# Emissions Inspector Certification
# T R A I N I N G  P R O G R A M

## Georgia's Clean Air Force (GCAF)

GEORGIA'S
Clean Air Force®
GEORGIA ENVIRONMENTAL PROTECTION DIVISION

Version 1.7/11.01.2023

# Table of Contents

**Chapter 4: Georgia's Air Pollution and Enhanced Emission Inspection Program**



**Chapter 5: Public Relations**

**Chapter 9: Vehicle Identification**



**Chapter 10: Emissions Control Systems (ECS) Identification and Inspection**



**Chapter 11: Georgia I/M Emission Inspection Equipment***)*

**Chapter 12: Data Entry and Vehicle Description**

**Chapter 13: On Board Diagnostics 2nd Generation (OBD II)**

# Preface


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This training program is designed to help individuals become certified to perform emissions inspections on vehicles included in the Georgia Enhanced Inspection and Maintenance (I/M) program. In designing the course, writing the material and preparing the presentations, we took into consideration the students' diverse backgrounds, experiences and education in the field of automotive technology.

Although some of the technical information may be basic to experienced automotive professionals, the rest may be new, including laws, rules and regulations. Therefore, regardless of one's background and knowledge, it is highly recommended that students pay close attention to the sections dealing with laws, rules and regulations, and other specifics of the program.

This training program will explain the air pollution problem, its sources and proposed solutions. It will also explain the enactment of the federal and state air quality laws, which ultimately led to the implementation of Georgia's Enhanced I/M program. The course will concentrate on the inspectors' role, the inspection process, and why the inspector plays such a critical role in improving metro Atlanta's air quality.

The material presented in this manual is current. However, the dynamic nature of the I/M Program and the rapid changes in automotive technology require periodic updates. It is the responsibility of the station owners, managers and inspectors to stay current with I/M Program Rules and Regulations. Utilize resources provided to you by Georgia's Clean Air Force to stay current, such as:

- Print and share all messages sent to your Georgia Analyzer System (GAS) unit, called "GAS Messages"
- Monitor US mail sent to your station mailing address from GCAF
- Visit www.CleanAirForce.com frequently
- Participate in Industry Advisory Board Meetings

- Pursue Supplementary Certifications such as Repair Technician Training from the GCAF website, or other quality training

Georgia's Clean Air Force (GCAF) refers to station owners, managers and emissions inspectors collectively as the "industry". GCAF and the Georgia Environmental Protection Division (EPD) work hard to ensure that the industry remains informed of I/M Program changes and enhancements, but the responsibility remains with each of these individuals.

Improving our air quality takes a team effort. We must work together to ensure inspection processes are followed properly, motorists are informed, and heavy polluting vehicles are identified and cleaned up. By becoming a Georgia Certified Emissions Inspector, you are becoming part of the GCAF team.

The following Vision Statement helps guide the daily actions of our team:

**GCAF Vision Statement**

***It is our vision to be the world's leader in clean air management***
***Recognizing that local action leads to global impact,***
***for this and future generations.***

Note: Throughout the manual we have used the following symbols to help the inspector concentrate on points of special interest:

 = Safety Issue

 = Compliance Tip

 = Health Related Issue

 = Data Integrity Issue

# Chapter 1

# The Air Pollution Problem, Its Causes and Effects

**Definition**

"What is Air Pollution?"

Air Pollution is defined as "contamination of the atmosphere by gaseous, liquid or solid wastes or byproducts that can endanger human health and the health and welfare of plants and animals, or damage property, reduce visibility, or produce undesirable odors."

**Sources of Air Pollution**

"Where does Air Pollution come from?"

Air pollutants could be emitted from natural or human-made sources. Emitted from natural sources, the radioactive gas radon is the only air pollutant of significance recognized as a major health threat. Radon is a byproduct of the radioactive decay of uranium minerals, which if it exists in high enough concentrations, could increase the risk of lung cancer in humans. On the other hand, human-made air pollutants emitted from various sources account for most of the world's air pollution problem.

Industrial countries generate billions of tons of air pollutants annually. Some pollutants come directly from identifiable sources such as sulfur dioxide ($SO_2$), which is mainly generated from fossil fuel (coal) and oil burning power plants. Other pollutants are formed through reactions of different gases and pollutants in the atmosphere; such as ground level ozone ($O_3$) formed from a reaction of hydrocarbons (HC) and nitrogen oxides ($NO_x$) in the presence of sunlight.

Human-made air pollution sources are categorized into two types: Stationary sources such as power plants, factories and refineries; Mobile sources such as automobiles, trucks, trains, ships, etc. The fact that a pollutant was generated from a stationary source does not mean

the pollutant is localized and stationary. The geographical and topographical making of the area and atmospheric conditions, such as wind and thermal inversions will have an effect on where the pollutant might stagnate or have its worst consequence.

**Causes and Effects of Air Pollution**

Human-made air pollutants can be categorized as primary or direct pollutants and secondary or indirect pollutants. Primary pollutants can come from different sources, such as ash from a volcanic eruption, fuel vapors from an evaporative system, or the carbon monoxide gas from a motor vehicle exhaust. Secondary pollutants are formed in the air when primary pollutants react or interact. Ozone is an example of a secondary pollutant that contributes to the formation of photochemical smog. The most prevalent and widely dispersed human-made pollutants, their sources, and effects are discussed next.

Carbon Monoxide (CO)


Carbon Monoxide (CO) is a direct pollutant that results from incomplete combustion of fossil fuels. CO is a colorless, odorless, and tasteless gas. When inhaled, CO interferes with the blood's carrying capacity of oxygen. It deprives the body of oxygen. Exposure to CO will cause headaches, impair sensitivity and motor functions, and, in worst case, will cause asphyxiation. Breathing air that contains as little as 0.1% carbon monoxide by volume can be fatal: a concentration of about 1% can cause death within a few minutes. Additionally, exposure to CO aggravates angina and other aspects of coronary heart disease and decreases exercise tolerance in persons with cardiovascular problems. **Motor vehicles contribute a significant amount of CO emissions.**

Carbon Dioxide ($CO_2$)

Carbon Dioxide ($CO_2$) is not considered a pollutant per se. However, it is considered a contributor to global warming; i.e. greenhouse gas. $CO_2$ results from the complete combustion of fossil fuels.

Hydrocarbons (HC)

Health Concern

Hydrocarbons (HC) are direct pollutants that result from fuel vapors escaping to the atmosphere or unburned fuel coming out of the tailpipes of vehicles. HC is toxic (poisonous) and is a main ingredient in making photochemical smog and oxidants such as ozone ($O_3$).

**Motor vehicles contribute a significant amount of HC emissions.**

Nitrogen Oxides ($NO_x$)
Also known as:
**Oxides of Nitrogen**

Health Concern

The x in $NO_x$ could be any number, indicating that $NO_x$ emissions include more than one form of nitrogen oxide compounds. $N_2O$ (Nitrous Oxide), NO (Nitric Oxide), $NO_2$ (Nitrogen Dioxide), and other $NO_x$ might be emitted out of a vehicle's tailpipe. Most of the $NO_x$ formed in the combustion chamber is NO (nitric oxide, one oxygen to one nitrogen). Nitrogen dioxide ($NO_2$) is a poisonous brown gas that is found in smog and automobile exhaust fumes. $NO_2$ is about five (5) times more toxic than NO. $NO_x$ is one of the main ingredients needed to make photochemical smog and oxidants [$NO_x$ + HC in the presence of sunlight make smog and ozone ($O_3$)].

Nitrogen oxides are poisonous to humans and the environment. In humans, $NO_x$ irritates the lungs, lowers resistance to respiratory infections, and contributes to the development of emphysema, bronchitis, and pneumonia. In the environment, $NO_x$ easily reacts with

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moisture in the atmosphere forming acids, such as nitrous acid ($HNO_2$) and nitric acid ($HNO_3$) contributing to the acid rain problem.

**Motor vehicles contribute a significant amount of NOx emissions.**

Ozone ($O_3$)

An ordinary oxygen ($O_2$) molecule contains two oxygen atoms. When a third oxygen atom is added to ordinary oxygen, Ozone ($O_3$) forms.

Ozone in Nature

The ozone layer is a thin band in the stratosphere, a region of the earth's atmosphere 12 to 30 miles above the surface. The ozone layer serves to protect the surface and inhabitants from the harmful ultraviolet rays of the sun. The ozone in that region forms naturally from the action of the sun on oxygen and is vital to our existence.

Ozone in Industry (Controlled Ozone)

The molecular structure of ozone makes it much more chemically active than ordinary oxygen. This property makes ozone a strong oxidizing agent. In industry we use it in purifying water, sterilization and bleaching processes. However, when used in industry, we make sure that it is not emitted into the atmosphere.

Ground-Level Ozone

Ozone formed near ground level is an indirect pollutant of human-made sources. Because it is a strong oxidant, ozone promotes various chemical reactions in the atmosphere and in living tissue. Those reactions, in most cases, will yield poisonous compounds that pose major dangers and adversely affect life, health and the environment. Ozone irritates the lungs, eyes and other tissues. It can cause or worsen respiratory problems, especially in children and the elderly.

Health Concern

**Motor vehicles contribute significantly to the formation of ground-level ozone.**

Particulate Matter

**PARTICLE POLLUTION (PARTICULATE MATTER)**

Another pollution of concern is particle pollution, also called Particulate Matter or (PM). Particulate pollution is a complex mixture of extremely small particles and liquid droplets in the air. When breathed in, these particles can reach the deepest regions of the lungs. Exposure of PM is linked to a variety of significant health problems. Particulate pollution is also the main cause of visibility impairment globally.

The two categories of particle pollution standards were established by EPA: fine particles ($PM_{2.5}$), which are 2.5 micrometers in diameter and smaller; and coarse particles ($PM_{10}$) which are smaller than 10 micrometers. Although gasoline motor vehicles are not major contributors of primary exhaust PM, their contribution to secondary PM is significant in the form of brake wear, tire wear and oxides of nitrogen, a precursor pollutant to secondary PM pollution formation. Diesel engines on the other hand emit high levels of primary exhaust PM and oxides of nitrogen during their operation cycles.

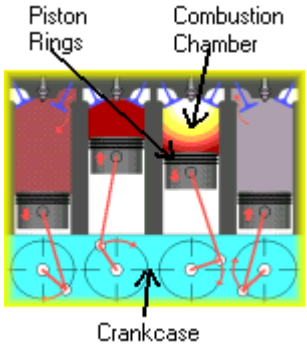
# Chapter 2

# Motor Vehicles Contribution To Air Pollution

**Motor Vehicle Pollution**

Vehicle generated pollutants consist of: crankcase emissions, evaporative emissions and tailpipe emissions.

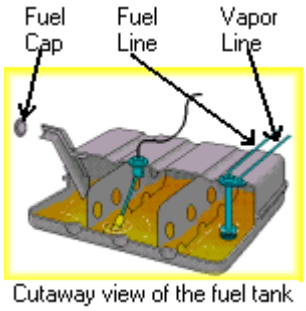
Crankcase Emissions




Crankcase emissions are mainly hydrocarbon (HC) molecules from oil vapor and fuel that is pushed past the piston rings during the compression and power strokes during engine operation.

The engine needs air and fuel to run. When the air/fuel mixture is introduced into the engine it goes into the combustion chamber and on top of the piston. The area below the bottom of the piston is the crankcase. The piston rings seal and separate the combustion chamber from the crankcase. The air/fuel mixture is compressed before it is burnt. When the air/fuel mixture is compressed, some of the fuel will pass by the piston rings into the crankcase. By design, the crankcase must be vented. If the crankcase ventilation system malfunctions, then crankcase fumes containing HC's could end up polluting the atmosphere.

Evaporative Emissions



Cutaway view of the fuel tank

Evaporative emissions are also hydrocarbon (HC) molecules. These emissions result from the fuel vapors escaping from the vehicle's fuel tank and fuel vapor storage units. According to the United States Environmental Protection Agency (U.S. EPA) data, evaporative emissions account for most of the hydrocarbons emitted into the atmosphere from vehicles. Evaporative emissions occur several ways: Diurnal, Running Losses, Hot Soaks, and Refueling Losses.

Diurnal

Diurnal fuel evaporation increases as ambient air temperatures rise
during the normal daily cycle (diurnal), heating the fuel tank and venting fuel vapors into the atmosphere.

Running Losses

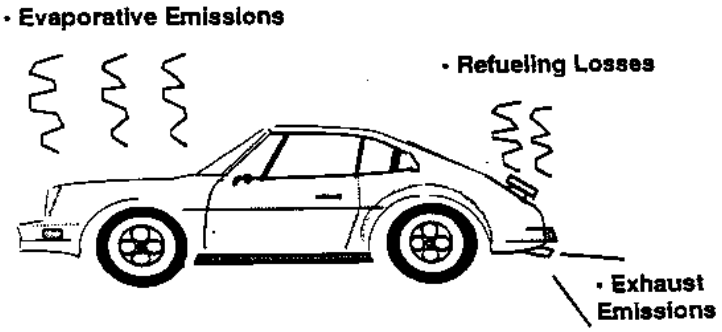
The hot engine and exhaust system along with the hot pavement can vaporize fuel when the engine is running.

Hot Soak

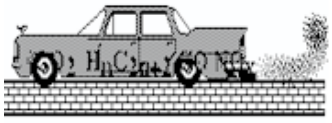
The engine remains hot for a period of time after it is turned off causing fuel evaporation to continue while the vehicle is parked.

Refueling Losses

Gasoline is volatile (i.e., it evaporates easily). Vapors will escape from the gas tank during vehicle refueling. Vapor losses also occur at the pump and fueling nozzles.




Tailpipe Emissions



Pollutants in tailpipe emissions are products of incomplete combustion and the high temperatures that exist during combustion.

Pollutants include hydrocarbons (HC), carbon monoxide (CO), nitrogen oxides ($NO_x$), sulfur oxides ($SO_x$), and particulate matter (PM). $SO_x$ and PM are generated mainly from diesel engines.

Internal combustion engines are designed to convert chemical energy to mechanical work. They extract the energy stored in the fuel by burning it. The released energy from burning the fuel then acts on mechanical devices, such as pistons or rotors of an engine pushing them or turning them. This generates a mechanical movement that transfers to other powertrain components which in turn causes the wheels of the vehicle to rotate. This process of converting the energy stored in the fuel molecules is not efficient enough to achieve a perfect combustion thereby resulting in tailpipe emissions of pollutants and undesirable gases into the atmosphere.

This training program will not elaborate on the reasons or discuss diagnoses of emissions failures; however, a general outline is provided.

Carbon monoxide (CO) emissions increase from vehicles with malfunctions that cause the air/fuel mixture to be richer than desired (typically 14.7:1).

Hydrocarbon (HC) emissions increase from vehicles with malfunctions that affect the combustion process. Mechanical, ignition, or air/fuel mixture problems could increase HC emissions.

Nitrogen Oxide (NOx) emissions increase when the air/fuel ratio is leaner than 14.7:1 and high combustion temperatures are present.

One main goal of any inspection and maintenance (I/M) program is to monitor or measure tailpipe emissions and compare the results to the standards set by U.S. EPA. Vehicles that fail to meet these standards will have to be repaired then re-inspected. The information collected by the analyzers is then used to demonstrate compliance with federal and state laws. Emissions inspectors must ensure that they perform proper, complete and legal inspections on all vehicles they test to help the I/M program meet its goals.

Later in this manual we will discuss some of the steps taken by federal and state governments, auto manufacturers and fuel producers to reduce the amount of pollution generated from motor vehicles.

# Chapter 3

# The Federal Clean Air Act

**Historical Episodes on the Effects of Air Pollution**

Throughout history, many episodes have shown how poor air quality can affect people. In 1930, a manufacturing town in Belgium experienced a severe three-day fog during which hundreds of people became ill and sixty people died, which was more than ten times the normal number. In 1931, in a heavy industrial area in England, five hundred ninety-two people died during a fog that lasted nine days. In 1948, in the manufacturing town of Donora, Pennsylvania, more than half of the people got sick and twenty people died due to a four-day fog. Currently, throughout the world, poor air quality has affected the lives of many people.

Faced with these facts about the devastating effects of air pollution, governments began to enact laws and regulations to help control and solve the problem. Air pollution laws are not unique to the United States. Cities like Moscow, Athens, Berlin, Tokyo, and Mexico City are working towards better air quality.

**History of the Clean Air Act (CAA)**

In the United States, the first federal law enacted to deal with air pollution was the Air Pollution Act of 1955. It was very narrow in scope and had very little control. The Air Pollution Act of 1955 allowed the Department of Health Education and Welfare (HEW) to begin a study of the air pollution problem. In 1962, Congress directed the Surgeon General to conduct a study of motor vehicles and their effect on health. The results of the study were turned in to Congress in 1963 and set the stage for future regulations. In 1965, the Clean Air Act (CAA or Act) provided a national standard for motor vehicle exhaust. It also required

that all cars and light duty trucks to be equipped with some type of exhaust emissions controls beginning with the 1968 model year. Research carried out between 1963 and 1967 provided the technological base from which to develop better methods of emissions controls.

In December 1970, the Clean Air Act Amendments of 1970 were signed into law. All administrative functions were transferred from the HEW to the newly created the U.S. EPA. The amendments extended the geographical coverage of the Federal program and were aimed at the prevention, control, and abatement of air pollution from mobile and stationary sources.

The Clean Air Act Amendments of 1970 required vehicle manufacturers and fuel companies to come up with new vehicle emissions controls and cleaner burning fuels. During this time, Exhaust Gas Recirculation (EGR) systems, Catalytic Converters (CAT) and unleaded fuel were introduced to meet the requirements, and vehicle emissions testing began in order to improve air quality.

After many years of debate (1981-1990), the Clean Air Act of 1990 was signed into law. The Clean Air Act of 1990 sets tighter standards and regulates air pollution sources that were previously excluded.

**Reducing Emissions of Pollutants from Mobile Sources**

**Today, the 1990 Clean Air Act is the Federal Law that dictates the standards and requirements for dealing with air pollution problems.**

Under the Clean Air Act Amendments of 1990, the U.S. EPA is pursuing a three-point plan for achieving major emissions reductions from mobile (transportation) sources. The first two points are the development and commercialization of cleaner running vehicles and cleaner burning fuels. The third point is in-use control, specifically Enhanced Inspection and Maintenance (I/M) programs. The concept behind the Enhanced I/M programs is to ensure that cars are properly maintained while in customer use.

Cleaner Running Vehicles

In an effort to meet Federal law, auto manufacturers have been improving the emissions performance of their products over time. To achieve these improvements, changes to vehicles' basic design have been made. These changes have included modifications to body and chassis design, engine design, and transmission and power train design.

Also, auto manufacturers began developing and installing Emissions Control Systems (ECS) to help meet federal requirements. The following is an outline of significant milestones in the development of ECS to produce cleaner running vehicles:

Crankcase Emissions Controls

- 1964 - Type 4 Positive Crankcase Ventilation (PCV) systems became standard on U.S. vehicles.

Evaporative Emissions Controls

- 1971 - Sealed Fuel Caps and Vapor storage and recovery systems became standard on U.S. vehicles.
- 1968 - Emissions-Calibrated Carburetors, Emissions-Calibrated Ignition systems and Air Injection systems were introduced.

| | |
|---|---|
| Exhaust Emissions Controls (Tailpipe Emissions) | ➢ 1971 - NOx Controls, such as the Exhaust Gas Recirculation (EGR) systems and Ignition Spark Control systems were introduced.<br>➢ 1975 - Catalytic Converters, Conventional Oxidizing Converters (COC) were introduced.<br>➢ 1977 - Three Way Converters (TWC) were introduced.<br>➢ 1981 - Engine Computer Controls were introduced.<br>➢ 1996 - OBD II (On Board Diagnostics, 2nd generation) were introduced to meet the 1990 CAA Amendments requirements.<br>➢ 2005 – OBD II requires one communications protocol |
| Cleaner Burning Fuels | Along with auto manufacturers, oil companies had to come up with cleaner burning fuels to meet federal mandates. In 1975, unleaded fuel was introduced. As a result of the 1990 Clean Air Act Amendments, reformulated gasoline (RFG) and oxygenated fuels were introduced in areas with the worst air quality. Evolving new federal regulations will force oil companies to explore and experiment with cleaner burning fuels that produce less pollution. |
| Enhanced Inspection and Maintenance Programs | Motor Vehicle Inspection and Maintenance programs are an integral part of the effort to reduce mobile source air pollution. Despite being subject to the most rigorous vehicle pollution control program in the world, cars and trucks still create a significant amount of ground-level ozone, carbon monoxide air pollution, and toxic contaminants in U.S. cities. Passenger cars and light trucks emit a substantial amount of |

the vehicle-related carbon monoxide, ozone forming hydrocarbons, nitrogen oxides and air toxics.

The U.S. EPA has developed performance standards for "Basic" and "Enhanced" I/M programs. The 1990 CAA Amendments require Enhanced I/M programs in areas with the worst air quality problems. The Act also includes provisions to control urban smog, carbon monoxide, and diesel particulates. There are two types of urban smog. The first type is the smog that forms from sulfur oxides and particulate matter in humid conditions. The second type is photochemical smog, which forms from a reaction between (Nitrogen Oxides) $NO_x$ and Hydrocarbons (HC) in the presence of sunlight. Photochemical smog contains high levels of Ozone ($O_3$), a very strong oxidant. Weather bulletins and health warning announcements called “Ozone Alerts” are often made to warn the citizens in high pollution areas of the danger in the air. Photochemical smog is more prevalent in metropolitan areas and cities like Los Angeles, California, and Atlanta, Georgia.

Benefits of Enhanced I/M Programs

Implementing an Enhanced I/M Program brings benefits to the state and its citizens while to meeting federal requirements. The **two main benefits** are:

1. **Cleaner Air.** Repairing vehicles that fail to meet the standards means a reduction in air pollution.

2. **Fuel Savings and Less Wear and Tear**. Simply, a well-maintained vehicle uses less gasoline and lasts longer. Owners of “failed” vehicles will realize fuel savings and

longer engine life after repair and maintenance. In many cases, the fuel savings realized exceed the amount of money spent on repairs, which means the consumer will receive a net economic gain (money in the pocket) after repairing a failed vehicle.

New EPA Standards

In 2005, the EPA had determined that Georgia had met the clean air goals set under the 8-hour rules, which meant Atlanta had attained the 8-hour standard. However, under a new EPA mandate, the rules for attainment changed from the old 8-hour ozone standard to a new one-hour standard. Under the new one-hour standard, the Atlanta area is now back in non-attainment status.

# Chapter 4

# Georgia's Air Pollution and Enhanced Emissions Inspection Program

**Introduction and Overview**

Increased awareness of air quality deterioration led to the creation of the U.S. EPA and the enactment of the 1970 Clean Air Act Amendments. The amendments required many states to implement programs to lower air pollution levels. Since motor vehicles were identified as one of the major sources of air pollution, the state of Georgia responded by implementing a vehicle emissions testing program in the mid-80s. The basic program covered four counties that were determined to have an air pollution problem: Cobb, DeKalb, Fulton, and Gwinnett.

*Who determines whether the air is polluted?*

The United States Environmental Protection Agency (U.S. EPA) sets the standards for ambient air quality throughout the United States. Air samples are collected and analyzed on a regular basis. Air in areas that exceed the standards set by U.S. EPA is considered polluted. These areas are designated as non-attainment areas. Non-attainment areas, which are a public health issue; must abide by certain federal laws designed to help these areas come into "attainment" with air quality standards.

**Where in Georgia is there an Air Pollution Problem?**

In the early 1990s, with the expansion and growth of the Atlanta metro area, thirteen (13) counties were classified as a serious non-attainment area: the original four counties, (Cobb, DeKalb, Fulton, Gwinnett), plus nine additional counties, (Cherokee, Fayette, Henry, Rockdale, Clayton, Coweta, Douglas, Forsyth, and Paulding).

Industrial expansion, more vehicle miles traveled, higher driving speeds, and increased energy demands are all factors that contribute to

increased levels of air pollution. Such is the case in Georgia's Atlanta metropolitan area, where vehicles are a major contributor to the increase in air pollution.

In 1990, the Clean Air Act was amended. Some of the amendments mandated many areas of the country with the worst air quality, classified as non-attainment areas, to implement stricter "enhanced" testing procedures for vehicle emissions.

As a result of the 1990 amendments, the state of Georgia is required to implement an Enhanced Vehicle Emissions Inspection and Maintenance (I/M) program in areas with the worst air quality, which happened to be the greater Atlanta metropolitan area covering thirteen (13) counties: the original four (Cobb, DeKalb, Fulton, Gwinnett) and nine counties added to the list (Cherokee, Fayette, Henry, Rockdale, Clayton, Coweta, Douglas, Forsyth, and Paulding).

**Brief History of Metro-**

The state of Georgia Department of Natural Resources (DNR) Environmental Protection Division (EPD) introduced an Enhanced Vehicle Emissions I/M program that is fully decentralized. The decentralized program design helped facilitate the participation of small business by allowing testing to be performed by privately owned facilities as opposed to state operated testing centers. The program began on October 1, 1996 utilizing TSI and fuel cap pressure testing. Changes were made in 1998 by adding a dynamometer to the testing equipment requirements to perform loaded-mode testing on older vehicles. Changes were made again in 2002 when the testing procedures required OBD II testing of newer vehicles and a two-speed

**Atlanta I/M Program**

dynamometer test was required on older vehicles. In 2008 the software and hardware were upgraded once more to perform tests on the newest OBD II vehicles. In 2016 upgrades added biometric and required barcode technology controls for additional security and internet connection to the Vehicle Information Database (VID) for faster communications.

The program provided continuity and consistency among testers and ensured that all vehicle owners in the thirteen (13) county area are serviced with the best possible inspection program.

**Goals of the Georgia I/M Program**

The primary goals of the program are:

1. To produce a significant reduction in automotive emissions of pollutants that contribute heavily to Atlanta's ground level ozone problem
2. To provide maximum motorist convenience by allowing a large number of stations to perform testing
3. To preserve business opportunities for local businesses that supported and participated in the earlier I/M program
4. To educate the industry and the public about the emissions inspection program and program changes

The Georgia Enhanced I/M program merges the testing equipment to the Vehicle Information Database (VID) system which provides motorists with comprehensive and convenient vehicle inspections required by state and federal laws. Additionally, this system provides the state with the ability to acquire real-time data required for vehicle registrations and meeting the provisions of the 1990 Clean Air Act Amendments.

**Features and Facts**

Some of the Georgia I/M program features and facts:

- The program gives station operators the option of using less expensive equipment to test vehicles using OBD and TSI procedures.
- Testing by decentralized facilities gives the motorists more flexibility and choice.
- The program covers over 3 million vehicles within the thirteen county area.
- Annual testing as of January 2000. First full cycle of the fleet in the year 2001.
- OBD II testing and two-speed idle testing.
- Program oversight and monitoring is enhanced by the use of an automated data handling system and a more extensive Quality Assurance (QA) program.
- Automated data transfer to county tag offices.

**Georgia Inspection Types**

Georgia EPD has implemented two types of inspections:

- On-Board Diagnostics (OBD) based test.
- Tailpipe emissions sampling based tests, Two-speed Idle (TSI) on select vehicles.

The emissions inspection consist of three parts:

1. A Visual Inspection for the presence of the catalytic converter (Tamper Inspection) on all vehicles originally equipped with converter(s), and
2. The OBD system test on all vehicles model years 1996 and

newer which consists of

- A Malfunction Indicator Lamp (MIL) check or Key On Engine Off (KOEO) bulb check,
- A monitor readiness check,
- A Diagnostic Trouble Code (DTC) check,
- A MIL check or Key On Engine Running (KOER) bulb check, **or**

Emissions Tests (A Three-Part Inspection)

Visual Inspection

A Tailpipe Emissions test. This test is:

OBD-based Inspection

- A Two-Speed Idle (TSI) test for vehicles model years 1996 and newer which are normally subject to the OBD inspection but are excluded for design reasons (i.e. European design not designed to OBD standards), and

3. A Functional test of the Evaporative Emissions Control system, represented by the Fuel Cap Pressure test, where up to two fuel caps may be checked.

**Tailpipe Emissions Inspection**

TSI Emissions Inspection

Vehicles that are subject to the inspection in the Enhanced I/M program meet the following criteria:

1. Registered, or to be registered, in one of the thirteen covered counties.
2. Passenger car or light-duty truck with a Gross Vehicle Weight Rating (GVWR) of 8500 pounds or less.

Fuel Cap Inspection

3. Gasoline powered, either exclusively or gasoline is one of the fuels used if the vehicle is a multi-fueled vehicle.

**Vehicles Subject to Testing**

4. More than three (3) model years old and less than twenty-five (25) model years old.
5. Is not exempt by other provisions in the law.

Vehicles that are subject to testing must cover all parts of the test as prompted by the GAS. All vehicles subject to the tailpipe emissions-based inspections must pass: the Catalytic Converter Tamper inspection, the appropriate Emissions test, and the Fuel Cap test as prompted by the Georgia Analyzer System (GAS).

Vehicles that do not meet the criteria above are not subject to Georgia's I/M Program. In addition, the following exemptions are allowed by provisions in the law for vehicles that are subject to the I/M program:

**Vehicles Exempt from Testing**

1. Senior Citizen Exemption
    a. The <u>current</u> primary registered owner is 65 years old or older, and
    b. The vehicle is 10 or more model years old, and
    c. The vehicle is driven less than 5000 miles per year.
2. The vehicle is not licensed to operate on state roads.
3. The latest three model years.

*The inspector is responsible to provide qualified motorists with information relating to Exemptions.*

**<u>Note:</u>**

As a certified Georgia Emissions Inspector, it is your responsibility to inform motorists of their "potential" eligibility for certain options such as: Exemptions, Extensions, Waivers, etc. Do not attempt to cite the eligibility requirements of available options to motorists by memory or to guarantee eligibility for any option. Instead, present the material provided by Georgia's Clean Air Force (GCAF), which describe the requirements for each option, and

advise the motorist to call the **(800) 449-2471 Hot Line** for questions and locations of GCAF Service Centers.

IMORTANT NOTE: Communicating Available Options to Motorists

Extensions for up to one year are available for qualified vehicles. Vehicles that may qualify are:

1. Vehicles that are temporarily stationed in a location well outside the covered counties.
2. Vehicles that cannot easily be brought back to covered counties for inspection.
3. Reciprocal Testing- .The reciprocal test may be used as proof that the vehicle is out of the area.

**Extensions**

Proof that the owner and vehicle are temporarily stationed outside the covered counties must be submitted. (Examples: Military orders or school registration, etc.) Inspectors should refer customers to Q/A Brochures at station and/or the GCAF website (www.cleanairforce.com).

Required Proof to obtain Extensions

A vehicle might continue to fail the inspection after repairs have been made. In certain instances the motorist may be eligible for a repair waiver. The following are the Repair Waiver Issuance Criteria that must be met:

1. The vehicle continues to fail the reinspection after qualifying repairs have been completed.
2. The retested vehicle must show some improvement in all the areas that failed in the initial test.
3. The retested vehicle must still pass the areas it passed in the initial test.
4. The costs of emissions-related repairs must meet or exceed

**Repair Waivers**

Repair Waiver Issuance Criteria

the required amount.

*(This amount is adjusted annually to reflect changes in the Consumer Price Index)*

5. Repairs shall be visually verified by the GCAF Service Center. Proof that required warranty repairs have been made, or a written denial of warranty coverage, and receipts for qualifying repairs must be submitted. Personal labor time (owner repairs) cannot count towards repair costs.

***Note:***

The repair waivers are issued at GCAF Service Centers. The EPD has the final decision for repair waiver eligibility.

**Referee Test**

Occasionally, a motorist will dispute the results of an emissions test. The nature of this dispute may be related to either equipment accuracy or test procedures. All motorists who dispute test results are eligible to request and receive a referee test provided no repairs have been made to the vehicle in the interim. The inspector is responsible for informing the motorist that he or she has the right to request a referee test within fifteen (15) business days of the disputed inspection, provided the vehicle was not repaired within this 15-business-day period. The inspector must provide the motorist with the (800) 449-2471 Hot Line and the relevant literature provided by GCAF.

When the motorist calls the Hot Line, an appointment will be scheduled with a qualified and authorized GCAF or State Referee inspector during normal business hours. The referee inspection will occur

at the original testing facility. During the referee inspection, the certified inspector will be asked to repeat the test in the presence of the motorist and the GCAF or State Referee after the Referee has verified the calibration of the test equipment. The Referee will communicate the validity of the inspection to the inspector and the motorist.

**Other Regulations and Considerations**

The State of Georgia rules and regulations take into consideration special case vehicles, such as vehicles with engine changes, kit cars, gray market vehicles, and hot rods. In some cases, the rules provide alternatives for testing these vehicles. These alternatives might include a variation from the norm. For example, some vehicles that qualify under this classification might receive a TSI test instead of an OBD test, and in some cases the requirement for a catalytic converter might have been waived. Inspectors should ask the customer if they have a Non-Conforming vehicle if they are having problems with the VIN number. The following paragraphs will cover these special cases.

The Georgia I/M program provided Non-Conforming status for gray market vehicles, kit cars, and hot rods. Vehicles that qualify under these provisions are tested to the following standards:

- Non-Conforming Vehicles receive targeted tests at the discretion of the EPD. These vehicles may receive a TSI, or an OBD test depending on the design/and or model year of the vehicle.

Such vehicles are still subject to these special standards at

Non-Conforming Vehicles

subsequent inspections. The test parameters are solely at the discretion of the EPD. The GAS unit will direct the inspector to perform the appropriate test for these vehicles. Most consumers should have paperwork showing the special status of the vehicle. If customer does not have paperwork, the status of the vehicle should be pulled up from the VID after the inspector enters the VIN number and gone through VID communications.

There are few exceptions to the general rules of the Non-Conforming standards. The following paragraphs explain these vehicles and possible related exceptions that might apply to them.

Gray Market Vehicle

A Gray Market Vehicle is a vehicle that was manufactured for the intended sale outside the United States, was not certified to meet U.S. emissions standards, and was imported into the United States under a U.S. EPA import waiver of the emissions requirements and verified on a federal database.

Up until 1988, the U.S. EPA allowed motorists to import into the U.S. these gray market vehicles that they purchased overseas, provided the vehicle was five or more years old at the time. The U.S. EPA provided an extension of that date up to 1990 for active military personnel only. This means that the 1985 model year was the last possible model year for a gray market vehicle to be imported into the U.S.

Non-Conforming provisions may still be approved by EPD to existing gray market vehicles brought into one of the covered counties

after December 31, 1998. In such a case, the inspector shall advise the motorist to contact GCAF for information. The GCAF Customer Service Representative (CSR) manager will review these on a case-by-case basis.

Kit Cars

A Kit Car is a motor vehicle assembled from a manufacturer's kit. The kit body is placed on a frame that may be purchased with the kit, purchased separately or homemade. The engine and transmission are usually purchased separately or may be from the same vehicle as the frame.

A Kit Car does not utilize a chassis from an engine/chassis combination certified to meet emissions control standards or where the original manufacturer's identification has been eliminated due to the replacement of the vehicle's body with one of a different make and/or style.

Kit cars that did not receive Non-Conforming status by December 31, 1998, or those registered in a covered county after December 31, 1998, must have all the required emissions control systems for the model year shown on the registration card.

Hot Rods

A Hot Rod is a vehicle in which the original engine has been replaced with a different type engine from the same or another manufacturer, where the installed engine was never an option in that vehicle from the original auto manufacturer. Hot Rods are not eligible for Non-Conforming status after December 31, 1998. Engine changes or modifications done after December 31, 1998, must adhere to EPD Engine Switching Policy detailed at the end of this chapter.

- Installing a Japanese motor in a US market vehicle

- Installing an Oldsmobile 400 in a Chevy truck
- Installing a Ford 2.3 liter engine in a VW Rabbit
- Installing a 350 Chevy in a Jaguar
- Installing a 454 Chevy in a 1986 Chevy Camaro (the 454 was not an option from Chevrolet for that year Camaro)

*Examples of Hot Rods*

Engine swaps within an engine family are not considered hot rods. However, the swap must include all original emissions control systems as the original configuration of the replacement engine. All systems that came with the replacement engine are required.

Not Considered Hot Rods

Engine swaps between options offered by the vehicles original auto manufacturer in the same make, year and model are not considered hot rods as long as all the original configuration of emissions control systems of the installed engine are included and functioning.

In some rare cases a vehicle may be BLOCKED from receiving an emissions test by EPD. In this case the GAS unit will alert the inspector that the emissions test cannot be performed and that the motorist must contact the EPD. The inspector is to print the message on the GAS unit and inform the motorist that they must contact EPD.

**Vehicles BLOCKED From testing**

Passenger cars and light-duty trucks that are not subject to the inspection program may receive an **unofficial** inspection (the vehicle is tested in manual mode only) **if** the motorist requests and approves, in writing, an inspection to be performed on their vehicle.

The Georgia I/M Rules do not limit what a station owner can charge for inspection of

vehicles that are not subject to the I/M program. Additionally, when tested these vehicles must be tested in Manual Mode.

Vehicles Not Subject to Georgia's I/M Program

*These vehicles are not subject to Georgia I/M Program. However, motorists who wish to have these vehicles tested may do so. The inspector may test but must perform the test in "Manual Mode". Since these vehicles are not subject to the Georgia I/M Program, the Georgia I/M Rules do not govern what a station owner can charge for performing the test in Manual mode.*

☺ **Compliance Tip:**

***Note:***

Georgia's I/M Rule 391-3-20-.21 (2) specifies *"… The emission inspection fee shall be established by the inspection station owner but shall be no less than $10.00 and no more than $25.00. The fee will cover an initial inspection, plus one free re-inspection. Another re-inspection fee will be charged for subsequent re-inspections; this fee will cover one re-inspection and, if required, one additional re-inspection."*

**Inspection Fee**

***Note**: Free retest within 30 days of the initial test*

The state of Georgia requires the inspection facility to maintain a folder of all Emissions Repair Forms collected from motorists. The GCAF auditor will pick up these forms during the periodic audits.

Refer to the I/M Inspector Training Manual and the attached I/M Rules for Station Requirements, such as signs, liability insurance, mobile testing units, fleet station requirements, etc.

**Record Keeping**

Vehicle Identification, Emissions Control Systems, Two Speed Idle (TSI) Inspection and On-Board Diagnostics (OBD) Inspection chapters will outline the appropriate procedures for the various parts of the inspection. Test Equipment Description, Components, Use, Service, and

**Station Requirements**

Calibration and Maintenance are discussed in chapter 12 of this manual.

**Inspection Procedures and Test Equipment**

EPD Policy on engine switching can be found at the end of this chapter. It is the inspector's responsibility to understand the policy. Please read it carefully and ask EPD or GCAF personnel for help when needed.

**Engine Switching**

The following are the highlights of the Engine Switching Policy:

Points to remember about Switching Engines:

- Federal law prohibits tampering with emissions control systems or other systems reconfiguration that might degrade the effectiveness of emissions controls.
- Engine switches are acceptable as long as the resulting vehicle matches exactly to any "certified" configuration of the same or newer make and model year as the chassis.
- These guidelines apply to both light-duty and heavy-duty vehicles. However, it is not acceptable to interchange a heavy-duty engine into a light-duty chassis.
- Diesel powered vehicles that have been converted to operate on gasoline must meet the emissions standards and applicable emissions control equipment for the year, make, and model of its equivalent gasoline vehicle's body and chassis. *Simply put, a diesel-to-gasoline conversion is legal if the gasoline engine used was originally available from the original auto manufacturer in the same year body/chassis as the diesel engine.*

**EPD Policy on Engine Switching is found on the following page**

**Engine Switching**

**EPD Policy**

"At some point during the lifetime of a vehicle it may become necessary to replace the engine. There are certain guidelines to follow when replacing a vehicle's engine so that the effectiveness of the emission control system is not degraded. Preferably the replacement engine should be identical to that of the original engine. However, the replacement of an engine with that of one within the same certified configuration may be made as long as the engine/chassis combination conforms to the same or newer model year with regard to all emission-related parts, engine design parameters, and engine calibrations. A "certified configuration" is an engine or engine chassis that has been "certified" (approved) by EPA prior to the production of vehicles with that design. Also, replacing an originally installed engine with an engine of different displacement may be made if either of the engines, along with the engine-specific emission controls, is of a certified configuration for that vehicle.

Engine switching involves replacing the original engine on a vehicle with an engine from another manufacturer, or replacing the original engine with one from the same manufacturer that was never installed on that model vehicle. Federal law prohibits any person from removing or rendering inoperative any emission control device installed on or in a motor vehicle or motor vehicle engine. Such persons are subject to civil penalties as a result of tampering with the emission control devices. Engine switching is considered as being a form of tampering since the resulting engine configuration departs from the original design requirements for the emission related parts, engine calibrations, and other design parameters in place at the time of EPA emissions certification for that vehicle. Enforcement action maybe taken for engine switching at the state level. A vehicle with tampered emission controls resulting from **engine switching will likely fail emissions testing and will not be able to be registered.**

For vehicles that have had the engine switched, the model year described by the chassis Vehicle Identification Number (VIN) will be considered as the model year of the vehicle. For a given engine displacement and vehicle weight, the emission standards applicable to a vehicle with a switched engine undergoing emissions testing will be determined by the model year assigned to the chassis; not the model year of the replacement engine. You should be aware of this provision if you are contemplating switching an engine of a newer vehicle with an engine from an older vehicle."

# Chapter 5

# Public Relations

**Introduction**

Public relations is one of the most important functions in maintaining a successful I/M program. Georgia law mandates that motorists in the covered counties with eligible vehicles have an annual emissions inspection performed. Therefore, it is important that motorists are well-informed of their rights and resources, as well as the emissions inspection and repair process.

GCAF sends **Georgia Analyzer System (GAS) messages** to all inspection stations when there is important information to relay. Inspectors should perform a data file refresh on the analyzer daily to ensure receipt. Print these messages and provide them to the station owner. We also recommend keeping them on file or in a notebook, as stations are required by EPD to keep these. Inspectors are responsible for all of the information provided in GAS messages.

GCAF also provides inspection stations with **educational materials** such as Q&A brochures, Motorists' Rights posters, Repair Watch Public Report, and other information to keep inspectors informed and to help answer questions from the public.

The **GCAF website (www.cleanairforce.com)** is also maintained to provide inspectors with up-to-date information on the emissions inspection and repair process. All forms and applications are posted on the website. In addition, there are PDFs (files that can be printed as small as 8"x10" or as large as posters) of informational flyers, station posters and Frequently Asked Questions (FAQs) translated in Spanish. There is

also a link for inspectors to purchase training to become a **GCAF Recognized Emissions Repair Technician;** completion of which brings increased advertising for your inspection station.

Stations must also access **e-commerce** from the GCAF website. This system allows station owners and managers to purchase analyzer certificates 24 hours a day/seven days a week and monitor station accounting.

If your station is in need of a new **state-certified roadside sign**, visit the GCAF website for sign specifications. We recommend ordering signs from state-approved vendors which are listed on the GCAF website.

The quarterly **RepairWatch** reports are also an information resource. The **RepairWatch Public Report** shows all inspection and repair shops that meet or exceed an 80 percent retest passage rate. Inspectors should refer motorists to this report if their vehicle does not pass inspection. This report must be made available to motorists at all times. The **RepairWatch Facility Summary** is a quarterly report that repair shops should use to assess and improve their emissions repair track record. Both reports can be viewed and printed from the GCAF website.

**Good Customer Service**

In an effort to raise the bar of the testing experience for motorists and to help increase business for your station, GCAF implemented a customer service program called **"Inspection Check: Improving Your Business."** Stations may download the toolkit from www.cleanairforce.com, read the information and sign the pledge to provide outstanding customer service

and accurate information about Georgia's I/M Program. By providing your station with the tools needed to practice outstanding customer service and answer emissions test and repair questions, you will be more likely to see an increase in repeat customers and customer referrals. The tips contained in the toolkit are easy to implement and GCAF will help as needed. Your station will be publicly recognized in several ways for its participation, including recognition on the GCAF website, in addition to being provided promotional material to display at your station. Here are the key elements of the Inspection Check program:

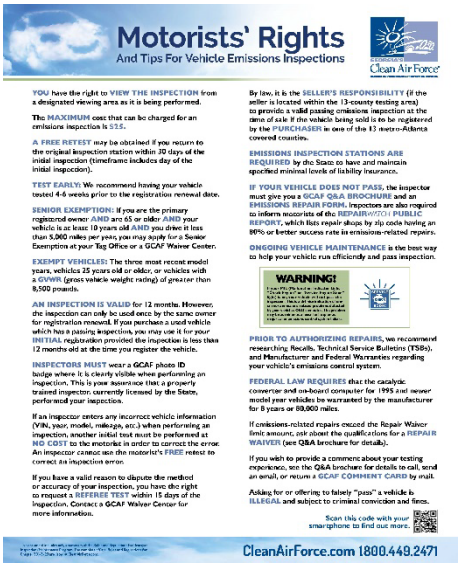
- Support the GCAF Vision Statement: "It is our vision to be the world's leader in clean air management recognizing that local action leads to global impact, for this and future generations."
- Provide motorists with a positive emissions testing experience from the moment they arrive at the station to the moment they leave.
- Demonstrate a commitment to customer service by posting up-to-date GCAF resources and proper station signage, referring motorists to the GCAF Website and hotline as needed, and maintaining an appropriate waiting/viewing area.
- Ensure efficient and accurate station operations and emissions testing procedures.
- Minimize wait times by properly maintaining and servicing emissions testing equipment.

State Certified Sign

**State-Certified Roadside Sign:** Specifications and approved sign vendors are posted on the GCAF web site.


Motorist Rights Poster

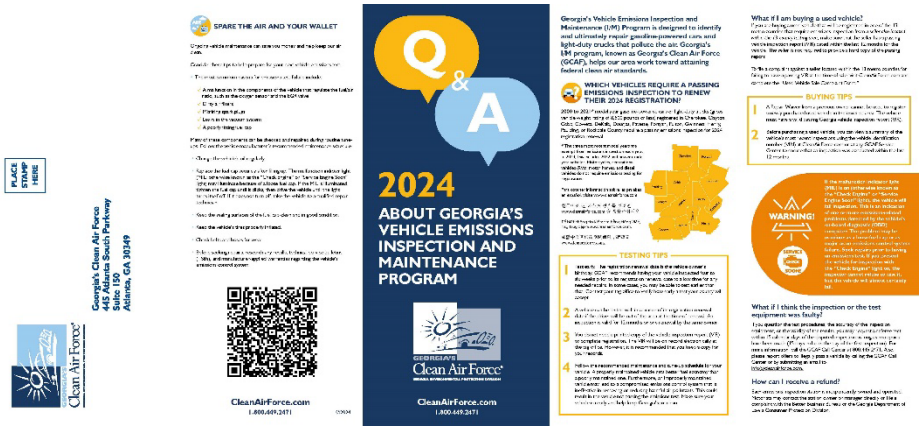
**Motorists' Rights Poster:** This poster must be displayed at all inspection stations. Print it from the GCAF website or purchase one from GCAF for $10.




GEORGIA'S Clean Air Force GEORGIA ENVIRONMENTAL PROTECTION DIVISION

Q & A Brochure

**Q&A Brochure:** Provide to motorists if they do not pass the emissions inspection (available in English and Spanish). Order more by calling the GCAF hotline at 800.449.2471.




The optimum in providing good customer service in an inspection program is providing the motorist with legal, courteous, fair, accurate, complete, and safe inspections of their vehicles.

Remember, working together as a team, State agencies represented by EPD, the GCAF Team, and the Industry (represented by You- the Inspectors and Station owners and Managers) can provide the motorists in the covered counties with good overall service to help ensure continued success of the Enhanced I/M program.

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# Chapter 6

# Inspector Requirements and Responsibilities

**Inspector Training Requirements**

State law, O.C.G.A. Section 12-9, set the requirements for inspector certification. Georgia's I/M Rule, Chapter 391-3-20-.11, titled "Inspector Qualifications and Certification", details these requirements for individuals who are interested in becoming Georgia certified emissions inspectors.

The regulations require the prospective inspector to: attend and complete an EPD approved training program; pass written examinations with scores of 80% or better; and pass hands-on tests as required by the training provider.

The regulations also set guidelines for what must be included in an inspector certification course. The following are the guidelines:

1. The air pollution problem, its causes and effects
2. The purpose and functions of the State inspection program
3. Inspection regulations and procedures
4. Technical details of the inspection procedures and the rationale for their design
5. Emissions control devices functions, configuration, identification and inspection
6. Test equipment operation, calibration and maintenance
7. Quality control procedures and their purpose
8. Public relations
9. Personal safety and health issues related to the inspection process

**Inspector Certification**

Upon completion of the approved training program and passing the required tests the inspector will receive a certificate authorizing the individual to perform emissions inspections in accordance with the Georgia I/M Rules. The inspector's certificate is valid for two (2) years unless suspended or revoked. The inspector must complete an approved refresher training program to renew his or her certification before it expires.

Georgia law and the I/M regulations prohibit an inspector from holding more than one certificate of the same class with different certificate numbers. Chapter 391-3-20-.11 (7) of the I/M Rules states "*No inspector shall hold, or attempt to fraudulently obtain two (2) or more valid certificates."*

**Required Identification**

When performing inspections, I/M Rules, Chapter 391-3-20-.11 (6), states that: "*No inspector shall perform an emissions inspection unless they wear their EPD-issued Inspector picture ID card in a clearly visible location on their front upper body area. Replacement of a lost, missing, damaged or illegible ID card is the responsibility of the inspector at the replacement cost of twenty-five dollars ($25.00) to be paid to the Management Contractor*."

**Inspectors' Responsibilities**

Emissions inspectors play a major and active role in cleaning our air from poisonous gases and compounds. This might be a simple statement, but if you take a minute to reflect on what you are doing, you will discover that you are, in fact, saving people's lives and property.

The goal of the inspection program is to ensure that the vehicles you inspect meet set criteria for the pollutants they emit. Meeting these criteria ensures the cleaning of our environment from the many poisons that our industrial and technical advancements have introduced into it. Therefore, the laws, rules and regulations governing this program carry heavy civil fines, and in some cases, criminal charges can be filed against inspectors who try to circumvent the system. Inspectors can face potential charges of up to $5000.00 **per day**, **per violation**. **In addition, inspectors can also serve jail time for fraudulent activities.**

To ensure that inspectors understand their responsibilities, we have dedicated Chapter 8 to explain EPD enforcement and have provided a copy of the **"Rules of Georgia Department of Natural Resources Environmental Protection Division, Chapter 391-3-20, Enhanced Inspection and Maintenance**" as attachments to this training manual.

Although "Enforcement" is covered in the class and "Chapter 391-3-20" is quoted often in both this text and presentations, **the fact remains that it is each inspector's responsibility to read and understand these rules and regulations and abide by them.**

**"Leave the guess work out of it!"**

To support the inspectors in their efforts to meet the requirements of the inspection program, both Georgia's EPD and the GCAF team are available to explain unclear matters, answer questions regarding the Enhanced I/M

Program, and provide guidance when needed. Inspectors who are not sure of certain procedures or have questions regarding the program should seek the help of GCAF and/or EPD, as appropriate, to address their concern.

In addition to the aforementioned, which is performing accurate, proper, complete, and legal inspections, inspectors have other responsibilities:

1. Educate themselves in all aspects of the program. This means to remain updated by reading all materials relevant to the program, such as the GAS messages, mailings from GCAF and EPD, and updated brochures they receive. In addition, it is highly recommended that inspectors print out GAS messages and make them available to all inspectors at the station so that they can provide proper customer service.
2. Educate the motorists by supplying accurate information stating facts and staying away from guess work and speculation related to repairs. This is best accomplished by giving the motorist the relevant brochures and literature supplied by GCAF.
3. Maintaining the test equipment properly, following proper calibration procedures and using approved equipment, parts and supplies as set by State regulations and Equipment Manufacturers (EM) recommendations.
4. Adhere to all safety procedures concerning people and property. This includes personal safety, safety of others, and safety of motorists' property and shops' property. The only

way to perform safe inspections consistently is by following proper test procedures according to State and EM guidelines and recommendations.

5. Even though GCAF will send renewal notices via the GAS unit 60 days prior to the expiration date of inspector's certification, it remains the inspectors' responsibility to keep track of their personal credentials, attend refresher-training programs and renew their inspectors' certifications ***PRIOR*** to expiring.
6. Protect their assigned security access codes. Chapter 391-3-20-.11 (10) "*An inspector shall not divulge or authorize the use of his or her personal access code by other person(s). An inspector shall be held responsible for all inspections performed by any person using his or her personal access code.*"
7. Abide by Chapter 391-3-20-.11 (11): "*Before an inspector may perform emissions inspections at a station, the Management Contractor must allow the inspector access to the test system(s) at the station. Inspectors must notify the Management Contractor at least three (3) business days before they begin employment at a given station, and no later than the next business day when they cease employment at a station.*" –Note, GCAF is the Management Contractor.
8. Abide by all Federal and State laws, rules and regulations governing Georgia's enhanced I/M Program.
9. Properly identify vehicles and systems to perform proper, accurate, complete and legal inspections. Especially on retests,

always confirm vehicle description and VIN accuracy by matching the documents, such as the VIR, to the vehicle prior to retesting.

10. Data-correcting inspections are performed at the expense of the station.
11. Assist GCAF and EPD personnel during overt audits.
12. Abide by Chapter 391-3-20-.11(8): When an inspector changes residence he/she needs to notify the Management Contractor of his or her change of address no later than the next business day.

**Inspectors' Certificate Types (Classes)**

Georgia's EPD offers one inspector certificate type, which allows inspectors to test all vehicles subject to the Georgia Enhanced I/M program. This certificate allows inspectors to perform: On-Board Diagnostics (OBD) and Two Speed Idle (TSI) inspections as required for the vehicle being tested.

# Chapter 7

# Quality Assurance and Quality Control

**Introduction**

Quality Assurance (QA) and Quality Control (QC) programs are essential to ensuring the integrity of Georgia's Enhanced I/M program.

Georgia EPD and the GCAF team are responsible for performing the QA and QC functions required by law. The functions consist of:

1. Administrative audits to ensure test facilities and inspectors adhere to licensing requirements, documentation requirements, data collection, signage display, distribution of information to customers, etc.
2. Performance audits to ensure test facilities and inspectors follow proper test procedures
3. Equipment audits to ensure proper and safe operation, use, calibration and maintenance of the equipment

**Types of Audits**

The EPD and GCAF team will perform two types of audits:

1. Covert, or "undercover", Audits. Covert audits mainly consist of a visual observation of inspector's performance. Part of the covert audit procedure is presenting for inspection a vehicle with known and documented failing and passing portions of the test. The inspector is responsible for their actions when performing inspections. The EPD takes this very seriously.
2. Overt Audits. Overt audits are announced audits. The auditor will visit the test facility and perform any or all of the Administrative, Performance, and/or Equipment audits.

*Note: Station personnel are required to assist the auditors during Overt and Record audits*

3. Record Audits. Generally unannounced and conducted when necessary.

The GCAF team performs QA audits periodically, as prescribed by EPD. The EPD Compliance Team investigates complaints and possible violations, and enforces the I/M Rules. The GCAF instructors cover in class the "Enforcement Policy" and quote the I/M Rules, which have been attached to this manual for reference.

**Note on Responsibility**

However, it remains the station owners, managers, and inspectors' responsibility to read, know and understand the requirements and rules governing the I/M program. To ensure adherence to those requirements make sure to review all material related to the program very carefully, and ask personnel at GCAF or EPD about items you do not understand or not sure of.

**Notice of Equipment Failure During Audit**

If the emissions test equipment fails during a station audit, the EPD or GCAF auditor will place a "Notice of Equipment Failure During Audit" on the GAS unit. The notice explains the failure type and instructs the station owner or manager to call the GCAF Hot Line (800) 449-2471 to obtain a ticket number confirming notification after the equipment is repaired and prior to performing any inspections. Attached with this training manual is a copy of the "Notice".

☺ **Compliance Tip:**

Inspecting vehicles with equipment that has failed an audit may result in EPD pursuing action against the inspector and/or station owner. EPD recommends that you keep all documents from the manufacturer to help prove that the equipment was repaired prior to continuing use for inspections (just in case of miscommunications)!

| | |
|---|---|
| **Emissions Repair Forms** | GCAF auditors are required to pick up the Emissions Repair Forms the inspection station collects from motorists. Ensure that you collect and save all of these forms for the auditor. |

# Chapter 8

# Explanation of EPD's Compliance Policy and Related Actions

**Introduction**

It is not our intention to recite the EPD Compliance Policy for the Enhanced I/M program in this chapter. Rather, our goal is to explain various issues, procedures and terminology associated with the Policy. Inspectors are required to read and to be familiar with the Georgia Enhanced Inspection and Maintenance Rules (I/M Rules).

**EPD Compliance Flags or Triggers**

One of the goals of the Georgia EPD is to maintain an effective Enhanced I/M program. Compliance with the I/M Rules and regulations is one function to ensure this goal is met. EPD utilizes various flags or triggers to concentrate their compliance and compliance efforts. Here is a list of some of these:

- Quality Assurance Audits
- Citizens' Complaints
- Other Triggers

Quality Assurance Audits:

As previously explained in Chapter 7 of this manual, GCAF will perform Overt and Covert Audits. In either case, after an audit is completed, the auditor files a report that is reviewed by the Audit Coordinator or Investigator who gathers additional information and conducts further investigation, as necessary to determine disposition. If action is required, the report is forwarded to the QA/QC Manager who conducts a final review of the report and supporting documents and, if necessary, forwards to the EPD Compliance Team.

| | |
|---|---|
| **Citizens' Complaints**: | When EPD or GCAF receives a complaint from a citizen, the complaint is evaluated, and other supporting documentation and evidence are collected. If the complaint appears to be valid, a follow-up will take place. The follow-up could include an overt and/or covert audit(s) and/or additional investigation and documentation. Results of the audits and/or additional investigation are forwarded to the EPD Compliance Team for action. |
| **Other Triggers**: | EPD investigations can also be triggered by complaints or inquiries from governmental agencies, such as county tag offices, Department of Revenue, and/or local law enforcement agencies. Related cases can also trigger investigations.<br><br>GCAF and EPD regularly conduct data analysis and generate reports that might show irregularities or abnormalities. The EPD Compliance Team will investigate these variations from the norm for further action, as necessary. |
| **Available EPD Compliance Actions** | The EPD Compliance Team receives and logs audit reports and complaints in a database. The Team reviews these reports, documents, and evidence to determine if compliance action is warranted. If so, the Team may also conduct investigations and evaluate evidence to determine what follow up action(s) is necessary. |
| **Notice Of Violation** | To initiate an investigation of a suspected violation, the EPD Compliance Team will use a Notice Of Violation (NOV) to track the process. However, this does not mean that EPD Compliance Team has |

concluded that the inspector or station has committed a violation. The NOV serves as the initiation and tracking document of any case. It will have a tracking number and will document all events relating to the specific situation surrounding its issuance. In addition to investigation and documentation of evidence, the EPD Compliance Team will take into consideration the severity of the infraction and the intent of the station owner or inspector involved in the infraction.

There are various compliance actions available to the EPD Compliance Team when investigating a reported or alleged violation. The following is a list of those actions:

- No Action
- Verbal Warning
- Notice of Violation (NOV)
- Consent Order (CO)
- Administrative Proceedings
- Criminal Proceedings

***Note:*** *A sample of the NOV form is added as an attachment to this manual.*

**No Action**:

"No Action" is usually associated with a minor noncompliance situation or minor violation that was committed without intent or malice. In such a case, the NOV does not require the signature of the station owner or inspector. EPD Enforcement will discuss the issue with the appropriate party and simply ask for correction without pursuing any further action. "No Action" is also used in other cases in which EPD's investigation concludes the complaint to be unfounded or unsubstantiated.

When the EPD Compliance Team issues a NOV for anything other than "No Action", the recipient will be asked to sign the form. A signature only acknowledges receipt of the NOV. It does not mean the recipient agrees with the action or admits guilt. *Refusal to sign the NOV does not negate the action*; the NOV will still be issued. In addition, refusal to sign indicates the recipient is uncooperative which will be taken into consideration should enforcement action follow. If the inspector is not available during delivery, the NOV will be mailed to their address on record and all NOVs will be emailed to owner to ensure proper steps are taken to ensure future compliance with the I/M Rules.

**Verbal Warning**:

A "Verbal Warning" action is usually associated with a minor infraction, noncompliance, or negligence with or without intent, but without malice. EPD Compliance will discuss the infraction with the inspector and/or owner and explain any corrective measures that are required. This action does not require an acknowledgement signature of the NOV and corrective measures prescribed. Usually, no additional follow up is required. However, the infraction is documented and, if repeated, a NOV will be issued with escalation to the next level of compliance level within EPD with corrective action. Generally one verbal warning will be given for each minor infraction type.

EPD generally uses the "Verbal Warning" action, prior to pursuing the next level of corrective actions, to correct a prevailing deficiency or misunderstanding within the industry at large. Here are examples when a "Verbal Warning" might be used: The station failed to have on-hand

required public information material such as the GCAF brochures; or an inspector not producing a picture ID, as required by the I/M Rules.

**Consent Order**:

When a suspected infraction or violation appears to be serious in nature EPD will issue a "Consent Order". This is usually associated with violations of negligence, intent or malice; and may lead to EPD taking further compliance action.

In such situations, EPD Compliance Team will instruct the party on the infraction and the pending enforcement action that EPD plans to pursue. An acknowledgement signature for a NOV is required. Inspector's refusal to sign the NOV will be noted on NOV. EPD will also outline the process and the options available to the party-in-violation to resolve the violation. However, before EPD proceeds with the Consent Order process, the party-in-violation has the opportunity to communicate or submit any evidence for consideration by EPD in disposition of the case. As a result of such evidence, the NOV could be dismissed. However, if EPD stands on their accusation, the NOV will stand, and resolution of the violation will be pursued through a proposed Consent Order agreement.

***Note**: Settlement by Consent Order does not admit guilt.*

The "Consent Order" process is an administrative legal procedure by which both EPD and the party-in-violation can reach a settlement concerning the alleged violation without going to a hearing and/or without the need for legal counsel. However, should the party-in-violation choose to use their legal counsel, they have the right to do so.

When EPD proposes a Consent Order, it usually imposes monetary penalties, license suspensions and/or revocations as a resolution to the violation. The Consent Order offers the party-in-violation the opportunity to attend a conference at EPD offices for either a Settlement Conference or Consent Order Negotiation. This allows the party-in-violation another opportunity to explain his/her actions, present mitigating evidence, and to propose their idea of a reasonable settlement.

When EPD proposes a Consent Order, it is mailed to the party-in-violation by certified mail. The party-in-violation can either consent to the proposed settlement in the Consent Order by signing it, or by requesting a Settlement Conference to discuss a proposed settlement. The party-in-violation will have up to fifteen (15) days to respond. If the party-in-violation does not respond to the Consent Order, or a settlement cannot be reached, EPD will escalate the compliance action to the next level, which is an "Administrative Order".

Administrative Proceedings:

EPD's decision to opt for "Administrative Proceedings" is related to situations where the party-in-violation does not respond to a proposed "Consent Order" or when a settlement between EPD and the party-in-violation could not be reached.

***Note:*** *Improperly testing a fuel cap can be considered a fraudulent action.*

The "Administrative Proceedings" process is a more costly and burdensome process than the Consent Order process for both EPD and the party-in-violation as it is a formal legal proceeding. Therefore, EPD will pursue a more severe penalty than what was proposed in the Consent Order.

The "Administrative Proceedings" process requires the party-in-violation to respond through a "legal" petition process. The petition must adhere to set legal requirements for wording, format, and submission process.

The party-in-violation has thirty (30) days from the date the Administrative Notice of Suspension or Revocation was issued to file a petition. Should the party-in-violation not petition for a hearing, the proposed penalty in the Administrative Notice of Suspension or Revocation becomes final and is imposed by EPD. Filing a petition is a request for the case to be adjudicated by an Administrative Law Judge. If the party-in-violation files the petition for a hearing, EPD turns the case over to the office of the State's Attorney General. Although not required, it is advisable that an attorney represent the party-in-violation at this stage in the process. After the petition is properly filed, a hearing before an Administrative Law Judge is scheduled. After hearing the case, the Judge will render a ruling on the case.

EPD will assist the States' prosecutor with case preparation and serve as the prosecutors' witness. The charges are then filed with the State Court of the county where the violation occurred. After the trial and within the legal time limits set by law, the Judge will render his/her decision, which, depending on the case may result in a misdemeanor conviction, a felony conviction, and/or a fine plus court costs, and/or possibly a jail sentence.

**Fines & Penalties**

The fines collected as result of EPD Compliance do not go to the Georgia I/M program; it goes to other state funds. EPD Compliance does not have a financial incentive when enforcing the law and regulations.

EPD's interest is ensuring the integrity and effectiveness of the Georgia I/M program.

**Suspensions**

Suspensions represent a temporary loss of the inspector or station's license, generally for 30 to 180 days. A decision to suspend a license is based on the severity of the infraction or violation and the previous history of the party-in-violation.

***Note:*** *A station or inspector's license history is based on a 2-year rolling window.*

**Revocations**

Revocations represent a loss of the inspector or station's license for a **minimum of two (2) years**. A decision to revoke a license is usually based on violations with major infractions with malicious intent to bypass the Rules. However, other repeated violations regardless of severity might also result in license revocation.

***Note****:* *Fuel cap violations and improper testing are the top violations that results in inspector license revocations.*

**Denial of Certification**

Georgia's EPD has the right to refuse or deny certification or re-certification of inspectors and/or stations. Denial is usually based on the history and severity of previous violations regardless of the original violations outcomes or settlements. EPD might also take other factors and issues into consideration, regardless of previous violations history, to deny certification or re-certification of inspectors and/or stations.

**Throughout the entire EPD Compliance Process, there are several steps built into the process to protect the rights of the individual, when the individual responds appropriately and in a timely manner.**

**Important Note:**

**Criminal Proceedings**:

A decision by EPD Law Enforcement to pursue Criminal Proceedings is usually associated with major violations with intent or malice, especially violations with fraudulent intent. A Criminal Citation could be issued in conjunction with a "Consent Order" or "Administrative Proceedings". A criminal citation puts the violator into State Court (misdemeanor) or Superior Court (felony). A conviction here produces a criminal record.

# Chapter 9

# Vehicle Identification

# Vehicle Identification

**Introduction**

This chapter introduces methods of identifying and collecting information required for proper vehicle inspection. The information needed for the inspection include numbers that identify the vehicle such as license plate and vehicle identification number (VIN), emissions control equipment such as the catalytic converter and the evaporative emissions control system, and other information such as fuel type, vehicle make and model, etc.

☺ **Compliance Tip:**

Note: It is very important that the inspector follow the analyzer screen menus and prompts to correctly enter the required information. Mistakes made by the inspector in data entry can cause vehicles to be improperly tested and possibly falsely fail the inspection.

The inspector must collect and accurately enter the following information into the Georgia Analyzer System (GAS) in order to perform an accurate and complete vehicle inspection. The inspector collects this information off the vehicle and documentation presented to him/her at the time of inspection:

| | |
|---|---|
| 1. Vehicle Identification Number (VIN) | 7. Gross Vehicle Weight Rating (GVWR) for trucks |
| 2. Vehicle Year | 8. Engine Size |
| 3. Vehicle Make | 9. Number of Cylinders |
| 4. Vehicle Model | 10. Fuel Type |
| 5. Vehicle License Plate Number | 11. Drive Train Type |
| 6. Odometer Reading | 12. Exhaust System Type |

☺ **Compliance Tip:**

If the inspector uses documents such as the registration or insurance card to collect vehicle information, he or she must make sure that the information matches the vehicle being tested.

**Vehicle Identification Number (VIN)**

Vehicles model year 1981 and newer have a seventeen (17) digit VIN. The digits in the VIN are coded based on an internationally adopted standard. Each position or combination of positions in the VIN contain(s) certain information about the vehicle. The following is a general decoding of the VIN.

- The 1st digit indicates the country of manufacture.
- The 2nd digit is the manufacturer and the 3rd is the division; for example GM – Buick.
- The 4th through the 8th digits are coded at manufacturer's discretion. Normally, engine size, body type, restraint system, and other information are coded into these digits.
- The 9th digit is a check-sum digit that authenticates the VIN itself.
- **The 10th digit indicates the model year.**
- The 11th digit is used with the 2nd and 3rd digits to identify the factory for high volume manufacturers and other information for small volume manufacturers.
- The last six digits, 12th through 17th are the serial number of the vehicle.

☺ **Compliance Tip:**

Inspectors MUST use all means to read the VIN off the vehicle.

The 10th Digit of the VIN

The following table decodes the 10th digit of the VIN:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Y= | 2000 | 5= | 2005 | A= | 2010 | F= | 2015 | L= | 2020 |
| 1= | 2001 | 6= | 2006 | B= | 2011 | G= | 2016 | M= | 2021 |
| 2= | 2002 | 7= | 2007 | C= | 2012 | H= | 2017 | N= | 2022 |
| 3= | 2003 | 8= | 2008 | D= | 2013 | J= | 2018 | P= | 2023 |
| 4= | 2004 | 9= | 2009 | E= | 2014 | K= | 2019 | R= | 2024 |

**Note:**

***The letters: I, O, Q, are not used at any position in the VIN.***

The inspector may scan the VIN or manually read and enter the VIN into the GAS unit.

The inspector should be able to find the VIN at various locations on the vehicle. The VIN is always found on a plate on the dashboard under the windshield on the driver's side. It also could be found on the doorjamb label. When verifying the VIN, the inspector should take note of the 10th digit to help identify the model year of the vehicle.

*The Doorjamb label, also known as the Statement of Certification (SoC)*


☺ **Compliance Tip:**

Note: Because of possible body repairs, the inspector must make sure that the doorjamb label belongs to the vehicle.

QR code of the VIN found on newer vehicles. Requires a 2-D barcode reader

*The VIN plate on the dashboard under the windshield*


**Vehicle Year**

The vehicle model year can be found on the Vehicle Emission Control (VEC) label –the "Under-hood label", the doorjamb label and is coded into the 10th digit of the VIN.

*Vehicle Emission Control (VEC) Label, also known as the "under-hood" label*


**☺ Compliance Tip:**

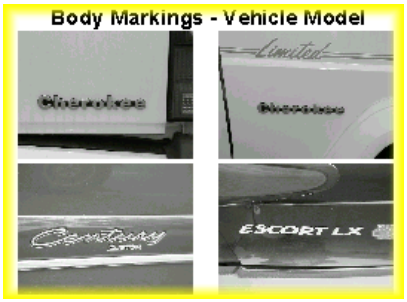
The doorjamb label contains the manufacture date of the vehicle. **This is not the model year of the vehicle.** Inspectors should not use this date for determining vehicle model year because it could cover two model years. For example, a vehicle manufactured 6/98 could be a 1998 or a 1999 model year.

**Vehicle Make**

The inspector can find the vehicle's make and insignias on the vehicle's body. Most vehicles will display either one or both.


**Vehicle Model**

Most of the time the inspector can find the vehicle model from body markings. The illustration below should help clarify the point.




**☺ Compliance Tip:**

Note: Inspectors should use the list of models displayed by the analyzer. Sometimes suffixed model names are not listed separately because the suffix does not change Emissions requirements. Example: Protégé and Protégé LX. Protégé LX is not listed separately, so you would pick Protégé even though you are testing a Protégé' LX.

*How about a little exercise?*

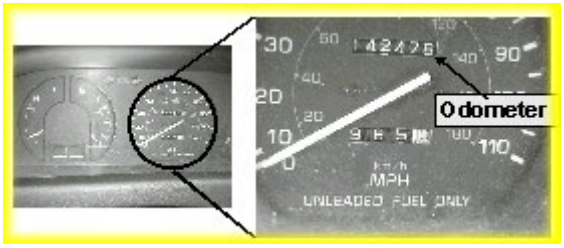
*Try observing vehicles to determine their make and model. After a while you will be able to recognize certain features about a specific make and model. In the long run this exercise might make your job easier. The VW Beetle comes to mind! It is unique. Isn't it?*

**Vehicle License Plate (Tag) Number**

Read and note the rear license plate (tag) number and issuing state installed on the vehicle. Chose the appropriate state (the default is GA) and type in all digits found on the plate. In Georgia newly purchased vehicles are provided Temporary Operating Permits (TOP) as a drive-out tag. If a vehicle has a TOP then *ALL* numbers of the TOP must be entered.

**Odometer Reading**

The odometer is normally located in the vehicle's instrument panel. It is important for the inspector to differentiate between the odometer readings and the trip counter. Normally, the odometer is the dial with more digits. A trip counter may contain up to four digits while the odometer contains either five or six digits not including the 1/10th mile digit.

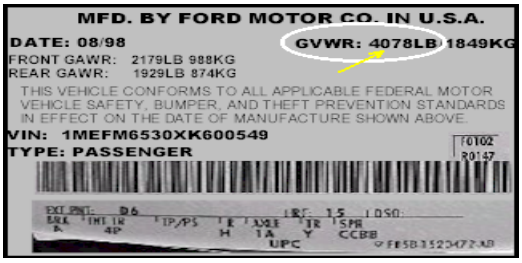



**☺ Compliance Tip:**

Enter the odometer reading as displayed. Do not add 100,000 miles because you think the mileage is too low for the vehicle. And, do not enter the 1/10th digit.

**Gross Vehicle Weight Rating (GVWR)**

Gross Vehicle Weight Rating (GVWR) entry is only required for trucks. Most of the time, the GVWR is found on the doorjamb label.



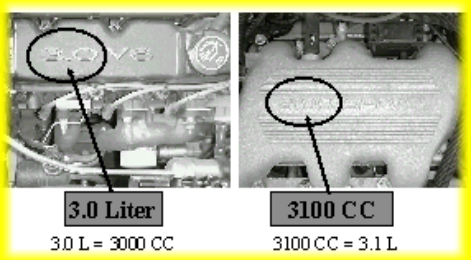

The inspector should be careful not to confuse Front or Rear Gross Axle Weight Rating (GAWR), also found on the doorjamb label, with the GVWR. The inspector MUST NOT add the Front GAWR and the Rear GAWR to generate the GVWR. It does not work that way.

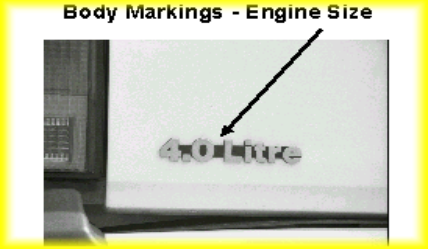
*The GVWR is NOT the net weight of the unloaded vehicle. The GVWR is a "rating" the manufacturer assigns to the vehicle that takes into*

***Note*** *consideration the weight of the vehicle and the maximum weight of passengers and cargo the vehicle is designed to handle.*

**Engine Size**

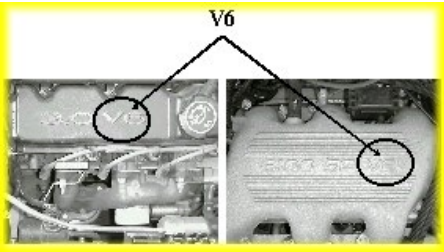
Information about engine size can be found in various places: the VEC label, indicated on the engine (engine markings), sometimes indicated on the body (body markings).




**Number of Cylinders**

The inspector can determine the number of cylinders by looking for engine markings or by following a visual identification process. Visual identification means the inspector can count the number of spark plug wires, the number of injectors if the vehicle uses a port fuel injection system, the number of exhaust or intake manifold runners.



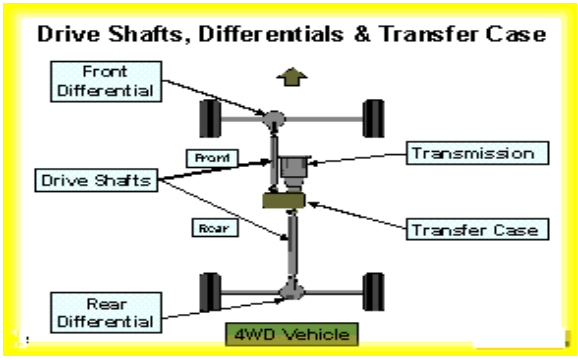


***Note:*** *If counting spark plug wires at the distributor remember not to count the coil wire as an additional cylinder! You will not have this problem with distributorless ignition.*

Other noteworthy systems are the Mazda Rotary and the Nissan Nap-Z. The Nissan Nap-Z has two spark plugs per cylinder. If you count the spark plugs on that engine, you will find eight of them. However the engine has only four cylinders. You can always verify by counting the number of exhaust or intake manifold runners. Mazda uses rotary engines in their RX models. The rotary engine has no cylinders. The inspector selects **R**otary when testing a vehicle manufactured with a rotary engine.

**Drive Train Type**

Determining the correct drive train type is very important for accurate and safe inspections. The inspector should look under the vehicle for drive shafts and differentials configuration, body markings and markings inside the vehicle to determine drive train type. Markings on the shift lever inside the vehicle or the center hub might indicate whether the vehicle has a manual transmission or an automatic transmission.



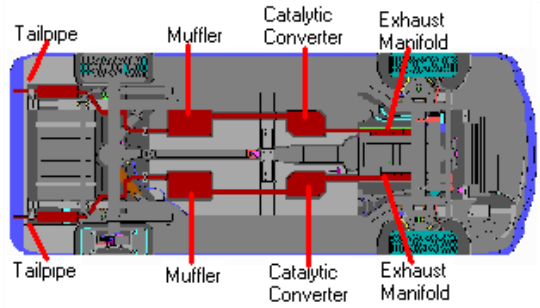

**Fuel Type**

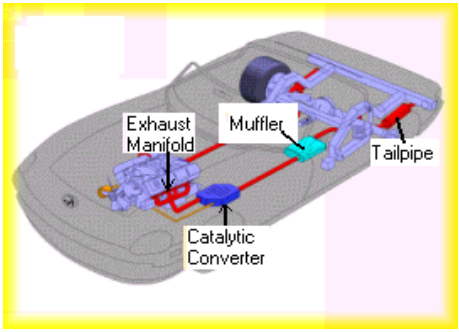
The inspector can determine fuel type by looking at the dash and/or fuel filler neck area for markings that indicate the fuel type used. Sometimes auto manufacturers include the fuel type in the model name of the vehicle. For example, Mercedes 300D means the vehicle is diesel powered.

**Exhaust Type**

The inspector must determine whether the vehicle has a single or dual exhaust system. A dual exhaust system requires the inspector to sample the exhaust from both sides simultaneously. The inspector must use two probes and insert one in each of the tailpipes during the TSI tailpipe emissions tests. A true dual exhaust system means the exhaust is split before the catalytic converter. It is essential that you probe the exhaust pipe(s) properly for accurate emissions tests.

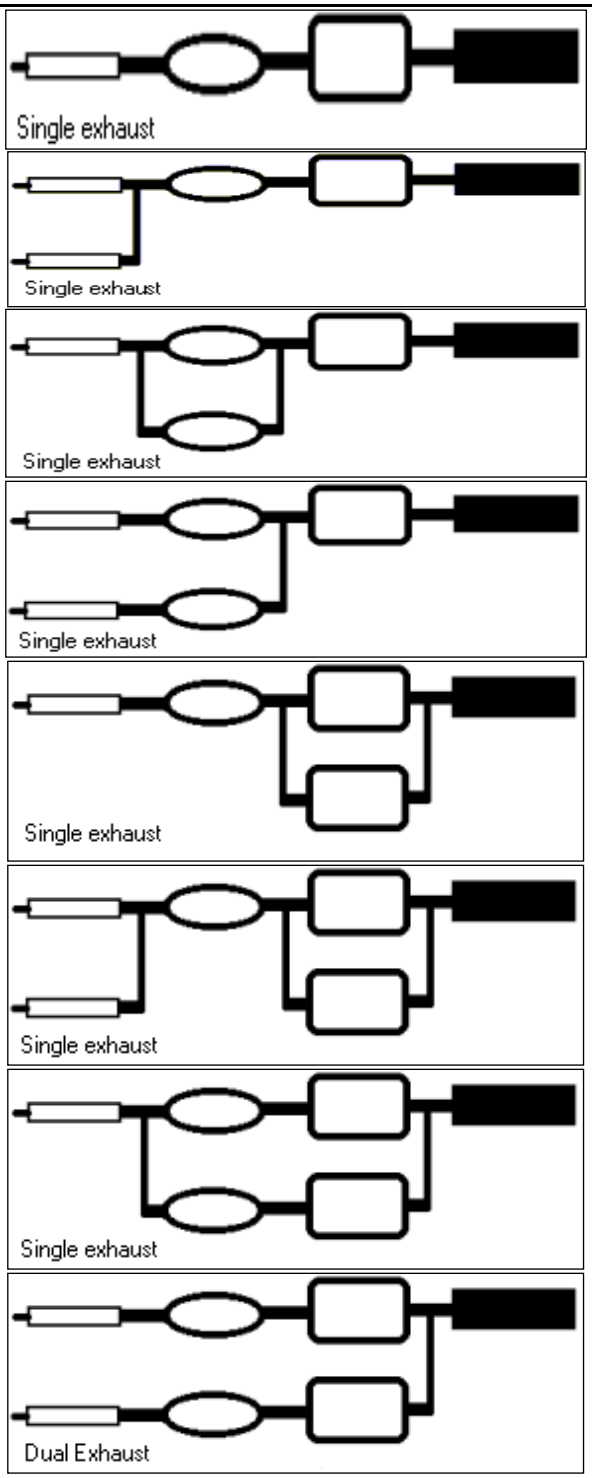
Dual Exhaust System

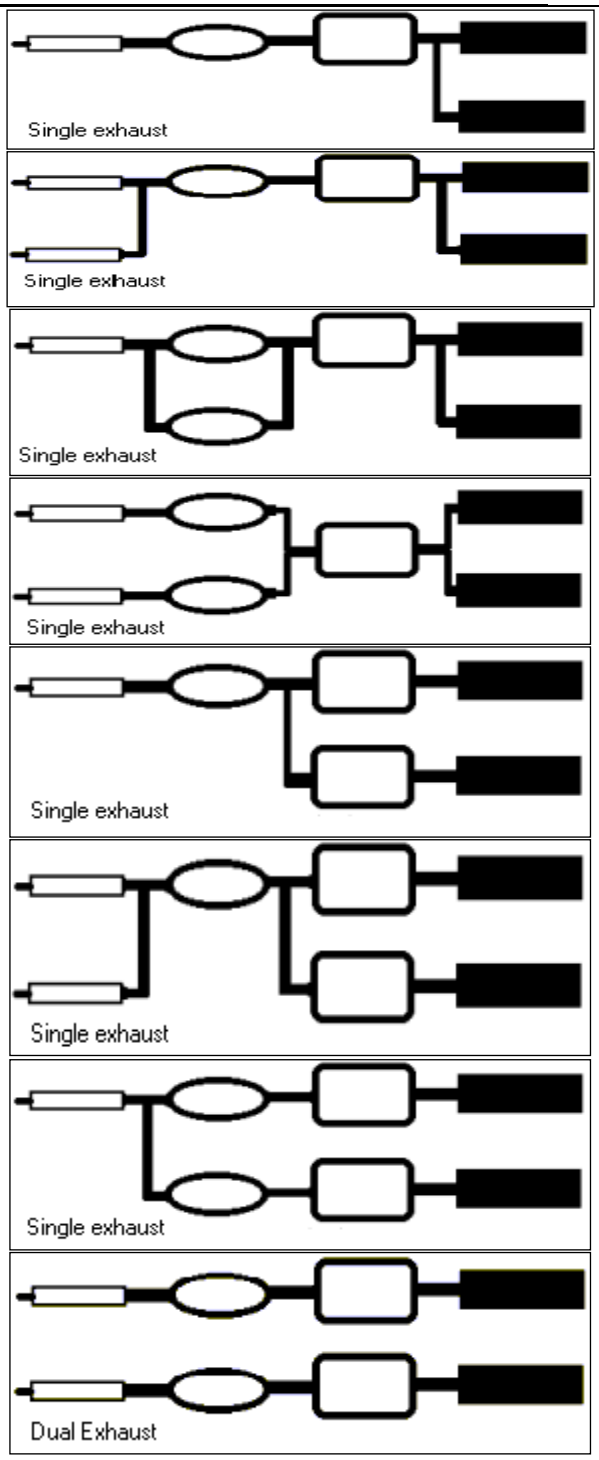


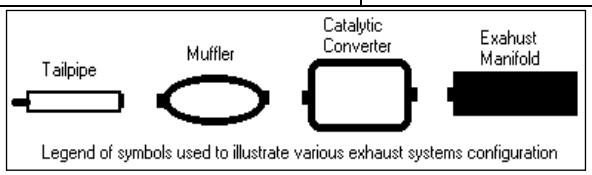




**☺ Compliance Tip:**

It is the inspector's responsibility to ensure that all of the vehicle information, including odometer, is correctly entered into the GAS unit to avoid enforcement action by EPD.


Single exhaust
Single exhaust
Single exhaust
Single exhaust
Single exhaust
Single exhaust
Single exhaust
Dual Exhaust


Single exhaust
Single exhaust
Single exhaust
Single exhaust
Single exhaust
Single exhaust
Single exhaust
Dual Exhaust


Tailpipe
Muffler
Catalytic Converter
Exahust Manifold
Legend of symbols used to illustrate various exhaust systems configuration

# Chapter 10

# Emissions Control Systems Identification and Inspection

## Introduction

Emissions Control Systems (ECS) are designed to help reduce vehicle emissions in one of three ways:

1. **Control the intake of air/fuel and control the combustion process in effort to prevent emissions from forming.** These are pre-combustion controls. They include carburetors, fuel injection systems, ignition systems, on-board-computers, and exhaust gas recirculation (EGR) systems.
2. **Treat emissions after they form but before they reach the atmosphere.** These are post-combustion controls. They include catalytic converters (CAT) and air injection (AIR) systems.
3. Evaporative Emissions Controls (EVAP) are designed to prevent fuel vapors from escaping to the atmosphere.

## Georgia Inspections

The Georgia Enhanced Inspection and Maintenance Program has two types of inspections: tailpipe emissions sampling-based tests, (Two Speed Idle (TSI) and an On-Board Diagnostics (OBD) test.

The TSI and OBD tests include a visual inspection for the presence of the Catalytic Converter (Tamper Inspection) and a functional inspection of the Evaporative Emissions Control (EVAP) system, represented by the Fuel Cap Pressure Test.

Our discussion of Emissions Control Systems in this chapter will be limited to the EVAP and Catalytic Converter related inspection procedures. Tailpipe emissions tests and the OBD test will be discussed in separate chapters according to test type.

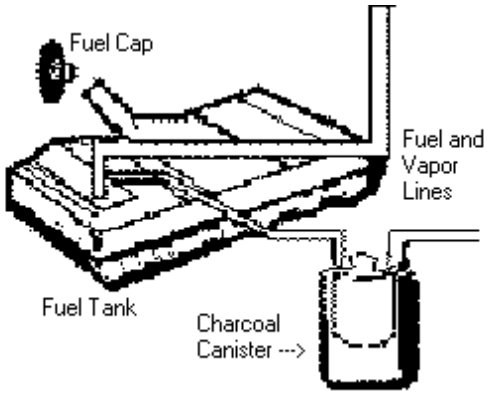
**Evaporative Emissions Control (EVAP) Systems**

Evaporative Emissions Control (EVAP) systems were introduced in 1970 on California certified gasoline-fueled cars and light-duty trucks. In 1971, all U.S. certified gasoline-fueled cars and light-duty trucks required some type of EVAP system.

Components of the EVAP System

The components of the EVAP system include:

1. The Fuel Tank
2. The Fuel Cap (must be a sealed fuel cap)
3. The Charcoal Canister
4. The Plumbing (the fuel and fuel vapor lines)




Function of the EVAP System

The function of the EVAP is to trap and store fuel vapors, (hydrocarbons (HC) that evaporate from the fuel tank and carburetor bowl), thereby preventing HC emissions from escaping to the atmosphere. At the right time, the EVAP routes these vapors back to the induction system to be burnt in the engine.

**The Fuel Cap Pressure Test**

Inspectors are required to perform a functional pressure test on fuel caps of all vehicles they inspect. The State requires all inspection facilities to have approved equipment and expects all inspectors to be familiar with their specific use, care, and maintenance. State guidelines and equipment manufacturers recommendations must be followed when performing fuel cap pressure tests. The GAS will prompt for the expected fuel cap adaptor at the start of the pressure test. In addition, the State requires all facilities to have the latest copy of a Fuel Cap Adapter application guide that covers the make of fuel cap adaptors in use.

☺ **Compliance Tip:**

Inspectors MUST make sure that they test the fuel cap of the vehicle being tested.

Performing the Fuel Cap Pressure Test

The following steps outline the fuel cap pressure test procedure:

1. Vehicles equipped with two fuel tanks- both fuel caps must be installed, and both must be tested.
2. If a fuel cap is missing, the vehicle shall fail the test.
3. If the fuel cap is available, it shall be removed and tested.
4. If a vehicle is produced without a fuel cap, it is deemed not testable. There is no provision for a missing fuel cap.
5. The fuel cap is considered "not testable" if it is present, but the fuel cap tester is not equipped with an adapter to fit the cap. This means that the approved fuel cap tester manufacturer does not offer a cap adapter for the fuel cap being tested. (*In this case the inspector must choose the appropriate answer to the prompt of the GAS unit indicating the fuel cap is not testable. The vehicle will pass this portion of the inspection.*)
6. To test the fuel cap:

a. Remove the fuel cap from the vehicle being tested.
b. Attach the fuel cap to the receptacle on the tester, **or** identify the adapter to be used, attach the fuel cap to the adapter, and then attach the adapter to the receptacle.
c. Perform the test using equipment manufacturers recommended procedure.

The test results will be transmitted automatically to the analyzer.

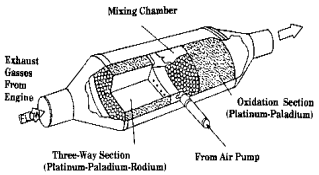
7. If there is more than one fuel cap on the vehicle, up to two fuel caps must be tested and both have to pass for the vehicle to pass this portion of the inspection.

**☺ Compliance Tip:**

Bypassing the fuel cap test without attempting to test it is a fraudulent activity. If the inspector neglects to test a testable fuel cap or passes a failed cap, he/she risks having his/her inspector's certificate to inspect vehicles revoked for a minimum of two years.

U.S. EPA statistics indicate that a significant amount of the HC emitted by vehicles into the atmosphere result from Evaporative Emissions. Statistics have also shown that most of EVAP system failures are due to bad fuel caps. These statistics should make the inspector very aware of the importance of performing accurate, complete and legal fuel cap pressure tests on all vehicles they inspect.

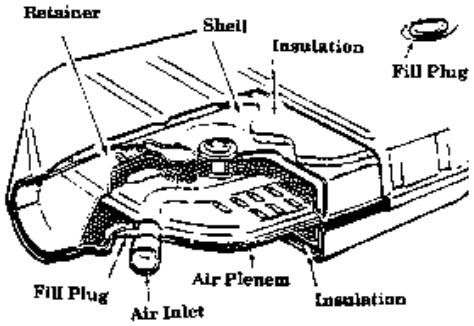
## Catalytic Converters




Vehicle manufacturers realized that one way to control vehicle emissions without extensive interference with engine and systems design was through the use of post combustion controls. In 1975, the catalytic converter, a new emissions control system, was factory installed on most vehicles sold in the USA. The catalytic converter revolutionized emissions controls because it did an excellent job of reducing pollutants with

minimal interference with engine design and minimum power reduction. Catalytic converter technology advanced and developed over the years to produce converters that are more efficient and less expensive to make.

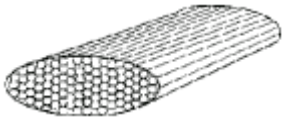
Structure of Catalytic Converters




**CATALYTIC CONVERTER**

Main Components

**Outer Shell** is shaped much like a muffler and is made of stainless steel to increase durability and resistance to rust.



**Monolith Element** is a honeycomb of small ceramic passageways. A very thin coating of the catalyst agents, platinum, palladium, and rhodium, are used to cover the ceramic surface. A stainless steel mesh surrounds the entire monolith element for protection.

**Aluminum Oxide Pellets** are used in pellet type converters. A bed of aluminum oxide pellets 1/8" - 3/16" in diameter are coated with a thin layer of platinum and palladium, the catalyzing agents.

**Platinum, Palladium and Rhodium** are noble metals used in both the monolith and pellet type converters. They are the acting catalysts in converters. (*A catalyst is a substance that modifies and increases or*

*speeds up a chemical reaction without being consumed in the process*).

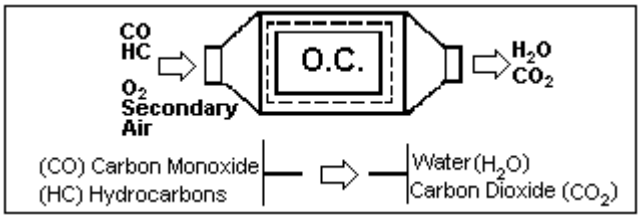
**Health Concern:**

One of the main reasons that the use of lead was discontinued as an additive in gasoline in 1975 was the catalytic converter. Lead contaminates the surfaces of the catalytic converter preventing the catalyst elements from working. Additionally, lead has been proven to be a toxic element that negatively affects human health. Learning disabilities in children have also been connected to exposure to lead.

Types of Catalytic Converters

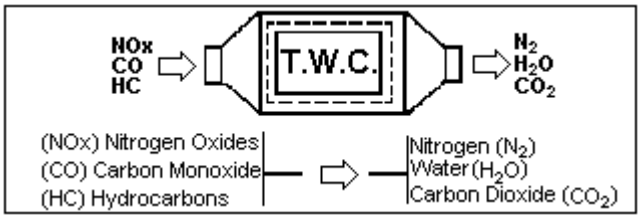
There are three types of catalytic converters:

1. **Oxidation Converter (OC)**, also known as the Conventional Oxidizing Converter (COC).




The COC uses Platinum and Palladium as the catalysts to convert HC and CO to water vapors ($H_2O$) and carbon dioxide ($CO_2$). The converter promotes a reaction of oxygen with HC and CO to convert these pollutants to harmless water vapors and carbon dioxide.

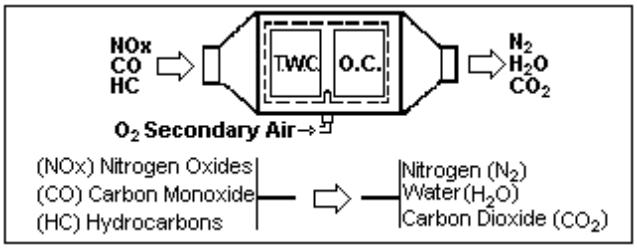
2. **Three Way Converter (TWC)**.




In addition to Platinum and Palladium used to convert HC and CO

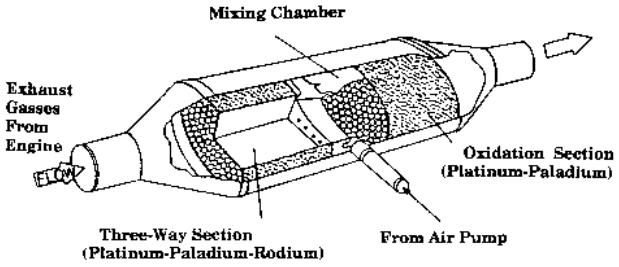
to $H_2O$ and $CO_2$, the TWC uses Rhodium to break down $NO_x$ compounds to harmless Oxygen and Nitrogen gases.

3. **The Dual Bed Converter**.




The Dual Bed catalytic converter contains both a TWC and a COC. This is a different design that is more effective in some applications. The design of the dual bed converter has the TWC in front of the COC. This arrangement is important since you are freeing oxygen in the TWC and combining oxygen to HC and CO in the COC.

A cut away view of the dual bed converter




**Visual Inspection for the Presence of the Catalytic Converter (Tamper Inspection)**

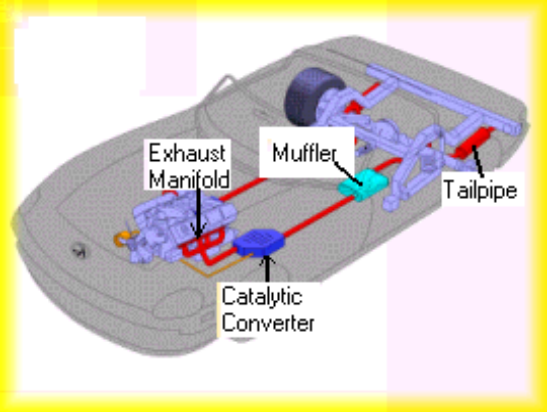
The visual inspection for the presence of the catalytic converter is aimed at ensuring that all vehicles subject to inspections that were originally equipped with a catalytic converter system have one installed and that the system has not been illegally modified.

In order for inspectors to perform a proper visual inspection of the catalytic converter, they must be able to answer the following questions:

1. Where is the converter located, and is it there?
2. If the catalytic converter is in place, is the configuration of the system acceptable?
3. If the catalytic converter is not found, does the vehicle presented for inspected require one?

*Where is the converter located, and is it there?*

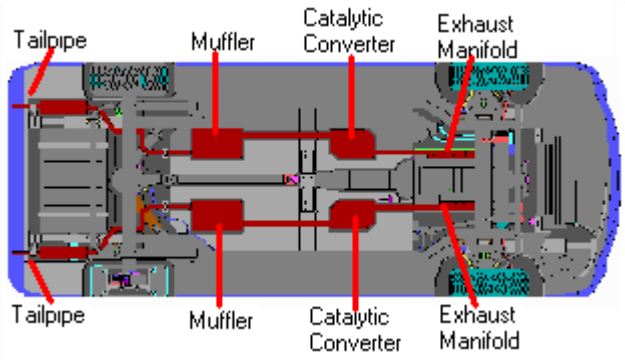
The catalytic converter is positioned between the exhaust manifold and muffler. In most cases, the converter is positioned under the vehicle in the exhaust system, usually as close to the exhaust manifold as possible. On many vehicles with small engines the converter may be positioned close to or part of the exhaust manifold, requiring the inspector to open the hood and look for the converter. A good converter locator guide might be an exhaust system parts manual from the auto manufacturer or an after-market supplier of exhaust system parts.



*If the catalytic converter is in place, is the configuration of the system acceptable?*

An acceptable configuration means the system is either original or approved modification. For example, some vehicles might have two converters installed in line (one after the other) or some dual exhaust vehicles might have four (4) converters. In any case, for the converter to pass inspection it must be present and without any visual tampering.

State of Georgia rules require that a second catalytic converter be installed when a single exhaust system is converted to a dual exhaust system. Dual exhaust system means any split of the exhaust system before the catalytic converter. The following illustration shows a classic example of a dual exhaust system:




Dual Exhaust System

The inspector should be aware that there are replacement converters that might change the original auto manufacturer's configuration. The inspector can verify that by using reference manuals from the after-market manufacturer.

**Inspectors should not pass a vehicle if in doubt.** The inspector should seek the help of their peers, management, and suppliers as

appropriate to the inquiry. Remember, the burden of proof lies with the person doing the modification. In some cases, this means the motorist has to prove that the configuration is legal.

<u>If the catalytic converter is not found, does the vehicle being inspected require one?</u>

Most 1975 and newer vehicles were originally equipped with a catalytic converter system. Inspectors have many sources to find this information. The first and most reliable source is the Vehicle Emissions Control (VEC) label. Auto manufacturers install the VEC label somewhere in the engine compartment. The VEC label lists the required emissions control systems in addition to other information such as engine size, engine family, year of vehicle, etc. Following is an example of a VEC label showing that the vehicle requires a catalyst.

Vehicle Emission Control (VEC) Label


This label shows a Catalyst is required.

In addition, sometimes auto manufacturers will install a “Catalyst Required” label on the doorjamb.

*Other sources to determine that a catalytic converter system is required*

Another good source of information is ECS reference manuals and application guides. Auto manufacturers and specialty after market companies, such as Mitchell, Motors, and Chilton, publish ECS reference manuals and application guides. These manuals normally list vehicles by make, year, model and engine size, listing the required ECS with notations

for clarification as needed. However, the inspector should keep in mind that errors might exist in such manuals and that the final authority will be the original manufacturers.

*Physical Evidence*

Physical evidence is another way for the inspector to determine if a catalyst was originally installed. For example, an obvious straight pipe installed or a weld between the exhaust manifold and muffler might indicate that the converter was removed. Other indicators such as a catalyst light on the dash, the Fuel Fill-Neck Restrictor, and labels indicating "Unleaded Fuel Only" might also indicate that a catalyst is required.

If the inspector cannot ascertain the requirement for a catalyst, the final determination must come from the auto manufacturer or its agent, such as a dealership.

☺ **Compliance Tip:**

**Tampering with ECS:** Disconnecting or rendering inoperative any Emissions Control system or changing the elements of their design is prohibited by Federal and State laws. Tampering could result in penalties and both civil and criminal fines, including but not limited to inspector license revocation. However, replacement of ECS with OEM or approved units or parts and performing approved adjustments are not considered tampering.

# Chapter 11

# Georgia I/M Emissions Inspection Equipment

**Introduction**

The State of Georgia I/M Program provides for two types of emissions inspections: OBD system test and tailpipe emissions sampling based tests. Tailpipe tests include a Two Speed Idle (TSI) test, and Random Two Speed Idle (RTSI). RTSI is only used to asses the tailpipe emissions and is not used to PASS/FAIL a vehicle. EPD developed test equipment specifications that allowed enough flexibility for the equipment manufacturers (EM) to provide a system that is capable of performing the TSI only test, and the OBD test at all inspection stations.

**Test Equipment**

The equipment required to perform Georgia emissions inspections includes:

- Georgia Analyzer System (GAS) unit, which is required for OBD and TSI tests
- Georgia certified Fuel Cap Pressure Tester, which is required for OBD and TSI tests

The GAS unit consists of the following:

Equipment Components, Description and Function

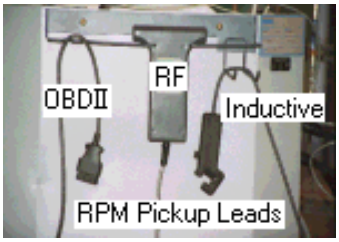
1. **Tamper-proof cabinet**. Enclosed in the cabinet are a computer and a gas analyzer bench.
   - The computer runs Georgia certified inspection software including software to communicate with the Vehicle Information Database (VID) and the external fuel cap pressure testers. The computer receives input from the inspector, the gas bench, and the fuel cap tester to determine whether a vehicle passes or fails the inspection.

Hose and Probes

- The gas bench collects and analyzes tailpipe emissions and reports the results to the computer during TSI and RTSI tests.

2. **Probe Line, Probe, and Probe Tip**. The probe tip is inserted into the vehicle's tailpipe to a required minimum depth of 10 inches. The gases collected are directed through the probe assembly and probe line through filters into the gas bench for analysis. The inspector should use a dual probe setup to properly inspect dual exhaust vehicles. Both tailpipes must be sampled simultaneously during a TSI or RTSI test.
3. **Engine speed pickup leads**; also known as tachometer leads, relay engine speed in Revolutions Per Minute (RPM) to the computer, which may be required during a TSI test. There are various types of tachometer leads:

RPM Pickup Leads

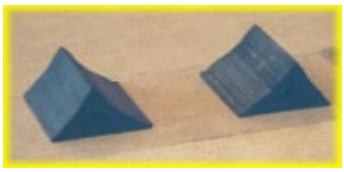



- Inductive pickup lead. This type clips around a spark plug wire to read RPM.
- Non-contact RPM pickup, or radio frequency (RF) RPM pickup. This type of RPM pickup reads the radio frequency generated from the pulses an engine generates and converts them to RPM.
- Some GAS units are equipped with two special probes to read RPM, those are: battery pickup leads and the ground pickup lead.

4. An **OBD test lead**. This lead connects to the vehicle's Data Link Connector (DLC) to establish communications between the GAS unit and the vehicle's OBD system.


Biometrics

The Fuel Cap Pressure Tester



Wheel Chocks

5. **Monitor**. The monitor displays required input, inspector's entries, information about test status, and important **warning messages**.
6. **Keyboard** (some GAS units also might have a Remote Control). The keyboard, remote control, and bar code scanner are used to input or scan information into the computer.
7. **Bar Code Scanner**. The GAS uses this device to scan the VIN, calibration gas bottle values, and inspector photo ID.
8. **Printer**. The printer is used to print Vehicle Inspection Reports (VIR) and other required documents.
9. Various devices to enable unit calibration.
10. Georgia approved calibration gases to calibrate the bench, and Zero Air bottles, which could be replaced by a Zero Air generator.
11. **Biometric Finger Vein Reader**. Used to scan inspector vein "signature" into GAS unit to enable inspection of vehicles.

The Fuel Cap Pressure tester could be a stand-alone unit or could be built into the GAS unit. The Fuel Cap Pressure tester has multiple adapters that fit most fuel caps on most vehicles. Calibration Pass/Fail caps or devices are included with the tester. The inspector will use the tester to pressurize fuel caps. Indicators on the stand-alone unit or the GAS unit will guide the inspector by signaling when to stop pressurizing and when the test is completed. Both types of testers will automatically communicate the test results to the GAS unit.

- **Wheel Chocks**. Wheel chocks are suggested to conduct safe inspections. If not included with the equipment, they may be purchased separately. During tests, the wheel

chocks will prevent the vehicle from "driving off" if the transmission goes into gear inadvertently. For your safety, the safety of co-workers, motorists, and property, it is suggested to *use the wheel chocks during every inspection*.

.

Equipment Calibration

The inspection equipment requires a "72-hour" calibration. The GAS unit will prompt for calibration when required and will lockout if calibration is not performed or fails. Calibration of the GAS unit consists of a **Gas Calibration** using approved calibration gas (*BAR 97 high gas, which contains a known amount of pollutants: 3200ppm HC, 8.0% CO, 12% $CO_2$, and 3000ppm $NO_x$ concentrations for ASM*) and approved -BAR97 certified- zero air (*zero air means purified air that has no or very little contaminants, less than 3ppm (part per million) or less than 0.0003%), or a Zero Air Generator,* and a **leak check**.

☺ **Compliance Tip:**

When performing a 72-hour gas calibration, the inspector must ensure that the calibration gas values on the cylinder are programmed into the GAS unit. Otherwise the unit is improperly calibrated and shall not be used for conducting emissions tests. If the calibration gas values are not correct in the GAS unit then a calibration audit failure is likely.

The fuel cap pressure tester is calibrated using calibration standards that resemble fuel caps. The "Master Pass" cap is green. The "Master Fail" cap is red. Another type of fuel cap tester calibration device is a gauge with green pass/red fail positions.

☺ **Compliance Tip:**

Only use master calibration fuel caps or gauges when calibrating the tester. Using the master calibration caps or gauges for any activity other than calibrating the equipment is considered a fraudulent activity, which may result in the inspector's certificate being revoked for a minimum of two years.

Equipment Maintenance

Station owners, managers, and inspectors are responsible for proper maintenance of their equipment to ensure accurate testing. They may perform maintenance on most external items. Filters, probe tips, probes, probe lines (sample hoses), fuel cap adapters, master calibration caps, keyboards, monitors, and tachometer leads may be replaced or repaired by the station owner, manager, or inspectors as long as EM or approved replacement parts are used. The manufacturer must perform any maintenance or service that requires access to the controlled-access area of the equipment.

☺ **Compliance Tip:**

Do not attempt to open the cabinet where access is limited to the manufacturer, State, or GCAF. Your attempt to access the controlled-access area will create a lockout of the GAS unit that will require a service call to re-certify the GAS unit.

# Chapter 12

# Data Entry and Vehicle Description

**Introduction**

Prior to the actual emissions test beginning, the software requires certain information to ensure the correct testing procedure is applied to the vehicle presented for inspection. The data entry process is identical for any of the inspection procedures.

The GAS unit will prompt the inspector to enter information about the vehicle. The inspector should refer to the "Vehicle Identification" chapter in this manual to learn how to identify and collect the information required for the inspection.

**Note:** It is very important for the inspector to follow the screen prompts and menus of the GAS unit to enter the correct vehicle information. Small mistakes here can cause false failures, problems in completing vehicle registration, mismatching and future retrieving of vehicle information and data, which will inconvenience the motorist and might trigger enforcement actions against stations and/or inspectors. Always follow the prompts, do not anticipate the next step because the software may adjust the procedure.

Data correcting inspections are performed at the expense of the station.

Vehicle Model Year

For vehicles 1981 and newer model years, it is best to use the 10th digit of the VIN to determine vehicle year. Refer to chapter 10 of this manual to decode the 10th digit of the VIN.

Test Type

The inspector has two choices: **I**nitial Inspection (**I**) or **A**fter Repairs re-inspection (**A**). Choose the correct test type. There will be minor variations in the data entry sequence into the GAS based on test type. These variations will be pointed out and explained.

An **I**nitial inspection is performed whenever a vehicle is required

| | |
|---|---|
| Initial Inspection | to have an inspection for any reason and the vehicle has not had an inspection within 90 days of the current inspection date. |
| ☺ **Compliance Tip:** | A new Initial Inspection must be performed at the request of the motorist and at NO COST to the motorist, to correct mistakes made on a previous test, such as the model year, VIN, vehicle model, odometer reading, etc. |
| After Repairs Inspection | The Inspector will choose **A**fter Repairs Inspection when a motorist, whose vehicle failed the Initial Inspection or a previous After Repairs Inspection, brings it back for a retest after he or she had it repaired. The motorist is required to provide the following documents, otherwise the vehicle is to be rejected:<br>1. A **completed** Emissions Repair Form<br>• Blank copies are available for print on the GCAF website Motorists section |
| ***Note:*** | *Samples of Vehicle Inspection Reports and Emissions Repair Data Form are attached to this manual for review and reference.* |
| | The inspector must use the Certificate number from the VIR or Emissions Repair Form and enter the information from the Emissions Repair Form to complete an After Repairs Inspection. If the Emissions Repair Form is not available, the inspection cannot be performed. If the test has been started and the VID indicates this is an After Repairs Inspection and the motorist could not provide the Emissions Repair Form, then the free test is to be aborted and the motorist instructed to return with a completed Emissions Repair Form to obtain their free retest; otherwise it will be a PAID inspection |

***Note:*** *Inspectors should note that, in many cases, they could reprint a VIR for the motorist from the GAS unit used to perform the previous test. However, if the inspector could not reprint the previous VIR to help the motorist and the motorist lost the previous VIR, the inspector should direct the motorist to a GCAF Service Center who can print out their VIR.*

When performing an After Repair Inspection, the VID will return previous test "pass/fail" results. The inspector should verify by comparing the results on the previous VIR to the results returned from the VID.

☺ **Compliance Tip:** The Inspector MUST NOT change previous test results information. If an inspector changes previous test results, his or her inspector's license may be subject to revocation.

***Note:*** *The ability to edit the previous test results is available to inspectors so they can manually enter the information from the previous VIR in case of failed communication with the VID.*

When the inspector chooses test type "**A**fter Repair Inspection," GAS units will display a warning screen reminding the inspector that a **completed** Emissions Repair form is required.

Previous Certificate Number
(Only IF After Repair Inspection)

The next required entry on all GAS units is the "Previous Certificate Number." The inspector will scan this number off the previous VIR using the barcode scanner to enter it into the GAS unit. **Network communications with the VID begins after this step during an After Repair Inspection.**

| | |
|---|---|
| Reasons for the Inspection | The GAS unit requires the inspector to choose one of the following reasons for inspecting a vehicle:<br>1. Annual inspection/Other: For registration renewal of vehicles registered in one of the thirteen covered counties.<br>2. Initial Registration: For out-of-state vehicles being registered in one of the 13 county metro-Atlanta area.<br>3. Sale/Transfer into I/M area (Change of ownership): For vehicles previously registered outside the 13 county metro-Atlanta area being sold or transferred into a covered county, **or** for vehicles registered in one of the covered counties and are undergoing a change of ownership.<br>4. Correct vehicle description: In cases where a motorist returns because incorrect data were entered at your inspection station, the inspector shall use this option for retesting the vehicle at no charge to the motorist. Only certain data can be corrected with this option. Other data, such as the VIN and License Plate number, cannot be corrected through this option. In that case, a new initial inspection, at no charge to the motorist, is required.<br>5. Non-scheduled Inspection at Motorist Request: for testing covered vehicles out-of-cycle because the motorist wishes to have the vehicle tested for whatever reason.<br>6. Other: Covers all other inspections that do not fall under any of the other reasons listed herein. |
| ***Note:*** | *The inspector will use the last two options listed to test a vehicle that has recently been tested or a vehicle that does not require inspection.* |
| Test Cycle | The GAS unit will default to an OBD test cycle based on a model |

year 1996 and newer, or display prompts indicating the inspector will be forced to perform a TSI inspection on the non-conforming vehicle.

Vehicle Identification Number (VIN)

The GAS unit will prompt the inspector to scan the VIN off the vehicle or to manually enter the VIN. If the VIN was scanned, the GAS will require the inspector to verify the VIN is correct and belongs to the vehicle being tested.

**Note:**

Replacement doors and dashboards may still contain the previous vehicle's VIN. The inspector is responsible for verifying the vehicle being tested. If the driver's door is red and the car is white, it is likely a replacement door, do not trust the scanned VIN from the door sticker.

The GAS unit will attempt to verify the accuracy of the VIN. It will verify that the VIN has 17 characters, that the 10th digit of the VIN matches the vehicle model year entered, and that the 9th digit (check-digit) is valid. If the GAS unit detects discrepancy in the entered VIN, it will display an error message and will give the inspector the opportunity to correct the error(s).

☺ **Compliance Tip:**

*The inspector must always verify that the documentation presented, such as vehicle registration and previous VIR, belong to the vehicle being tested before using the information.*

License Plate (Tag) Number

Read and note the <u>rear</u> license plate (tag) number and issuing state installed on the vehicle. Choose the appropriate state (the default is GA) and type in all digits found on the plate. In Georgia newly purchased vehicles are provided Temporary Operating Permits (TOP) as a drive-out tag. If a vehicle has a TOP then <u>*ALL* numbers of the TOP must be entered.</u>

**Note:**

*In the rare case the vehicle does not have a license plate, the inspector*

| | |
|---|---|
| | *must enter "NONE" into the GAS unit and then follow the prompts to enter the required information.* |
| Network Communications | Network communications with the VID begin after this step during an Initial Inspection.<br><br>The GAS unit will initiate communications with the VID to check the vehicle's previous test information, verify vehicle information, and, at the conclusion of the inspection, to upload the information to the VID for access by the Tag Offices, GCAF, EPD and other State agencies for vehicle registration and data collection for other required reports. |
| Searching the VID | The database is searched for previous records of the vehicle being tested after communications are established between the GAS and the VID. During an **I**nitial Inspection, the search is based on the VIN the inspector enters into the GAS unit. During an **A**fter Repair Inspection, the search is based on the Previous Certificate Number the inspector enters into the GAS unit. |
| Information the VID Returns | The search will result in either a ***MATCH*** or ***NO MATCH*** based on the search criteria. |
| Match | If a record is found to *match* the search criteria, the VID will return that record to the GAS unit. The GAS will display the information received from the VID in the appropriate fields on the various screens. It is the inspector's responsibility to verify the information and correct any errors while completing the inspection. |

**☺ Compliance Tip:**

(REMINDER) The Inspector MUST NOT change previous test results information unless correcting vehicle description. If an inspector changes previous test results, his or her inspector's license may be subject to revocation.

No Match

If no record in the VID matches the search criteria, the VID will return a *No Match* found message. A no match of records in the VID could be due to incorrect entry of previous or current data into the GAS, or that the vehicle has never been tested before. ***Using the vehicle for reference***, the inspector must verify all the information he or she has entered into the GAS unit before proceeding with the inspection, especially if conducting an After Repair Inspection.

Communications Failure

Sometimes communications with the VID might fail for various reasons. The GAS unit will display a message "Cannot Access Network" and asks the inspector to proceed with the inspection. If the inspector experiences more than a couple of consecutive communication failures, the inspector or station owner must perform/run Network diagnoses. He or she should contact the Tech-Support Center at (800) 449-2471 for assistance and report any offline testing associated with equipment problems. The GAS unit will lock out testing after a maximum number of inspections as set by the EPD, without communicating with the VID, or if a test result on the GAS has not been transmitted within a timeframe as determined by EPD.

***Note:***

*All mobile GAS units are required to upload test records to the VID within a timeframe as set by EPD. All other GAS units are required to upload test records to the VID as tests are performed.*

Continuing Data Entry

Regardless of the test type, (Initial or After Repairs), the rest of the information required for each field will be either automatically entered from the record the VID returned or manually entered by the inspector. In either case, the inspector is required to verify the information for accuracy while completing the inspection.

Vehicle Make and Model

The inspector must enter both the vehicle make and model into the GAS unit. It is very important for the inspector to select this information from the lists or drop-down menus the GAS displays whenever possible. In rare situations, if the vehicle make or model is not listed, the inspector will select the "manual entry" option and manually enter the required information.

**Data Integrity Issue**

**Inspectors should be very cautious about entering any vehicle information manually. Incorrect information might cause an otherwise passing vehicle to fail, and will cause problems with matching VIN and future retrieval of vehicle information and data. Data entry errors will be corrected at the station's expense and may trigger an enforcement action.**

**Compliance Tip:**

Inspectors should use the list of models displayed by the analyzer. Sometimes suffixed model names are not listed separately because the suffix does not change emissions requirements. Example: Protégé and Protégé LX. Protégé LX is not listed separately. You would pick Protégé even though you are testing a Protégé' LX.

| | |
|---|---|
| Number of Cylinders | Perform a visual inspection of the engine and enter the number of cylinders into the GAS unit. The GAS unit limits the number of cylinders between 3 and 16. If the vehicle being tested has a rotary engine, such as the Mazda RX7, the inspector shall enter the letter **R** for the number of cylinders. |
| Vehicle Engine Size | The GAS unit requires an entry of engine size and unit of measurement. For example: If you are inspecting a Chevrolet with a V8 305 CID (cubic inch displacement), you can enter the engine size as follows:<br>305I (I = cubic inches), or 5.0L (L=Liters), or 5000C (C=cubic centimeters). |
| ***Note:*** | *The GAS unit provides a listing of available engine configurations and sizes, for the vehicle being tested, based on the vehicle's year, make and model entered. The inspector might have to press a key on the keyboard to access this list.* |
| Transmission Type | If the transmission type is asked by the program, the inspector enters into the GAS unit [A] for Automatic Transmission equipped vehicles and [M] for Manual Transmission equipped vehicle. |
| Ignition System Type | In order for the GAS unit to read engine speed (RPM) accurately, on non OBD II equipped vehicles, the inspector must indicate the ignition system type, the source of the RPM signal, and the type of RPM pickup probe he or she is using.<br><br>The GAS units will ask about ignition system type in different |

ways. Here is a list of possible GAS prompt choices:

1. Ignition System Type or Engine Type
    a. Four Cycle with distributor
    b. Distributorless (DIS) Ignition
    c. DIS with plug wires (two spark plugs per coil)
    d. DIS Quad 4 type
    e. DIS with one coil per spark plug
    f. Rotary or Two Cycle with distributor
2. Tachometer Connection or RPM Pick-up Probe Type
    a. Inductive Pick-up
    b. Ground Tachometer Connection
    c. Battery Tachometer Connection
    d. Low Voltage Tachometer Connection
    e. RF Pickup Type – Non-Contact Probe
3. If using inductive pickup indicate connection
    a. Spark plug wire
    b. Coil wires: Primary or Secondary wire

Vehicle Body Type

It is the inspector's responsibility to properly identify the ignition system and provide accurate input to the GAS unit.

The GAS unit may require the inspector to enter the Vehicle Body Type. The GAS uses model year and body type to determine the Vehicle Test Standards Group on non OBD II equipped vehicles. Following is a table to clarify.

| Code | Vehicle Body Type | Vehicle Test Standard Group |
|---|---|---|
| 1 | Sedan | Passenger Car |
| 2 | Station Wagon | |
| 3 | Pickup | Truck (This classification requires GVWR entry into GAS unit) |
| 4 | SUV-SportsUtilityVehicle | |
| 5 | Minivan | |
| 6 | Full Size Van | |

In some cases, the VID will return information indicating that the vehicle is a Non-Conforming vehicle and requires special considerations. The screen will display whether the vehicle is Non-Conforming and a catalytic converter is required, or the vehicle is Non-Conforming and a catalytic converter is not required. The inspector must verify the requirement and proceed with the inspection accordingly.

***Note:*** The inspector should review the Non-Conforming Provisions section in Chapter 5 of this manual, "The Georgia Enhanced Inspection Program."

*When Non-Conforming status is returned from the VID, GAS units may default to a TSI inspection. Perform test as directed as it might be a TSI or OBD inspection with, or without a Catalytic Converter.*

Gross Vehicle Weight Rating (GVWR)

The GAS unit requires a GVWR entry only when testing trucks (i.e. pickups, sports utility vehicles (SUV), minivans, and full-size vans). The inspector shall find the GVWR and enter it exactly as noted into the GAS unit. The inspector will use the following table if he or she cannot find the actual GVWR on the vehicle; **however,** the inspector must

remember that the use of this table should be a last resort and not the default, since it may have a bearing on test standards.

| Truck Class | GVWR to be used if actual GVWR cannot be found on the truck being tested |
|---|---|
| ¾ ton or more | Enter 8499 |
| Less than ¾ ton | Enter 5999 |

***Note:*** *The inspector should be careful not to confuse Front or Rear Gross Axle Weight Rating (GAWR), also found on the doorjamb label, with the GVWR. The inspector MUST NOT add the Front GAWR and the Rear GAWR to generate the GVWR. It does not work that way.*

Vehicle Odometer Reading

The inspector MUST enter the odometer reading as displayed on the vehicle's odometer; i.e., do not add 100,000 to a five-digit odometer because you think the mileage is too low!

**Enter the numbers as shown on the odometer**.

**Data Integrity Issue**

*Caution: Do not confuse the odometer with the Trip Meter(s).*



If the odometer cannot be read or if it is an electronic odometer where the display is not functional, the inspector must enter "NONE" in answer to the prompt.

*Caution: Most of the electronic odometers have a switch that toggles between the Odometer and the Trip meter. The inspector shall make sure that the Odometer is selected prior to noting and entering the numbers into the GAS unit. There may be multiple Trip meters within the display! Also check that the digital reading is in miles, not kilometers.*

Vehicle Fuel Type

The inspector will verify if the vehicle uses gasoline exclusively or uses multiple fuels. If the vehicle is bi-fueled or multi-fueled, gasoline must be one of the fuel options. The inspector will select the fuel type from the GAS prompts, "**G**asoline", "**B**i-fuel", **"F**lex-Fuel", "**D**iesel", or **H**ybrid". The tailpipe emissions test of bi-fueled vehicles must be conducted while the vehicle is running on gasoline.

Exhaust Type

The inspector will visually inspect the vehicle's exhaust system to determine its configuration. The GAS will prompt the inspector to answer, "*Does the vehicle have dual exhaust?*" with a **Y**es or **N**o, or select the correct configuration from a menu screen the GAS unit displays.

*Refer to the "Generic Illustration Of Possible Exhaust System Types" chart for determining dual exhaust systems. This chart is located at the end of the Vehicle Identification Chapter, (Chapter 9).*

Catalytic Converter

The inspector must conduct a visual inspection for the presence of the catalytic converter on vehicles that were originally equipped, and on vehicles required, by other provisions in the law, to have one installed, such as Non-Conforming vehicles. Note: Some non-conforming vehicles will not require a visual inspection; however, these vehicles will be noted in the prompt from the GAS.

The procedure for conducting a proper visual inspection is detailed in the "Emissions Control Systems, Identification and Inspection" Chapter 10 of this manual. Now is a good time to review that chapter.

Here are the main points the inspector must determine:

1. Where is the converter located and is it there?
2. If the catalytic converter is in place, is the configuration of the system acceptable?
3. If the catalytic converter is not found, does the vehicle being inspected require one?

The inspector will enter or select one of the following codes to answer the GAS unit prompt about the presence of the catalytic converter at the conclusion of his or her visual inspection of the system:

- If the catalytic converter is present and not tampered, the inspector will enter or select **P**ass.
- If the catalytic converter is missing or has been bypassed (tampering), the inspector will enter or select **F**ailed.
- If a catalytic converter system is not required, the inspector will enter or select **N**ot applicable.

***Note:*** The requirement of a catalytic converter on a Non-Conforming vehicle is returned from the VID and displayed by the GAS unit.

Review Vehicle Information

Throughout the data entry sequence into the GAS, the GAS unit will ask the inspector to review vehicle information and will prompt the inspector in case of some entry errors. Immediately prior to starting the tailpipe emissions test, the GAS will prompt the inspector to review vehicle information. Any correction must be done at this point. If the

| | |
|---|---|
| | inspector proceeds to the next step he/she cannot back up without aborting the test. |
| Emissions Test | Next the GAS unit prompts the inspector to "place the vehicle in park/neutral, chock the wheels, and turn off all accessories". |
| Fuel Cap Pressure Test | After completing the emissions test the GAS unit may prompt the inspector to perform the Fuel Cap Pressure Test. The inspector should refer to the "Fuel Cap Pressure Inspection" section of this manual, for the proper testing procedure.<br><br>The GAS unit gives the inspector the option to retest a failing fuel cap. The inspector must give the motorist the opportunity to replace the cap with another before completing the test. The inspector must test this replacement fuel cap before concluding the inspection. If the replacement cap passes, the motorist will be spared a return visit, and the inspector and station will be spared the time to retest the vehicle. |
| ***Note:*** | *Make sure that you give the motorist back all his or her fuel caps, old and new. They are their property.* |
| ☺ **Compliance Tip:** | The inspector must have the motorist's consent before he or she replaces a defective fuel cap with a new or replacement cap. Under no circumstances should the inspector bypass or replace a defective cap with the expectation the motorist will agree to purchase a new cap. Withholding a passing VIR from the motorist until he/she buys a new or replacement fuel cap is a violation. |
| Vehicle Repairs | Collecting information about emissions related repairs performed on vehicles is an important part of the Georgia I/M program. Emissions |

repairs could occur prior to the inspection or after the vehicle failed the I/M inspection. The inspector is required to accurately enter information about the type and cost of these repairs.

**Data Integrity Issue**

**This is important information that should not be casually skipped since it is one of the parameters used to evaluate the program.**

Repair Action Categories

The following are the repair categories (type of repair) that are listed for selection. Select from the list of repair categories, choosing the ones that best correspond to the repairs performed.

Repair Action Categories *(continued)*

- Ignition System Repairs
- Intake Fuel Induction Repairs
- Engine Diagnosis
- Evaporative Control System/Fuel Cap Repairs
- EGR System
- Sensors, Switches and Computer
- Fuel Fill-pipe Restrictor
- Air Injection System
- Internal Engine

Parts and Labor Cost

Enter the total dollar amount the motorist was charged for emissions related repairs. **Parts and Labor costs must be entered separately**. **Enter whole dollars, no cents. For example, $127.68 is entered as $128**. If no categories were selected, or if no repair fees were charged, the inspector will be allowed to enter $0 for parts and/or labor.

| | |
|---|---|
| Pre-Inspection Repairs | The GAS unit will prompt, "Were pre-inspection repairs performed?" Answer [Yes] or [No]. If yes, you will proceed to enter information about what was repaired, etc. |
| After Repair Inspection Vehicle Repair Information | After completing an After Repair Inspection, the inspector will be prompted to enter the repair information into the GAS unit. The inspector must use the **completed** Emissions Repair Form, provided by the motorist or repair facility, to answer the GAS unit prompts as to repair action category and cost. The repair form must be collected and held for GCAF auditors. |
| ☺ **Compliance Tip:** | No After Repair test can be performed free without a completed Emissions Repair Form. Blank copies of the Emissions Repair Form are available on the GCAF Website Motorist section for printing. |
| **Repair Facility Number** | The Repair Facility Number must be obtained from the completed Emissions Repair Form in addition to Repair Categories and Cost. To enter the repair facility number, enter the 10-digit phone number. If the repairs were done at an unknown facility, enter 111-111-1111. For motorist self-repairs, enter 999-999-9999. Special function keys allow the inspector to enter the unknown and self-repaired vehicle phone numbers. |
| Repairs Recommended but not performed | The GAS unit will ask if any repairs were recommended but not performed. Answer [Yes] or [No] as appropriate. |
| **Paid Test Determination** | The inspector must determine whether the test is a paid or a free test. The following applies:<br>1. The Initial Test is PAID |

2. The first After Repairs Test is FREE at the station that conducted the initial test if within 30 days of the initial inspection and the motorist returns the completed repair form.

***Note:*** *It is a station owner's discretion to honor a FREE retest when the previous inspection was conducted elsewhere.*

3. The second After Repairs Test is PAID.
4. The next After Repairs Test is Free if within 30 days of the "The second After Repairs Test", if the motorist returns the completed repair form, and so on…

Other situations that will determine whether or not a test is paid or free are Referee tests and Aborted tests.

**Referee Test**

The GCAF or EPD Referee will determine the "fee-status" of the referee test (and the next test if needed) based on the original "fee-status" of the disputed test and whether or not the shop or inspector erred during the disputed test.

The GCAF Referee will help guide the inspector through the inspection and advise him or her on the charge status of the test and any following tests that might be needed. This is a good time to review the Referee Test section in Chapter 4 of this manual, "Georgia's Air Pollution and Enhanced Emissions Inspection Program."

Aborted Tests

The reason for aborting a test determines whether the test is paid or free and whether the test counts as "a test" or not. The following are the different Abort codes listed by status:

*Abort Codes*

*Fee is Due*

***The following Abort Codes result in a Test Failure – Fee is due***

(Fee is due unless the test is a free re-inspection)

01= Oil System Leak/Warning Light
02= Transmission Leaks
03= Coolant System Leaks/Overheat
04= Fuel Leaks
05= Sample Dilution
06= RPM Too High
07= RPM Too Low
08= Excessive Engine Noise
09= Other Safety Problem

*Abort Codes*

*No Fee is Due*

**The following Abort Codes result in No Test – No Fee is due**

83= Vehicle Inspection Blocked, Call EPD Compliance
84= RPM reading inaccurate, test aborted
85= Random TSI Test aborted by inspector
86= OBD Non-Communication
87= OBD Diagnostic Link not found
88= Incorrect Emissions Test Type
89= ASM Restart Violation
91= Inspector does not have proper license
92= Vehicle Does Not Require Inspection
93= Unable to Obtain RPM Reading
94= No Repair Data Form Completed
95= Low Flow Rate
96= RPM Too Low
97= RPM Too High
98= Dilution Code Not Met
99= Other – Indicate Reason On VIR

Test Fee Entry

At the conclusion of the test, the GAS unit will display the test results of all parts of the inspection. Then it will prompt the inspector to enter the test fee charged. The inspector must determine "charge status" based on the test sequence; i.e., Initial or After Repairs, and whether or not a certificate was issued for the previous inspection. In addition, the inspector must consider other factors in determining charge status, such as if the test is a referee test or an aborted test. The inspector shall enter the **actual** test fee charged.

☺ **Compliance Tip:**

You MUST charge according to your advertised price on your official state approved sign.

*Vehicles **Not Subject** to Georgia's I/M Program*

The Georgia I/M Rules do not apply to vehicles not subject to the inspection program. Therefore, the State does not govern how much an inspection station may charge for an inspection of these vehicles. The motorist must request and approve these inspections in writing.
*Refer to details in Chapter 4 in this manual, "Georgia's Air Pollution and Enhanced Emissions Inspection Program."*

☺ **Compliance Tip:**

The inspector MUST select "Manual Mode" from the GAS unit menu to perform inspections on vehicles not subject to the Georgia I/M Program.

**Communicating Results of the Inspection to Motorists**

At the conclusion of the inspection, the inspector shall communicate the inspection results to the motorist and give him or her the required documents. If the *vehicle passed* the inspection, give the motorist the VIR and answer questions he or she might have.

If the *vehicle failed* the inspection, the inspector must inform the motorist and supply him or her with:

Remember Inspectors' responsibilities. Refer to Chapter 7 in this manual, "Inspector Requirements and Responsibilities"

- The VIR
- A blank Emissions Repair Form
- The brochures GCAF supplies, such as "What If My Vehicle Does not Pass" brochure
- The Repair *Watch* Public Report. (Show the motorist a copy and inform them of the availability of the list on the GCAF website.)

Explain to the motorist what portion(s) of the test the vehicle failed, but do not attempt to diagnose the failure unless you are qualified to do so.

***Note:*** *Providing good customer service not only promotes your business and provides the opportunity for repeat business and increased sales of other services you offer, but will also ensure the emissions testing program's success.*

**Safety Issues**

The inspector must be aware of the various safety issues he or she faces in his or her environment and type of work. Working with vehicles, equipment, or machinery can be dangerous if the person doing the work is distracted, loses concentration, or is unaware. Therefore, please pay close attention to safety issues while performing inspections.

Heat Related Issues

Engines generate a lot of heat. In fact, when gasoline is combusted in an engine, more than 70% of the energy released changes to heat. The inspector should be careful with hot manifolds and exhaust pipes, radiators and cooling system parts, etc.

- Moving Parts

Engines have moving parts such as fans, belts, pulleys, etc. The inspector should be careful connecting or disconnecting wires or looking for information under the hood.

- **Vehicle Noises and Leaking Fluids**

Loud engine noises or leaking fluids could indicate and cause safety failures. Broken parts might fly off; leaking fluids might start fires or cause people to slip. Beware of noises and fluid leaks that may cause injury to people and damage to property.

- Pollution and Health Issues

The "Air Pollution, Its Causes and Effects" and "Motor Vehicle Contribution to Air Pollution" chapters explained the health effects of air pollution. While the human body can tolerate some air pollution, high concentrations of pollutants or extended exposure to low concentrations can be dangerous. Ensure that the area you work in is well ventilated and that most of the exhaust from vehicles is directed outside the station.

- Calibration Gas

Calibration gas and other gases in the station are kept under pressure in their cylinders. If mishandled, those cylinders could prove to be dangerous, enough to kill or injure someone. Handle gases under pressure with care and pay attention to manufacturers' safety warnings and recommendations for proper use. **Calibration gas bottles have an expiration date, ensure the gas being used is within the printed date.**

# Chapter 13

# On Board Diagnostics – 2nd Generation (OBD II)

**Introduction**

Over the years, auto manufacturers have been improving the emissions performance of their products to meet Federal Law requirements. These changes included changes to body and chassis design, engine design, transmission, and powertrain design. Since model year 1968, auto manufacturers have been very innovative in designing emissions control systems (ECS), and improving air/fuel metering and ignition systems. In the early 1980's, auto manufacturers took advantage of the innovations in computer technology and began using specialized computers to control fuel metering and ignition systems. Over time, auto manufacturers applied this technology to improve emissions control systems as well as many other systems, such as brakes, heating and air conditioning, suspension, etc.

**Computer Controls**

One main advantage computer systems have is the ability to make decisions and adjustments very quickly, based on programmed parameters and signal inputs from various sensors and monitoring devices.

Auto manufacturers have taken advantage of this feature, installing programmable computers in vehicles, (i.e. on-board). The computer is able to make very quick operational decisions and adjustments to better meet driving conditions. To accomplish this, three things are needed:

Sensors

1. A network of sensors to detect engine, driving and other pertinent conditions and report these conditions to the on-board computer.

On-Board Computer

2. An **on-board computer**, which receives inputs from sensors, makes decisions based on programmed parameters, and sends commands to actuators.

Actuators

3. A network of **actuators** to carry out the on-board computer commands. Actuators are basically electrical switches, solenoids, and motors the on-board computer turns on/off, or activates for a period of time.

Computers assist with vehicle repairs

Another main advantage computer systems have is the ability to store information for future access.

Auto manufacturers took advantage of this feature as well. If they could capture and store information at the moment a problem occurred, the stored information could help the auto repair technician in diagnosing and repairing the problem. To accomplish this, three things were needed:

Malfunction Indicator Light (MIL)


1. **A method to inform the driver of the vehicle that there is a problem.** This was accomplished by installing a light in or around the instrument panel that will illuminate the moment the on-board computer detects a problem or malfunction. This light is commonly known as the **M**alfunction **I**ndicator **L**ight (**MIL**) and is normally labeled "Check Engine" or "Service Engine Soon."
2. **Specific codes when an issue is detected.** The on-board computer uses a specific code when a malfunction is detected. These codes are commonly known as Diagnostic

Diagnostic Trouble Codes

(DTC)

Trouble Codes (DTC's) and are designed to identify the general area of the powertrain system the malfunction has occurred.

3. **A method for the repair technician to communicate with the on-board computer to retrieve the stored information.** This was accomplished by developing test equipment that is able to communicate with the on-board computer via an access port. In the repair industry, this test equipment is commonly known as "the Scanner" or "the Scan Tool". The access port in the vehicle is commonly known as the "**D**ata **L**ink **C**onnector" or the "**D**iagnostic **L**ink **C**onnector" (**DLC**). The repair technician connects the test equipment to the DLC to communicate with the on-board computer. When communications are established with the on-board computer a repair technician can see many of the inputs the computer is receiving, the commands the computer is issuing, and all stored DTCs. This information will help the repair technician determine what repairs are required.

Scanner (Scan Tool) and the Diagnostic Link Connector (DLC)

**(DLC)**

**On Board Diagnostics (OBD I)**

"On Board Diagnostics (OBD)" is the system that contains the components and has the functionality described in the preceding paragraphs. OBD software assesses the condition of the powertrain and emissions control systems, (including sensors, actuators and the computer itself) and communicates its findings to the repair technician by means of the DTC(s).

Auto manufacturers have been using various types of OBD systems in their products since 1980. These early systems are considered first generation OBD systems, or OBD I. Each year since, these systems have become more sophisticated, encompassing, and accurate.

In the late 80s-early 90s, OBD systems matured to a point where they were able to continuously monitor many of the vehicle's systems that affect emissions and performance. Additionally, OBD systems have become sophisticated enough to compensate for malfunctions to help ensure best possible performance and lowest possible emissions. This quality means that the driver might not feel a difference in vehicle performance even though the MIL is illuminated, which indicates the vehicle has a malfunction or a problem.

Drawbacks of Early OBD Systems

During this period, each manufacturer developed their own and unique OBD system. Each manufacturer had unique names for parts, systems, diagnostic trouble codes, methods of communication with the scanners, and data link connectors.

Systems variations and lack of standardization diminished the benefits of OBD to motorists and repair technicians. It was very difficult for repair technicians to be knowledgeable of all the various OBD systems, as well as obtain all the various scanners or programs for all the different OBD systems. This meant motorists' choices of auto maintenance and repair facilities became more limited. In addition, many auto manufacturers had proprietary access to OBD information or knowledge they would not share with independent repair technicians.

Thereby, motorists' choices were limited even more; and the independent repair technician's ability to properly diagnose and repair problems diminished further, due to the lack of OBD information available to them.

**What is On Board Diagnostics – 2nd Generation (OBD II)?**

Realizing that OBD technology has reached a point where it can provide continuous monitoring of a vehicle's emissions performance, the United States Environmental Protection Agency (U.S. EPA) recommended that regulations be added to the Federal Clean Air Act Amendments (the Act) of 1990 that require auto manufacturers to standardize OBD systems.

In 1990, the U.S. Congress signed into law the Federal Clean Air Act Amendments of 1990. The Act required auto manufacturers to standardize OBD systems and to provide all pertinent information needed for proper maintenance of vehicles' emissions control systems to all technicians. The Act dictated that all auto manufacturers meet this requirement by model year 1994. For various reasons the deadline was extended to 1996 model year. Additionally, the Act directed U.S. EPA to set regulations and timelines for states to implement OBD based testing as part of their existing Basic and Enhanced Inspection and Maintenance (I/M) programs.

The Society of Automotive Engineers (SAE) and the International Standards Organization (ISO) drafted many documents and guidelines for standardization of OBD systems. Auto manufacturers along with SAE, ISO and equipment manufacturers worked on standardization of OBD. The result of their efforts is the **On Board Diagnostics – 2nd Generation (OBD II) system**.

Features of OBD II

Unlike earlier OBD systems, **OBD II features** the following **enhancements:**

- **Common terminology**. For example, all auto manufacturers were required to call the On-Board Computer the "Power Control Module" (PCM) or "Engine Control Module" (ECM). Common terms exist for many of the sensors and actuators used in OBD II.
- **Standardized Diagnostic Trouble Codes (DTC).**
- **Standardized Diagnostic (or Data) Link Connector (DLC) configuration**. The location of the DLC has also been standardized, meaning that an area has been specified where the DLC should be located.
- **Standardized Malfunction Indicator Light (MIL)**. The label, location, and function of the MIL have been standardized.
- Most important of all, most **OBD II system functions have been standardized**. This means that there are standard protocols OBD II systems must follow in monitoring a vehicle's emissions performance regardless of vehicle manufacturer.

Now we have a system that is used on all vehicles model year 1996 and newer, which monitors the vehicle's emissions performance and in case of a malfunction will trigger a light (the MIL) to warn the driver and sets a code (DTC) indicating the problem.

**In a way, OBD II provided us with an emissions testing system that**

**rides with the vehicle at all times.**

These features of OBD II made it possible for states to draft regulations and testing protocols to incorporate OBD based testing into their basic and enhanced I/M programs. The State of Georgia has incorporated equipment and software into the GAS unit that allows the GAS unit to communicate with the vehicle's On-Board Computer making OBD testing part of Georgia's Enhanced I/M Program.

Georgia I/M inspectors must familiarize themselves with the following definitions of phrases, terms and acronyms related to OBD II testing. The terms and phrases defined in the Enhanced I/M Rules are adopted by reference.

**OBD II Definitions**

**The Diagnostic Link Connector (DLC)** is the connector where diagnostic scan tools interface with the vehicle's on-board computer. Under OBD II the DLC is a standard 16-cavity connector and has a standardized location. The DLC is found inside the vehicle in any of 9 locations as defined in Attachment 5 "OBD Locator Grid".

**DLC**

A **Diagnostic Trouble Code (DTC)** is how the OBD II system indicates the problem or malfunction to the repair technician. The DTC consists of five alpha/numeric digits, with the 1st digit being a letter to identify which control system is involved. The 2nd digit indicates a standard or specific DTC. The 3rd digit indicates the malfunctioning sub-system in the vehicle. The 4th and 5th digits indicate the specific fault type within the sub-system. All auto manufacturers are required to use this DTC format on 1996 and

**DTC**

newer model year vehicles.

**KOEO**

**Key On Engine Off**, a specific state of the ignition key where power is applied to the on-board computer and other circuits without allowing the engine to run. *When the vehicle is placed in KOEO state, the MIL must illuminate allowing the inspector to see if the MIL bulb is working.*

**KOER**

**Key On Engine Running**, a state of the ignition key where the engine has been started and allowed to run. *During KOER state, parameters such as MIL command status and readiness status are downloaded (read by the GAS unit) from the OBD II system.*

**MIL**


The **Malfunction Indicator Light (MIL)** is a light installed in or around the instrument panel and must be labeled "Service Engine Soon" or "Check Engine"; The ISO engine symbol may also be used. The MIL illuminates to warn the vehicle's driver that an emissions related malfunction has been detected.


**PCM**

The **Powertrain Control Module (PCM)** commands the MIL to illuminate when a system failure occurs that could cause vehicle emissions to exceed 1.5 times their designed standard. The MIL also illuminates when a problem is detected in a component that is used as part of a diagnostic strategy for any other monitored system or component. When severe misfire occurs that could damage the catalytic converter, the MIL will flash on and off once per second; flashing is intended to discourage vehicle

operation.

**MY**

**Model Year** or production year of the vehicle is determined by the 10th digit of the VIN.

**OBD**

**On Board Diagnostics** are the programs, (or software,) within the On-Board Computer system that assess the condition of the On-Board Computer system, including sensors, actuators and the PCM itself, and communicates its findings to the repair technician. An OBD system has the ability to detect malfunctions, to store information relating to the malfunction, to warn the vehicle operator, and to communicate the malfunction to the repair technician.

**Note:**
**The acronym OBD refers to OBD II systems in the Georgia Inspection.**

**VID**

**Vehicle Information Database (VID),** the database containing the Georgia Enhanced I/M test results.

**VIN**

**Vehicle Identification Number (VIN),** a unique number associated with each vehicle for identification purposes. This number is usually located on the driver's side of the dashboard.

**VIR**

**Vehicle Inspection Report (VIR)**, the report given to the motorist indicating the results of the test just performed on the vehicle.

**Georgia's OBD Inspection**

**Important Notes:**

1. The acronym **OBD refers to the OBD II** inspection from this point forward.
2. **After OBD testing became Mandatory** (May 2002), the GAS

unit prompts the inspector to perform the OBD test for 1996 and newer vehicles.

3. For various reasons, including safety and technical, **the fuel cap(s) should never be removed** until the inspector is prompted by the GAS unit to perform the Fuel Cap Pressure Test. **The engine must be shut down with the ignition key in the off position prior to removing the fuel cap(s) for testing.**

***Caution!***

For OBD vehicles, the I/M regulations forbid inspectors from removing the fuel cap(s) until prompted by the GAS unit as a matter of safety.

The OBD inspection checks the results of the tests that have occurred while the vehicle was driven before the time of the inspection. *Unlike tailpipe emissions tests, the vehicle does not have to be warmed-up or pre-conditioned to perform an OBD inspection.* Georgia's OBD emissions inspection is an easy test to perform.

☺ **Compliance Tip:**

The GAS unit will prompt the inspector to enter information about the vehicle. The inspector should refer to the "Vehicle Identification"-Chapter 9 in this manual to learn how to identify and enter the information required for inspection.

☺ **Compliance Tip:**

It is very important for the inspector to follow the screen prompts and menus of the GAS unit to enter the correct vehicle information. Small mistakes here can cause false failures, problems in completing vehicle registration, mismatching, and future retrieving of vehicle information and data, which will inconvenience the motorist and may trigger EPD actions against stations, and/or inspectors. Data correcting inspections are performed at the expense of the station.

**Non-Conforming**

In some cases, the VID will return information indicating that the

| | |
|---|---|
| | vehicle is a Non-Conforming vehicle and requires special considerations.<br><br>The inspector should review the Non-Conforming Provisions section in Chapter 5 of this manual, "The Georgia Enhanced Inspection Program." |
| Vehicle Fuel Type | The inspector will select the fuel type from the GAS prompts: "**G**asoline", "**B**i-fuel", "**F**lex-Fuel", or "**H**ybrid". |
| **Review Vehicle Information** | Throughout the data entry sequence into the GAS, the GAS unit will ask the inspector to review vehicle information and will prompt the inspector in case of some entry errors. Immediately before starting the emissions test, the GAS will prompt the inspector to review vehicle information. Any correction must be done at this point. If the inspector proceeds to the next step he/she cannot back up without aborting the test. |
| **Equipment Requirements** | The GAS unit has an OBD test lead, communications link, and software. This lead connects to the vehicle's DLC and allows data to be read by the GAS unit. The process is fully automated and requires very little inspector intervention. |
| Inspector Requirements | All Georgia licensed inspectors may perform an OBD inspection. |
| Vehicles Subject to the OBD Inspection | Vehicles that are model year 1996 and newer are subject to the OBD inspection. However, there are some newer vehicles that have been granted non-conforming status as noted above. |

**OBD Inspection Procedure**

The inspector must follow a set procedure for performing an OBD inspection. The procedure consists of preparing the vehicle, testing the vehicle, and communicating the results to the motorist.

Preparing the Vehicle Is the Vehicle Safe to Test?

The first step in performing the inspection is to ensure that the vehicle is safe to test. Check for any *safety concerns*, such as *fluid leaks*, *overheating*, *abnormal engine noises*, or *any other condition making the vehicle unsafe to test*. If during the inspection the vehicle becomes unsafe to test, the inspection shall be aborted.

*Note:* *It is the Inspector's and Station Owner's responsibility to take all reasonable precautions to avoid damage to vehicles during the inspection.*

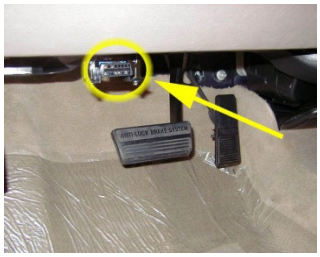
Testing the Vehicle

The GAS unit will prompt the inspector to perform the visual check for the presence of the catalytic converter system.

Testing the vehicle shall begin after the inspector has verified that the vehicle is safe to test, gone through vehicle identification, and collected all the required information. Inspectors must inspect the vehicle even if the MIL is illuminated when presented for an inspection. Refusing to test a vehicle with the MIL ON may lead to anenforcement action and may also cause the motorist problems if they need to obtain a waiver.

*Note:* *The inspector must follow the GAS unit prompts. In many cases of data entry error, the GAS unit will display a message explaining the error and asking the inspector to confirm or re-enter the required information. Pay close attention to the prompts and scripts; read the messages carefully.*

OBD Connection



OBD Connection

The GAS unit will prompt the inspector to turn the ignition key off (for at least 20 seconds) and connect the OBD test lead to the DLC. The GAS unit may provide limited help for the location of the DLC. Attachment 4, DLC Locator Grid, has more information to help the inspector locate the DLC on the vehicle being tested. Some newer vehicles may have two OBD connectors (DLCs). Either DLC will work correctly for the Georgia test.

If the inspector indicates that he or she cannot locate the DLC, or that the DLC is missing, damaged, tampered, obstructed, or inaccessible, the GAS unit will prompt with the following four options:

1. **The DLC cannot be located by the I/M Inspector. This choice will be an Unpaid/Abort.**

*Example:*

*The inspector is unable to locate the DLC on the vehicle because he or she is not familiar with the vehicle or does not have the reference material to help him or her locate the DLC. Simply, it is not a problem with the vehicle that is preventing the inspection, but it is the inspector's inability to locate the DLC.*

*Example:*

2. **The DLC is damaged or tampered and connection is not possible. This choice will be a Paid/Fail.**

*The inspector locates the DLC but discovers that:*

a) *The DLC is damaged. (example: the DLC is broken or melted)*

b) *The DLC is tampered. (example: the DLC is used to power up an accessory, or something is plugged into it) In this case, the inspector should not attempt to unplug or remove wires from the DLC. The vehicle fails the inspection and must be repaired.*

*Example:*

**3. The DLC is obstructed or inaccessible and connection is not possible. This choice will be a Paid/Fail.**

*The inspector locates the DLC or is positive of the location but cannot access the DLC because an ashtray is glued in place, or the DLC cover has been glued in place, or someone installed some accessory, such as a CD changer, that blocks the DLC, etc. The vehicle fails the inspection and must be repaired.*

*Example:*

**4. Return to previous screen.**

*This choice is used to take the inspector back to the GAS prompt to connect the OBD lead to the DLC. This is used in case the inspector wishes to go back one-step and attempt to connect the OBD lead to the DLC. For example, the inspector could not find the DLC at first then he or she finds it; or the inspector thought the DLC cover could not be opened or removed then he or she was able to remove it safely.*

The inspector will choose the reason for not being able to connect the OBD lead to the DLC (options 1, 2, or 3); the GAS unit will end the OBD test and continue to the fuel cap test.

Continuing on with the OBD test, if the inspector indicates that the OBD lead is connected to the DLC successfully then the GAS unit will prompt for the MIL Bulb Check (KOEO). The GAS unit will ask if the vehicle is equipped with Keyless Ignition. Select "Yes" if the vehicle has a keyless ignition and follow the manufacturer's recommendation to perform the KOEO MIL check correctly. Inspectors may have to refer to the vehicle owner's manual.

Key On Engine Off (KOEO) MIL Bulb Check

The KOEO MIL Bulb Check is a visual inspection of the MIL ("Check Engine," "Service Engine Soon" or ISO engine symbol light). This check ensures that the MIL bulb is functioning properly and is

capable of warning the driver in case of system malfunction.

The GAS unit will prompt the inspector to turn the ignition key ON without starting the vehicle. The inspector will observe if the MIL is illuminated or not, and then record the results. The GAS unit will prompt:

**Turn the ignition key to the on position. Do not start engine.**
**Did the Malfunction Indicator Light (MIL) illuminate?**

The inspector will enter Yes or No.

***Note:*** *Depending on vehicle make and model, the Malfunction Indicator Light (MIL) illumination may be continuous or may last a short time.*

OBD System Download

The GAS unit records the results and will continue to the next check, the OBD system download, where the GAS unit will prompt the inspector to start the engine and then perform automatic tests. These tests include: Readiness Evaluation, MIL Command Status, and possibly a scan for DTC(s). At this point, the GAS unit will prompt the inspector to turn the key off for at least 20 seconds. Turning the key ON before the prompt will cause the KOEO routine to start at the beginning. **To insure proper testing: Always follow the prompts!**

This part of the OBD test is automated. The GAS unit will communicate with the on-board computer and download: Readiness Status, MIL Command Status, and DTC(s). Before this download begins, the GAS unit will prompt the inspector to start the engine. The prompt will display:

**Turn the ignition key to start the engine and allow it to idle.**
**Press Enter to proceed.**

If the GAS unit establishes communications with the OBD system it will display:

**Communication in progress, Please Wait.**

If the GAS unit does not establish communications with the on-board computer, it will prompt the inspector to check the OBD link connector and try again. After several attempts by the inspector to establish a good connection, the GAS unit will give the inspector the option to fail the DLC test at this point. The following is the GAS unit prompt:

**OBD communication cannot be confirmed.**
**Readjust the connector and try again.**

☺ **Compliance Tip:**

The inspector will press the appropriate key selecting either **to continue** when ready, **or to fail the vehicle** if communications cannot be established.

If the inspector **chooses to try again**, the GAS unit tries again to communicate with the OBD system. If the inspector **chooses to fail the DLC test**, the vehicle fails the OBD portion of the test; and the GAS unit will prompt for the Fuel Cap Pressure Test.

In case of communication failure between the GAS unit and the vehicle's OBD system, EPD highly recommends that the inspector try to readjust and connect the OBD test lead to the DLC at least twice before manually failing the vehicle for "OBD Communication Failure". Too many failures of this type at a station can

trigger EPD investigation.

If communication is established with the on-board computer, the GAS unit will scan for the status of the Readiness Monitors, (perform a Readiness Evaluation test), and then store this information in the vehicle's test record. This test is designed to check if the on-board computer has run the required checks and tested all emissions control systems on the vehicle.

**OBD Readiness Evaluation**

Readiness Monitors indicate whether or not the OBD system has had the opportunity to run the required basic checks and evaluations of the monitored emissions control systems. Some systems are monitored every time the vehicle is started or "continuously." These monitors are known as "Continuous Monitors." Other systems require the vehicle to be driven through a manufacturer specific drive-cycle before monitoring is complete. These monitors are known as "Non-Continuous Monitors."

**What are Readiness Monitors?**

When the vehicle is driven through the manufacturer's specific drive-cycle, allowing the OBD system to complete its checks of the monitored systems; all Readiness Monitors' status will be set to "Ready" (also referred to as "Complete"). The status of the Readiness Monitors will remain set to "Ready" ("Complete") until the vehicle's battery or power to the PCM is disconnected or the DTC(s) are cleared using a repair technician's scan tool.

If a vehicle's battery is disconnected, the power to the PCM is disconnected, or DTC information is cleared from the PCM memory with

a scan tool, then all Readiness Monitors' status will be reset to "Not Ready" ("Not Complete"). In this case, the vehicle will have to be driven through the vehicle's manufacturer specific drive-cycle, in order to set the Readiness Monitors' status to "Ready" ("Complete").

A vehicle with too many Readiness Monitors set to "Not Ready" ("Not Complete") will fail the Georgia OBD inspection. This failure does not necessarily mean that the vehicle has a problem or a malfunction. "Not Ready" ("Not Complete", indicates that the OBD system did not have the opportunity to run the required basic checks and evaluations of the monitored emissions control systems.

*Important Note:* The Georgia OBD inspection follows USEPA guidance and will fail vehicles model years 1996 through 2000 if more than two (2) Non-Continuous Readiness Monitors are "Not Ready" ("Not Complete"). Vehicles model years 2001 and newer will fail if more than one (1) Non-Continuous Readiness Monitor is "Not Ready" ("Not Complete").

Some vehicles are given special consideration by the EPA because of various design factors and are accounted for by the VID and the Vehicle Reference Table (VRT). For this reason it is important to enter the vehicle properly, selecting information from the drop down menus whenever possible. A list can be found on the EPA website. This list is commonly referred to as Appendix "D".

NOTE: A vehicle that has had a battery recently disconnected, replaced, or had the DTC(s) recently cleared, will have the Readiness Monitors set to "Not Ready" ("Not Complete"). Disconnecting the battery or the power to

the PCM, or clearing DTC(s) may have been done as part of a repair, which is legitimate and proper. On the other hand, this may have been done to extinguish the MIL in an attempt to pass the inspection, which is improper, incorrect, and indicates an attempt to circumvent the state I/M requirements. In either case, the vehicle will fail the Georgia OBD inspection. The best course of action for the inspector is to explain to the motorist that they should drive their vehicle so that they can go through their drive-cycle. For most vehicles, this will include some city and highway driving for up to two weeks. You should also supply the motorist with the printed material (Q&A Brochure) and allow them to view the RepairWatch Public Report, supplied by Georgia's Clean Air Force (GCAF), and Georgia's Environmental Protection Division (EPD).

*MIL Command Status*

Next, the GAS unit will automatically record the information received from the on-board computer about the MIL command status while the engine is still running. If the command status for the MIL is "Commanded Off" this part of the inspection automatically passes. If the command status for the MIL is "Commanded On" this part of the inspection automatically fails. The object of this test is to determine whether or not the on-board computer has commanded the MIL on. If the MIL has been "Commanded On", the OBD system indicates there is a problem with the emissions control system, so the GAS unit will fail the vehicle for this portion of the inspection, whether the MIL is actually illuminated or not. This test helps to ensure that the MIL has not been tampered with.

Diagnostic Trouble Code (DTC) Check

If the MIL is commanded on, the GAS unit will automatically scan for Diagnostic Trouble Codes. As explained earlier, Diagnostic Trouble Codes (DTCs) were developed to enable the on-board computer to store a

P0137
(Example DTC)

lot of information in a limited space. When the OBD system detects a malfunction, it will set a DTC, and command the MIL on. Repair technicians use these DTC(s) to properly diagnose and repair problem(s).

The GAS scans for stored DTC(s) that cause the MIL to be commanded on, or to illuminate. The GAS unit stores the DTC(s) in the vehicle's test record, and the vehicle fails this portion of the inspection. The GAS will print a maximum of five DTC(s) on the VIR as well as the total number of DTC(s) stored.

**Key On Engine Running (KOER) Bulb Check**

The GAS will then ask if the MIL light was illuminated while the engine is running which is the K.O.E.R. bulb check.

*Important* NOTE:

The program MAY prompt the inspector to turn the vehicle **off**, **disconnect** the lead from the DLC and then **restart** the engine to check the K.O.E.R. MIL illumination a second time. These prompts occur during the inspection of early OBD model year vehicles and **MUST** be followed exactly for the inspection to be done correctly.

The GAS unit will prompt the inspector to turn the key to the OFF position and disconnect the OBD test lead from the DLC. **This concludes the OBD portion of the Georgia inspection.**

At the conclusion of the OBD portion of the inspection the GAS MAY prompt the inspector to insert the tailpipe probe into the vehicle's exhaust pipe. This is called Random Two Speed Idle or RTSI and is used to evaluate the effectiveness of the emissions program. The inspector should read and follow the prompts as supplied by the software.

**The Fuel Cap Pressure Test**

After the OBD test concludes; the GAS unit will prompt the inspector to perform the Fuel Cap Pressure test. The fuel cap pressure test procedure allows for testing of up to two fuel caps per vehicle.

**The Vehicle Inspection Report (VIR)**

At the conclusion of the inspection, the GAS unit determines whether the vehicle has passed or failed the tampering, OBD, and fuel cap portions of the test, then prints out the information on a VIR (Vehicle Inspection Report). The VIR will show the Abort, Pass, or Fail status of the test, as well as the reasons for aborting or failing the test. Many messages are preprogrammed and available to clarify the test results and course of action the motorist needs to take. Additionally, for vehicles that fail the inspection, the GAS automatically prints the Emissions Repair Form in conjunction with the VIR; both pages are to be given to the motorist.

**Network Communications**

***Note:***

**Providing good customer service not only promotes your business and provides the opportunity for repeat business and increased sales of other services you offer, but will also ensure the emissions testing program's success.**

At the conclusion of the inspection the inspector shall communicate the inspection results to the motorist and give him or her the required documents. If the *vehicle passed* the inspection, the inspector shall give the motorist the Passing VIR and properly answer questions he or she might have. If the *vehicle failed* the inspection, the inspector must inform the motorist and supply him or her with:

- The failing VIR
- The Emissions Repair Form
- The GCAF Q&A Brochure.
- Access to the RepairWatch Public Report. (Show the motorist a copy and inform them of the availability of the

report on the GCAF website.)

Explain to the motorist what portion(s) of the test the vehicle failed, but do not attempt to diagnose the failure unless you are qualified to do so.

**Communicating Results of the Inspection to Motorists**

The GAS unit must communicate with the VID twice; first at the beginning of the inspection and second at the conclusion of the inspection. At the beginning of the inspection, after the VIN and license plate number or previous certificate number has been entered, the GAS unit will automatically initiate communications with the VID. This is required to check and download the vehicle's previous test record and to verify the vehicle's information. At the conclusion of the inspection, the GAS must communicate with the VID to upload the data for access by the Tag offices, GCAF, and EPD for vehicle registration and data collection for other required reports.

***Important Note:*** ***It is the station owner and inspector's responsibility to ensure that all test records are transmitted to the VID immediately following the conclusion of any test. GAS units will lockout if a test has not been transmitted within the required amount of time, or there have been too many tests performed without a successful transmission of records to the VID.***

# Chapter 14

# Two Speed Idle (TSI) Inspection

**Introduction**

*Note: A TSI Inspection cannot accurately measure NOx because the Engine has to be under load to generate enough heat for NOx to form.*

The Two Speed Idle (TSI) test samples a vehicle's tailpipe emissions twice: once at 2500±250 RPM and once at Curb Idle. The TSI test measures HC, CO, and $CO_2$; it does not measure $NO_x$. The readings obtained with a TSI test reveal information about the vehicle's air/fuel induction system, ignition system, and some of the active ECS during the two stages of the test. However, the readings do not provide a representative sample of the vehicle's emissions while the vehicle is being operated under normal driving conditions.

A Visual Inspection for the presence of the catalytic converter (Tamper Inspection) on all vehicles originally equipped with converter(s) is required.

As of May 2002, all 1996 and newer model year vehicles have been subject to the Georgia On-Board Diagnostics II (OBD) inspection; the OBD inspection is explained in the OBD Chapter 13 of this manual.

**Inspector Requirements**

All Georgia licensed inspectors may perform a TSI inspection.

**Vehicles Subject to the TSI Inspection**

Vehicles that meet all of the following criteria are subject to the TSI inspection:

1. Registered, or going to be registered in one of the thirteen covered counties
2. Passenger car or light duty truck with a GVWR of 8500 pounds or less
3. Gasoline powered, either exclusively or gasoline is one of

***Note:***

the options if the vehicle is a multi-fueled vehicle

*Multi-fueled vehicles must be tested running on gasoline.*

**Important Note:**

The GAS unit will prompt the inspector to perform a TSI test instead of the OBD test when necessary.

4. Vehicle's model year is 1997 or newer and an OBD test cannot be performed on it and the vehicle has been issued non-conforming status.
5. The vehicle is not exempt from the I/M inspection by other provisions in the law or regulation. (Review the "Vehicle Exempt from Testing" section in Chapter 5 of this manual.)

**Non-Conforming Vehicles**

A motorist might present for testing a vehicle that has been classified by EPD as "**Non-Conforming**". Inspectors must note the following when inspecting a Non-Conforming vehicle:

- Contact with the VID is absolutely necessary to test a Non-Conforming vehicle. ***NO off-line testing***.
- During the inspection, the VID will return information that the vehicle being tested is "Non-Conforming". This information is very important to performing an accurate inspection.
- The test to be performed will be a Two-Speed Idle (TSI) test using standards set by the software based on the type of non-conforming status assigned to the vehicle.
- Ensure that the vehicle is being tested under the special standards as indicated by the screen on the analyzer. The GAS will prompt whether the vehicle requires a catalytic converter or not, based on the information returned from the VID.

- Verify that the Vehicle Identification Number (VIN) and other applicable information shown on the documents the motorist presents, such as the registration, previous VIR or other official forms, match the vehicle being tested.

Vehicles such as Kit Cars, Gray Market Vehicles, and Hot Rods that are "Non-Conforming" are explained in Chapter 4 of this manual, "The Georgia Enhanced Emissions Inspection Program". A review of the Non-Conforming Vehicles section in that chapter is recommended at this point.

***Important Note:*** *Test facility/Station owners, managers and inspectors must be aware that there are certain vehicles, which, normally, are subject to an OBD inspection but are selected to receive a TSI inspection.*

**TSI Inspection Procedure**

The inspector must follow set procedures for performing a TSI inspection. The procedures consist of: preparing the vehicle for inspection, preconditioning the vehicle, testing the vehicle, and communicating the results to the motorist.

Preparing the Vehicle

Is the Vehicle Safe to Test?

The first step in performing the inspection is to ensure that the vehicle is safe to test. Check for any *safety concerns*, such as *fluid leaks*, *overheating*, *abnormal engine noises*, or *any other condition making the vehicle unsafe to test*. Installing wheel chocks to prevent the vehicle from moving during the inspection is highly suggested. If during the inspection the vehicle stalls, overheats, or becomes unsafe to test for any other safety related issue, the inspection shall be aborted. Aborting the inspection for any of these conditions constitutes a failure. If the test was a "paid test,"

| | |
|---|---|
| | then a fee is due and the motorist qualifies for a free retest within 30 days. If the test was a "free test," then it is free to the motorist, but the inspector must explain to the motorist that the next test will be a "fee is due" (paid) test. |
| ***Note:*** | *It is the Inspector's and Station Owner's responsibility to take all reasonable precautions to avoid damage to vehicles during the inspection.* |
| Preconditioning the Vehicle | The vehicle must be at full operating temperature before testing. This is very important. A vehicle that is failing the emissions test will automatically be given a second chance test before the test is completed. The GAS unit will prompt the inspector to precondition the vehicle prior to the second chance test. The inspector must follow carefully the instruction of the GAS during the preconditioning routine. |
| ***Note:*** | *Ignoring the preconditioning procedures displayed by the GAS unit, or following incorrect preconditioning procedures might result in vehicle damage or incorrect test results*. The TSI pre-conditioning routine is a three-minute process. Ensuring the vehicle is up to temperature *PRIOR* to the test may eliminate the need for the pre-conditioning cycle during the test. |
| Testing the Vehicle | Testing the vehicle shall begin after the inspector has verified that the vehicle is safe to test, gone through vehicle identification, and collected all the required information. Following are the inputs required and actions prompted by the GAS unit to complete a TSI inspection. |

| | |
|---|---|
| ***Note:*** | *The inspector must follow the GAS unit prompts. In many cases of entry error, the GAS unit will display A WARNING message explaining the possible error and asking the inspector to confirm or re-enter the required information. Pay close attention to the prompts and scripts, read the messages carefully. In case you cannot figure out the problem, ask your certified peers, station owner or manager or you may call the Tech-Support Line at (800) 449-2471 for help.* |
| Access Code/Biometrics/Photo ID | The GAS unit will ask for you to use the biometrics identification device to begin a certified inspection. GCAF will also assign a five (5) digit unique access code to inspectors. At the prompt for your access code, enter this number if the biometric identification is not an option. It will not appear on the screen; instead, five asterisks (*****) will be displayed. The GAS will verify the inspector and enter the corresponding inspector license number into the test record. The GAS unit may also ask you to scan your Inspector ID card barcode. |
| ☺ **Compliance Tip:** | Do not give your access code to anyone. Do not allow anyone to see you key-in your access code. You are responsible for all inspections conducted under your access code. If you suspect that someone might be using your access code, please contact GCAF or EPD for further action. |
| *Entering Vehicle Information* | The GAS unit will prompt the inspector to enter information about the vehicle. The inspector should refer to the "Vehicle Identification" Chapter 9 in this manual to learn how to identify and collect the information required for the inspection. |
| ☺ **Compliance Tip:** | It is very important for the inspector to follow the screen prompts and menus of the GAS unit to enter the correct vehicle information. Small mistakes here can cause false failures, problems in completing vehicle registration, mismatching and future retrieving of vehicle information and data, which will inconvenience the motorist and might trigger enforcement |

actions against stations and/or inspectors. Data correcting inspections are performed at the expense of the station.

☺ **Compliance Tip:**

**Inspectors should be very cautious about entering any vehicle information manually. Incorrect information might cause an otherwise passing vehicle to fail, and will cause problems with matching VIN and future retrieval of vehicle information and data. Retesting a vehicle to correct data errors is done at the expense of the station.**

*Review Vehicle Information*

Throughout the data entry sequence into the GAS, the GAS unit will ask the inspector to review vehicle information and will prompt the inspector in case of some entry errors. Immediately prior to starting the tailpipe emissions test, the GAS will prompt the inspector to review vehicle information. Any correction must be done at this point. If the inspector proceeds to the next step he/she cannot back up without aborting the test.

Tailpipe Emissions Test

Next the GAS unit prompts the inspector to "place the vehicle in park/neutral, chock the wheels, and turn off all accessories".

The next prompt asks the inspector to "start engine, allow engine to stabilize, and insert probe in tailpipe." If the inspector indicated that the vehicle has dual exhaust, the GAS prompts will include a reminder to use dual probes for testing.

TSI Test Procedure

The following procedure is recommended for performing the tailpipe emissions test portion of the TSI inspection:

1. Ensure the engine is off unless otherwise recommended by the EM or State procedures.
2. Chock the wheels (at least one wheel).
3. Connect the RPM pickup probe of your choice. However, if you use the inductive pickup (the one that clips around the spark plug or coil wire), keep hands and wires away from the hot engine, exhaust manifolds, fans, etc. .

☺ **Compliance Tip:**

**Do NOT do anything to alter RPM readings! The test must be conducted with ALL "Switchable" Accessories OFF.**

4. Insert the probe tip into the tailpipe to a minimum depth of 10 inches. Do not touch the probe tip or metal part of the probe or probe line: Those parts get very hot after being in the tailpipe.
5. Make sure that *all vehicle "switchable" accessories are off.*
6. Sit inside the vehicle, with both feet in and the door closed.
7. Apply or ensure that the parking brake is applied.
8. Start the engine if it is off.
9. Set the transmission as directed by the GAS unit or according to auto manufacturer recommendation.
10. If there is no specific direction from the GAS unit or auto manufacturer, we recommend that you set the transmission in neutral for both automatic and manual transmissions for both the 2500 RPM and Curb Idle portions of the test.
11. Follow the prompts of the GAS unit to complete the 2500 RPM test and then the Idle test of the TSI test cycle.

**The Bottom Line**

When it comes to safety issues, the bottom line is:

- Use Common Sense
- Follow Manufacturers' Safety Warnings
- Follow Manufacturers' Operating Procedures
- Follow State, GCAF, and OEM Recommendations
- Remain focused: Be aware of others ignoring safety issues and bring it to their attention or management's attention to help them correct their actions.
- To stabilize, and insert probe in tailpipe. If the inspector indicated that the vehicle has dual exhaust, the GAS prompts will include a reminder to use dual probes for testing.

***Note:*** *Some vehicles are only tested at curb idle to avoid transmission damage. The GAS unit will instruct the inspector in these rare situations.*

12. After the test is completed and the GAS unit directs you to disconnect the RPM pickup, remove the probe, etc.
    a. Turn off the engine.
    b. Ensure automatic transmissions are in park and manual transmissions are in either 1st or Reverse, whichever is appropriate for your station's layout.
    c. Remove the probe. Remember: *It is hot!*
    d. Remove the RPM pickup. If the inductive type, remember: *It is hot* under the hood!
    e. Remove the wheel chocks.

Fuel Cap Pressure Test

After completing the tailpipe emissions test the GAS unit may prompt the inspector to perform the Fuel Cap Pressure Test. The inspector should refer to the "Fuel Cap Pressure Inspection" section in Chapter 13 of this manual, for the proper testing procedure.

The GAS unit gives the inspector the option to retest a failing fuel cap. The inspector must give the motorist the opportunity to replace the cap with another before completing the test. The inspector must test this replacement fuel cap before concluding the inspection. If the replacement cap passes, the motorist will be spared a return visit, and the inspector and station will be spared the time to retest the vehicle.

***Note:*** *Make sure that you give the motorist back all his or her fuel caps, old and new. They are their property.*

☺ **Compliance Tip:** The inspector must have the motorist's consent before he or she replaces a defective fuel cap with a new or replacement cap. Under no circumstances should the inspector bypass or replace a defective cap with the expectation the motorist will agree to purchase a new cap. Withholding a passing VIR from the motorist until he/she buys a new or replacement fuel cap is a violation.

# Attachments

# Attachment 1

# I/M Rules

It is the inspectors' and station owners' responsibility to maintain a current copy of these I/M Rules and to be aware of any changes made in the I/M Rules at the time the change becomes effective. The complete set of I/M Rules are available on the GCAF web site at HTTP:/www.cleanairforce.com. Which also contains a web page showing the most recent changes made in the rules.

NOTE: The official DNR I/M Rules may be found on the Georgia Department of Natural Resources website at: http://www.georgiaepd.org/

GEORGIA'S
Clean Air Force
GEORGIA ENVIRONMENTAL PROTECTION DIVISION

# Rules for
# Enhanced Inspection and Maintenance
# Chapter 391-3-20

**Effective: March 21, 2023**

GEORGIA
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

## Air Protection Branch

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## GEORGIA DEPARTMENT OF NATURAL RESOURCES

The Department of Natural Resources is an equal opportunity employer and offers all persons the opportunity to compete and participate in each area of DNR employment regardless of race, color, religion, sex, national origin, age, handicap, or other non-merit factors.

## RULES FOR ENHANCED INSPECTION AND MAINTENANCE

## TABLE OF CONTENTS

# RULES OF
# GEORGIA DEPARTMENT OF NATURAL RESOURCES
# ENVIRONMENTAL PROTECTION DIVISION

## CHAPTER 391-3-20
## ENHANCED INSPECTION AND MAINTENANCE



### 391-3-20-.01 Definitions

The following terms as used in these rules shall have the meaning hereinafter respectively ascribed, except that to the extent terms are not defined in these rules, the Act's definitions control; and provided that definitions within any subsequent rule or subdivision thereof, which are expressly made applicable to the rule or subdivision within which they appear, shall apply for purposes of such specific rule or subdivision thereof.

(a) "Act" means O.C.G.A. § 12-9-40 et seq., as amended, "The Georgia Motor Vehicle Emission Inspection and Maintenance Act."

(b) "Biometrics" means the automated recognition of individuals by means of unique physical characteristics, typically for the purposes of security. For Georgia's Clean Air Force inspectors, biometric finger vein readers are used for biometric logins.

(c) "Calibration" means, in the case of the Georgia Analyzer System (GAS), the process of establishing or verifying that the test values of the GAS emissions bench are accurate by using the applicable calibration gases. In the case of a fuel cap tester, "calibration" means the process of verifying that the measured pressure drop over time is between the upper and lower control limits.

(d) "Certificate" means the license issued by the Director to a person authorizing him or her to perform emission inspections in accordance with the requirements of the Act and this Chapter.

(e) "Certificate of Authorization" means a certificate issued by the Director to each establishment or location designated as an official emission inspection station.

(f) "Certificate of Emissions Inspection" means an official certificate that exhaust emissions, evaporative emissions, emission control equipment, and on-board diagnostic equipment have been inspected and approved in accordance with the Act and this Chapter. Such certificates will be furnished to official emission inspection stations by EPD to be completed and issued by such stations to the owner or operator of a responsible motor vehicle upon inspection and approval certifying that such responsible motor vehicle has been inspected and complies with the inspection and maintenance required by the Act and this Chapter.

(g) "DLC" means the data or diagnostic link connector for a vehicle's on-board diagnostic system.

(h) "Dedicated data transmission line" means a unique communication line identifiable by a transmitted digital identification number which allows the Vehicle Information Database or (VID) to identify the Georgia Analyzer System (GAS) unit communicating with the VID.

(i) "Department" means the Department of Natural Resources.

(j) "Diagnostic Trouble Codes (DTC)" means that for vehicles equipped with on-board diagnostic (OBD) computer systems, a five digit code that is associated with a specific test of the OBD system.

(k) "Director" means the Director of the Environmental Protection Division of the Department of Natural Resources.

(l) "E-Certs" means blank Electronic Certificates of Emission Inspection that are pre-purchased by official emissions inspection stations for the purpose of performing emission inspections.

(m) "Emission Inspection" means all tests and inspections required by the Act and this Chapter, including an on-board diagnostic system check, a fuel cap test, a tampering inspection, and an exhaust emissions test where applicable.

(n) "Emissions Inspector Certification Training Program Manual", means the manual supplied to inspectors during their initial and re-certification classes; the most current version of this manual is available on the Georgia Clean Air Force website at www.cleanairforce.com.

(o) "Emission Recall Compliance Check" means determining whether a recall campaign has been issued by the original equipment manufacturer of a vehicle.

(p) "E-VIN" means the Electronic Vehicle Identification Number embedded in the OBD computer system on 1996 and later model year vehicles.

(q) "EPD" means the Environmental Protection Division of the Georgia Department of Natural Resources.

(r) "Exhaust Emission Test" means the determination of the amount of specified gases in a vehicle's exhaust by use of the 2-speed idle (TSI) test.

(s) "Fleet Vehicle" means a motor vehicle owned or leased by a person engaged in a commercial activity, utility service, or government service; or a motor vehicle offered for sale, rent, or lease at a business which is licensed to sell, rent, or lease motor vehicles.

(t) "Fuel Cap Test" means the determination of the ability of the fuel cap(s) to retain pressure.

(u) "Gas Calibration" means the calibration of the Georgia Analyzer System (GAS) by the use of a manufactured calibration gas.

(v) "Georgia Analyzer System" (GAS) means the test systems approved by EPD for use in performing emission inspections in Georgia in accordance with the Act and this Chapter.

(w) "Georgia Analyzer System Hardware and Software Specifications" (GAS Specs) means the Georgia Analyzer System Hardware and Software Specifications, Phase V, August 31, 2016, which contains the hardware and software requirements for a GAS.

(x) "Georgia's Clean Air Force" (GCAF) means the partnership between EPD and the Management Contractor to implement Georgia's Enhanced Motor Vehicle Emission Inspection and Maintenance Program (I/M Program).

(y) "GVWR" means the gross vehicle weight rating, i.e., the weight of the vehicle and contents when loaded to its maximum capacity, as established by the vehicle manufacturer.

(z) "Hot Rod" means a vehicle in which the original engine has been replaced with an engine from another manufacturer, or with a different type of engine from the same manufacturer which was never installed in that model vehicle. For the purposes of this definition, a different type of engine will include engines with a different number of cylinders from any engine which was originally installed in that make of vehicle. It will not include engines of the same family, e.g., Chevrolet V8s of 283, 305, 327, 350 and 400 cubic inch displacement, nor will it include engines different from the original, but which were also installed in that make of vehicle, e.g., gasoline for diesel engine swaps in General Motors or Volkswagen vehicles, or V8 for V6 swaps where both engines were installed in that model vehicle by the manufacturer for retail sale.

(aa) "Idle RPM" means for vehicles equipped with a manual transmission, the manufacturer's recommended engine speed with the transmission in neutral or with the clutch disengaged. For vehicles equipped with an automatic transmission, idle revolutions per minute (RPM) means the manufacturer's recommended engine speed with the transmission in neutral or park.

(bb) "Inspection Term" means the period of time a certificate of emission inspection shall be considered valid. The specific period of an inspection term is established in this Chapter.

(cc) "Inspector" means a person certified by the Director to perform emission inspections in accordance with the requirements of the Act and this Chapter.

(dd) "Kit Car" means a motor vehicle which does not utilize a chassis from a vehicle certified by the manufacturer to meet emission control standards or for which the original manufacturer's identification has been eliminated due to the replacement of the vehicle's body with one of a different make and/or style.

(ee) "Light Duty Truck" means any motor vehicle with a GVWR of 8,500 pounds or less which has a vehicle curb weight of 6,000 pounds or less and which has a basic vehicle frontal area of 45 square feet or less, which is:

1. Designed primarily for purposes of transportation of property or is a derivation of such a vehicle, or

2. Designed primarily for transportation of persons and has a capacity of more than 12 persons, or

3. Available with special features enabling off-street or off-highway operation and use.

(ff) "Light Duty Vehicle" means a passenger car or passenger car derivative, capable of seating 12 passengers or less with a GVWR of 8,500 pounds or less.

(gg) "Management Contractor" means the person, corporation or entity under contract to design and operate the data management system and to perform other functions for the I/M Program.

(hh) "Malfunction Indicator Light (MIL)" means a light on the dashboard of OBD equipped vehicles that notifies the driver that an emission related fault has been detected and the vehicle should be repaired as soon as possible.

(ii) "Non-conforming Vehicle" means a covered vehicle that has not obtained an EPA certification or has an emissions control component that is obsolete according to the manufacturer; such a vehicle would be subject to an alternative tail pipe emissions standard based upon its model year to obtain a vehicle registration in the Georgia covered counties.

(jj) "On-Board Diagnostic (OBD) System" means a computer system installed on 1996 or later model year vehicles as required by Section 202(m) of the Clean Air Act (42 U.S.C. 7521) which is designed to identify engine or primary emission control component problems which cause excess emissions.

(kk) "On-Board Diagnostic (OBD) System Check" means the determination of readiness codes and diagnostic trouble codes stored within the memory of the on-board diagnostic system.

(ll) "Primary Emission Control Component" means the catalytic converter, air injection system, exhaust gas recirculation system or other major component, as determined by the Director, which is installed on a vehicle primarily for the purpose of emission control.

(mm) "Public Vehicle" means a motor vehicle that is not a fleet vehicle.

(nn) "Recognized Repair Technician" means any person professionally engaged in vehicle repair, employed by an ongoing business whose purpose is vehicle repair or possessing a nationally recognized certification for vehicle emission related diagnosis and repair.

(oo) "Responsible Motor Vehicle" means any motor vehicle defined as a light duty vehicle or a light duty truck, excluding any motor vehicle exempted from the Act and this Chapter such as vehicles not in a Covered County as defined in 391-3-20-.02.

(pp) "Revolutions per Minute" (RPM) means the number of times the crankshaft of an engine makes a complete 360 degree turn in one minute (60 seconds).

(qq) "State-Certified Emissions Inspection Station" means a facility that has met all the qualifications of this Act and this Chapter and is certified by the Director.

(rr) "Station Owner" means the individual, partnership, firm, corporation, association, municipality, governmental agency, lessee, or other entity having ownership of or control of the daily operation of an inspection station.

(ss) "Tampering Inspection" means the determination of whether the catalytic converter(s) as installed by the original manufacturer has been removed from the vehicle or modified.

(tt) "Time Extension" means any time extension as defined in section "Extensions and Reciprocal Inspections" of these rules and issued by EPD, the Management Contractor or an authorized agent of EPD to the owner of a responsible motor vehicle certifying that such owner and vehicle have met the requirements in the Act and this Chapter for extending the time to comply with the emission inspection requirement.

(uu) "Vehicle" means a motor vehicle.

(vv) "Vehicle Information Database" (VID) means the data collection and management system for Georgia's Enhanced Motor Vehicle Emission Inspection and Maintenance Program (I/M Program) that contains current and historical program data. The VID is comprised of data collection tables, including the table of inspection records. The term "VID" is used to refer to the VID as a whole or to any part, e.g., Enforcement database, Audit database, Emission Inspections database, and Waiver database.

(ww) "Waiver" means the official form issued by EPD, the Management Contractor or an authorized agent of EPD to the owner of a responsible motor vehicle certifying that such owner and vehicle have met the requirements in the Act and this Chapter for obtaining a waiver of the emission inspection requirement.

(xx) "2-speed idle (TSI) test" means an exhaust emission test where the vehicle under test is run at an idle revolutions per minute (RPM) speed and a higher RPM speed as defined in the GAS Specs.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Definitions" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Filed May 24, 1994, effective June 13, 1994. **Amended**: Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.01 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Emergency Rule 391-3-20-.038-.01 adopted. Filed December 5, 1997, effective December 3, 1997, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed December 5, 1997, effective December 25, 1997. **Amended**: Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed October 23, 1998, effective November 12, 1998. **Amended**: Filed June 18, 1999, effective July 8, 1999. **Repealed**: New Rule of same title adopted. Filed September 17, 1999; effective October 7, 1999. **Repealed**: New Rule of same title adopted. Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed June 28, 2001, effective July 18, 2001. **Amended**: Filed December 6, 2001, effective December 26, 2001. **Amended**: Filed December 5, 2003, effective December 25, 2003. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended:** Filed December 21, 2006, effective January 10, 2007. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed November 2, 2016, effective November 22, 2016. **Amended**: Filed March 8, 2018, effective March 28, 2018. **Amended**: Filed January 28, 2019, effective February 17, 2019. **Amended**: Filed March 24, 2021, effective April 13, 2021. **Amended**: Filed March 30, 2022, effective April 19, 2022. **Amended**: Filed March 1, 2023, effective March 21, 2023.

## 391-3-20-.02 Covered Counties

The requirements of this Chapter apply to responsible motor vehicles in the following designated counties:

(a) Cherokee;
(b) Clayton;
(c) Cobb;
(d) Coweta;
(e) DeKalb;
(f) Douglas;
(g) Fayette;
(h) Forsyth;
(i) Fulton;
(j) Gwinnett;
(k) Henry;
(l) Paulding; and
(m) Rockdale.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Covered Counties" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Filed May 24, 1994, effective June 13, 1994. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.02 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Repealed**: New Rule of same title adopted. Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed December 20, 2004, effective January 9, 2005.

## 391-3-20-.03 Covered Vehicles; Exemptions

(1) The requirements of this Chapter apply to the following classes of gasoline-powered responsible motor vehicles, as defined by the Act, registered or required to be registered in Covered Counties:

(a) All light duty vehicles 24 model years old and newer.

(b) All light duty trucks 24 model years old and newer with a gross vehicle weight rating of 8,500 pounds or less.

(2) The requirements of this Chapter also apply to the following vehicles in the classes listed above which are operated in Covered County:

(a) Vehicles which are owned and operated by a federal or state agency, municipality or other political subdivision in a Covered County.

(b) Vehicles which are operated for 60 days or more per year on federal installations located in whole or in part in a Covered County.

(3) Vehicles which are capable of being operated on both gasoline and any alternate fuel are covered by the inspection requirements and shall be tested on gasoline.

(4) New vehicles are exempt from the emission inspection requirement until the inspection term three years following the model year of the vehicle.

(5) EPD may require that any vehicle registered or operated in the Covered Counties but which is claimed to be not subject to the requirements of the State Inspection Program, be presented for verification that the vehicle is not subject.

(6) For vehicles which do not have the original engine, the model year of the chassis will be considered the model year of the vehicle.

(7) For kit cars, the model of the vehicle shall be deemed to be the model year of the vehicle as established in the vehicle registration database maintained by the Georgia Department of Revenue, Motor Vehicle Division or its successor agency.

(8) Owners of vehicles which qualify as non-conforming vehicles may request special inspection standards as described in Rule 391-3-20-.05(2). Such vehicles will be subject to the special inspection standards at subsequent inspections.

(9) A vehicle which is otherwise subject to the provisions of this Chapter is exempt from inspection if it is driven less than 5,000 miles per year, is 10 model years old or older and the current primary registered owner is a person 65 years old or older.

(10) No responsible motor vehicle shall be registered in a Covered County unless it has received a valid passing Certificate of Emission Inspection, a time extension or a waiver meeting all requirements of the Act and this Chapter.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Covered Vehicles; Exemptions" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-03 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September

15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed June 28, 2001, effective July 18, 2001. **Amended**: Filed June 27, 2002, effective July 17, 2002. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed March 8, 2018, effective March 28, 2018. **Amended**: Filed January 28, 2019, effective February 17, 2019. **Amended**: Filed March 1, 2023, effective March 21, 2023.

## 391-3-20-.04 Emission Inspection Procedures

(1) Prior to performing an emission inspection, the inspector shall determine whether the vehicle has leaking fluids, is overheating, or is otherwise unsafe to inspect. The inspector shall not perform an emission inspection on any vehicle which is unsafe to inspect.

(2) Inspectors shall perform a complete emission inspection on any responsible motor vehicle presented for an initial inspection, in accordance with the requirements of the Act and this Chapter and the procedures as prompted by the GAS, including the following:

(a) For OBD equipped vehicles.

1. A tampering inspection.

2. An OBD system check. On occasion, when activated by EPD, the GAS will prompt the inspector at the conclusion of the OBD system check to perform the 2-speed idle test to collect exhaust emission data. The exhaust emission data will not be used to determine Pass/Fail results of the vehicle.

3. A fuel cap test.

(b) For non-OBD equipped vehicles.

1. A tampering inspection.

2. An exhaust emission test. The inspector may perform a 2-speed idle test on vehicles as prompted by the GAS.

3. A fuel cap test.

(c) For non-conforming vehicles.

1. A tampering inspection. The inspector shall perform a tampering inspection only for those vehicles given non-conforming status by EPD that were originally equipped with a catalytic converter by the vehicle manufacturer or that have been subsequently equipped with a catalytic converter.

2. An exhaust emission test. The inspector shall perform a 2-speed idle test on all vehicles that have been given non-conforming status by EPD.

3. A fuel cap test.

(3) The station owner and inspector shall take all reasonable precautions to avoid damage to vehicles during the emission inspection.

(4) EPD may require alternate procedures for certain types or classes of vehicles when it determines that such alternate procedures are necessary to safely and effectively inspect such vehicles.

(5) Emission inspections may be performed on any vehicle when done "at motorist's request," for reasons such as performing a reciprocal inspection for a motorist to meet the emission inspection requirements in his or her state of residence, as allowed by the Georgia Analyzer System software. The inspection procedure to be performed by certified inspectors shall be as prompted by the GAS.

(6) Inspectors shall perform a reinspection of the portions previously failed during an emission inspection on any vehicle presented for an after repairs inspection, in accordance with the requirements of the Act and this Chapter and the procedures as prompted by the GAS.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Emission Inspection Procedures" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Filed May 24, 1994, effective June 13, 1994. **Amended**: Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.04 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Emergency Rule 391-3-20-0.36-.04 adopted. Filed October 17, 1997, effective October 15, 1997, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Emergency Rule 391-3-20-0.38-.04 adopted. Filed December 5, 1997, effective December 3, 1997, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed August 27, 1998, effective September 16, 1998. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed June 28, 2001, effective July 18, 2001. **Amended**: Filed December 6, 2001, effective December 26, 2001. **Amended**: Filed December 10, 2002, effective December 30, 2002. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed November 2, 2016, effective November 22, 2016. **Amended**: Filed March 8, 2018, effective March 28, 2018. **Amended**: Filed March 24, 2021, effective April 13, 2021. **Amended**: Filed March 30, 2022, effective April 19, 2022. **Amended**: Filed March 1, 2023, effective March 21, 2023.

## 391-3-20-.05 Emission Standards

(1) An inspector shall not perform a tampering inspection, an exhaust emission test, a fuel cap test, or an OBD system check on a vehicle which:

(a) has a missing exhaust system, or

(b) is unsafe to inspect.

(2) The inspector shall not issue a Certificate of Emission Inspection indicating an overall passing result for the emission inspection unless the inspector has inspected the vehicle in accordance with the requirements of the Act and this Chapter and the vehicle has passed the tampering inspection, the OBD system check, the fuel cap test, and the exhaust emissions test where applicable.

(a) The vehicle shall pass the tampering inspection if:

1. the catalytic converter(s) has not been removed or disconnected;

2. no catalytic converter was installed by the original equipment manufacturer as determined from the vehicle emission control label;

3. in the case of a vehicle which has been converted from a single exhaust system to a dual exhaust system and a catalytic converter(s) was part of the original single exhaust system configuration, a catalytic converter has been installed in each pipe of the dual exhaust system;

4. in the case of a non-conforming vehicle for which either the original vehicle or the replacement engine was equipped with a catalytic converter(s), a catalytic converter(s) has been installed; or

5. a catalytic converter(s) installed by the original equipment manufacturer has been removed and replaced with another catalytic converter(s).

(b) The vehicles shall pass the OBD system check if:

1. the Georgia Analyzer System (GAS) is able to communicate with the vehicle's OBD system;

2. the MIL illuminates with the ignition key in the "on" position and the engine not running, which is known as Key On Engine Off (KOEO);

3. the OBD system does not command the MIL to illuminate with the ignition key in the on position with the engine running;

4. all nonexempt OBD system monitors, as specified in the GAS, are set to "ready";

5. the OBD system does not contain any fault codes which command the MIL to illuminate, as specified by the vehicle manufacturer, indicating problems with the emissions control parameters monitored by the OBD system; and

6. the MIL does not illuminate with the ignition key in the "on" position and the engine running, which is known as Key On Engine Running (KOER).

(c) The vehicle shall pass the fuel cap test if:

1. the vehicle's primary fuel cap and, when equipped, one secondary fuel cap, holds pressure in accordance with the standard established by the GAS; and

2. where a vehicle has two or more fuel caps, each fuel cap is present.

(d) The vehicle shall pass the exhaust emission test if:

1. in the case of a vehicle subject to a 2-speed idle test any simultaneous pair of values for hydrocarbons and carbon monoxide, in each mode, do not exceed the exhaust levels established

in the GAS, and the combined value for carbon monoxide and carbon dioxide is equal to or more than the minimum combined value established in the GAS; or

2. in the case of a kit car, hot rod, or non-conforming vehicle that has been given non-conforming status by EPD under this Chapter, any simultaneous pair of values for hydrocarbon and carbon monoxide, in each mode of the 2-speed idle test, do not exceed the exhaust levels established in the GAS for 1975 model year vehicles, or for the model year of the vehicle, and the combined value for carbon monoxide and carbon dioxide is equal to or more than the minimum combined value established in the GAS.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Emission Standards" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.05 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Emergency Rule 391-3-20-0.38-.05 adopted. Filed December 5, 1997; effective December 3, 1997, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed: June 18, 1999, effective July 8, 1999. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed June 28, 2001, effective July 18, 2001. **Amended**: Filed December 6, 2001, effective December 26, 2001. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed November 2, 2016, effective November 22, 2016. **Amended**: Filed March 8, 2018, effective March 28, 2018. **Amended**: Filed March 24, 2021, effective April 13, 2021. **Amended**: Filed March 30, 2022, effective April 19, 2022. **Amended**: Filed March 1, 2023, effective March 21, 2023.

## 391-3-20-.06 On-Road Testing of Exhaust Emissions by Remote Sensing Technology or Other Means

(1) Covered vehicles are expected to meet emission standards at all times. EPD may use on-road testing measures such as remote sensing technology or other methods established by the Director to evaluate at least 0.5% of the vehicle population or 20,000 vehicles, whichever is less, for the on-road testing and high emitter requirement. Covered vehicles that appear to be producing exhaust emissions in excess of the applicable emission standards may be presumed to be high emitting vehicles. If EPD identifies a vehicle as a high emitter, EPD shall notify the owner of an identified vehicle to present his or her vehicle for an emission inspection under Rules 391-3-20-.04 and 391-3-20-.05. An owner so notified by EPD must present his or her vehicle for an emission inspection within thirty (30) days. Vehicles which fail such inspection shall be required to be reinspected and pass such reinspection as required by Rule 391-3-20-.15.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "On-Road Testing" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Filed August 31, 1994, effective September 20, 1994. **Repealed**: Rule Reserved. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.06 adopted. Filed June 4 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 2, 1999, effective December 22, 1999. **Amended**: Filed June 28, 2001, effective July 18, 2001. **Amended**: Filed June 27, 2002, effective July 17, 2002. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed January 28, 2019, effective February 17, 2019.

## 391-3-20-.07 Inspection Equipment System Specifications

(1) Georgia Analyzer Systems (GAS) Approval.

(a) EPD shall approve a test system which meets all specifications established in the Georgia Analyzer System Hardware and Software Specifications, Phase V, August 31, 2016 (GAS Specs) as a Georgia Analyzer System (GAS). Station owners may select from any GAS approved by EPD for their class of station.

(b) Regular inspection station owners shall acquire an EPD-approved GAS which meets the OBD and TSI requirements of this Chapter.

(c) Fleet inspection station owners that inspect vehicles shall acquire an EPD-approved GAS which meets the OBD and TSI requirements of this Chapter.

(2) EPD-approved GAS shall contain features to prevent tampering by unauthorized personnel. No unauthorized person shall override or circumvent or attempt to override or circumvent said anti-tampering features.

(3) No person shall modify or install parts in a GAS unless such modification or installation of parts has been approved in writing by EPD.

(4) Station owners shall acquire all available fuel cap adapters and the most recent Fuel Cap Testing Application Chart, as published by the fuel cap manufacturers: Stant and/or Hickok Waekon, for the adapters being used for those model year vehicles that are subject to this Chapter and are authorized to be inspected at that station.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Inspection Equipment System Specifications" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.07 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed June 28, 2001, effective July 18, 2001. **Amended**: Filed December 6, 2001, effective December 26, 2001. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed March 8, 2018, effective March 28, 2018. **Amended**: Filed March 24, 2021, effective April 13, 2021.

## 391-3-20-.08 Quality Control and Equipment Calibration Procedures

(1) All Georgia Analyzer Systems (GAS) shall, at a minimum, be calibrated according to the procedures and schedules as prompted by the GAS.

(2) No person shall operate a GAS for the purpose of performing an emissions inspection unless the Georgia Analyzer System:

(a) has passed all calibrations, audits, and leak checks as prompted by the GAS;

(b) in the case of a GAS that is not a mobile GAS, is connected to the dedicated data transmission line as described in 391-3-20-.09(2)(i); and

(c) in the case of a GAS that is a mobile GAS, is connected to the dedicated data transmission line within 72 hours of any inspection performed at a fleet or car dealer location and at all times when the mobile GAS is located at the inspection station location identified on the Certificate of Authorization.

(3) Any station or GAS that has not performed an inspection in more than 90 days, shall not resume performing inspections until the Management Contractor has been contacted and a passing audit has been performed by the Management Contractor on the station's GAS(s).

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Quality Control and Equipment Calibration Procedures" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.08 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed March 8, 2018, effective March 28, 2018.

## 391-3-20-.09 Inspection Station Requirements

(1) Classes of stations - There shall be two classes of inspection stations: regular inspection stations and fleet inspection stations. Regular inspection stations shall be public inspection stations and may inspect no more than ten (10) vehicles per year which are owned incidental to the operation of the business.

(a) Regular Inspection Stations

1. A regular inspection station is authorized to inspect any vehicle subject to the I/M Program.

(b) Fleet Inspection Stations

1. Vehicle owners who operate a fleet vehicle may apply for a Certificate of Authorization under this Chapter to inspect their own fleet vehicles, but must meet certain additional requirements beyond those established for public regular inspection stations. Fleet inspection stations are only allowed to inspect fleet vehicles that they own or operate. No inspection of public vehicles is allowed by a fleet inspection station.

(2) General Requirements for Inspection Stations

(a) Persons wishing to obtain or renew a Certificate of Authorization to operate one or more inspection stations shall apply to EPD in a format established by EPD. One application must be submitted for each inspection station. Each application shall include all information required by the Director to determine that the proposed inspection station will meet the requirements of the Act and this Chapter and shall identify all persons having any ownership, financial and/or operational interest in the station. Additional information that may be requested includes, but is not limited to:

1. Explicit permission of all persons having any financial or operational interest in the station, as named in the application, authorizing the director to conduct a background check, including criminal history, on the named individuals;

2. Facility purchase or lease agreement(s);

3. Georgia Analyzer System (GAS) purchase or lease agreement(s);

4. Proof of a filed bond or a copy of accepted certificate of liability insurance;

5. Copy of approved business license or application for same showing signature(s) of the business owner(s); and

6. Other documents as deemed necessary by EPD to determine all persons having any ownership, financial and/or operational interest in the inspection station.

(b) A station owner shall obtain all permits and licenses necessary for the establishment of each inspection station. The station shall conform to all applicable federal, state and local code requirements including, but not limited to, planning and building codes, carbon monoxide levels, ventilation, safety, and fire regulations. All permits, licenses, leases, and/or other requirements for the station shall be maintained for the duration of the Certificate of Authorization. An update shall be filed with the Management Contractor, in a format approved by EPD, no later than the next business day for any change in the information in or submitted with the application and/or any change in the permits, licenses and/or other requirements for the station.

(c) Mobile Georgia Analyzer Systems (GAS)

1. EPD may approve a station owner to operate a mobile GAS only at a fleet or car dealer location for the purpose of performing emission inspections only on fleet vehicles subject to the I/M Program that are owned or operated by that fleet or car dealer. A public inspection station owner with an approved mobile test system shall make all invoices submitted to fleet owners and/or car dealers for emission inspections using a mobile test system available to EPD or the Management Contractor.

2. A station owner that has been approved to operate a mobile GAS at a fleet or car dealer location shall comply with all requirements for mobile inspecting as established in these rules. A station owner that has been approved to operate a mobile GAS shall provide the Management Contractor and EPD, if directed to do so by EPD, with advance notice of scheduled emission inspections of fleet or car dealer locations by 2 PM of the previous business day and shall update such notice as the schedule is changed. The station owner may delete locations from the schedule of fleet or car dealer locations after 2 PM of the previous business day, but may not add fleet or car dealer locations to the schedule. EPD may approve an alternate procedure that provides equivalent quality assurance in lieu of a submitted schedule.

3. A public inspection station owner that has received an approval to operate a mobile GAS shall not perform emission inspections on public vehicles at a location other than at the public inspection station location identified on the Certificate of Authorization.

(d) Public inspection station owners shall provide an area adequate to allow four (4) vehicles per inspection lane to wait for an emissions inspection.

(e) A public inspection station owner shall display a sign approved by EPD that indicates that the facility is a State-Certified Emissions Inspection Station and that shows the fee charged for performing the emission inspection. The station owner shall erect the sign in a location visible to the motoring public. All sign locations must meet State and local code requirements. Signs that are illegible, damaged or contain unapproved modifications shall be replaced with an approved sign.

(f) Lanes at each inspection station must be of adequate length, width, and height to accommodate all normal-sized vehicles which are presented for inspection.

(g) A station owner shall provide adequate protection for the GAS to allow it to operate within specifications in all weather conditions. Any component of the GAS, which could affect the emission inspection results, shall not be subjected to temperatures outside the manufacturer's specifications. The station owner shall maintain all GAS in fully operational condition.

(h) A public inspection station owner shall provide to its customers:

1. a public waiting area, which will allow the motorist to observe the emissions inspection of his or her vehicle;

2. a response to inquiries and complaints in person and over the telephone during business hours;

3. EPD public information materials:

(i) The current, quarterly RepairWatch Public Report provided by EPD or the Management Contractor on repair facilities that have a documented history of emission related repairs on vehicles which have failed the emission inspection;

(ii) The program Motorist Rights Poster provided at the time of station certification; and

(iii) The program Q&A brochure.

(iv) The station owner shall maintain such item(s) in legible condition and either posted or made available for motorists' uninhibited viewing.

(i) A station owner shall:

1. be responsible for all emission inspections conducted at the inspection station(s);

2. be responsible for providing adequate oversight to ensure the station and station personnel comply with the requirements of the Act and this Chapter;

3. obtain and maintain in working order a secure static internet connection for each GAS at the station to connect to the VID;

4. transmit all vehicle inspection data and quality assurance data that is collected to the VID;

5. ensure that the GAS is connected to the secure static internet connection at all times, except in the case of a mobile or mobile capable GAS operating offsite at a fleet or car dealer location which shall be connected to the data transmission line within 72 hours of any emission inspection;

(i) Mobile capable GAS shall have the GAS connected at all times to a secure static internet connection while being used as a non-mobile GAS.

6. collect, store and submit to the Management Contractor all Emission Repair Forms for each reinspection performed at the inspection station;

7. obtain and maintain in legible condition any published OBD DLC Location Chart available or copy which is available on the GCAF website- www.cleanairforce.com, at each station;

8. obtain and maintain at all times in legible condition a current copy of the Emissions Inspector Certification Training Program Manual, Version 1.4 or later provided during inspector certification or copy which is available on the GCAF website-www.cleanairforce.com, at each station; and

(j) The station owner shall pay a per-paid-inspection program administration fee. This fee will be collected through the sale of E-Certs or other method determined by the Director. This fee will cover the cost to administer the program, including:

1. the services of the Management Contractor,

2. the cost of EPD administration,

3. the cost to affected county tax offices of monitoring vehicle registrations, and

4. any other costs allowed by the Act.

(k) Liability Insurance

1. Inspection station owners, except fleet inspection station owners, conducting inspections on vehicles as defined in this Chapter shall provide proof of $100,000 bond or liability insurance for the period of the Certificate of Authorization.

2. Inspection station owners shall notify the Management Contractor no later than the next business day upon termination of or any change in insurance coverage.

(l) Hours of Operation

1. Public inspection station owners shall post the inspection station hours of operation, including hours regularly closed for meals if applicable, on the inspection station's State-Certified Emissions Inspection Station sign. Inspection station owners shall provide emissions inspections at all times during the posted hours. Public inspection station owners may provide inspections by appointment only but shall notify the Management Contractor and indicate such on the station's State-Certified Emissions Inspection Station sign.

2. The station owner shall post a "Closed" sign over the station's State-Certified Emissions Inspection Station sign when the inspection station is closed and unstaffed during posted hours.

(m) A public inspection station owner shall display the Certificate of Authorization issued to the inspection station pursuant to this Chapter at said inspection station in a convenient location visible to the public.

(n) Whenever an inspector ceases employment with an inspection station, either through resignation, termination, or by other means, the station owner shall notify the Management Contractor, in a format approved by EPD, within three (3) business days of the inspector ceasing employment.

(o) No station owner, facility owner, station personnel, or facility personnel shall interfere with EPD or the Management Contractor when they are conducting an audit of the inspection station or GAS(s), or when they are conducting an investigation of the emission inspection activities at a station or at any facility claiming or appearing to be an emission inspection station.

(p) During an audit of the inspection station or GAS(s) by EPD or the Management Contractor, or during an investigation of the emission inspection activities at a station, the station owner shall:

1. provide prompt access to the premises, at reasonable times, where inspections are performed and to the GAS(s);

2. provide prompt access to all station related documents and materials necessary to complete the audit or investigation; and

3. provide prompt assistance in operating and calibrating the GAS(s) as necessary to facilitate the audit or investigation, or sign a release of liability that allows EPD or the Management Contractor to operate and calibrate the GAS(s) during the audit or investigation.

(q) The station owner shall maintain a current mailing address, telephone number, email address and other contact information on file with EPD so that EPD may communicate with the owner on all matters regarding the station, including compliance and enforcement issues. The station

owner may designate, in the station application or a written update thereto, another person to receive such communication from EPD. In that case, the station owner shall also provide that person's contact information, including email address, will be presumed to have received all communications from EPD through the person he or she has designated, and remains responsible for compliance with the requirements of the Act and this Chapter.

(3) Additional Requirements for Fleet Inspection Stations.

(a) The administrative fee charged to fleet inspection stations shall be at least as much as the fee charged to public inspection stations. This fee may be increased to cover any additional cost of increased monitoring requirements for fleet inspection stations.

(4) Quality Assurance for Fleet Vehicles.

(a) EPD or the Management Contractor may require fleet inspection stations and mobile inspection stations while on-site to re-inspect randomly selected fleet or car dealer vehicles to verify that emissions inspections are being performed properly.

(b) EPD may require fleet inspection stations and mobile inspection stations to install a video camera surveillance system on the GAS to record all emissions inspections.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Inspection Stations" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Filed May 24, 1994, effective June 13, 1994. **Amended**: Rule re-titled "IM240 Program Inspection Station Requirements." Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule entitled "Inspection Station Requirements" adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.09 adopted. Filed June 4 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Emergency Rule 391-3-20-0.39-.09 adopted. Filed October 17, 1997, effective October 15, 1997, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Emergency Rule 391-3-20-0.38-.09 adopted. Filed December 5, 1997, effective December 3, 1997, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed August 27**,** 1998, effective September 16, 1998. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 2, 1999, effective December 22, 1999. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed June 28, 2001, effective July 18, 2001. **Amended**: Filed December 6, 2001, effective December 26, 2001. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed November 2, 2016, effective November 22, 2016. **Amended**: Filed March 8, 2018, effective March 28, 2018. **Amended**: Filed January 28, 2019, effective February 17, 2019. **Amended**: Filed March 24, 2021, effective April 13, 2021. **Amended**: Filed March 30, 2022, effective April 19, 2022.

## 391-3-20-.10 Certificates of Authorization

(1) The Director shall issue a Certificate of Authorization to the station owner if the station owner has demonstrated to EPD that the inspection station for which the application has been submitted meets all requirements of the Act and this Chapter.

(2) The Certificate of Authorization shall allow the station owner to operate an inspection station as described in its application.

(3) The Director may suspend or revoke a Certificate of Authorization as authorized by the Act.

(4) Unless suspended, revoked, or the station is closed-out, the Certificate of Authorization shall be valid for two years. For station owners intending to renew their certificate, a station owner must apply for renewal of the Certificate by submitting a complete application at least 30 days prior to the expiration of the existing Certificate.

(5) Upon the sale of an inspection station, or the discontinuation of emission inspections, the station owner named on the Certificate of Authorization shall:

(a) provide not less than five (5) days notice to the Management Contractor prior to the change in ownership or the discontinuation of emissions inspections;

(b) maintain the dedicated data transmission line(s) to the VID and electrical power to the GAS until such time as the Management Contractor performs a close-out audit; and

(c) make arrangements to provide a free reinspection to motorists which are eligible for a free reinspection under this Chapter.

(6) A Certificate of Authorization is only valid for the owner and location for which it is issued. A Certificate of Authorization shall not be assigned, transferred, or used by any other person, business or entity, other than as shown on the Certificate of Authorization. A Certificate of Authorization shall not be assigned, transferred, or used at any location other than the location shown on the Certificate of Authorization. Upon a change in ownership of an inspection station, the new owner(s) must apply for and receive a new Certificate of Authorization prior to operating the station.

(7) The Director may deny issuance or renewal of a Certificate of Authorization for cause including, but not limited to the compliance history of the inspection station, its inspectors, its employees and all persons having any ownership, financial and/or operational interest in the station.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Inspector Qualifications and Certification" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Rule re-titled "RG240 Program Inspection Station Requirements." Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule entitled "Certificates of Authorization" adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.10 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Repealed**: New Rule of same title adopted. Filed June 3, 1997, effective June 23, 1997. **Repealed**: New Rule of same title adopted. Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 6, 2001, effective December 26, 2001. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed March 8, 2018, effective March 28, 2018. **Amended**: Filed March 30, 2022, effective April 19, 2022.

## 391-3-20-.11 Inspector Qualifications and Certification

(1) No person shall perform an emission inspection, or any part of an emission inspection, or issue a Certificate of Emission Inspection, unless he or she:

(a) has submitted an Inspector Certification Application to EPD in a format established by EPD. The application shall include all information required by the Director to determine that the applicant meets the requirements of the Act and this Chapter. An update shall be filed with the

Management Contractor, in a format approved by EPD, no later than the next business day for any change in the information in or submitted with the application.

(b) has obtained the age of 18 prior to attending the inspector training class;

(c) has completed the appropriate EPD-approved training program for the type of inspection he or she will be performing;

(d) has obtained training on the proper operation of inspection equipment from the manufacturer of the GAS that will be used to perform the emission inspections;

(e) has passed a written and practical test of proficiency, and,

(f) holds a valid Certificate as a certified emission inspector issued by the Director.

(2) The EPD-approved training program will include information on:

(a) air pollution, its causes and effects;

(b) the purpose and functions of the I/M Program;

(c) inspection regulations and procedures, including technical details and the rationale for their design;

(d) emission control devices, their functions, configuration, identification and inspection;

(e) Georgia Analyzer System (GAS) operation, calibration and maintenance;

(f) quality control procedures and their purpose;

(g) public relations; and

(h) safety and health issues related to inspections.

(3) Inspectors must demonstrate knowledge and proficiency in proper inspection procedures. Inspectors must pass (with 80% correct answers) a written test on all aspects of the training. Inspectors must also pass a practical test by demonstrating that they have knowledge about conducting all parts of the inspection correctly.

(4) The Director shall issue a Certificate and one Inspector picture ID badge to inspectors who satisfactorily complete the EPD-approved training program and pass the written and hands-on tests. Certificates may be suspended or revoked at any time, after notice and offer of a hearing, for failure to conduct inspections properly or to otherwise comply with the Act or this Chapter.

(5) Unless suspended, revoked or voluntarily surrendered, a Certificate issued by the Director is valid for two years from the date of issuance.

(a) For inspectors intending to renew their Certificate, a complete application for renewal of an inspector's Certificate must be submitted at least 30 calendar days prior to the expiration of the existing Certificate.

(b) The Director shall renew the Certificate upon timely receipt of a renewal application, determination that there is no cause to deny the renewal in accordance with the Act or Chapter 391-3-20 of the Rules, the inspector successfully completing an EPD approved retraining program, and the inspector passing the written test.

(6) No inspector shall perform an emissions inspection unless he or she is wearing his or her EPD-issued Inspector picture ID badge so the picture is clearly visible on his or her front upper body area. Replacement of a lost, missing, damaged or illegible ID badge is the responsibility of the inspector at a cost of twenty-five dollars ($25.00) paid to the Management Contractor.

(7) No inspector shall hold or attempt to fraudulently obtain two (2) or more valid Certificates.

(8) Whenever an inspector, after applying for and receiving a Certificate, moves from the address listed in his or her application or changes the telephone or e-mail address contact information, the inspector shall notify the Management Contractor of his or her change of address or contact information no later than the next business day. The address in the application or as updated by the inspector shall serve as the address for any and all notice required by law.

(9) No unauthorized person shall use a certified emission inspector's personal access code or biometric login to perform any part of an emission inspection. No certified emission inspector shall use the personal access code or biometric login of another certified emission inspector to perform any part of an emission inspection.

(10) An inspector shall not divulge or authorize the use of his or her personal access code or biometric login by any other person(s). An inspector shall be held responsible for all inspections performed by any person using his or her personal access code or biometric login.

(11) Before an inspector may perform emissions inspections at a station, the Management Contractor must allow the inspector access to the test system(s) at the station. Inspectors must notify the Management Contractor at least three (3) business days before they begin employment at a given station, and no later than the next business day when they cease employment at a station.

(12) The Director may deny issuance or renewal of a Certificate for cause, including, but not limited to, the inspector's compliance history.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Schedules for Emission Tests" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Rule re-titled "Inspector Qualifications and Certification." Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.11 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 2, 1999, effective December 22, 1999. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed December 6, 2001,

effective December 26, 2001. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed March 8, 2018, effective March 28, 2018. **Amended**: Filed January 28, 2019, effective February 17, 2019. **Amended**: Filed March 24, 2021, effective April 13, 2021. **Amended**: Filed March 30, 2022, effective April 19, 2022. **Amended**: Filed March 1, 2023, effective March 21, 2023.

## 391-3-20-.12 Schedules for Emission Tests

(1) The inspection term shall be annual.

(2) All covered vehicles must have a current passing Certificate of Emission Inspection, time extension, or waiver to obtain a vehicle registration each year. A passing Certificate of Emission Inspection, time extension, or waiver shall be valid for no more than twelve (12) months and shall be used for no more than one registration renewal by the same owner, except as provided herein.

(3) Vehicles not subject to 391-3-20-.18, which are purchased or obtained by a resident of a covered county, must receive a passing Certificate of Emission Inspection, time extension, or waiver prior to being registered in a covered county. This inspection shall be performed within thirty (30) days of purchasing or obtaining the vehicle. Persons newly establishing residence in a covered county must receive a passing Certificate of Emission Inspection, time extension, or waiver for their covered vehicle(s) within thirty (30) days of establishing residence in the covered county.

(4) For vehicles which are inspected under paragraph (3), if the vehicle's next registration renewal date is less than 12 months after the date of the passing Certificate of Emission Inspection, time extension, or waiver, that Certificate, time extension, or waiver shall be valid for the current registration and for the next registration renewal by the same owner.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Certificate of Emission Inspection" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Rule re-titled "Schedules for Emission Tests." Filed August 31, 1994, effective September 20, 1994. **Amended**: Filed April 28, 1995, effective May 18, 1995. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.12 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Filed March 27, 1998, effective April 16, 1998. **Repealed**: New Rule of same title adopted. Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 2, 1999, effective December 22, 1999. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed June 28, 2001, effective July 18, 2001. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014.

## 391-3-20-.13 Certificate of Emission Inspection

(1) Inspectors shall provide the motorist or owner of a vehicle which has received an emission inspection a Certificate of Emission Inspection. The Certificate shall be in a form approved by EPD and printed by the GAS such that the information on the Certificate is sharp, clear, legible, and suitable for copying. The Certificate shall include:

(a) the Vehicle Identification Number;

(b) the license plate number and state;

(c) the vehicle make and model year;

(d) the inspection date and time;

(e) the inspection type (initial, after-repairs reinspection);

(f) the inspection fee;

(g) vehicle odometer reading;

(h) fuel type;

(i) the inspection results for the on-board diagnostic check or the exhaust emission test with engine RPM, fuel cap test, and tampering inspection;

(j) the applicable standards;

(k) the pass or fail status for each test, and for the complete emission inspection;

(l) the vehicle engine size and number of cylinders;

(m) the inspection station's name, physical address, public access telephone number, and Certificate of Authorization number;

(n) Certificate of Emission Inspection number:

(o) the inspector's Certificate number, name, and signature; and

(p) any other information required by EPD.

(2) In the case of a vehicle that fails the emission inspection, in addition to the failing Certificate of Emission Inspection, the inspector shall provide to the vehicle owner:

(a) information on the possible availability of warranty emission system repairs and information provided by EPD or the Management Contractor on repairs which may be useful in repairing failed vehicles. Subject to the availability of this information supplied by the EPA, and revised test system software, EPD may modify or waive this requirement;

(b) an Emissions Repair Form. This form, provided by EPD or the Management Contractor (via the GCAF website at www.cleanairforce.com) or the GAS shall include a checklist of common repairs and spaces for the repair technician to insert: his or her name; the business name, address, and telephone number; and the cost of repairs; and

(c) access to the current, quarterly RepairWatch Public Report provided by EPD or the Management Contractor on repair facilities that have a documented history of emission related repairs on vehicles which have failed the emission inspection.

(3) Station owners shall purchase E-Certs from EPD or the Management Contractor at a price established by this Chapter. The method for fee collection and E-Cert distribution shall be as established by EPD.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Emission Inspection Sticker" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Rule re-titled "Certificate of Emission Inspection." Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.13 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Rule re-titled "Certificate of Emissions Inspection." Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed August 27, 1998, effective October 1, 1998. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 2, 1999, effective December 22, 1999. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed June 28, 2001, effective July 18, 2001. **Amended**: Filed December 6, 2001, effective December 26, 2001. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed March 8, 2018, effective March 28, 2018. **Amended**: Filed March 30, 2022, effective April 19, 2022.

## 391-3-20-.14 Reserved

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Repairs and Retests" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Rule re-titled "Emission Inspection Sticker." Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.14 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Rule re-titled "Emissions Inspection Sticker." Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Repealed**: Rule Reserved. Filed December 2, 1999, effective December 22, 1999.

## 391-3-20-.15 Repairs and Retests

(1) Owners of vehicles which fail any portion of the emission inspection shall have necessary maintenance and repairs performed. Vehicles which are brought to an inspection station operated by the same owner as the station which performed the original inspection within 30 days of an inspection failure, will be given one reinspection at no additional charge. If any additional reinspections are required to pass the inspection requirement, another inspection fee shall be charged. This fee will cover one reinspection and, if required, one additional reinspection.

(2) Owners of vehicles presented for reinspection shall present a completed Emissions Repair Form. No reinspection, whether paid or unpaid, shall be performed unless the repair information form has been completed and submitted to the inspection station. The repair information form should be completed by the repair facility which repaired the vehicle or by the vehicle owner. The information from the form shall be entered into the VID by the inspector performing the reinspection.

(3) Repairs by the owner or other persons who are not recognized repair technicians are permitted; however, the cost of such repairs, except repairs to primary emission control components, shall not be counted toward a waiver for any 1980 or newer model year vehicle.

(4) Except as noted, reinspections shall consist only of the failed portions of the previous inspection, i.e., exhaust, fuel cap, tampering, OBD, provided the previous inspection results are retrieved electronically by the GAS. For an exhaust emission reinspection, the vehicle must pass the inspection for all required pollutants (HC, CO). For an OBD system reinspection, the vehicle must pass the complete OBD system check.

(5) Vehicles which pass the reinspection will receive a passing Certificate of Emission Inspection.

(6) A station owner that is not the owner of the inspection station which performed the previous initial inspection or paid after-repairs reinspection may perform a free after-repairs reinspection provided the free after-repairs reinspection is performed within 30 days of the previous inspection, and the previous inspection was a paid inspection.

(7) When the inspector is presented with a vehicle for a reinspection, the inspector shall verify that the vehicle being submitted for the reinspection matches the vehicle specified on the previous failing Certificate of Emission Inspection and on the Emissions Repair Form.

(8) No station owner or inspector shall charge the motorist or vehicle owner for an after-repairs reinspection, unless a new E-Cert is used and a new Certificate of Emission Inspection is issued containing a new number. The number of any previously issued Certificate of Emission Inspection shall be used only for a reinspection that is free of charge to the motorist or vehicle owner and only in accordance with the requirements of this Chapter.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. History: Original Rule entitled "Extensions, Reciprocal Tests" adopted. Filed November 1, 1993, effective November 21, 1993. Amended: Rule re-titled "Repairs and Retests." Filed August 31, 1994, effective September 20, 1994. Repealed: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. Amended: Emergency Rule 391-3-20-0.33-.15 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. Amended: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. Amended: Filed March 27, 1998, effective April 16, 1998. Amended: Filed September 17, 1999, effective October 7, 1999. Amended: Filed December 2, 1999, effective December 22, 1999. Amended: Filed December 8, 2000, effective December 28, 2000. Amended: Filed June 28, 2001, effective July 18, 2001. Amended: Filed December 6, 2001, effective December 26, 2001. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed March 8, 2018, effective March 28, 2018. **Amended**: Filed March 30, 2022, effective April 19, 2022.

## 391-3-20-.16 Extensions and Reciprocal Inspections

(1) Owners of vehicles which are temporarily stationed in a location which is outside the covered counties, and which cannot obtain a reciprocal inspection by another State's emission inspection program, or be easily brought to the covered counties for inspection may request an extension of time to comply. Each request for an extension shall include current proof that the vehicle and owner are stationed outside the covered counties, e.g., military orders, school registration or other documentation acceptable to EPD. Extensions may be granted for up to one year.

(2) Vehicles stationed outside the covered counties may comply with the inspection requirement by passing a reciprocal emission inspection from an inspection program approved by the U.S. Environmental Protection Agency.

(3) Extensions may be granted by EPD, the Management Contractor or an authorized agent of EPD.

(4) Extensions are valid for no more than one inspection term and shall be used for no more than one registration renewal.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Waivers" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Rule re-titled "Extensions, Reciprocal Tests." Filed August 31, 1994, effective September 20; 1994. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.16 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 2, 1999, effective December 22, 1999. **Amended**: Filed June 28, 2001, effective July 18, 2001. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed December 7, 2007, effective December 28, 2007. **Amended**: Filed May 30, 2014, effective June 19, 2014.

## 391-3-20-.17 Waivers

(1) Vehicles which fail a reinspection despite expenditures over a set dollar amount on appropriate repairs and which have met certain other criteria may be granted a waiver from complying with the inspection requirements for that registration period. Expenditures must be reasonable costs as determined by the Director.

(2) In order to obtain a waiver the following criteria must have been met:

(a) Repair Costs:

1. A yearly expenditure, as required by OCGA 12-9-48(d)(2), must have been made on qualifying repairs after the vehicle fails the initial inspection. The amount will be adjusted each year to reflect the change in the Consumer Price Index after 1989, which was $450. At the start of each inspection term, EPD will determine the new effective amount in accordance with these requirements and will make that information available at the GCAF website, www.cleanairforce.com. For vehicles which otherwise qualify for waivers based on a prior calendar inspection term, the waiver limit shall be that prior year's level of qualifying repairs.

2. No cost for labor performed by a vehicle owner in the repair of his or her own vehicle shall be applied toward the repair waiver amount, except that a fleet owner may apply the actual cost of labor and parts, excluding any and all overhead costs, toward the waiver amount.

(b) Receipts for these expenditures shall be submitted by the vehicle owner. Vehicle owners shall present the vehicle for which the waiver is requested to an authorized waiver inspection facility for verification of waiver eligibility. This verification shall include an inspection of the vehicle to confirm that reported repairs have been performed and to assess possible reasons for the vehicle's failure to meet the emission inspection requirements.

(c) Receipts for parts and labor expenditures being considered for a repair waiver shall be submitted from a licensed business that performs emissions repairs to qualify. Repair forms shall adequately describe the vehicle by indicating, at a minimum, the VIN of the vehicle and shall also indicate date of service.

1. Vehicles must have qualifying repair receipts that are dated not more than 30 days prior to the initial failing inspection for the current registration cycle;

2. Repair receipts shall only be used to obtain a single waiver.

(d) Qualifying repairs do not include:

1. repair or replacement of tampered emissions control equipment;

2. repairs performed by persons other than a recognized repair technician, except for repairs to primary emissions control components;

3. repairs that are unrelated to emissions performance or are inappropriate for the type of test failure.

(e) Motorists must utilize emission performance warranty coverage. If the vehicle is within the age and mileage limitations of the federal Clean Air Act warranty provisions contained in Section 207(b), the owner must present a written denial of warranty coverage from the manufacturer or authorized dealer.

(f) Repairs shall address the OBD system failure or have produced a reduction in tailpipe emission of pollutants which failed during the previous initial inspection. Reinspection exhaust emission levels for pollutants which originally passed shall not exceed the relevant standards.

(g) Waivers shall be issued by EPD, the Management Contractor or an authorized agent of EPD. Before issuing a waiver, the issuer shall verify that receipts for qualifying repairs equaling or exceeding the established waiver amount have been submitted, verify the repairs have been made by presenting the vehicle for a visual inspection and that the vehicle is otherwise qualified to receive a waiver.

(3) Waivers are valid for no more than twelve (12) months and shall be used for no more than one registration.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Sale of Vehicles" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Rule re-titled "Waivers." Filed August 31, 1994, effective September 20, 1994. **Repealed**: Rule Reserved. Filed April 28, 1995; effective May 18, 1995. **Amended**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.17 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Filed December 5, 1997, effective December 25, 1997. **Amended**: Filed March 27, 1998, effective April 16, 1998. **Amended**: Filed October 23, 1998, effective November 12, 1998. **Amended**: Filed December 2, 1999, effective December 22, 1999. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed December 6, 2001, effective December 26, 2001. **Amended**: Filed December 10, 2002, effective December 30, 2002. **Amended**: Filed December 5, 2003, effective December 25, 2003. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed December 7, 2005, effective January 10, 2006. **Amended:** Filed December 21, 2006, effective January 10, 2007. **Amended:** Filed December 7, 2007, effective December 27, 2007. Amended: Filed December 8, 2008, effective December 28, 2008. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed March 8, 2018, effective March 28, 2018. **Amended**: Filed January 28, 2019, effective February 17, 2019. **Amended**: Filed March 30, 2022, effective April 19, 2022.

## 391-3-20-.18 Sale of Vehicles

(1) No person may sell a responsible motor vehicle intended for highway use unless that vehicle has a current valid passing certificate of emissions inspection if, after purchase, the vehicle will be registered in one of the Covered Counties listed in rule 391-3-20-.02.

(2) A current valid passing Certificate of Emission Inspection is not required for any motor vehicle that might otherwise be subject to a pre-sale emission inspection, but is sold for salvage or for parts rather than for use as a motor vehicle on the streets and highways, provided that said vehicle is not in fact operated on the streets and highways, but is towed or hauled by some other vehicle. The purpose for which the vehicle is sold shall be indicated by the seller on the bill of sale.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Program Contractor" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Filed May 24, 1994, effective June 13, 1994. **Amended**: Rule re-titled "Sale of Vehicles." Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule of same title adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.18 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 2, 1999, effective December 22, 1999. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed March 8, 2018, effective March 28, 2018.

## 391-3-20-.19 Management Contractor

(1) The Director, on behalf of the Board of Natural Resources, may contract with any person, corporation or entity as necessary to implement and adequately enforce and ensure compliance with the State Inspection Program. The Department may contract for the design and operation of a centralized data system and other functions as determined by the Director.

(2) The Management Contractor will be responsible for designing and maintaining an inspection database that will include all vehicles subject to inspection in the covered counties. This database will include all inspection-related information required by the Act and this Chapter or by the management contract. Access to the information in this database shall be made available to EPD for oversight, data analysis and other purposes, and to the Georgia Department of Revenue, Motor Vehicle Division or its successor agency for the purpose of determining compliance with the inspection requirement for vehicles which are to be registered. Data in this database may not be used for any other purpose unless specifically authorized by the Director.

(3) The Management Contractor, and its employees, shall not be engaged in, or have any financial interest in, the repair of motor vehicles, or in the operation of any emission inspection station. Financial interest in the repair of vehicles shall include the ownership or operation of repair facilities or the sale of motor vehicles or motor vehicle parts.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Alternate Inspection Stations" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Rule re-titled "IM240 Program Contractor." Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule entitled "Management Contractor" adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.19 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed June 27, 2002, effective July 17, 2002. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014.

## 391-3-20-.20 Referee Program

(1) Should a vehicle owner question the emission inspection procedures, GAS accuracy or validity of the inspection results, the owner may request that a referee inspection be performed on the vehicle, provided no repairs have been made on the vehicle since the inspection in

question. The owner must request the referee inspection within fifteen (15) business days of the inspection in question.

(2) Referee inspections shall be observed by EPD or the Management Contractor at a mutually agreed upon time at the inspection station where the inspection in question was performed.

(3) Prior to any referee inspection, EPD or the Management Contractor will review all calibration records to ensure that the GAS at the applicable station are meeting the appropriate specifications. EPD or the Management Contractor will then observe the referee inspection performed by station personnel to ensure that it is properly performed.

(4) If the vehicle passes the referee test, the vehicle will be given a passing Certificate of Emission Inspection.

(5) EPD may request that a referee inspection be performed on a vehicle at any reasonable time.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Certificates of Authorization" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Rule re-titled "Alternate IM240 Program Inspection Stations" adopted. Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule entitled "Referee Program" adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.20 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed December 2, 1999, effective December 22, 1999. **Amended**: Filed June 28, 2001, effective July 18, 2001. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed March 8, 2018, effective March 28, 2018.

### 391-3-20-.21 Inspection Fees

(1) The emission inspection fee shall be due from the motorist or vehicle owner when the vehicle starts the inspection process. Vehicles which are rejected prior to the start of the inspection process for being unsafe to inspect shall not be charged a fee.

(2) The emission inspection fee paid by the motorist or vehicle owner to the inspection station owner shall consist of the program administration fee plus a fee for performing the inspection. The emission inspection fee shall be established by the inspection station owner but shall be no less than $10.00 and no more than $25.00. The fee will cover an initial inspection, plus one free reinspection. Another reinspection fee will be charged for subsequent re-inspections; this fee will cover one reinspection and, if required, one additional reinspection.

(3) Program Administration Fees.

(a) Each inspection station owner shall remit to the Director a program administration fee of four dollars and two cents ($4.02) for each E-Cert purchased.

(b) Each owner of a fleet inspection station where EPD has required the installation and operation of a video camera surveillance system, shall remit to the Director a program administration fee of five dollars and two cents ($5.02) for each E-Cert purchased.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Referee Program and Program Evaluation" adopted, Filed November 1, 1993, effective November 21, 1993. **Amended**: Filed May 24, 1994, effective June 13, 1994. **Amended**: Rule re-titled "RG240 Program Inspection Stations." Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule entitled "Inspection Fees"

adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.21 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed June 3, 1997, effective June 23, 1997. **Amended**: Filed October 23, 1998, effective November 12, 1998. **Amended**: Filed June 18, 1999, effective July 8, 1999. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed March 1, 2001, effective March 21, 2001. **Amended**: Filed June 28, 2001, effective July 18, 2001. **Amended**: Filed June 27, 2002, effective July 17, 2002. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed September 6, 2007, effective September 26, 2007. **Amended**: Filed May 30, 2014, effective June 19, 2014.

## 391-3-20-.22 Enforcement

(1) The administration and enforcement of this Chapter shall be as prescribed in the Act and in compliance with the minimum applicable requirements as prescribed by the Georgia Administrative Procedures Act (O.C.G.A. Section 50-13-1, et seq., as amended).

(2) Suspensions and Revocations.

(a) Whenever a Certificate of Authorization has been suspended and that Certificate expires during the suspension period, the inspection station owner may not obtain a Certificate of Authorization until the term of the suspension has expired. Whenever a Certificate of Authorization has been revoked or surrendered as a result of enforcement action, the inspection station owner may not apply for a new Certificate of Authorization for a minimum of two years from the date of the revocation or surrender.

(b) Whenever an inspector's Certificate has been suspended and that Certificate expires during the suspension period, the inspector may not obtain a Certificate until the term of the suspension has expired. Whenever an inspector's Certificate has been revoked or surrendered as a result of enforcement action, the inspector shall surrender his or her Inspector picture ID badge and may not apply for a new Certificate for a minimum of two years from the date of the revocation or surrender.

(3) Any inspection station whose Certificate of Authorization has been revoked or surrendered as a result of enforcement action will not be eligible for listing in the RepairWatch Public Report.

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Inspection Fees" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Filed May 24, 1994, effective June 13, 1994. **Amended**: Rule re-titled "Certificates of Authorization; Station Contract." Filed August 31, 1994, effective September 20, 1994. **Repealed**: New Rule entitled "Enforcement" adopted. Filed August 28, 1995, effective September 17, 1995. **Amended**: Emergency Rule 391-3-20-0.33-.22 adopted. Filed June 4, 1996, effective May 29, 1996, the date of adoption, to remain in effect for 120 days or until the effective date of a permanent Rule covering the same subject matter is adopted, as specified by the Agency. **Amended**: Permanent Rule adopted. Filed August 26, 1996, effective September 15, 1996. **Amended**: Filed September 17, 1999, effective October 7, 1999. **Amended**: Filed December 8, 2000, effective December 28, 2000. **Amended**: Filed December 6, 2001, effective December 26, 2001. **Amended**: Filed December 20, 2004, effective January 9, 2005. **Amended**: Filed May 30, 2014, effective June 19, 2014. **Amended**: Filed March 30, 2022, effective April 19, 2022.

## 391-3-20-.23 Repealed

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Violation of Law or Rules; Penalty" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Rule re-titled "Referee Program and Program Evaluation." Filed August 31, 1994, effective September 20, 1994. **Repealed**: Filed August 28, 1995, effective September 17, 1995.

## 391-3-20-.24 Repealed

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Hearings" adopted. Filed November 1, 1993, effective November 21, 1993. **Amended**: Rule re-titled "Inspection Fees." Filed August 31, 1994, effective September 20, 1994. **Repealed**: Filed August 28, 1995, effective September 17, 1995.

## 391-3-20-.25 Repealed

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Violation of Law or Rules; Penalty" adopted. Filed August 31, 1994, effective September 20, 1994. **Repealed**: Filed August 28, 1995, effective September 17, 1995.

## 391-3-20-.26 Repealed

Authority: O.C.G.A. Section 12-9-40, et seq., as amended. **History**: Original Rule entitled "Hearings" adopted. Filed August 31, 1994, effective September 20, 1994. **Repealed**: Filed August 28, 1995, effective September 17, 1995.

# Attachment 2



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Clean Air Force™
GEORGIA ENVIRONMENTAL PROTECTION DIVISION

THIS EMISSION REPAIR FORM MUST BE COMPLETED BEFORE RETESTING

In order to have your vehicle re-inspected (free or paid), this Emission Repair form MUST be completed and presented to the inspector. Under no circumstance is a vehicle to be re-inspected without a completed form. It is a violation for the inspector to re-inspect vehicles without a completed form.

Before any repairs are paid for, you should make certain your mechanic will complete this form so you can receive your re-inspection.

For each paid inspection performed on your vehicle you are entitled to one FREE re-inspection, if you return to the same inspection station within 30 days. Note: The initial test date is day 1.

EMISSION STATION OWNERS MUST RETAIN THIS COMPLETED FORM AND SUBMIT TO GCAF. VEHICLE OWNERS ARE TO RETAIN REPAIR RECEIPTS.

Test Date: 09/17/2001 @ 16:50

Station Name: ABC Emissions Station Number:GA123456

| | | |
|---|---|---|
| License:ABC1234 | State:GEORGIA | VIN:1GNEK18K6XJ311925 |
| Year: 1999 | Make: CHEVROLET | Model:CAVALIER |
| Cylinders:4 | Engine Size:2.1 L | Transmission:AUTOMATIC |
| Odometer:123456 | Body Type:SEDAN | Stds Type:PASSENGER |
| GVWR:…… | VRT Record: 40158 | Test Weight: 4321 |

## Section A: REPAIR SHOP INFORMATION

The Repair Shop Technician is to complete Sections A & B.

Repair Shop Phone #: __ __ __ __ - ___ __ __ - __ __ ___ ____

Total Cost of PARTS:$_____.00 (**enter whole dollars only**)

Total Cost of Labor:$_____.00 (**enter whole dollars only**)

Check if other emission related repairs were recommended but not performed.

Repair Technician Signature:_____

Repair Center/Technician E-Mail: _____

## Section B:REPAIR CATEGORIES (Date and circle all that apply)

Repair Categories Repair Date:_____

| | |
|---|---|
| 1 Ignition Repairs | 6 Sensors, Switches and Computer |
| 2 Intake/Fuel Induction System Repair | 7 Catalytic Converter/Exhaust System |
| 3 Engine Diagnostics | 8 Air Injection System Repair |
| 4 Fuel - Cap/Tank/Evaporative System | 9 Internal Engine Repairs |
| 5 EGR System | 10 Other ASM or OBD related repairs |

## Section C: OWNER SELF-REPAIR

For self-repairs, the Owner is to complete Sections B & C.

Total Cost of PARTS ONLY $____.00 (**enter whole dollars, NO labor allowed**)

Vehicle Owners Signature:_____

I choose to have my vehicle re-inspected WITHOUT making any repairs.

# DO NOT REMOVE

## NOTICE OF EQUIPMENT FAILURE DURING AUDIT

THIS NOTICE MUST REMAIN ATTACHED TO ANALYZER UNTIL IT HAS BEEN REPAIRED.

UNAUTHORIZED REMOVAL MAY RESULT IN ENFORCEMENT ACTION AGAINST STATION

**THIS SECTION IS TO BE COMPLETED BY THE GCAF AUDITOR**

FAILURE TYPE _____

STATION ID _____ GAS ID _____

AUDIT DATE _____ TIME _____ am / pm

TICKET NUMBER _____ AUDITOR'S NAME (Print) _____

---

**THIS SECTION SHALL BE COMPLETED BY STATION OWNER OR MANAGER AND MAINTAINED ON FILE AT THE STATION FOR FUTURE REFERENCE.**

LIST REPAIRS MADE (or attached copy of repair work-order).

_____

REPAIR DATE _____ and TIME: _____ am / pm

REPAIR TECH. NAME (Print) _____

AFTER THIS GAS UNIT HAS BEEN REPAIRED (either owner-repaired or by manufacturer's repair technician), THE **STATION OWNER OR MANAGER** MUST CALL THE GCAF CALL CENTER AT **800-449-2471** PRIOR TO RESUMING ANY TESTING. REFERRING TO THE TICKET NUMBER ABOVE, REPORT THE UNIT AS BEING REPAIRED AND **REQUEST** A CLOSEOUT FOR THE TICKET. IN THE SPACE BELOW, YOU MUST RECORD THE CONFIRMATION INFORMATION GIVEN TO YOU BY THE CALL CENTER. THIS FORM SHALL BE COMPLETED AND RETAINED BY THE STATION.

**Date & Time** _____ **Call Center Representative Name** _____

**STATION OWNER: By authority of EPD Enforcement, if this procedure is not properly followed by the Station, the next time the GAS unit fails a GCAF audit you will NOT be allowed to resume testing until GCAF returns to conduct another audit in order to confirm the GAS unit has been repaired and is functioning properly.**

Ver.2 11.20.01

Report No. _____

Environmental Protection Division
Air Protection Branch
Mobile & Area Sources Program
4244 International Parkway, Suite 136
Atlanta, Georgia 30354
Telephone 404/363-7028

# NOTICE OF VIOLATION

Date _____
Time: _____am __ pm __

Company
Name: _____ Station ID.-GA _____
Street: _____
City: _____, GA Zip Code _____ Phone: _____
Inspector Name: _____ Inspector ID.-_____
Mailing address (if different from above)
Street: _____ Apt _____
City: _____, GA Zip Code _____ Phone: _____

This serves as notification that the above facility/inspector has been found in violation of the Georgia Motor Vehicle Emission Inspection and Maintenance Act, Article 2, O.C.G.A. Section 12-9-40, et seq., and the Rules for Enhanced Inspection and Maintenance, Chapter 391-3-20, promulgated thereunder.

Specific Violation: _____

EXAMPLE

Action Recommended:
___No Further Action ___Consent Order ___ ___Criminal Proceedings
___Verbal Warning ___Administrative Proceedings

Comments: _____

If you disagree with the findings in this Notice of Violation, please inform the investigating officer in writing within ten days and include facts that support your position.

Your signature only acknowledges receipt of this Notice. Refusal to sign this Notice does not negate it.

_____
Facility Representative (PRINT NAME CLEARLY)

_____ Investigator: _____
(SIGNATURE)

form5

# Attachment 3

# Diagnostic Link Connector

# (DLC)

# Locator Grid

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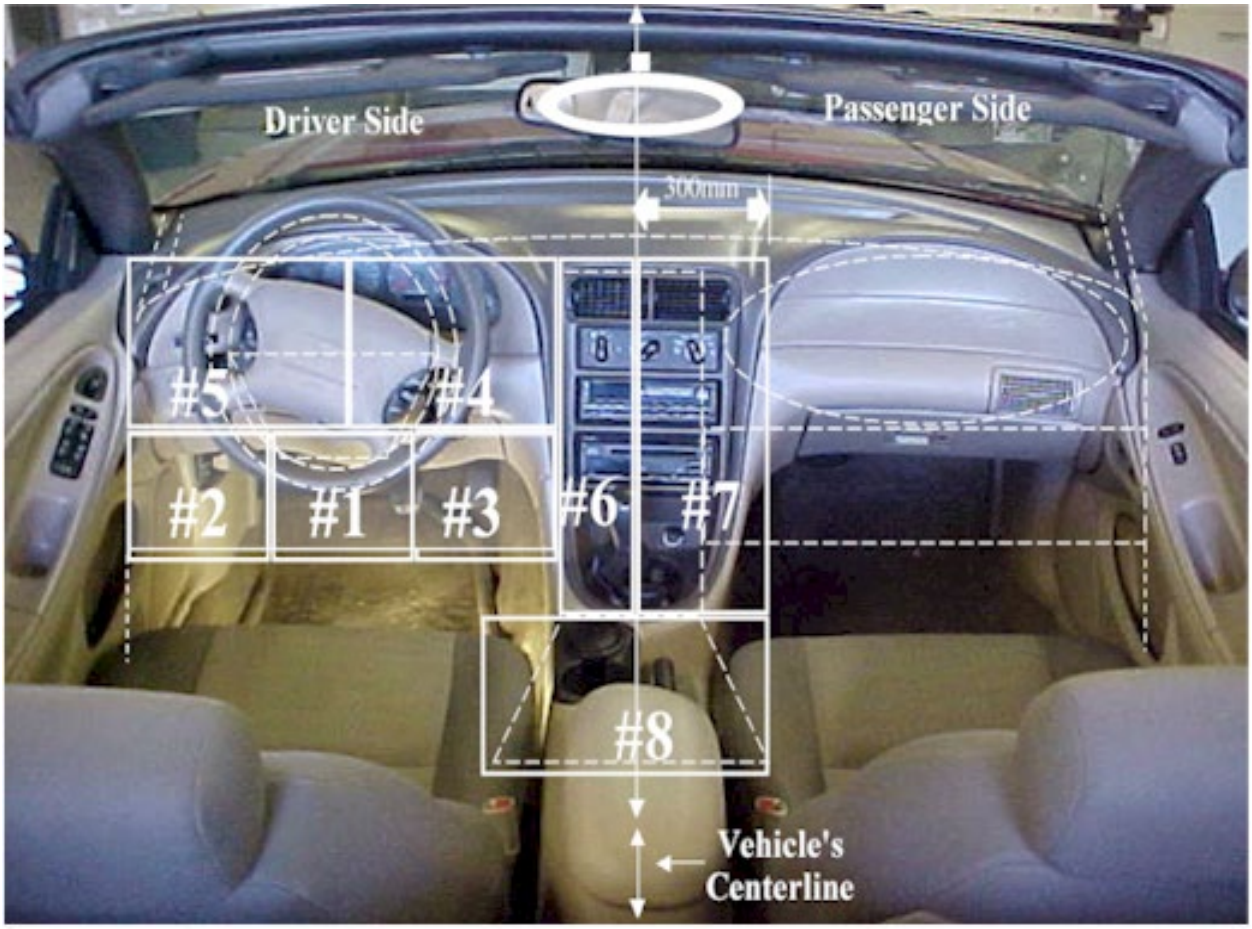
# Diagnostic Link Connector (DLC) Mapping Diagram Explanation

The mapping diagram of DLC locations contains a divided instrument panel (IP) with numbered areas. Each numbered area represents specific sections of the IP where manufacturers may have located the DLC.



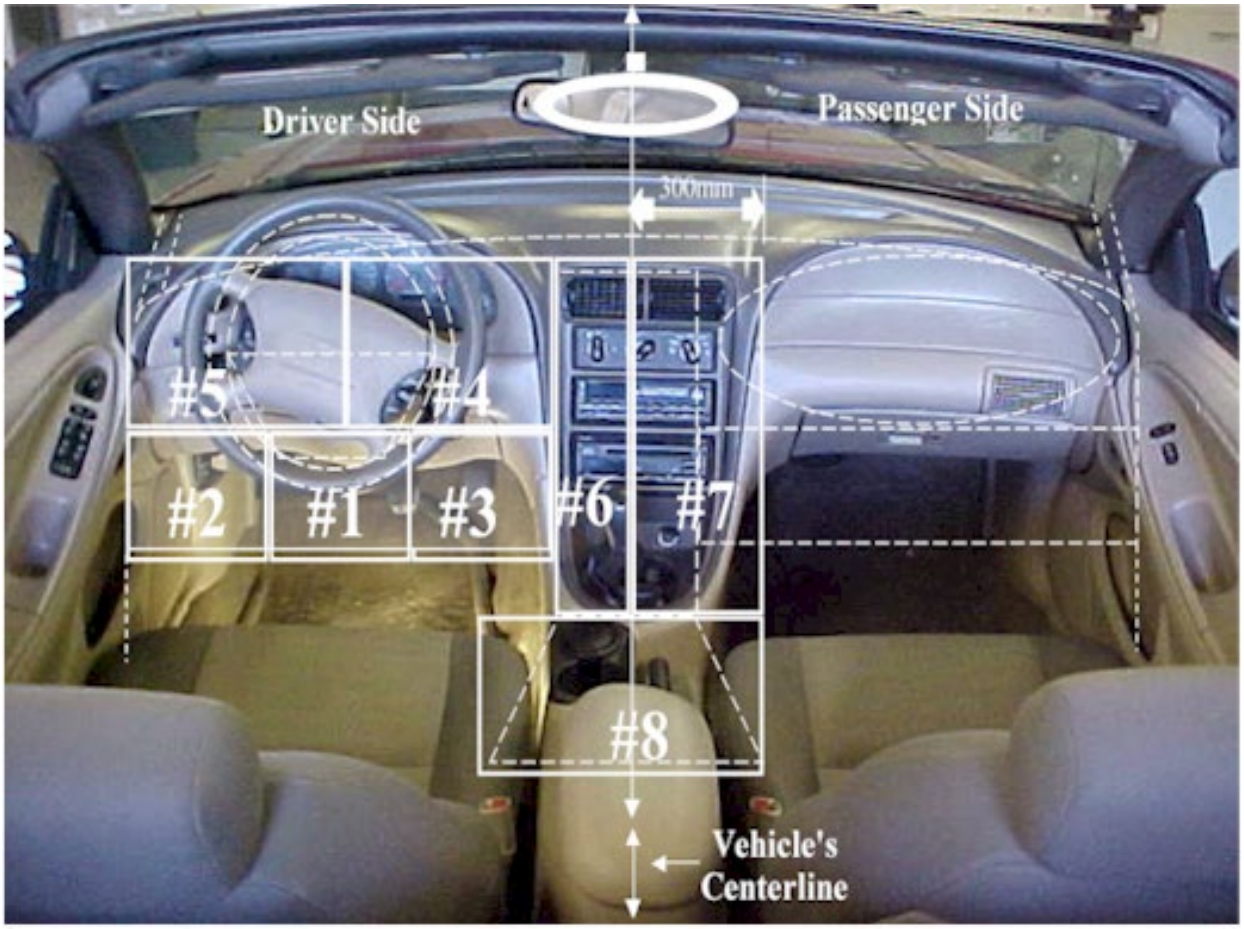

**Preferred Location(s)**

***Location #1:*** *This location represents a DLC on the underside of the Instrument Panel (IP) directly under the steering column (or approximately 150mm left or right of the steering column). Visualizing the underside of an IP divided into three equal parts from inside the passenger compartment on the driver's side, this represents the center section.*

***Location #2:*** *This location represents a DLC positioned on the underside of the IP between the steering column and the driver side passenger door. Visualizing the underside of an IP divided into three equal parts from inside the passenger compartment on the driver's side, this represents the left section.*

***Location #3:*** *This location represents a DLC positioned on the underside of the IP between the steering column and the center console. Visualizing the underside of an IP divided into three*

*equal parts from inside the passenger compartment on the driver side, this represents the right section.*




***Allowable Location(s)***

***Location #4:*** *This location represents a DLC positioned on the upper part of the IP between the steering column and the center console (but not on the center console see #6).*

***Location #5:*** *This location represents a DLC positioned on the upper part of the IP between the steering column and the driver side passenger door.*

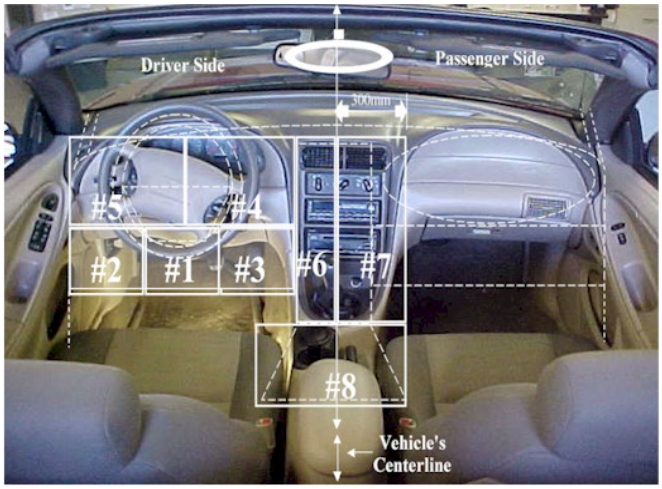
***Location #6:*** *This location represents a DLC positioned on the vertical section of the center console and left of the vehicle centerline.*

***Location #7:*** *This location represents a DLC positioned on the vertical section of the center console and up to 300mm to the right of the vehicle centerline or on the passenger side of the vehicle.*

***Location #8:*** *This location represents a DLC positioned on the horizontal section of the center console either left or right of the vehicle centerline. This does not include the horizontal section of the center console that extends into the rear passenger area (see location #9).*

***Location #9:*** *This location, not shown, represents any DLC positioned in an area other than those mentioned above (in the rear passenger area on the driver side arm rest, etc.).*

# Attachment 3 Supplement




## U.S. Environmental Protection Agency

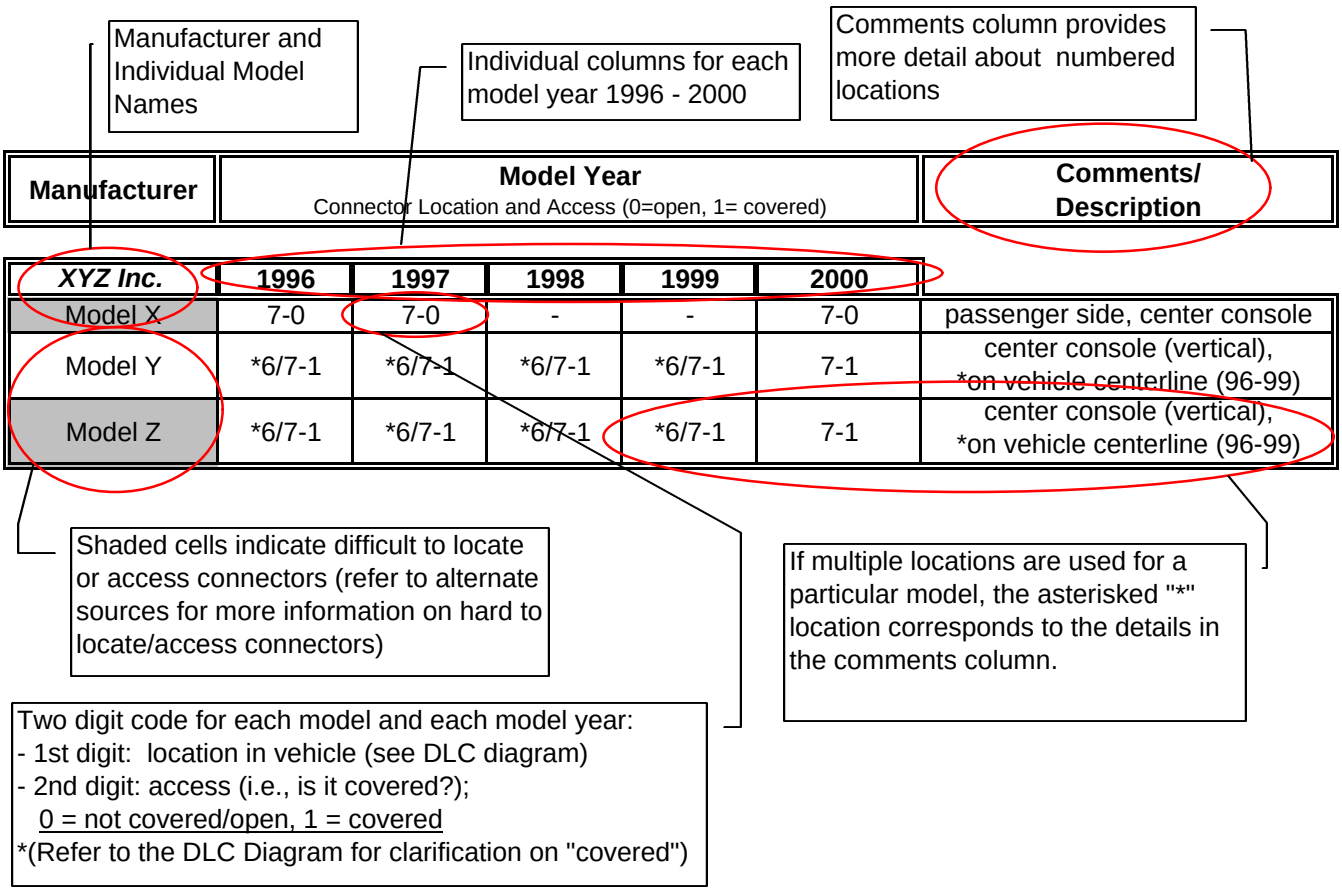
On-Board Diagnostic (OBD)
Diagnostic Link Connector (DLC)
Charts, Diagrams, and
Locations for Model Year 1996 – 2000 Vehicles

# On-Board Diagnostic (OBD)
# Diagnostic Link Connector (DLC) Charts

**Introduction**

The Diagnostic Link Connector (DLC) Chart was developed from vehicle manufacturer responses to EPA's request for information under the Clean Air Act (CAA) Section 208. Although we included a suggested format for the information response, not all of the vehicle manufacturers followed this format and, therefore, some information is based on best estimates If you find errors in this document, please notify the contact listed on the EPA website.

**How to Decipher the Charts**

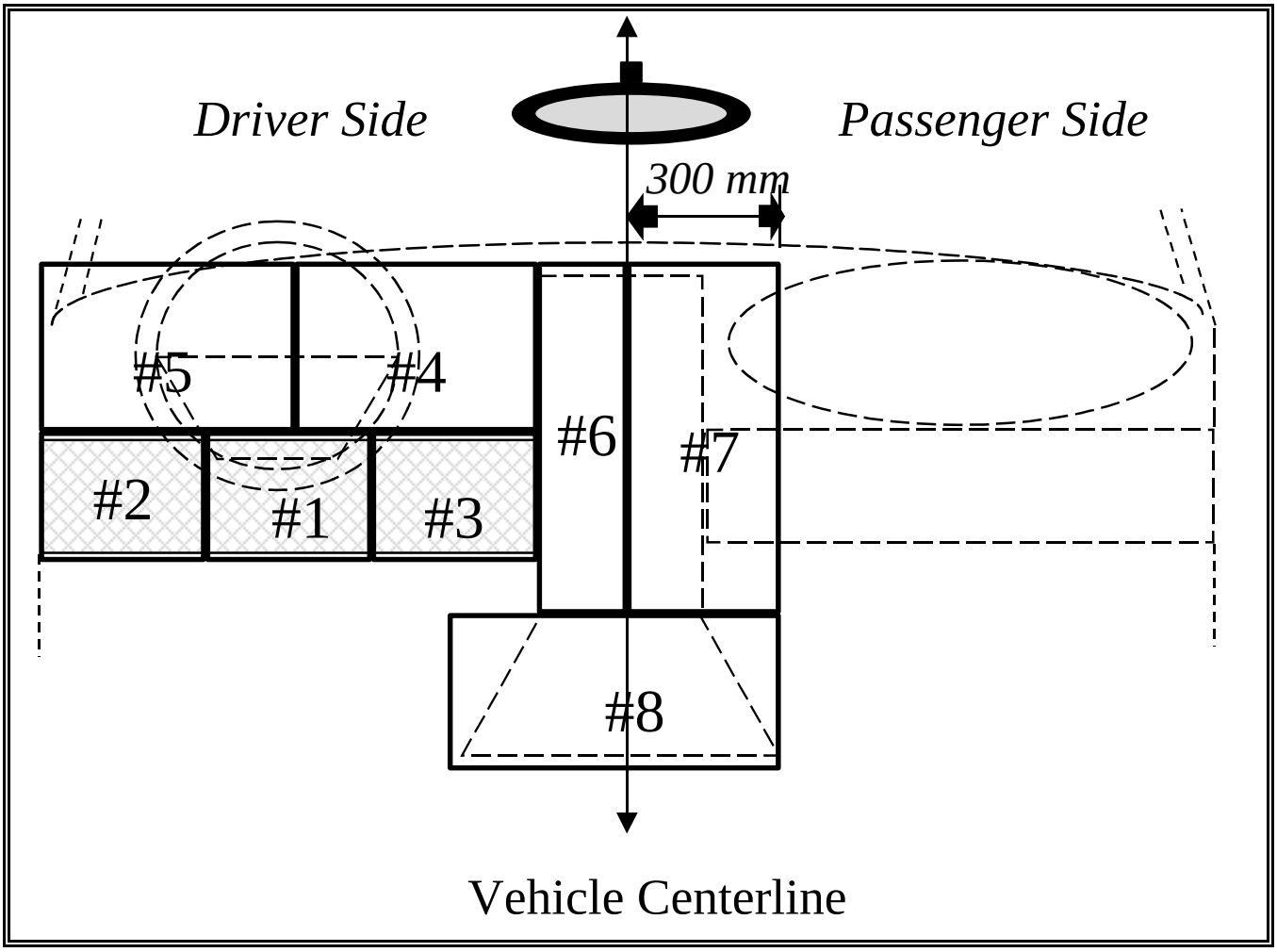



**Multiple Brand Names**

Some manufacturers produce/market multiple brand names of similar vehicles. In this case, all of the brands have been consolidated and listed together rather than individually. They are:

Chrysler: Chrysler, Dodge, Eagle, Plymouth, Jeep
Ford: Ford, Lincoln and Mercury:
General Motors: Buick, Cadillac, Chevy, GMC, Geo, Oldsmobile, Pontiac, Saturn.

# Diagnostic Link Connector (DLC) Diagram




**Explanation of Diagram Numbered Locations**

| *Location #* | *Description* |
|---|---|
| 1 | Driver's side, underneath dasboard, in the area under the steering column, +/- 150 mm (i.e., +/- 6 inches on either side of the steering column) |
| 2 | Driver's side, underneath dasboard,between the driver-side door and steering column area |
| 3 | Driver's side, underneath dasboard, between the steering column area and the center console (also includes connectors on the driver side but connected to the center console) |
| 4 | Driver's side, dashboard instrument/gauge area, between the steering column and center console |
| 5 | Driver's side, dashboard instrument/gauge area, between the driver-side door and steering column |
| 6 | Center console, vertical surface (i.e.,near radio and climate controls), left of vehicle centerline |
| 6/7 | Center console, vertical surface (i.e.,near radio and climate controls), on vehicle centerline |
| 7 | Center console, vertical surface right of vehicle centerline or on passenger side of center console |
| 8 | Center console, horizontal surface (i.e, armrest, handbrake area), in front passenger area |
| 9 | Any location other than locations # 1-8 (i.e., rear passenger area, passenger side glove box, topof dashboard near windshield) |

***Note:**
- Locations #1-3 represent preferable locations, Locations #4-8 represent allowable locations under SAE J1962
- Connectors in location # 6, #6/7, and #7 may be covered by ashtrays, covers, cup holders, coin holders, etc.

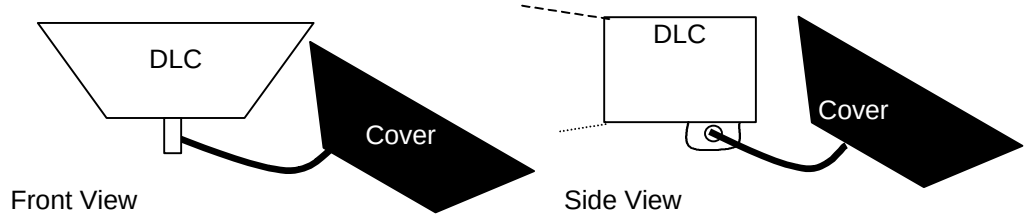
# Diagnostic Link Connector (DLC) Diagram

**Cover Types**

Some manufacturers use covers to protect the integrity of the connector pins and/or to prevent impact with vehicle passengers in an accident. The following diagrams provide an example of some of the covers that manufacturers have used. This does not include ashtrays, coin holders, cup holders, the dashboard itself, or other similar items used to conceal the connector.

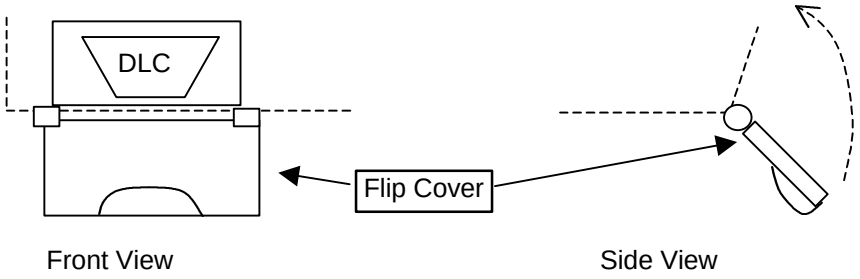
*Protective Cover*
- small, soft-plastic cover used to enclose DLC pins; may or may not have embossed "OBD" or "OBD II"

**ex.**



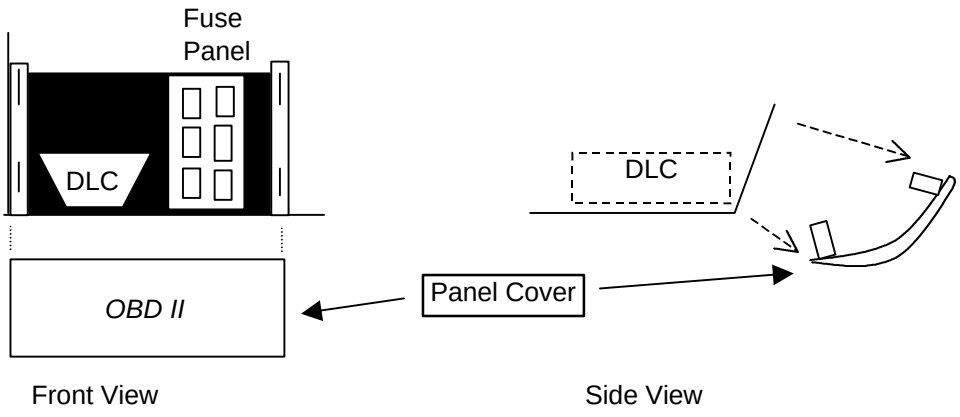

*Flip Cover*
- small, hinged hard-plastic cover; typically has an indentation or tab to help 'flip' it open

**ex.**




*Fuse Panel or Panel Cover*
- Large, hard-plastic cover that is color keyed to the dashboard; may or may not have embossed "OBD" or OBD II, or a label

**ex.**



# OBD Connector Locations for Model Year 1996 - 2000 Vehicles

| Manufacturer | Model Year<br>Connector Location and Access (0=open, 1= covered) | | | | | Comments/<br>Description |
|---|---|---|---|---|---|---|
| ***Acura*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Integra | 7-0 | 7-0 | 7-0 | 7-0 | 7-0 | passenger side, center console |
| 2.2 CL | *6/7-1 | *6/7-1 | *6/7-1 | *6/7-1 | 7-1 | center console (vertical),<br>*on vehicle centerline (96-99) |
| 2.3 CL | *6/7-1 | *6/7-1 | *6/7-1 | *6/7-1 | 7-1 | center console (vertical),<br>*on vehicle centerline (96-99) |
| 3.0 CL | *6/7-1 | *6/7-1 | *6/7-1 | *6/7-1 | 7-1 | center console (vertical),<br>*on vehicle centerline (96-99) |
| 3.5 RL | 8-1 | 8-1 | 8-1 | 8-1 | 8-1 | center console (horizontal) |
| 2.5 TL | 8-1 | 8-1 | 8-1 | - | - | center console (horizontal) |
| 3.2 TL | 8-1 | 8-1 | 8-1 | 7-1 | 7-1 | center console, behind ashtray<br>(horizontal: 96-98, vertical: 99-00) |
| NSX | 7-0 | 7-0 | 7-0 | 7-0 | 7-0 | passenger side (footwell) |
| ***Audi*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| A4/A4 Avant | *9-1 | *9-1 | 2-0 | 2-0 | 2-0 | *center console (horizontal),<br>next to ashtray in rear seat area |
| A6/A6 Avant | *9-1 | *9-1 | 2-0 | 2-0 | 2-0 | *center console (horizontal),<br>next to ashtray in rear seat area |
| A6 Wagon | - | - | *9-1 | 2-0 | 2-0 | *center console (horizontal),<br>next to ashtray in rear seat area |
| A8 | - | 2-0 | 2-0 | 2-0 | 2-0 | |
| Cabriolet | *9-1 | *9-1 | 2-0 | - | - | *center console (horizontal),<br>next to ashtray in rear seat area |
| S4 | - | - | - | - | 2-0 | |
| TT | - | - | - | - | 2-0 | |
| ***Bentley*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Arnage | | - | - | 2-0 | - | |
| Azure | *9-1 | - | - | 2-0 | - | *in passenger side glove<br>box, protective cover |
| Brooklands | - | 9-1 | - | - | - | in passenger side glove<br>box, protective cover |
| Brooklands (LWB) | *9-1 | - | - | - | - | *in passenger side glove<br>box, protective cover |
| Brooklands R | - | - | 9-1 | - | - | in passenger side glove<br>box, protective cover |
| Brooklands R Limousine | - | - | *9-1 | 2-0 | - | *in passenger side glove<br>box, protective cover |
| Continental R<br>Continental SC | - | - | *9-1 | 2-0 | - | *in passenger side glove<br>box, protective cover |
| Continental T | - | *9-1 | - | 2-0 | - | *in passenger side glove<br>box, protective cover |
| Limousine | 9-1 | - | - | - | - | in passenger side glove<br>box, protective cover |
| Turbo R<br>Turbo RL | 9-1 | - | - | - | - | in passenger side glove<br>box, protective cover |
| Turbo RT | - | - | 9-1 | - | - | in passenger side glove<br>box, protective cover |
| Turbo RT (LWB) | *9-1 | - | - | 2-0 | - | *in passenger side glove<br>box, protective cover |

# OBD Connector Locations for Model Year 1996 - 2000 Vehicles

| Manufacturer | Model Years<br>Connector Location and<br>Access (0=open, 1= covered) | | | | | Comments/<br>Description |
|---|---|---|---|---|---|---|
| ***BMW*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| 3-series | 2-1 | 2-1 | 2-1 | 2-1 | 2-1 | dual covers: panel cover w/ screw and protective cover labeled "OBD II" |
| 5-series | 2-1 | 2-1 | 2-1 | 2-1 | 2-1 | dual covers: panel cover w/ screw and protective cover labeled "OBD II" |
| 7-series | 6-1 | 6-1 | 6-1 | 6-1 | 6-1 | driver side, center console protective cover labeled "OBD II" |
| 8-series | 2-1 | 2-1 | - | - | - | dual covers: panel cover w/ screw and protective cover labeled "OBD II" |
| X5 | - | - | - | - | 2-1 | cover labeled "OBD II" |
| Z3/M-Roadster | 7-1 | 7-1 | 7-1 | 7-1 | 7-1 | passenger side, center console, protective cover labeled "OBD II" |

| ***Daewoo*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
|---|---|---|---|---|---|---|
| Lanos | **-** | **-** | 6-0 | 6-0 | **-** | |
| Leganza | **-** | **-** | 2-1 | 2-1 | **-** | behind fuse panel cover |
| Nubira | **-** | **-** | 3-0 | 3-0 | **-** | |

| ***Chrysler/Dodge/Plymouth*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
|---|---|---|---|---|---|---|
| Chrysler Cirrus | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chrysler Concorde | 3-0 | 3-0 | 1-0 | 1-0 | 1-0 | |
| Chrysler LHS | 3-0 | 3-0 | 1-0 | 1-0 | 1-0 | |
| Chrysler Sebring | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Chrysler Sebring Convertible | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chrysler Town & Country | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Dodge Avenger | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Dodge Caravan | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Dodge Dakota | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Dodge Durango | - | - | 2-0 | 2-0 | 2-0 | |
| Dodge Intrepid | 3-0 | 3-0 | 1-0 | 1-0 | 1-0 | |
| Dodge Neon | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Dodge Ram Pick-Up | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Dodge Ram Van | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Dodge Stealth | 3-0 | - | - | - | - | |
| Dodge Stratus | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Dodge Viper | - | 2-0 | 2-0 | 2-0 | 2-0 | |
| Eagle Summit | 2-0 | - | - | - | - | |
| Eagle Summit Wagon | 2-0 | - | - | - | - | |
| Eagle Talon | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Eagle Vision | 3-0 | 3-0 | - | - | - | |
| Jeep Cherokee | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Jeep Grand Cherokee | 1-0 | 1-0 | 1-0 | 2-0 | 2-0 | |
| Jeep Wrangler | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Plymouth Breeze | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Plymouth Neon | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Plymouth Prowler | - | 1-0 | 1-0 | 1-0 | 1-0 | |
| Plymouth Voyager | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |

# OBD Connector Locations for Model Year 1996 - 2000 Vehicles

| Manufacturer | Model Years<br>Connector Location and<br>Access (0=open, 1= covered) | | | | | Comments/<br>Description |
|---|---|---|---|---|---|---|
| ***Ferrari*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| F355 Berlinetta/GTS/Spider | 3-0 | 3-0 | 3-0 | 3-0 | - | all connectors are protected by the bottom of the dashboard |
| F355 F1 Berlinetta/GTS/Spider | - | - | 3-0 | 3-0 | - | |
| 456 GT/GTA | - | 3-0 | 3-0 | - | - | |
| 456 MGT/MGTA | - | - | - | 3-0 | 3-0 | |
| 550 Maranello | - | 1-0 | 1-0 | 1-0 | 1-0 | |
| F131 | - | - | - | 3-0 | 3-0 | |
| ***Ford/Lincoln/Mercury*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Ford Aerostar | 3-1 | 3-1 | - | - | - | protective cover |
| Ford Aspire | 3-0 | 3-0 | - | - | - | |
| Ford Bronco | 7-1 | | | | | protective cover |
| Ford Contour | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Ford Cougar | *7-1 | *7-1 | - | 2-0 | 2-0 | *protective cover |
| Ford Crown Victoria | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Ford Econoline | 3-1 | 3-1 | 3-1 | 3-1 | 3-1 | protective cover |
| Ford Escort | 2-0 | 2-0 | 2-0 | 2-0 | *2-1 | *protective cover |
| Ford Excursion | - | - | - | - | 3-1 | protective cover |
| Ford Expedition | - | 3-1 | 3-1 | 3-1 | 3-1 | |
| Ford Explorer | 2-1 | 2-1 | 2-1 | 2-1 | 2-1 | protective cover |
| Ford F-Series Pick-Up | 7-1 | 3-1 | 3-1 | 3-1 | 3-1 | protective cover |
| Ford Focus | - | - | - | - | 2-1 | unmarked, removable panel and a small flip cover |
| Ford Mustang | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Ford Probe | 3-0 | 3-0 | - | - | - | |
| Ford Ranger | 2-1 | 2-1 | 2-1 | 2-1 | 2-1 | protective cover |
| Ford Taurus | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Ford Thunderbird | 7-1 | 7-1 | - | - | - | protective cover |
| Ford Windstar | *3-1 | *3-1 | *3-1 | *3-1 | 3-0 | *protective cover |
| Lincoln Continental | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Lincoln LS | - | - | - | - | 3-0 | |
| Lincoln Mark VIII | 2-0 | 2-0 | 2-0 | - | - | |
| Lincoln Navigator | - | - | 3-1 | 3-1 | 3-1 | protective cover |
| Lincoln Town Car | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Mercury Grand Marquis | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Mercury Mountaineer | 2-1 | 2-1 | 2-1 | 2-1 | 2-1 | protective cover |
| Mercury Mystique | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Mercury Sable | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Mercury Tracer | 2-0 | 2-0 | 2-0 | 2-0 | *2-1 | *protective cover |
| Mercury Villager | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |

# OBD Connector Locations for Model Year 1996 - 2000 Vehicles

| Manufacturer | Model Years<br>Connector Location and<br>Access (0=open, 1= covered) | | | | | Comments/<br>Description |
|---|---|---|---|---|---|---|
| ***General Motors-Cars*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Buick Century | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Buick LeSabre | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Buick Park Avenue | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Buick Regal | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Buick Riviera | 2-0 | 2-0 | 2-0 | 2-0 | - | |
| Buick Roadmaster | 3-0 | - | - | - | - | |
| Buick Skylark | 2-0 | 2-0 | 2-0 | - | - | |
| Cadillac Concours | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Cadillac Deville | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Cadillac El Dorado | 2-0 | 2-0 | - | - | - | |
| Cadillac Fleetwood | 3-0 | - | - | - | - | |
| Cadillac Seville | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chevrolet Beretta | 2-0 | - | - | - | - | |
| Chevrolet Camaro | 3-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Chevrolet Caprice | 3-0 | - | - | - | - | |
| Chevrolet Cavalier | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Chevrolet Corsica | 2-0 | - | - | - | - | |
| Chevrolet Corvette | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Chevrolet Impala | - | - | - | - | 1-0 | |
| Chevrolet Impala SS | 3-0 | - | - | - | - | |
| Chevrolet Lumina | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Chevrolet Malibu | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chevrolet Monte Carlo | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Geo Metro | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Geo Prizm | 2-0 | 2-0 | 2-0 | 2-0 | - | |
| Oldsmobile Achieva | 2-0 | 2-0 | 2-0 | - | - | |
| Oldsmobile Aurora | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Oldsmobile Ciera | 1-0 | - | - | - | - | |
| Oldsmobile Cutlass | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Oldsmobile Cutlass Supreme | 1-0 | 1-0 | - | - | - | |
| Oldsmobile Eighty Eight | 1-0 | 1-0 | 1-0 | 1-0 | - | |
| Oldsmobile Intrigue | - | - | 1-0 | 1-0 | 1-0 | |
| Oldsmobile LSS | 1-0 | 1-0 | 1-0 | 1-0 | - | |
| Oldsmobile Ninety Eight | 2-0 | - | - | - | - | |
| Oldsmobile Regency | 2-0 | 1-0 | 1-0 | - | - | |
| Pontiac Bonneville | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Pontiac Firebird | 3-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Pontiac Grand Am | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Pontiac Grand Prix | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Pontiac Sunfire | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Saturn | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Saturn L-series (LS/LW) | - | - | - | - | 2-0 | |

# OBD Connector Locations for Model Year 1996 - 2000 Vehicles

| Manufacturer | Model Years<br>Connector Location and<br>Access (0=open, 1= covered) | | | | | Comments/<br>Description |
|---|---|---|---|---|---|---|
| ***General Motors-Trucks*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Cadillac Escalade | - | - | - | 2-0 | 2-0 | |
| Chevy Astro | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chevy Blazer | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chevy C/K Pick-up | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chevy Express | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chevy G-Van | 1-0 | - | - | - | - | |
| Chevy Lumina/Venture | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chevy S-10 | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chevy Sports Van | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chevy Suburban | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chevy Tahoe | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Chevy Van | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Geo Tracker | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| GMC Envoy | - | - | 2-0 | 2-0 | 2-0 | |
| GMC G-Van | 1-0 | - | - | - | - | |
| GMC Jimmy | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| GMC Rally | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| GMC Safari | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| GMC Savana | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| GMC Sierra | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| GMC Silverado | - | - | - | 2-0 | 2-0 | |
| GMC Sonoma | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| GMC Suburban | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| GMC Vandura | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| GMC Yukon | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Oldsmobile Bravada | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Oldsmobile Silhouette | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Pontiac Montana | - | - | - | 2-0 | 2-0 | |
| Pontiac Trans Port | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |

| ***Honda*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
|---|---|---|---|---|---|---|
| Accord | *6/7-1 | *6/7-1 | 2-0 | 2-0 | 2-0 | center console (vertical), *on vehicle centerline, behind ashtray |
| Civic | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Civic GX (CNG) | - | 2-0 | 2-0 | 2-0 | 2-0 | |
| CRV | - | 7-0 | 7-0 | 7-0 | 7-0 | right side of center console |
| Del Sol | 7-0 | 7-0 | - | - | - | right side of center console |
| EV Plus | No connector | | | | | |
| Insight (Hybrid) | - | - | - | - | *6/7-1 | center console (vertical), *on vehicle centerline |
| Odyssey | 7-0 | 7-0 | 7-0 | - | - | right side of center console |
| Odyssey/Oasis | - | - | - | 3-0 | 3-0 | |
| Passport | 2-0 | 2-0 | 2-0 | 2-0 | - | |
| Prelude | *8-1 | **7-1 | **7-1 | **7-1 | **7-1 | *under beverage/cup holder<br>**right side of center console, panel cover |
| S2000 | - | - | - | 7-0 | 7-0 | |

| ***Hummer*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
|---|---|---|---|---|---|---|
| all models | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |

# OBD Connector Locations for Model Year 1996 - 2000 Vehicles

| Manufacturer | Model Years<br>Connector Location and<br>Access (0=open, 1= covered) | | | | | Comments/<br>Description |
|---|---|---|---|---|---|---|
| ***Hyundai*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Accent | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| Elantra | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Sonata | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Tiburon | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| ***Infiniti*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| All Models | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| ***Isuzu*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Amigo | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Rodeo | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Trooper | 2-1 | 2-1 | 2-1 | 2-1 | 2-1 | protective cover |
| Vehi-Cross | 2-1 | 2-1 | 2-1 | 2-1 | 2-1 | protective cover |
| ***Jaguar*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| S-Type | - | - | - | - | 3-0 | |
| XJ8 | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| XK8 | - | 2-0 | 2-0 | 2-0 | 2-0 | |
| XJS | 2-0 | - | - | - | - | |
| ***Kia*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Sephia | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Sportage | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| ***Lamborghini*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Diablo DB 132/144 | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| ***Lexus*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| ES 300 | *2-1 | 3-0 | 3-0 | 3-0 | 3-0 | *behind fuse panel cover |
| GS 300 | 1-0 | 1-0 | 3-0 | 3-0 | 3-0 | |
| GS 400 | - | - | 3-0 | 3-0 | 3-0 | |
| LX 450 | - | 2-1 | - | - | - | behind fuse panel cover |
| LX 470 | - | - | 3-0 | 3-0 | 3-0 | |
| LS 400 | 2-1 | 2-1 | 2-1 | 2-1 | 2-1 | protective cover |
| RX 300 | - | - | - | 2-1 | 2-1 | |
| SC 300/400 | 2-1 | 2-1 | 2-1 | 2-1 | 2-1 | |
| ***Lotus*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Espirit | - | 9-0 | 9-0 | 9-0 | 9-0 | in passenger footwell |
| ***Mazda*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| 626 | 3-0 | 3-0 | 2-0 | 2-0 | 2-0 | |
| MX3 | 7-0 | - | - | - | - | |
| MX5/Miata | 3-0 | 3-0 | - | 2-0 | 2-0 | |
| Millenia | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| MPV | 2-0 | 2-0 | - | 2-0 | 2-0 | |
| MX6 | 3-0 | 3-0 | - | - | - | |
| Protégé | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |

# OBD Connector Locations for Model Year 1996 - 2000 Vehicles

| Manufacturer | Model Years<br>Connector Location and<br>Access (0=open, 1= covered) | | | | | Comments/<br>Description |
|---|---|---|---|---|---|---|
| ***Mercedes-Benz*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| S430 | 2-1 | 2-1 | 2-1 | 2-1 | 2-1 | "flip" panel cover |
| S500 | 2-1 | 2-1 | 2-1 | 2-1 | 2-1 | "flip" panel cover |
| all other models | 1-1 | 1-1 | 1-1 | 1-1 | 1-1 | "flip" panel cover |
| ***Mitsubishi*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| 3000 GT | 3-0 | 3-0 | 3-0 | 3-0 | - | |
| 3000 GT Spyder | 3-0 | 3-0 | 3-0 | - | - | |
| Diamante | 2-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Eclipse | 1-0 | 1-0 | 1-0 | 1-0 | 3-0 | |
| Eclipse Convertible | 1-0 | 1-0 | 1-0 | 1-0 | - | |
| Expo | 2-1 | - | - | - | - | behind fuse panel |
| Galant | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Mirage | 2-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Montero | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| Montero Sport | - | 1-0 | 1-0 | 1-0 | 1-0 | |
| Truck 2WD | 2-0 | - | - | - | - | |
| ***Nissan*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| All Models | 2-0 | 2-0 | 2-0 | 2-0 | 2-0 | |
| ***Porsche*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| All Models | 3-1 | - | - | 2-0 | 2-0 | |
| 911 | - | 6-1 | 6-1 | - | - | cover labeled "OBD" |
| Boxster | - | 2-0 | 2-0 | - | - | |
| ***Rolls Royce*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Park Ward | 9-1 | - | 9-1 | - | - | in glove box, behind fuse panel, clip-on cover labeled OBD |
| Park Ward Limousine | *9-1 | - | - | - | 2-0 | *in glove box, behind fuse panel, clip-on cover labeled OBD |
| Silver Dawn | | *9-1 | | | | in glove box, behind fuse panel, clip-on cover labeled OBD |
| Silver Seraph | - | - | - | - | 2-0 | |
| Silver Spur | *9-1 | *9-1 | *9-1 | 2-0 | - | *in glove box, behind fuse panel, clip-on cover labeled OBD |
| Silver Spur Limousine | 9-1 | - | - | - | - | in glove box, behind fuse panel, clip-on cover labeled OBD |
| ***Rover*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Defender | - | 6/7-1 | - | - | - | center console (vertical), behind ashtray, on vehicle centerline |
| Discovery | 7-1 | 7-1 | 7-1 | 7-1 | - | passenger side |
| Discovery Series II | - | - | - | 7-1 | 7-1 | passenger side |
| Range Rover | 7-1 | 7-1 | 7-1 | 7-1 | | passenger side |
| ***Saab*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| 900 | 1-1 | 1-1 | 1-1 | - | - | protective cover |
| 9000 | 1-1 | 1-1 | 1-1 | - | - | protective cover |
| 9-3 | - | - | - | 1-1 | 1-1 | protective cover |
| 9-5 | - | - | - | 3-1 | 3-1 | protective cover |

# OBD Connector Locations for Model Year 1996 - 2000 Vehicles

| Manufacturer | Model Years<br>Connector Location and<br>Access (0=open, 1= covered) | | | | | Comments/<br>Description |
|---|---|---|---|---|---|---|
| ***Subaru*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Forester | - | - | 1-1 | 1-1 | 1-1 | protective cover |
| Impreza | 2-0 | 2-0 | 1-1 | 1-1 | 1-1 | protective cover |
| Legacy | 2-1 | 2-1 | 2-1 | 2-1 | 2-1 | |
| SVX | 1-0 | 1-0 | - | - | - | |
| ***Suzuki*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| All models | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | |
| ***Toyota*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| 4Runner (2wd/4wd) | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Avalon | *2-1 | *2-1 | *2-1 | *2-1 | 1-0 | *behind fuse panel cover |
| Camry | *2-1 | 3-0 | 3-0 | 3-0 | 3-0 | *behind coin box/tray |
| Camry Solara | - | - | - | 1-0 | 1-0 | |
| Celica | 3-1 | 3-1 | 3-1 | 3-1 | 2-1 | |
| Corolla | 2-0 | 1-0 | 1-0 | 1-0 | 2-0 | |
| Echo | - | - | - | - | 2-1 | behind fuse panel cover |
| Land Cruiser | *2-1 | *2-1 | 3-0 | 3-0 | 3-0 | *behind fuse panel cover |
| Paseo | 2-1 | 2-1 | 2-1 | 2-1 | - | behind fuse panel cover |
| Previa (2wd/4wd) | 9-1 | 9-1 | - | - | - | top of dashboard,<br>behind fuse panel cover |
| Prius Hybrid | - | - | - | - | 1-0 | |
| RAV4 (2wd/4wd) | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Sienna | - | - | 3-0 | 3-0 | 3-0 | |
| Supra | 2-1 | 2-1 | 2-1 | - | - | |
| T100 (2wd/4wd) | 3-0 | 3-0 | 3-0 | - | - | |
| Tacoma (2wd/4wd) | 3-0 | 3-0 | 3-0 | 3-0 | 3-0 | |
| Tercel | 2-1 | 2-1 | 2-1 | 2-1 | - | behind fuse panel cover |
| Tundra (2wd/4wd) | - | - | - | - | 3-0 | |
| ***Volvo*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| 850 | 8-1 | 8-1 | - | - | - | center console (horizontal)<br>under coin tray labeled "OBD II" |
| 960 | 1-1 | 1-1 | - | - | - | protective cover |
| S40/V40 | - | - | 1-1 | 1-1 | 1-1 | protective cover |
| C70/S70/V70 | - | - | 8-1 | 8-1 | 8-1 | center console (horizontal) storage<br>bin, cover labeled "OBD II" |
| S80 | - | - | 1-1 | 1-1 | 1-1 | protective cover |
| ***Volkswagen*** | **1996** | **1997** | **1998** | **1999** | **2000** | |
| Cabrio | *9-1 | *9-1 | *9-1 | 2-0 | 2-0 | *center console (vertical), sliding cover |
| Eurovan | *4-1 | *4-1 | *4-1 | **4-0 | 2-0 | *on dashboard,<br>plastic cover w/ engine symbol<br>**For 99, no cover was used |
| Golf | *9-1 | *9-1 | *9-1 | *9-1 | 2-0 | *center console (vertical), sliding cover |
| Jetta | *9-1 | *9-1 | *9-1 | *9-1 | 2-0 | *center console (vertical), sliding cover |
| New Beetle | - | - | 2-0 | 2-0 | 2-0 | |
| Passat | *4-1 | *4-1 | 2-0 | 2-0 | 2-0 | *on dashboard,<br>plastic cover w/ engine symbol |