more to just out of service conditions though and these violations.

DAVE WALTERS

Yes.

DOUG MASON

Is you get a score, right? Isn't there a score that's associated with it? That can have a big impact on a fleet.

DAVE WALTERS

Yeah. When the Federal Government went to what they call CSA, CSA is controlled by your driver, your CDL drivers. It's controlled by these safety inspections. It's controlled by accidents. I mean they score your company in the helm, and if you get too many points, the Federal Government can put you basically on... they can shut you down. I mean there has been trucking companies shut down because they get too many CSA points-

DOUG MASON

It's unsafe practice basically, right?

DAVE WALTERS

Unsafe practices, and it can be with your drivers, can be with your equipment, it can be accidents. So, why is it so important to pass the CS... the CVSA inspections. Well one is how much time they take, they give you a little sticker if you pass-

DOUG MASON

Three months, right?

DAVE WALTERS

Three months.

DOUG MASON

You have three months. Yeah.

DAVE WALTERS

So, for three months you don't get inspected again. But every time that a truck stops and they do one of these inspections, you're losing time because your truck's sitting there. So, it's very important but the CSA scores are gigantic in our industry and everybody says it affects your insurance rates. [crosstalk 00:04:53] It affects so many things. So, you got to have safe drivers, safe equipment, accident free, the insurance companies look at that. I mean it has really become a focal point of the industry. The one fleet maintenance director said, "Hey, if you don't keep in mind CSA scores, you're not going to be employed very long in this industry."

MIKE YAGLEY

So, let's take a little bit of time. We've talked a little bit about the CVSA auto service and you mentioned red tagging, and that's when you get an out of service notice, where your vehicle has been red tagged. It won't be allowed to move until you fix whatever it is that they've found. Now, what is it that drives a red... is there a standard that you hear... when you're at those meetings and they're... what are they looking for to determine whether something's going to be a red tag or not?

DOUG MASON

Yeah. Before you get into that, I think we need to again focus on how important... some people might be out there thinking, well I've never had any issue with this and really how big of a deal is it? I drive for a safe company or things go well. We do our pre-trip inspections and we really shouldn't have any concern. To show how important this is, CVSA has a, I'll call it a blitz every year, and they do a three-day event throughout Canada and the United States. Just as an example, from last year in June of 2019, they looked at about 68000 vehicles over those three days. Out of that, there were 18% of the vehicles that were put out of service. They couldn't [Crosstalk 00:06:31].

MIKE YEAGLEY

Red tagged.

DOUG MASON

They were red tagged.

MIKE YAGLEY

They were red tagged.

DOUG MASON

They could not drive them. 18%. I mean if that's a cross section of the country, there's a lot of people out there that really should take note at how they are maintaining their vehicle or their driver records because there're more things obviously that can put you out of service than just your truck. So, it's a big deal. The other thing behind that is our show, we're talking about tires and wheels primarily here and wheel ends, of those 18% that were put out of service, the top three were brake systems at 28%. Tire and wheels at 19%, and brake adjusters, just brake adjusters by themselves, 17%. So over 55% of all the vehicles put out of service were because of brakes, tires or wheels. That's a big deal.

MIKE YAGLEY

So, let's talk a little bit when the... when they... for that 18%, the 18% of vehicles that were pulled over and red tagged, what is the standard that they're looking at there?

DAVE WALTERS

Well, it's really... I'll start with wheels. Any crack that is three inches longer, three inches or longer.

MIKE YAGLEY

So, I think they call that an imminent failure.

DAVE WALTERS

That would be an imminent failure. In other words, any crack over three inches, they're basically saying that that should be addressed at that time. So that's a red tag. That's passed the violation.

MIKE YAGLEY

So, an imminent failure-

DOUG MASON

Yeah, and just as it's defined by them, it would be likely to cause a crash or a breakdown. It's really what they're looking for. They consider it a safety concern. That's, again, the difference between a violation and an out of service. It could likely to cause a crash or breakdown would be the terminology they would use.

MIKE YAGLEY

So, there's... really there're several levels here that I'm going to... we're going to try and untangle this because we're... we have first of all and we have on the state level they have violations. So, you can have all sorts of different violations, not enough threads showing, you don't have enough thread engagement [crosstalk 00:08:38].

DOUG MASON

Yeah, you can still drive, you can still finish your load.

MIKE YAGLEY

Some thread... Some states are looking for two threads, some states are looking for one thread, there's going to be different rules on certain things and those are the violations, and those are going to be state by state. Then you have these tag situations. The CVSA out of service and everybody agrees on those things. The red tags are those things that are likely to cause a crash or a breakdown. There's another level that I think we need to sort of fold into this discussion, and that's manufacturer's recommendations. So, if you go and you download... you go online and you go to any wheel manufacturers website, and you download their manufacturer... the manufacturer... the wheel manufacturers or the tire manufacturers guidelines for safety, for their recommendation [crosstalk 00:00:09:32].

DOUG MASON

The service manual type stuff, yeah.

MIKE YAGLEY

Service manuals. That's going to be another level of recommendations. That's going to be what we would as industry experts, that's where we would draw the line. So, and we'll be talking about at least those two. We'll be talking about where the industry stands, from a manufacturer's recommendations, when we go through this. Then we'll also be talking about the CVSA and you'll be able to see, I think as we go through this, the difference between those two, and really... and maybe we can get into a little bit of discussion on... and I think they're very serious when they say this is likely to cause a crash or a breakdown. I think that's a really good way to put it because if I... you mentioned Dave, a three-inch crack, that is way more than Alcoa wheels would advocate for.

DOUG MASON

Yeah. We'd recommend, obviously we'll talk about it more, but if you see any crack in the wheel, then you should take it out of service.

DAVE WALTERS

Yes. Again, it's very difficult to understand that at CVSA, what happens is these fleets that get these tickets or violations, red tags you really can't argue, violations you can. So, you can appeal them, and so our two meetings of the year is literally sitting in a room looking at hundreds of violations...

DAVE WALTERS

Room, looking at hundreds of violations. Giving our opinions. Is that a violation or is that not a violation and why?

MIKE YAGLEY

So, the fleets are coming in and they're pleading their case?

DAVE WALTERS

They're pleading their case and then we're sitting there as vendors saying, "That's not that bad." And that the inspectors are saying, "This is what I got." And then they can say, "Well my state that's not, and this is what we do." So, I mean it's meetings to try to make this system better because this is a touchy subject, especially when you throw in the CVSA scores, which are critical to our industry. I mean they really are. Safety violations on your equipment, on your drivers, accidents, our insurance rates, all this matters now. And it used to not, but it does now.

MIKE YAGLEY

And that's a good thing for the overall industry, because it's always good for us to be safe as an industry.

DAVE WALTERS

And most of the industry, I am so privileged to work with like DMC where you have great fleets, that this is not a big issue because they go a step above. But there are many other fleets out there that are not a step above and safety criteria; we all want to drive down the highway without having issues, and this is what they're about. So, you know there are a needed group of people, and we try to work through all the issues to make it even better. So, when we start talking about out of service criteria and red tags, the next one would be, any two holes. So, like from a bolt hole to a handhold, if you got a crack that extends to any two holes in the wheel that's out of service, that truck is going to be red tagged. I mean if you have a –

MIKE YAGLEY

So, you're looking at a wheel, you've got, let's say a typical wheel on a, on a class eight truck, it's going to have 10 handholds and 10 bolt holes. And so, if you have a crack that propagates from one handhold to another, well that's going to be over three inches anyway. Or if you have one that goes from bolt hole to bolt hole, then that's again, even if it's not three inches, you're still talking about out of service. And so, then we have, is there anything like –

DAVE WALTERS

Yeah. Two more cracks on any wheel is a red tag. That's an out of service.

MIKE YAGLEY

And you'll see that sometimes, right? We'll see where a crack will start on one side, imagine a handhold, which is the vent hole, in automotive world, they call that a vent hole, but when you look at the wheel and you have that handhold there on the wheel and you'll sometimes see a crack grow at the two o'clock position on that handle, and then you'll also see a second one growing on the 10 o'clock position on that handhold, and now you've got problem. I mean having a small crack on one side, from a manufacturer standpoint, any crack is, "Get that thing out of service. It's time to," especially on aluminum wheels, 10 cracks tend to propagate pretty slowly, but once you see them you need to get them out.

DOUG MASON

I mean because obviously any load bearing section is designed with a certain cross section, and if you start to put a crack into that cross section, obviously it's going to be weaker than it was originally designed, so that we will continue to propagate that crack. And that's why we would want you to inspect and take that out of service as soon as it is seen.

MIKE YAGLEY

And what that three-inch criteria are telling you is that this is a crack that has gone unnoticed for way too long. And so, if I was an inspector, I would be looking at that and I would say, "Well this is not just telling me that they have a crack. It tells me that you have a crack and they're not looking at it very often." And so that's part of the reason it gets bumped up to another level of this red tagging.

DAVE WALTERS

Now, one of the criteria that we probably get a lot about: welding on any wheel. Now, steel wheels are allowed to be welded from the manufacturers where they weld the disc into the –

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DOUG MASON

Drop center.

MIKE YEAGLEY

But that's only when the manufacturer –

DAVE WALTERS

Only when the manufacturer, so every time these guys would come in and say, "Well, I'm allowed to weld steel wheels." No, you're not allowed to weld steel wheels. A manufacturer is allowed to put a weld and the steel wheel to put theirs. So being an aluminum wheel manufacturer as ELKO wheels are, we're allowed to basically say, "You're never allowed to weld on our wheels," because it is a CVSA out of service. And that means it is not going to move.

DOUG MASON

Yeah. Just as another note on that welding on an aluminum wheel, our wheels are, this is another episode; they're heat treatable, ageable and so when you put heat into it, you're changing the properties of that wheel. And we talked about wheels that get heated up on a previous show and it'd be the same instance; when you're welding on an aluminum wheel, you're going to change the properties that were intended for the wheel and reduce the strength of the wheel overall as well.

MIKE YAGLEY

So welding is, like you mentioned, what the CVSA says is, "Any weld, any cracks and welds attaching the desk wheel to the rim, that's going to be a steel wheel thing." And if there's a crack in that weld, that's what they're going to be looking for. Any crack in the welds attaching the tubeless demountable rim to the adapter, that you don't see so much anymore. There's not a lot of demountable rims out on the road anymore. But it's still there. And then, the number three one that they list here is, "Any welded repair on an aluminum wheel on the steering axle," which I'm sort of surprised that they specify the steering axle there.

DAVE WALTERS

Again, you got to realize steer axles are treated differently in our industry. And as a vendor, that's hard to say, but as an industry, it is treated differently. So, when you go to these major fleets, if they have no crack wheels on steer axles and all that, they feel a lot more comfortable where duals are kind of accepted. And so CVSAs basically writes these criteria to say, "Steer axles is different." And if you weld on a steer axle, it's like they used to have a rule where you are not allowed to run retreads on steer axles. Well now they allow you to run retreads, but not if you're hauling people. So, buses are not allowed to have retreads on the front. And so, these criteria, will change, but it takes a long time. These meetings are a lot of different ideas, a lot of different subjects.

DAVE WALTERS

And it's funny because our last meeting we talked about the next one that I would like to talk about out of service is studs. And they're saying, "Okay, if you have one broken stud, why don't we take that out of service?" Us vendors are all in favor of that. But the fleet guys in the rooms like, "Oh no, we can have two broken studs and it's not a"... So those are the issues, you know, one broken stud to me, I don't want to have that truck running down the road.

DOUG MASON

There's a situation in place if you've got a broken stud; there's something going on that needs to be looked at.

DAVE WALTERS

Yes.

MIKE YAGLEY

So, if you go and read the CVSA standard, what it's going to say about studs, it's going to say: they're looking for loose, missing, broken, cracked, or stripped studs. On a 10-fastener system, if there's three loose, missing, broken, cracked, or stripped, three anywhere on that system or two adjacent. And if you have an eight-fastener system, an eight-bolt hole system, it's two anywhere.

MIKE YAGLEY

So those are things that at least from a manufacturer, with our understanding of the industry, with our understanding of the way our product works and the way our wheel is held onto that vehicle; this is truly an out of service condition. Again, I really like their terminology, "Likely to cause a crash or a breakdown," because once you start seeing that level of three fasteners, anywhere on a 10 stud system or two adjacent on a 10 stud system, you really are in that, "Likely to cause a crash or breakdown," situation. And that's one that there's obviously, the industry, the manufacturing side of CVSA is trying to push for something that's going to be a little bit more rigorous. But that's still in negotiations.

DOUG MASON

Well there's still and it goes along with the fasteners too, but it really has to do with the wheel. And there's another interesting out of service condition that they will have, and it has to do with the stud holes on disk wheels. I mean you can get, "An elongated stud holes," they call it, and how are you going to get that elongation? Well obviously something is loose and there's a problem. We've talked about that in the last show about the importance of ensuring that you have the proper torque and obviously the tension. When you lose that and the wheel can start moving, you'll start elongating that hole and that's a potential for a wheel off. So another very serious safety situation that the CVSA inspector is going to look and you may have all of the studs and all of the nuts in place, but if they can see that you've got elongated bolt holes, you're going to be put out of service as well.

MIKE YAGLEY

Right, that's telling them that that wheel has been sort of torqueing back and forth and hitting up against that stud and elongating and that's been almost cold worked as the bolt hits one side and then hits the other side and then you've got this elongated stud that's very serious issue from our standpoint. Again, we keep coming back to the manufacturer's recommendations, which is the next level up. CVSA red tag, is going to be the lowest level. But if you want to avoid those red tag situations, go to the manufacturer's recommendations and that will keep you out of trouble. That'll keep you out of that hot water.

DAVE WALTERS

Yeah, I mean, rust streaks is something that's -

MIKE YAGLEY

... keep you out of that hot water.

DAVE WALTERS

Yeah. I mean, rust streaks is something that CVSA inspectors look for. Rust streaks emanating out of the stud holes indicate that there's looseness so they can violate you for that. And people, "Well, I didn't paint that wheel, I didn't clean the wheel." Well, they don't know that. They are looking for signs of safety issues and a violation can be rust streaks and so we'll discuss that at these meetings and it is absolutely true.

DAVE WALTERS

But you try to tell the fleets, paint your wheel or clean them up or after you fixed that because the next violation, that poor inspector doesn't know. He's just looking at trucks saying, "That could be a danger and I'm going to write a violation."

MIKE YAGLEY

What's the data in front of me? I see rust streaks. I don't know when that was done, when it was fixed. You've got a problem.

DAVE WALTERS

Yes.

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DOUG MASON

Maybe this may be a good point. And I know most fleets and obviously good fleets have a very good pre-trip inspection that they require of the driver or someone else to do on that vehicle before it goes out on the road. And I think the point for the CVSA is if you're doing your pre-trip inspections, you're going to find these situations before that vehicle ever leaves the lot, because in one day of driving or whatever, not one of these situations is just going to automatically occur.

DOUG MASON

Like you were saying, if you've got a three-inch crack that's been going for a while and there's a reason why it's been going for a while is because it hasn't been looked at and it should have been taken out of service before. That particular wheel should have been taken out of service before it ever got to that point where you've got an outer service for the truck.

DAVE WALTERS

Yeah. And I'll mention this, and this is always been a subject. What if you have the center caps and stuff on your wheels? CVSA, they have no tools except a tape measure. They have zero tools. They're not there to remove center caps, aerodynamic covers or anything. So, they will not give you a sticker, but the driver of that vehicle can remove those and then they can inspect them. But the driver's responsible for putting them back on. So, when you first hear these rolls you go, "Wow, that's..." No, but that's the only way they are equipped with a tape measure.

DOUG MASON

Well, you brought up an interesting, I just got a question for you as we're sitting here. He won't give you a sticker. So, they go to do your inspection and they can't do a portion, it's like a 37-step inspection they do, if I remember it properly. If they can't do all of that, then you don't get the sticker.

DAVE WALTERS

You don't get the sticker. So, you could be pulled off down the next plays by another DOT or another CVSA inspection and you're going through it all again.

MIKE YAGLEY

You could be on the regular rotation for CVSA.

DAVE WALTERS

And, again, this is just at these CVSA meetings, is this kind of one of the better stories I ever heard an inspector say, basically said this, he said, "After a while, we know which fleets that we are going to get zero violations on." So, as we wave trucks through the CVSA inspection site, guess which trucks are going to get pulled over? The ones that they've had issues with before and it is the way the world works. That guy doesn't want to do a 37 inspection on a truck that they know they're going to be nothing wrong with. They'd rather do the 37-step inspection on a truck that, "Hey, we've had trouble before."

DAVE WALTERS

And they're like, "Well, their profiling." No, they kind of understand that there are certain fleets. And the fleets are proud of it, we've never had a truck red tagged, we've never had a service violation. They're proud. Those are the great CSA scores because they have good equipment, their drivers are great. Those are good things for fleet. And they're very proud of that. And they should be because they took the step above, these are the standards that we want to take your truck off the road. They're saying, "We're so far above that if we get a violation as a maintenance director, this is a bad mark."

MIKE YAGLEY

And that gets us back to the manufacturer's recommendations. Those fleets that are being waved through, they get to save that time. They get to save that money. Their insurance rates are lower. There's a lot of money and they made a business decision to do that maintenance to the manufacturer's recommendations. And it's all about money. It's all about money. And it's just smart business to really drive to the manufacturer's recommendations.

MIKE YAGLEY

There's a couple of other things, we're going to be wrapping up quick, but on hubs, there's a couple of things that they have there. When any axle bearing hub cap is missing or broken, allowing an open view into the hub assembly, that as a CVSA red tag situation. Smoking from the wheel hub assembly due to bearing failure is another one. Not to be associated with smoke from a dragging break. Which I'm sort of surprised they allow that but that's not for me to comment on I guess.

DOUG MASON

Well, they'll take a look at the breaks [crosstalk 00:27:27] remember the top three things are brakes, tires and wheels and brakes.

MIKE YAGLEY

So, and then they go back to the demountable where they have the lock or the side ring, bent, broken, cracked and properly seated spring or mismatched ring. And that pretty much wraps it up for the CVSA red tag.

DOUG MASON

Just a question for Dave. I mean, you interact with a lot of fleets, obviously. And TMC, there's a lot of fleets that come to TMC, and there seems to be a lot of engagement with the fleets and CVSA. And what's your experience been with the fleets that you go to? I mean, like you said, they're proud of what they've done. They're working hard toward keeping it safe on the road. And what would you say to fleets who really don't know a whole lot about this right now?

DAVE WALTERS

You know, the great thing about the world that we live in today, if you want to know more, TMC is a great organization to get you started. We write recommended practices for the industry. You don't want to get to the CVSA where you're putting trucks out of service and stuff. Each manufacturer vendors, we got service manuals, today you can learn anything on YouTube videos and TMC's looking now into doing YouTube videos to show the recommended practices of stuff. I mean, the world is changing at a rapid pace. Service manuals, we all have service manuals.

DOUG MASON

And they're all online now.

DAVE WALTERS

And they're all online. So I mean, there's a great amount of information to say, "Hey, I don't want to be the guy being red tagged. I don't want to be riding unsafe equipment." And again, the CSA has really put the focus. What's your insurance rate? Are you going to be insurable? As a driver did you have too many safety violations? When you brought up the pre trips, the pre trips are critical and to walk around and inspect the areas of that truck before you get into drive it.

DAVE WALTERS

I mean, those are critical and if it's not, tell your company, "Hey, I noticed this and this and that. Should I drive? Where should I take it to get it fixed?" So we all want to have safety and so CVSA is not a bad group of people. They're out there trying to protect your family, my family and everybody from safety of these.

DOUG MASON

These are big vehicles.

DAVE WALTERS

These are big vehicles.

DOUG MASON

These are big, big vehicles driving down the road.



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MIKE YAGLEY

Well, just to wrap up, some of the things we talked about was wheel cracks, disc wheel, cracks of three inches. If a crack goes between two holes or if there's two or more cracks anywhere on the wheel. We talked a little bit about fasteners, if there's three missing, broken, cracked, stripped or loose fasteners anywhere on a 10 hand hold down bolt hole wheel, or two adjacent. And then if it's an eight fastener system, if there's two anywhere.

MIKE YAGLEY

We talked a little bit about stud holes and the elongation and when you have movement, when maybe if you put lubricant on the hub or on the mounting face of the wheel, you're going to get that movement there that we talked about in that first episode, and that's going to cause those elongated stud holes. We talked a little bit about welds and then some of the multi-piece wheel issues and hubs.

MIKE YAGLEY

I think that wraps it up for this episode of Behind the Wheel. If you'd like to contact us with any questions, comments or suggestions for future episodes, you can write us at Alcoa Wheels, at arconic.com.

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