

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
AIR AND RADIATION

WHAT YOU SHOULD KNOW ABOUT USING, INSTALLING, OR
BUYING AFTERMARKET CATALYTIC CONVERTERS

As of January 1, 1988, all persons engaged in the business of automotive service and repair, as well as other parties named in section 203(a)(3) of the Clean Air Act*, are prohibited from installing or selling aftermarket catalytic converters which have not met the criteria of EPA's interim enforcement policy entitled 'Sale and Use of Aftermarket Catalytic Converters'* (published on August 5, 1986). The installation of non-complying converters by a named party will be considered a violation of section 203(a)(3) of the Clean Air Act, and the violator may be subject to a civil penalty of up to \$25,000 for each improper installation.

EPA's aftermarket converter policy also requires installers to maintain certain records pertaining to the aftermarket converters they install.

This fact sheet has been prepared by the EPA to explain the aftermarket converter policy and to answer questions you are likely to have. If you need any further information about this policy, please call EPA at (202) 564-9240. If you have a complaint about someone who may have violated these requirements, please call (202) 564-1032 or (202) 564-1033.

(1) Why are there special requirements for aftermarket converters?

The catalytic converter is the most important pollution control device on a vehicle. Catalytic converters have been installed on most 1975 and newer passenger cars and light-duty trucks by the manufacturers to reduce exhaust emissions and allow the vehicles to meet Federal standards. The original converters are designed to last the life of properly tuned and maintained vehicles. Some vehicles have not been properly tuned and maintained, however, and their converters have been ruined or even removed. If the vehicle is out of warranty, the price of a new original equipment converter (or set of converters) could cost anywhere from \$300 to \$1,000. Because of this problem and the sometimes scarce availability of the new original equipment converters, EPA believes that less expensive yet still effective aftermarket converters give vehicle owners more incentive to replace their worn-out converters, keeping our air cleaner.

Since the effectiveness of converters depends on their durability, performance, and proper application, EPA has required aftermarket converters to meet certain minimum performance standards while also requiring installers to install the appropriate converters. These requirements make

* The 1990 Amendments to the Clean Air Act expanded this prohibition to "any person" and not just individuals in the service and repair industry.

everyone 'play by the same rules' while maximizing the air quality benefits obtained. The policy contains other warranty, reporting and record keeping requirements which make it possible for EPA to enforce the requirements and ensure that the customers get what they pay for.

(2) When did the requirements take effect?

The policy itself was effective when it was published on August 5, 1986. Converters manufactured or re-manufactured after December 18, 1986, were required to meet the standards imposed by EPA. As of January 1, 1988, only converters meeting the requirements can be sold and installed.

(3) How do aftermarket converters differ?

There are two categories of aftermarket converters: new and used. New universal converters usually cover a wide variety of vehicles within certain limits. Used converters are usually "reconditioned" OE converters, and can only be installed on the type of vehicle or vehicles for which they were originally intended. New converters are required to have warranties, but used converters are not.

Both new and used converters can be one of 3 general types: oxidation converters, three-way converters, and three-way-plus-oxidation converters. Oxidation converters are the early generation of converters that were designed to reduce hydrocarbons (HC) and carbon monoxide (CO). Oxidation converters usually contain platinum and/or palladium. In 1980 or 1981 (earlier on some California vehicles) most vehicle manufacturers began using converters which were designed to reduce nitrogen oxides (NOx) in addition to HC and CO. Along with these converters, computer control systems and oxygen sensors were also usually employed to precisely control the air to fuel (A/F) ratio and mixture controls. These converters are referred to as three-way converters (TWC) and usually contain the additional noble metal rhodium.

Some converters have a three-way and an oxidation catalyst together in one housing or "can" and are called three-way-plus-oxidation (TW + OC) or dual-bed converters. These converters have air injected between the two sections to help the two different chemical reactions occur. (Three-way catalysts require a slightly richer mixture while the oxidation converter requires a lean-mixture, hence air is injected after the three-way "bed" and before the oxidation "bed".)

It is important to install the correct converter type for it to operate effectively and not adversely affect the performance of the vehicle or its emission control systems.

(4) How can I tell if an aftermarket converter meets EPA requirements?

Any converter which meets EPA requirements must be properly labeled and warranted to meet Federal durability and performance standards. New aftermarket converters are required to have a 5 year/50,000 mile warranty on the converter shell and end pipes. They are also required to

be warranted to meet EPA's emission performance standards for 25,000 miles when the vehicle is properly used and maintained. Used converters are only required to meet the performance requirements at the time of sale; no additional warranty is required. All manufacturers who meet the requirements also must state that fact in writing. Usually this is stated in the warranty information or application catalog.

Required labels on the converters will have a series of letters and numbers and be in the following format:

N/XX/YYYY/ZZZZ	for new ones
U/XX/YYYY/ZZZZ	for used

where N - indicates a new converter

U - indicates a used converter

XX - is the manufacturer's code issued by EPA

YYYY - is usually a numerical designation of the vehicle application or part number

ZZZZ - is the month and year of manufacture (i.e., "0187" for January 1987)

Note: Converters manufactured for sale in California may have the letters "CA" in place of the "N" or "U". Since California standards are more stringent than EPA's, these converters will also meet EPA requirements.

Many of the trade publications will also carry information about which companies have converters which meet EPA requirements. If you're not sure, you can call EPA at the number listed earlier.

(5) What about using converters from salvage yards or junked cars?

EPA considers it a violation of the policy to install a used converter from a salvage yard or sell it for reuse unless it has been properly tested and labeled. Similarly, it is a violation to install an untested used converter brought in *by* a customer, even if the customer insists that the used converter came off his/her vehicle.

Salvage or junk yards also would be considered liable for causing tampering if they sell converters that have not been tested or do not meet the requirements outlined in the policy and if the converters are subsequently installed by parties named in the Clean Air Act as prohibited from tampering.

(6) When can I install an aftermarket converter?

Generally, there are only 3 situations when you can install an aftermarket converter. They are:

- (1) if the converter is missing from the vehicle when brought in for exhaust system repair; or
- (2) if a State or local inspection program has determined the existing converter has been lead poisoned, damaged, or otherwise needs replacement; or
- (3) if the vehicle is more than 5 years old or has more than 50,000 miles* (8 years/80,000 miles for 1995 and newer vehicles) and a legitimate need for replacement has been established and appropriately documented (e.g., a plugged converter or unrepairable exhaust leaks).

Any other converter replacement must be with a 'certified' or new original equipment (OE) or equivalent converter.

Aftermarket converters subject to the enforcement policy requirements cannot be used for replacement if:

- (1) the existing converter is present and functioning properly; or
- (2) the replacement is under recall or warranty; or
- (3) the vehicle is returning from overseas use.

(7) In general, what are the requirements for manufacturers?

Manufacturers of new converters are required to run two worst-case vehicles with their converters installed for 25,000 miles each and then conduct testing. The testing must show that the converters will meet certain performance levels for reduction of emissions.

Re-manufacturers of used converters may only use OE converters and must test each converter on a bench test to show that it is still performing satisfactorily.

Both new and used converter manufacturers must comply with certain record keeping and reporting requirements. They must also have a system to notify installers of the requirements and

* (Vehicles with less age or mileage may be entitled to **free** repairs by the vehicle manufacturer under the emissions warranty if the original converter was defective.)

restrictions which apply. Manufacturers of new converters are also required to provide a warranty on the converter shell and end pipes for 5 years or 50,000 miles, whichever comes first, and for 25,000 miles on converter emission performance.

All converters are required to be labeled as previously outlined.

(8) What are the requirements for installers?

Besides installing aftermarket converters only in the 3 situations outlined in response to question (6), other requirements and restrictions also apply. These include completely documenting the need for converter replacement, properly installing the correct one on the vehicle, and informing the customer of his rights and certain restrictions.

Specifically, these requirements are as follows:

- (1) If the replacement is not required by a State or local program, both customer and installer must sign a statement concerning why the converter was replaced. (Manufacturers either provide such a statement with the converter or have an example in their catalogs.)
- (2) If the replacement is required by a State or local program, the installer must keep a copy of the statement or order by the program representative.
- (3) The invoice for replacement must include the customer's name and complete address, and the vehicle's make, model year, and mileage, as well as the reason for replacement.
- (4) Retain copies of the above invoices and statements for 6 months and the replaced converters for 15 days (converters must be identified or marked as to which customer's car they came from).
- (5) Install the converter in the same location as the original.
- (6) Install the same type of converter as the original (oxidation, 3-way, or 3-way-plus-oxidation (dual-bed)). This information is sometimes available on the emission tune-up label or from the manufacturer's application catalog.
- (7) Install the proper converter for the vehicle as determined and specified by the converter manufacturer. There are engine size and vehicle weight limitations which make it inappropriate to install certain converters on certain vehicles. Newer vehicles with On-Board Diagnostic (OBD) systems may not always operate properly with certain aftermarket products. Therefore, the catalog should always be consulted for the correct application.

- (8) The converter must always be properly connected to any existing air injection components.
- (9) Install all the other required converters the vehicle would have originally come with unless the converter manufacturer has stated in writing that the aftermarket converter is designed to replace more than one converter.
- (10) For new aftermarket converters, the installer must fill out the warranty information card supplied by the manufacturer and give it to the vehicle owner or operator.

- (9) What should customers know about buying converters for their cars?

First and most importantly, the original converter on a car or truck was designed to last the life of the vehicle if it is properly used and maintained, and is warranted by the vehicle manufacturer to last for at least 5 years or 50,000 miles (8 years or 80,000 miles on 1995 and newer cars and trucks), whichever comes first. See the vehicle warranty booklet for more information.

An original equipment converter is designed as an integral part of the vehicle's emission and engine system to achieve the lowest possible emissions and optimal performance. New aftermarket converters are generally designed to be installed on a wide range of vehicles so that the backpressure changes created by the converters may, in some cases, adversely affect vehicle and engine performance. Used converters are not required to have a warranty, and their performance and remaining life is dependent on their prior use history. In general, aftermarket converters are not designed to perform as well as the converter(s) originally on the vehicle. Aftermarket converters, however, will usually provide acceptable performance at a lower cost.

Because of the effects of backpressure and heat created during operation and the effectiveness and compatibility of some emission systems with certain converters, it is important to make sure that the converter installed is the proper one for a customer's car or truck. Every installer should have access to and check the application catalog which describes the vehicles each converter can be installed on.

Next to installing the proper converter, probably the best way to keep the converter operating properly and under warranty is to make sure the vehicle is properly tuned. A properly tuned and operated vehicle is critical for a long converter life. Otherwise, you may ruin the converter, void your warranty, and possibly cause engine damage along with higher emissions.

- (10) How do I determine the correct converter for a car or truck?

Remember, as discussed above, that converters can be one of three general types. The applications catalog from the converter manufacturer should be checked to determine the proper converter for the vehicle. Keep in mind that particularly large vehicles and engines may not be covered by most manufacturers. Newer vehicles may not work properly with some aftermarket

converters. After you have determined the correct type of converter for the vehicle, the engine size and vehicle weight limitations must be considered. If the converter was not designed to cover a large enough vehicle or engine, the converter may be destroyed or cause vehicle engine problems along with voiding the converter warranty and violating Federal law.

(11) What may happen if I don't use the correct converter?

First, it is a violation of Federal law because it is likely to increase the amount of pollution coming out of the vehicle. Penalties for violations by individuals, service or repair shops or fleet operators are up to \$2,500 per violation. (Each improper installation is considered a violation.) New car dealers can be penalized up to \$25,000 per violation. Any person who causes a violation could be subject to the same penalty as the installer.

Vehicle performance can also be affected by the use of the wrong converter and, in some severe cases, converter or engine overheating could occur, resulting in unsafe operation and possibly engine damage. The conditions or even simply the use of the wrong part on a vehicle may allow the converter manufacturer to not honor the 25,000 mile or the 5 year/50,000 mile warranty,