



Product Testing and Documentation Using EPA's Reasonable Basis Method Device Type: Front Pipe w/G-Sport Catalyst

Created 9/20/2022, Updated 2/28/2024

Part Numbers: PSP-EXT-232 Front Pipe with G-Sport Catalyst

Vehicle Fitments: 2022-2024 Subaru WRX

Quick overview of reasonable basis: We have determined, using a reasonable basis, that this product complies with EPA's Anti-Tampering Policy and does not have an adverse effect on emissions when installed and used properly in the applications identified and may be installed and driven on public roads and highways. However, this part does not have approval for use in California and cannot legally be used on vehicles in California and may be subject to penalty under California laws.

Is this an emissions control device or direct replacement part? The PERRIN Front Pipe with Catalyst is a direct replacement of the OEM exhaust section. While this is considered an emissions control device (as the original part contains a catalytic converter), the PERRIN Front Pipe with Catalyst does not defeat or reduce the tail pipe emissions, nor cause any check engine lights.

Does this part include, remove, move any emissions related sensors? No. There are no sensors removed or moved to install this part.

Does this part defeat or render inoperable any emissions control device? No. Since this part replaces an OEM catalytic converter with a G-Sport by GESi brand, EPA approved catalytic converter, it does not defeat or render inoperable the function of the secondary catalyst. Furthermore, installing the PERRIN Front Pipe with Catalyst, maintains all readiness monitors and are still set to "ready", and function as the OEM intended.

Is an ECU recalibration required and does the calibration turn off the emissions control system? No ECU recalibration is required. All normal operating systems and diagnostic systems continue to function as they were designed.

Can this part be CARB approved? We consulted with SEMA Garage and other CARB certified test labs and this part can be CARB approved. The testing for this is an OEM level kind of test and is extremely cost prohibitive. We will continue with exploring getting this CARB approved as time goes by as the cost to do this continues to drop over time. We will continue to market the product to all "Non-CARB states" and follow the proper CARB note "California not legal for use on public highway..." for California consumers.

Are there existing EO numbers for this kind of part for this vehicle? There is no EO number for this specific Subaru part at this time. We do expect to see companies CARB approve parts similar to this in the future as there are other parts offered for older Subaru models that are CARB approved.

How is this part being marketed? This part is marketed as a cost-effective OEM replacement as well as an easy way to improve engine response and increase airflow from the engine without any negative changes to tailpipe emissions.

OEM part design: The OEM Front Pipe with catalyst is a single exhaust section made from 2.25" OD tubing, with flanges on either end, a single catalyst and Helmholtz chamber at the rear. The OEM exhaust pipe does not have any sensors mounted to it, and there are no sensors mounted further down the remaining exhaust system.

PERRIN part design: The PERRIN Front Pipe with Catalyst is just like the OEM part but with four main changes. The OEM 2.25" tubing is replaced with 3.0" tubing, the part is constructed of 3 pieces (to allow for easier packaging), the Helmholtz Chamber is removed, and the catalyst is replaced with an EPA approved G-Sport by GESi brand catalyst (PN50230) that is designed for OBD2 vehicles.

Catalyst design: Global Emissions Systems Inc (GESi) was contacted in early December of 2022 to provide us with direct pricing information along with providing us with guidance as to which model of their G-Sport converters was certified for use in this application. The converter provided is an EPA approved catalyst (HPPL00045) designed specifically for OEM replacement applications. GESi provided all proper documentation showing the independent testing results and EPA documentation (4-page document attached below.) This information is publicly available on their website to all users and installers. While the OEM type G-Sport by GESi part number we are using may not currently appear on the retail G-Sport by GESi website, the EPA approval number is stamped on the side, is cross referenced below and matches the other part numbers offered on their website.

Testing: In August of 2022 we tested our prototype of this part (using the off the shelf G-Sport by GESi part number) on our chassis dyno. We found that on a stock car with stock ECU calibration that our PERRIN Front Pipe with Catalyst gained about 10 HP. After the initial testing, the part was installed on the car for roughly 5 months for further testing (roughly 4500 miles). During this time, no DTC (diagnostic trouble codes) were set, and all systems readiness monitors were still showing as ready and functioning. During this time, fuel economy was better (24MPG to 26MPG) and the car drove smoother. Early in 2023, GESi suggested a newer part number for our application. Further testing was done with the new part for roughly 3 months (roughly 4500 miles) with the same results found. No check engine lights or any other changes to how the car drove.

Additional testing has been conducted using the available CARB Approved ECU calibrations (offered by Cobb Tuning). Testing continued to reflect the same results.

Update 02/02/2024

Testing of the same part has been ongoing since 8/22/2023 using a future PERRIN upgrade turbo kit (a kit designed to also meet the EPA's reasonable basis). Testing has continued to reflect the same results as before. 11/1/2023 another high performing G-Sport by GESi catalytic converter (one that was recommended to us, HPPL00069) was installed into the PERRIN Front Pipe. This catalyst is also an EPA approved part number and is contained in the EPA test letter below. While this cat has a higher cost, and functions just the same, at this time we are not going to use this in our part number PSP-EXT-232.

Update 02/28/2024

The product name has been changed from Rear J-pipe section to Front Pipe with Catalyst and Front Pipe with G-Sport Catalyst where appropriate.

Conclusion: We have determined, using a reasonable basis, that this product complies with EPA's Anti-Tampering Policy and does not have an adverse effect on emissions when installed and used properly in the applications identified and may be installed and driven on public roads and highways. However, this part does not have approval for use in California and cannot legally be used on vehicles in California and may be subject to penalty under California laws.

Report Created by
Jeff Perrin // Research & Development // PERRIN Performance
503.693.1702 Ext 1015 // PERRIN.com

April 1, 2020

To Whom It May Concern;

Re: United States Environmental Protection Agency (US EPA) Aftermarket Three Way Catalytic Converters as per 40 CFR85 Part V Appendix IX

In July 2011, Global Emissions Systems Inc., conducted testing at Automotive Testing & Development Services (ATDS) located in Ontario California on their 38809 and 38890 series of aftermarket three way catalytic converters. These metallic substrates measured 3.88" diameter x 3.5" long and were coated with their proprietary chemistry of platinum group metals (PGM). The substrates were aged for 53 hours utilizing the generic 4-mode RAT-B aging cycle and then were FTP-75 tested on a 1995 5.9L Dodge Ram 1500 pickup truck equipped with these aftermarket three way catalysts at an equivalent test weight (ETW) of 6875 pounds.

These catalytic converters are for aftermarket installations on vehicles equipped only with three way catalysts on non-ODBill and ODBII vehicles in all states except California. The maximum application limit for a single unit of either 38809 or 38890 series is a 5.9L engine displacement and 6875 pounds of gross vehicle weight. For larger displacements or larger ETW, more than one unit of the 38809 or 38890 series is required.

The summary of the FTP-75 testing for the 38809 and 38890 series is as follows:

| % Conversion of Specific Exhaust Emission | Average of 3880 series three-way catalysts, two units tested | Federal Regulation Requirement |
|-------------------------------------------|--------------------------------------------------------------|--------------------------------|
| HC | 77% | 70% |
| CO | 78% | 70% |
| NOx | 60% | 30% |

In September 2011, Global Emissions Systems Inc., conducted the exact same aging and FTP-75 testing on the same 1995 5.9L Dodge Ram pickup using their 43809 and 43890 series of aftermarket three-way catalytic converters. These metallic substrates measured 4.38" diameter x 3.5" long and were coated with their proprietary chemistry of platinum group metals (PGM).

These converters are for aftermarket installations on vehicles equipped only with three way catalysts on non-ODBill and ODBII vehicles in all states except California. The maximum application limit for a single unit of either 43809 or 43890 series is a 5.9L engine displacement and 6875 pounds of gross vehicle weight. For larger displacements or larger ETW, more than one unit of the 43809 or 43890 series is required.

The summary of the FTP-75 testing for the 43809 and 43890 series is as follows;

| % Conversion of Specific Exhaust Emission | Average of 4380 series three-way catalysts, two units tested | Federal Regulation Requirement |
|-------------------------------------------|--------------------------------------------------------------|--------------------------------|
| HC | 82% | 70% |
| CO | 70% | 70% |
| NO _x | 89% | 30% |

ATDS conducted all exhaust emission testing in strict accordance with CFR 40 Part 86. After submitting these testing reports to the United States Environmental Protection Agency, Compliance and Innovative Strategies Division, Global Emissions Systems Inc., was assigned a US EPA manufacturers code "GBL" and Global Emissions Systems Inc., is required to mark each 38809, 38890, 43809 and 43890 series of aftermarket three way catalysts with the following marking:

N/GBL/YYYY/ZZZZ

Where N= New, YYYY= part number and ZZZZ = month and year of manufacture.

The 38809, 38890, 43809 and 43890 series of after market catalytic converters are as follows;

| Series # | Part # | Metallic Substrate Specifications |
|----------|--------|---------------------------------------------------------------|
| 38809 | 3880 | 3.88" x 3.5" metallic substrate 300CPSI 4.0" x 4.0" SS mantle |
| 38990 | 3890 | 3.88" x 3.5" metallic substrate 300CPSI 4.0" x 4.0" SS mantle |
| 43809 | 4380 | 4.38" x 3.5" metallic substrate 300CPSI 4.5" x 4.0" SS mantle |
| 43890 | 4389 | 4.38" x 3.5" metallic substrate 300CPSI 4.5" x 4.0" SS mantle |

In 2019, Global Emissions Systems Inc., developed, designed and manufactured five (5) enhanced versions of the 3889 and 4389 series of aftermarket catalytic converters as follows:

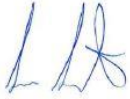
| Series # | Part # | Metallic Substrate Specifications |
|----------|--------|---------------------------------------------------------------|
| 38863 | 3863 | 3.88" x 3.5" metallic substrate 400CPSI 4.0" x 4.0" SS mantle |
| 38864 | 3864 | 3.88" x 4.0" metallic substrate 400CPSI 4.0" x 4.5" SS mantle |
| 43863 | 4363 | 4.38" x 3.5" metallic substrate 400CPSI 4.5" x 4.0" SS mantle |
| 48863 | 4863 | 4.88" x 3.5" metallic substrate 400CPSI 5.0" x 4.0" SS mantle |
| 58863 | 5863 | 5.88" x 3.5" metallic substrate 400CPSI 6.0" x 4.0" SS mantle |

Each of these new series of aftermarket catalytic converters have been coated with greater amounts of our proprietary chemistry of platinum group metals (PGM) used on the 38890 and 43890 series and the substrates used are 400cps. The combination of additional wash coat and greater surface area from the 400cps substrate results in the emission efficiency of these new series being equal to or greater than the 33890 and 43890 series and therefore would meet or exceed the regulations detailed in 40CFR Part 85. Our own internal lab and infield testing has verified this level of emission efficiency.

In early 2020, Global Emissions Systems Inc., formally requested that the US EPA allow Global Emissions Systems Inc., to use the same US EPA manufacturers code for the new series of after market catalytic converters and submitted the new part numbers and this request was not denied. Consequently, the Series # 38863, 38864, 43863, 48863 and 58863 are all deemed to meet or exceed the regulations detailed in 40CFR Part 85.

Global Emissions Systems Inc., pride ourselves on designing and manufacturing the highest quality emission control technologies and best performing catalytic converters for all ranges of automotive applications. The design and performance characteristics of our catalytic converters adhere to the regulatory requirements in North America and all future development of new technologies will be within this same framework.

Sincerely,



Eric Latino
President and CEO
G-Sport Emissions Systems - a division of Global Emissions Systems Inc.

