

NOx Conversion / DPF Ash Volume



[Ericka Natali](#) 34 posts since May 14, 2015

NOx Conversion / DPF Ash Volume Apr 6, 2020 11:37 AM

Good Morning!

I hope everyone is healthy in the land of DTNA Solutions!

We had Vin FM7189 DD15GHG14 come in on Friday with active faults

3226/2 Outlet NOx drift 3216/31 Inlet NOx drift 4364/1 & 18 NOx conversion efficiency low / very low & 3 regulatory faults. Tech went through the troubleshooting, software levels in spec, replaced required sensors and performed multiple regens as required. All faults cleared, except 3 active regulatory. At no point was there a fault for DPF ash accumulation / maintenance. Troubleshooting does not direct tech to check filter %, checked just to see what level was at and found 95% full. Just before unit was shut down active fault 5397/31 regen too often popped up. Anyone know what may cause the fault to not show up? Just curious if anyone else is running in to this.



[Jon Cecil](#) 881 posts since Nov 25, 2014

Re: NOx Conversion / DPF Ash Volume Apr 6, 2020 2:07 PM

5397/31 may have become present because of multiple regens being done. If the unit is having regen issues or not, I would reference [SS 469443 Successful Regen Reference for GHG14 DD Engines](#). Was there any soot in the outlet pipe of the one box?



[Ericka Natali](#) 34 posts since May 14, 2015

Re: NOx Conversion / DPF Ash Volume Apr 10, 2020 12:01 PM

No there wasn't - See addition to the this post below



[James McFadden](#) 157 posts since Dec 9, 2014

Re: NOx Conversion / DPF Ash Volume Apr 6, 2020 2:15 PM

a fault for dpf ash clean request will become active when its 100% full. I have had this issue multiple times to find out that the dpf was at the end of service life and needed replaced with a clean reman . nox conversion can be affected by a multitude of things this being one of them . the problem is t/s don't lead that direction . its a good guide but not always the fix. also when the dpf are end of life and is actually full of ash and soot I have found soot passing dpf due to cracks in substrate from unintentional ignition of soot and have had very high temps at dpf outlet .. "codes in acm" then the soot passes into scr system and by then its to late .



[Scott Trippel](#) 3,990 posts since Dec 13, 2014

Re: NOx Conversion / DPF Ash Volume Jul 6, 2020 1:31 PM

No idea why this happens Erika?

NOx Conversion / DPF Ash Volume

I have had other faults pop up as well and not show as logged, I guess we could blame software?



[Ericka Natali](#) 34 posts since May 14, 2015

Re: NOx Conversion / DPF Ash Volume Apr 10, 2020 12:36 PM

Any thoughts Scott?



[Ericka Natali](#) 34 posts since May 14, 2015

Re: NOx Conversion / DPF Ash Volume Apr 10, 2020 12:34 PM

*** UPDATE ***

Vin: FM7189 - Pulled DPFs - questionable fluid staining. More interesting find - Inside bottom of OneBox, 3-4" of white liquid. Pulled sample - No Coolant, No Fuel - Refractometer shows water - No urea. Double checked DEF quality in tank and it is spot on at 32.5%. Let sample from inside OneBox sit overnight - No crystals, water evaporated leaving behind a silky white powder (talcum consistency) OneBox still has 2 - 2.5" of fluid inside this morning. DPFs left wet spots on workbench indicating moisture in filters. Anyone seen this? Thoughts?

Fluid & Moisture in One Box





[Scott Trippel](#) 3,990 posts since Dec 13, 2014

Re: NOx Conversion / DPF Ash Volume Apr 13, 2020 1:49 PM

The fluid looks like oil mixed with water, I think The specified item was not found. has a good question does the fluid feel slippery? I think we are both wondering if the engine is using any oil?

The one we have in the shop here that the DPF and DOC are stained we found injectors failed. On ours though we had over temperature codes for the DOC and DPF.

My feeling on this is when you find the answer it may be something that does not come to mind.

Is there any sign of backwards running engine? So melted intake manifold temp sensor, smell of exhaust in left CAC pipe?

What I also find interesting is your original statements you say the tech performed many regens, I would think any fluid would be cooked out of the 1 box? By this time, maybe [Kyle Siebert](#) has a good point, was the truck in a flood...it is a thought.

When doing a regen is there a lot of steam from the exhaust pipe?



[Kevin Flottmeyer](#) 171 posts since Nov 11, 2014

Re: NOx Conversion / DPF Ash Volume Apr 10, 2020 6:15 PM

Is DEF in the DEF tank cloudy? We had a customer that was storing the DEF in a unheated shop and overtime the DEF became cloudy and was causing issues in the 1 box. I can't remember what the codes were but it was determine that the cloudy DEF was the problem.



[Kyle Siebert](#) 4,084 posts since Nov 14, 2014

Re: NOx Conversion / DPF Ash Volume Apr 10, 2020 7:19 PM

Any chance the truck was parked in like 2 or 3 feet deep of water? You could drain the rear ends a little to see if water has collected in the bottom of them. Those would be the next lowest entry point of water. If there is no hose on the breather, water can get in to the rear end. Seems like water can get in thru the tailpipe and drain hole in the one box. I haven't dealt with flooded trucks with emissions. But I had a fleet of dt466 box trucks that were 4 feet deep in water.

It would make sense that water collected inside would affect SCR efficiency. Plus with the he's source above the water surface it wouldn't evaporate out as quick as one would think as it's a pretty good insulator to the above heat source. I know the drain hole is in the rear but I don't think it would drain in the front section and decomp tube area. I think it just drains in the SCR outlet area.



[Ericka Natali](#) 34 posts since May 14, 2015

Re: NOx Conversion / DPF Ash Volume Apr 17, 2020 5:33 PM

So for the delay in response - It's been a hectic week.

No fluid is not slippery, doesn't crystallize or have a smell. Oil level is in spec, no sign of contamination. When fluid dries, silky talcum like powder is left behind. No over temp codes, No signs of running backwards. No exhaust smell from CAC pipe.

Regens were done during troubleshooting and fault code for regen too frequent went active. No steam or smoke which we also thought was odd after finding the liquid. Seems like it would have burned off during the regens, set an over temp code or cracked filters or DOC. Driver said he had to do 2 parked regens during his journey from FL to NY. As far as flood conditions - I have no idea.



[Kyle Siebert](#) 4,084 posts since Nov 14, 2014

Re: NOx Conversion / DPF Ash Volume Apr 18, 2020 2:16 AM

Its actually not surprising the fluid didn't burn off. Heat rises, so sitting at the bottom of the one box its gonna stay cool. Water is also a good insulator, so hot air above it wont penetrate past a millimeter or 2 below the surface. And no convection currents to carry the water molecules around to heat them all up. That's why boiling water in a pot is so effective. Heating the bottom of the pot, the hot water molecules rise up and the cold ones fall down. Now if there was water in the DOC inlet chamber, that would be shocking as the air under it is being heated by the SCR inlet gasses underneath it.



[Donald Warman](#) 2 posts since Nov 7, 2018

Re: NOx Conversion / DPF Ash Volume Jul 5, 2020 3:18 AM

I think the dpf filters are an unglazed ceramic, if they were submerged in water for a time then allowed to drain the ceramic itself would be saturated. When heated during a regen it would brake down this could explain the white talcum like powder you found. run a light box and air flow test on them if you have access to a cleaning station.



[Serge Grandmont](#) 41 posts since Jan 22, 2015

Re: NOx Conversion / DPF Ash Volume Nov 13, 2020 2:09 AM

Have you checked with a inspection camera if you have white dust in bottom of def tank.... we have a couple units in the past with white dust or some kind of paste. def pump filter was plugged up with it. def test strip would not pick it up. Still don't know what that stuff is today. If you have this, please update me