Air Care Inspector:

Reference Manual

Vehicle Pollution Management Division

June 2026

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Table of Contents

Section 1: Overview of the Air Care Program

About the Air Care Program

The city of Albuquerque, built along the Rio Grande valley in Bernalillo County, lies between the Sandia mountains to the east and elevated volcanos and lava flows to the west. This river basin topography promotes rotating air currents that delight balloonists – but it can also create an atmospheric inversion that traps dangerous air pollution in our beautiful city during cool nights.

AI-generated image

Industrial pollution, wood smoke, and vehicle exhaust accumulate when air heated by the cooling earth at night is capped by a layer of calm, cold air above. Ground-level pollution persists until the sun warms it enough to cause it to circulate with the air above and dissipate. The Albuquerque-Bernalillo County Vehicle Pollution Management Program was established to limit the contribution of vehicle emissions to this problem and help keep the air we breathe safer and cleaner. The Program has evolved several times to adapt to changing conditions:

- **Early Days (1982-1984):** The Program launched in 1982, with testing conducted at two large stations. These centralized stations were later closed due to long lines and fee issues.
- **Relaunch (1989):** The city relaunched the Program with a new, decentralized approach, addressing the issues that led to its prior closure. With the new approach, privately owned "Air Care" stations and inspectors were certified to conduct the vehicle emissions testing. Having multiple, privately owned stations helped keep lines shorter and gave residents the flexibility to test their vehicles at locations convenient to them.
- **Modern Updates (1996-Present):** As technology advances, emissions tests improve as well. In 1996, the second generation of "On-Board Diagnostic" (OBD-II) technology was added to all newly manufactured motor vehicles in the US. OBD-II was adopted for testing 1996 and newer vehicles, resulting in faster and more accurate results (vehicles 1995 and older still require a two-speed emissions test). In 2006, gas cap design was enhanced so vehicles can automatically detect leaks – simplifying emissions testing even more for 2006 and newer vehicles (2005 and older still require a manual gas cap test). By 2030, all vehicles will be tested using OBD-II and two-speed tests will be phased out.

An OBD-II connector cable

Today, there are 100+ private Air Care stations and 500+ certified inspectors in Bernalillo County. The Air Care stations and the inspectors they employ are responsible for upholding federal emissions requirements.

About the Vehicle Pollution Management Division (VPMD)

The Vehicle Pollution Management Division (VPMD) serves as a regulatory and support hub for New Mexico's Air Care Program. It helps safeguard public health and enforce environmental protections through the management of the vehicle emissions testing program, in accordance with the Federal Clean Air Act and local air quality standards:

- ✓ **Inspector Training & Certifications:** Provides free training and certification for over 500 active Air Care Inspectors across the county. Supports initial certifications and annual recertifications.
- ✓ **Station Certification & Support:** Oversees and provides resources to over 100 private Air Care Inspection Stations in Albuquerque-Bernalillo County, ensuring they are authorized and equipped to conduct official testing on behalf of the Air Care Program.
- ✓ **Enforcement & Auditing:** Conducts audits of inspectors and emissions inspection stations to ensure procedures are followed. Monitors testing activity and takes action to mitigate unintentional errors as well as intentional, problematic testing practices (e.g., "clean scanning").
- ✓ **Public Assistance:** Supports general public with a number of emissions-related tasks, including but not limited to: emissions inquiries; vehicle retesting; out of state emissions test conversions; and time limited extensions in specific cases (e.g., hardship, impound, military, student).
- ✓ **Extensions & Conversions:** Owns and maintains several databases and processes to operationalize the Air Care Program. Manages station billing and invoicing. Maintains data integrity and security of both public data (e.g., vehicle emissions status, test results) and private information (e.g., inspector access codes, ID numbers).

GETTING IN TOUCH WITH VPMD HEADQUARTERS

Address:
1500 Broadway Boulevard NE
Albuquerque, NM 87102

Website:
www.cabq.gov/aircare

Phone:
1 (505) 764-1110

Email:
vpm@cabq.gov

Office Directory:

Spanish……	1
New Mexico Motor Vehicle Division……	2
Hours, Locations, Services ……..	3
Billing, Recertification, Inquiries……..	4
Inspector and Analyzer Support…….	5
Operator…….....	0

How to Use this Reference Manual

This Reference Manual is designed to help you learn about the Air Care New Mexico program and prepare to conduct official vehicle emissions inspections. VPMD offers two trainings for inspectors to get and stay certified:

- **Initial Certification:** Provides Air Care Inspectors the complete knowledge and skills they need to conduct official vehicle emissions inspections. The initial certification involves a series of digital modules followed by a 1-day training session held at VPMD headquarters. Inspector certifications are valid for one year.
- **Recertification:** Inspectors must recertify annually to continue testing. This helps inspectors refresh their knowledge of the process, learn about program changes, and undergo an audit for testing accuracy. The recertification involves a short digital module and the 30-minute audit session at VPMD headquarters.

In the following sections, you'll find more information about getting certified, how to navigate the Emissions Inspection System (EIS) and the official testing procedures.

While this Reference Manual is designed to help you understand the inspection program and testing procedures, you **MUST** be officially certified by VPMD to conduct testing.

In addition to the regular content, below are three kinds of figures you might see in this Reference Manual. Here's what they mean:

NOTE: A purple box with a head and gears indicates general recommendations and notes. This calls out useful related information, which can help you during certification or testing.

IMPORTANT: A red box with an exclamation point indicates important reminders or procedural sequence. Review these boxes carefully. They indicate where doing (or not doing) something might damage the vehicle and/or testing equipment.

LEARN MORE: A green box with a light bulb indicates supplemental information. This is "nice to know" but you don't have to know it to conduct inspections. In some cases, even more information about the topic will be available in the Reference Manual appendix.

Author's Note: *Some images in this manual were created using Google Gemini, a generative artificial intelligence tool. These images are for training and informational purposes only. While AI is a powerful tool for synthesizing and presenting information, it is important to remember that these systems can occasionally produce inaccuracies or "hallucinations." A disclaimer is beneath each image.*

Section 2: Certification & Guidelines

Initial Certification: Becoming an Inspector

To conduct official vehicle emissions tests in Bernalillo County, you must be a certified Air Care Inspector. The Air Care Inspector certification is provided exclusively by VPMD. Certification costs $35, which is billed to your home station. There are five steps to Initial Certification:

- **Step 1: Complete an Application Form –** To start the certification process, you must first complete the Application and Introduction to Emissions Testing. This form collects your basic information and will give you an overview of the emissions testing program.
- **Step 2: Complete the Virtual Training –** You must complete five virtual training modules, which describe inspector expectations, equipment, and the testing procedure:
    - **Module A:** Being an Air Care Inspector and Maintaining the Emissions Analyzer
    - **Module B:** Overview of Performing an Emissions Inspection
    - **Module C:** The OBDII Test
    - **Module D:** The Two-Speed Test
    - **Module E:** Review and Preparation for Hands-On Training

  Upon completing the final virtual module, you'll be prompted to schedule a one-day, in-person practical training.
- **Step 4: Attend Practical Training –** You'll attend a practical, hands-on training at VPMD headquarters (1500 Broadway Boulevard NE). You'll be assigned to work with a trainer, testing real and/or demo vehicles in the bay. Practical training is scheduled for one full day, though the actual duration may vary.
- **Step 5: Final Quiz & Audit –** At the conclusion of the in-person practical training, you'll complete a final quiz and an emissions test for the assigned auditor. If you pass both, you'll receive your Inspector ID and an analyzer passcode. Note: The passcode will only work once Station Access is granted.
- **Step 6: Request Station Access –** All new inspectors must complete the Inspector Request for Station Emissions Access to be able to test on their station's analyzer(s).

The Air Care certification is valid for one year. You must recertify with VPMD every 12 months or the system will lock you out.

NOTE: Once your station access request is received and processed (usually within 24 hours of submission), you'll be able to start testing. Your station will be billed a one-time fee of $35. If you change stations, you must submit a new request to activate your passcode at the new station.

Recertification: Maintaining Your Credential

You can recertify up to 60 days before your expiration date and within 90 days after. If your certification lapses more than 90 days (three months) you must complete Initial training again.

The Emissions Inspection System (EIS) analyzer will automatically prompt you when your certification is about to expire. There are two steps to getting recertified:

1. **Virtual Refresher:** Complete a short virtual refresher module online. This will take approximately 30 minutes.
2. **Demo Emissions Test:** You'll demonstrate an emissions test at VPMD headquarters while one of our auditors observes and provides coaching. This session takes 30 minutes or less and you must reserve a slot in advance.

Upon passing recertification, your access to the system will be renewed by 12 months and your badge expiration will be updated.

Inspector Guidelines

As a certified Air Care Inspector, you must act professionally at all times. Even if you work for yourself or a private shop, you are actively representing the New Mexico Air Care Program and must follow all guidelines:

DO:

- ✓ **Keep your login private.** Never share your analyzer access code with anyone.
- ✓ **Complete all parts of the test yourself.** Never let someone else perform any part of the test for you.
- ✓ **Sign the report.** Sign every printed Vehicle Inspection Report (VIR) as soon as the test is complete.
- ✓ **Keep your information current.** Notify VPMD within 10 days if you change your name, job, or address.
- ✓ **Advise customers about retests.** If a vehicle fails inspection, you must inform the driver they can get one free retest within 90 days at VPMD headquarters.
- ✓ **Correct any errors.** We're all human and mistakes happen. If you make a mistake during a test, redo the test and notify your Station Manager or contact VPMD.
- ✓ **Ask for help.** If you need help, ask your Station Manager or contact VPMD.

DON'T:

- × **Pre-test the vehicle.** Never "pre-test" or tell a driver they will pass or fail the emissions test until the official test is finished and the VIR is printed.
- × **Adjust the vehicle.** Never adjust, or allow others to adjust, the vehicle before or during an inspection as this can impact test results.
- × **Hide mistakes.** If you make a mistake, correct it for the customer and let VPMD or your Station Manager know so a refund can be issued to your station.

VPMD maintains the right to revoke any certification at any time, if you or your station is found to be dishonest or unprofessional. See **Section 7** to learn more about testing integrity, correcting mistakes, and the repercussions of misconduct.

Section 3: Vehicle Eligibility & Inspection Frequency

Vehicle Eligibility

A vehicle that meets the following criteria **IS** subject to emissions testing:

- ✓ **Fuel:** It's gas-powered, hybrid, or alternatively fueled with compressed natural gas (CNG) or propane.
- ✓ **Wheels:** It has four or more wheels in contact with the ground.
- ✓ **Age:** It's 34 years or newer, based on model year.
- ✓ **Weight:** It has a gross vehicle weight rating (GVWR) of 10,000 pounds or less.
- ✓ **Location:** It's registered to an address within Bernalillo County.
- ✓ **Fleet:** It's a fleet or government vehicle operated in Bernalillo County.
- ✓ **Specialty:** Specialty vehicles do require testing but may need special equipment or expertise. Refer these to VPMD headquarters for testing. These include:
  - **Gray Market:** An imported vehicle not originally built for the US.
  - **Kit Cars:** A vehicle purchased in parts and assembled by the owner.
  - **Engine Swaps:** A vehicle with a different engine than the original.

A vehicle that meets the following criteria **IS NOT** subject to emissions testing:

- × **Fuel:** It's diesel-powered.
- × **Wheels:** It has fewer than four wheels; this includes motorcycles, mopeds, golf carts, go-carts, tricycles, etcetera.
- × **Age:** It's 35 years or older **OR** it's less than four years old and is registered to the original owner. Once a new vehicle changes ownership, it will become subject to testing.
- × **Weight:** It has a GVWR of over 10,001 pounds.
- × **Military:** It's owned and operated by the armed forces, and is uniquely military in nature.
- × **Off-Road/Farm:** It's used only for off-road construction or farming purposes.
- × **Dedicated Electric Vehicles:** It runs exclusively on electric power.

Inspection Frequency

Vehicles registered in Bernalillo County must pass an emissions inspection every two years. If a vehicle changes ownership, a new inspection is required and a two-year timetable begins.

For two-speed tests only: Older vehicles found to emit between 75% and 100% of the maximum permissible emissions must receive an inspection every year.

NOTE: Hybrid vehicles are also known as Hybrid Electric Vehicles (HEVs) or Plug-in Hybrid Electric Vehicles (PHEVs). They **ARE** subject to testing and should be categorized as "GAS-N-ELECTRIC" on the EIS inspection interface. **Examples:** Toyota Prius, Honda Civic Hybrid, etc.

Dedicated electric vehicles are also known as Electric Vehicles (EV) and they run exclusively on electric power. They **ARE NOT** subject to testing. **Examples:** Chevrolet Equinox EV, Hyundai Ioniq.

Section 4: The Emissions Inspection System

System Overview

Basic Functionality

Emissions Inspection System (EIS) analyzers are designed to determine whether a vehicle meets emissions requirements. Depending on the age of the vehicle, this is accomplished via an OBD-II (computerized) test or a manual, two-speed emissions test with infrared technology.

Analyzer Hardware

Each analyzer is equipped with the following:

- ✓ Monitor or LCD screen
- ✓ Mouse
- ✓ Keyboard
- ✓ Barcode scanner
- ✓ Printer
- ✓ Computer
- ✓ OBD-II connector cable
- ✓ Tailpipe sample probe
- ✓ RPM pick-up devices
- ✓ Gas cap adapters
- ✓ Calibration gas tank hookups

Analyzer Software

All analyzers operating in the Albuquerque-Bernalillo County Air Care Program are issued by Worldwide Environmental Products. Analyzers run on the Windows operating system.

Analyzer software is maintained by Worldwide Environmental Products and periodic updates are released to keep the system functioning properly.

Emissions Inspection Results

The analyzer automatically uploads results of each emissions inspection it completes in the Vehicle Inspection Database (VID).

These electronic records can be accessed by the Motor Vehicle Department (MVD) immediately, allowing them to process or deny the vehicle's registration. The EIS analyzer also retains an internal, tamper-proof record of each test.

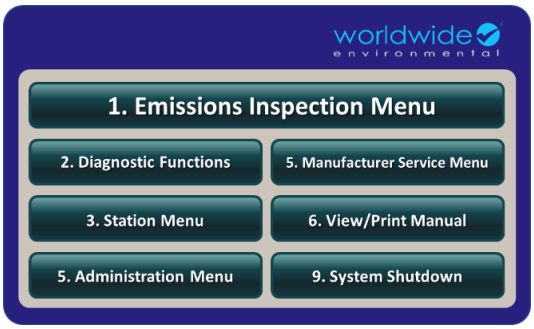
Worldwide analyzer: EIS 5000 model

Emissions Analyzer Menus

Each EIS analyzer has a monitor display. The menus on this monitor help inspectors navigate key processes such as conducting emissions inspections or calibrating the machine. Certain menu items are greyed out if they are unavailable, or an item may have restricted access with password protection.

Vehicle Inspection System Menu (Main Menu)

This is the main menu on an EIS analyzer.

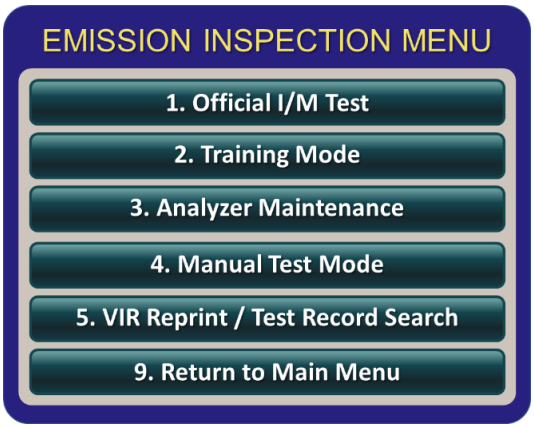


Menu screen: Vehicle Inspection System (Main)

- **Emissions Inspection Menu:** Access to primary inspection processes, including performing an official emissions test.
- **Diagnostic Functions:** Access to certain types of manual testing and vehicle communication.
- **Station Menu:** Access to managing VIRs, reprinting, and refreshing VID data.
- **Administration Menu:** Restricted access, for VPMD auditors only.
- **Manufacturer Service Menu:** Restricted access, for authorized EIS technicians only.
- **View/Print Manual:** Access to view or print the EIS User Manual.
- **System Shutdown:** Powers down the EIS.

Emission Inspection Menu

This submenu is used for performing official inspections, analyzer maintenance, and certain manual tests.

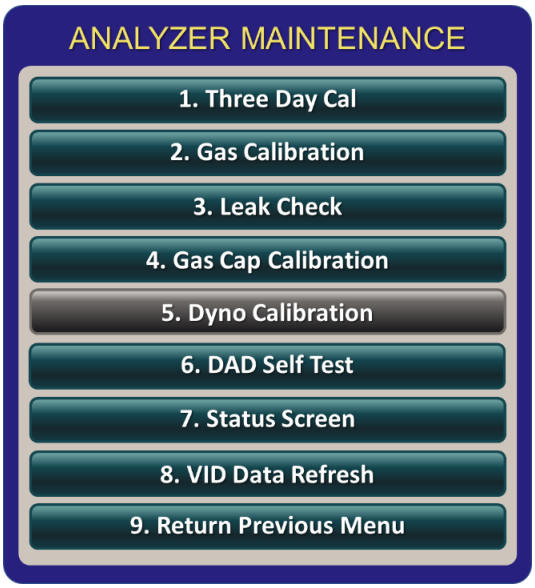


Menu screen: Emission Inspection

- **Official I/M Test:** Initiates an official emissions inspection and guides inspectors through the process.
- **Training Mode:** Access to EIS Training Mode.
- **Analyzer Maintenance:** Access to the Analyzer Maintenance Menu.
- **Manual Test Mode:** Access to a Manual Test Mode, which can be used to read RPMS and measure emissions outside of an official inspection.
- **VIR Reprint/Test Record Search:** Access to search and reprint previous inspection reports.
- **Return to Main Menu:** Returns to the Main Menu.

Analyzer Maintenance Menu

This submenu contains instrument calibrations that must be conducted regularly to keep the analyzer functional. More information on this can be found in the following pages.

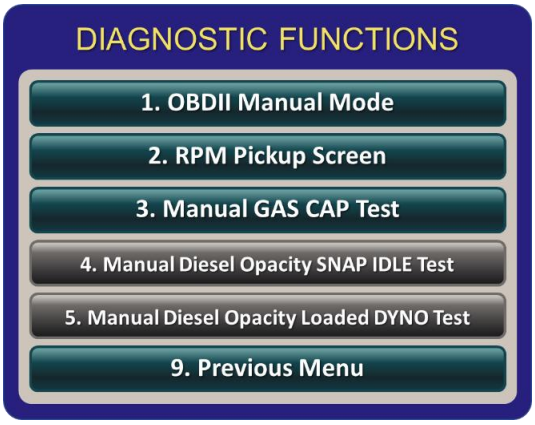


Menu screen: Analyzer Maintenance

- **Three Day Cal:** Allows user to initiate three calibrations with a single selection: (1) gas calibration, (2) leak check, and (3) gas cap calibration.
- **Gas Calibration:** Initiates only a gas bench calibration.
- **Leak Check:** Initiates only a leak check of the sensor probe.
- **Gas Cap Calibration:** Initiates only a gas cap calibration.
- **Dyno Calibration:** Restricted access.
- **DAD Self Test:** This allows inspectors to check the OBD-II system for functionality and updates via Data Acquisition Device (DAD). Option will vary depending on your station's equipment.
- **Status Screen:** Displays various system details, including network status, calibration status, station number, analyzer number, gas values, and more.
- **VID Data Refresh:** Synchronizes the analyzer with the central database.
- **Return Previous Menu:** Returns to the Emissions Inspection Menu.

Diagnostic Functions Menu

This submenu is used for certain types of manual tests and vehicle communication.

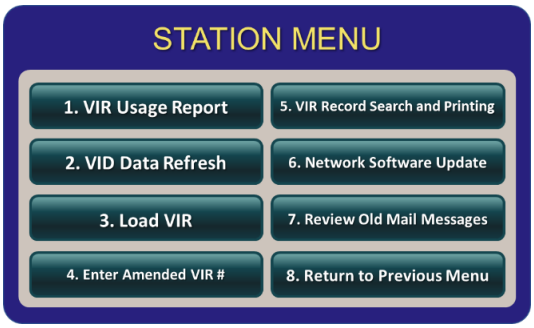


Menu screen: Diagnostic Functions

- **OBD-II Manual Mode:** Allows for manual connection to an OBD-II equipped vehicle, outside of an official inspection. Readings may include fault codes, readiness indicators, sensors, and system data.
- **RPM Pickup Screen:** Allows user to connect an RPM pick-up device outside an official test.
- **Manual GAS CAP Test:** Allows user to conduct a gas cap test outside of an official test.
- **Manual Diesel Opacity SNAP IDLE Test:** Unavailable to inspectors.
- **Manual Diesel Opacity Loaded DYNO Test:** Unavailable to inspectors.
- **Previous Menu:** Returns to the Main Menu.

Station Menu

This submenu allows for managing VIRs, reprinting reports, and refreshing VID data.

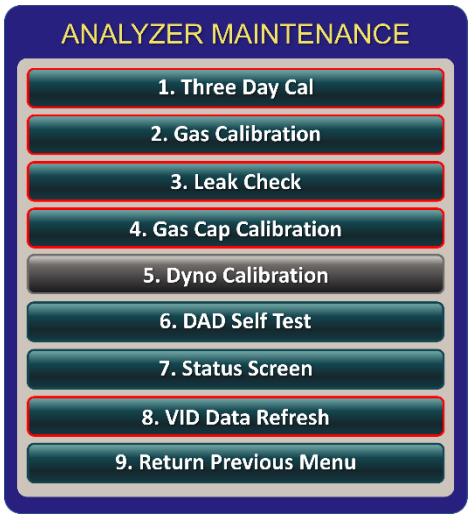


Menu screen: Station submenu

- **VIR Usage Report:** Access to the VIR usage database. Can track VIR usage for up to 91 days and identify which vehicle a VIR was used to test.
- **VID Data Refresh:** Synchronizes the analyzer with the central database.
- **Load VIR:** Allows user to load new VPMD-issued certificate paper, if applicable. This option will vary depending on your station's equipment.
- **Enter Amended VIR # or Enter Damaged/Missing VIR:** This option will vary depending on your station's equipment. It will allow you to correct VIR # sequence and report unusable VIRs when necessary.
- **VIR Record Search and Printing:** Allows user to search and reprint previous inspection records.
- **Network Software Update:** Initiates a manufacturer software update over the network.
- **Review Old Mail Messages:** Access to previously displayed mail messages. EIS analyzers will periodically receive VPMD announcements or technical service bulletins.
- **Return to Previous Menu:** Returns to the Main Menu.

Analyzer Maintenance

Air Care Inspectors and Station Managers must properly maintain the EIS analyzers in their facility. To preserve the EIS warranty, use only manufacturer-approved parts and refer to the analyzer's manual for more servicing information.



Maintenance menu and regular calibrations

Lockouts & Calibrations

Certain calibrations should be run every 1-3 days:

- ✓ **Leak Check:** Every 24 hours
- ✓ **Gas Cap Calibration:** Every 24 hours
- ✓ **VID Data Refresh:** Every 24 hours
- ✓ **Gas [Bench] Calibration:** Every 72 hours

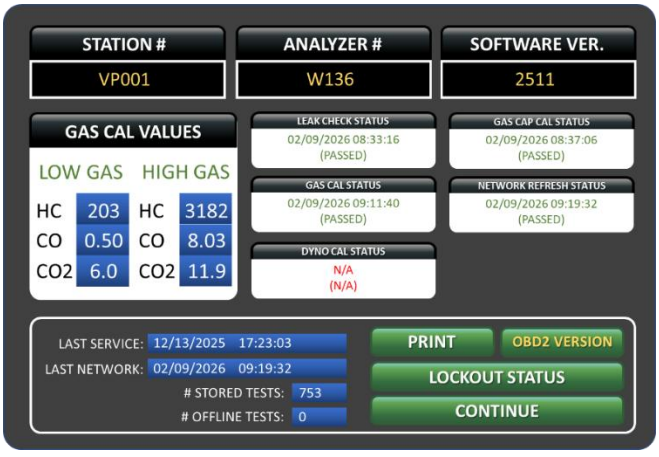
Selecting the "Three Day Cal" option, at the top of the Analyzer Maintenance Menu, will initiate three processes, including the Gas Calibration, Leak Check and Gas Cap Calibration. Some analyzers will lock out testing functions if one or more of these calibrations aren't up-to-date; however, this depends on your specific Station's equipment.

- On older EIS analyzers and software, you'll be locked out of <u>all</u> testing if <u>any</u> of these calibrations are expired.
- On newer EIS analyzers and software, the Gas Calibration and Leak Check aren't required to keep running OBD-II tests. Two-speed tests will be locked out, but you'll still be able to run OBD-II tests on 1996 and newer vehicles.

Status Screen

From the Maintenance Menu, select "Status Screen" to see the status of these calibrations and some additional analyzer details:

- ✓ Station Number
- ✓ Analyzer Number
- ✓ Software Version
- ✓ Gas Calibration Values
- ✓ Leak Check Status
- ✓ Gas Cap Calibration Status
- ✓ Gas Bench Calibration Status
- ✓ Network Refresh Status
- ✓ Dyno Calibration Status (N/A)
- ✓ Service and Network Dates
- ✓ Stored and Offline Tests
- ✓ Print and Version Options



Calibration status screen

Maintenance Quick Reference Table

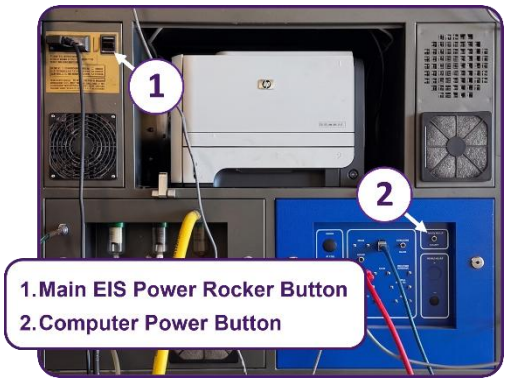
Use the below as a quick reference for analyzer maintenance tasks. The **first four items** are required for regular operations. Neglecting to complete these may result in test lockout.

WHEN	WHAT	HOW	WHY
Every 24 Hrs (Daily)	Leak Check	From the EIS Analyzer Maintenance Menu, select “Leak Check.” Follow instructions provided on the EIS screen.	Checks the sample hose for air leaks. An air leak in the hose can lead to test issues, such as low flow.
Every 24 Hrs (Daily)	Gas Cap Calibration	From the EIS Analyzer Maintenance Menu, select “Gas Cap Calibration.” Follow instructions on the screen.	Calibrates the gas cap equipment, adapting the system to natural shifts in air pressure.
Every 24 Hrs (Daily)	VID Data Refresh	From the EIS Analyzer Maintenance Menu, select “VID Data Refresh.” Follow instructions on the screen.	Synchronizes the EIS analyzer with the central database, ensuring the most up-to-date information.
Every 72 Hrs (3 Days)	Gas Bench Calibration	From the EIS Analyzer Maintenance Menu, select “Gas Calibration” or “Three Day Cal.” Follow instructions on the screen. **NOTE:** Always check blend codes on each tank!	Calibrates bench gases against blend codes, helping verify or adjust the accuracy of the bench’s measurements.
Weekly	DAD Self Test	From the EIS Analyzer Maintenance Menu, select “DAD Self Test.” Follow instructions provided on the EIS screen. Option will vary depending on your station’s equipment.	Allows the OBD-II cable to check for DLC software updates, ensuring the OBD-II testing system is up-to-date.
Weekly	Sample Hose	Visually check the sample hose for kinks or holes. **NOTE:** Use only shop air (less than 60psi) to clean hose.	Ensures proper air flow through the sample hose. Kinks in the hose can lead to dilution issues or low flow during testing.
Weekly	Probe Check	Visually check the probe tip for obstructions. Clean probe and carefully remove debris. **NOTE:** Use only shop air (less than 60psi) to clean hose.	Ensures proper air flow through the sample probe. Blockage in the probe can lead to test issues.
Weekly	Filter Check	Visually check the dry side paper filter. Replace filter when it appears discolored or grey.	A dirty dry side paper filter can lead to hydrocarbon hang-up failure or low flow during testing.
Monthly, and after filter replacement	Filter Bowls	Clean water and air filter bowls using non-alcohol, oil-free cleaners.	Dirty filter bowls can cause component damage.
Monthly	Clean EIS	Clean the EIS monitor, keyboard, and mouse with a soft cloth and chemical-free, non-abrasive cleaner.	Due to exposure in the vehicle bay, the monitor, keyboard and mouse can gather debris and dust.

Analyzer Start-Up & Shut Down

Starting Up the EIS Analyzer:

1. Switch on the main power button (black rocker) on the back, left-hand side of the analyzer.
2. Press the computer power button (small, round black button) on the back, right-hand side of the analyzer for one second.
3. The inspection software should open automatically within a few minutes of switching on the computer.
4. Turn on scanner gun by pushing down into cradle and depressing the trigger until you hear a long beep and both the scanner and cradle's blue* lights illuminate.



Analyzer start-up controls

The EIS analyzer requires **15 minutes** for warm-up before it will be ready for operation. A countdown will display on the screen, showing the number of seconds remaining before testing or analyzer maintenance can begin.

Shutting Down the Analyzer:

1. Navigate to the main **Vehicle Inspection Menu (Main Menu)**.
2. Select **System Shutdown**.
3. A dialogue prompt will ask "Are you sure you want to quit the Vehicle Inspection system?" Select "YES".
4. Once computer has fully shut down, switch off the main power button (black rocker) on the back, left-hand side of the analyzer.
5. Turn off scanner gun by pushing down into cradle and depressing the trigger until you hear a short beep and the lights turn off.

Shutting down the system

Syncing a Wireless Scanner

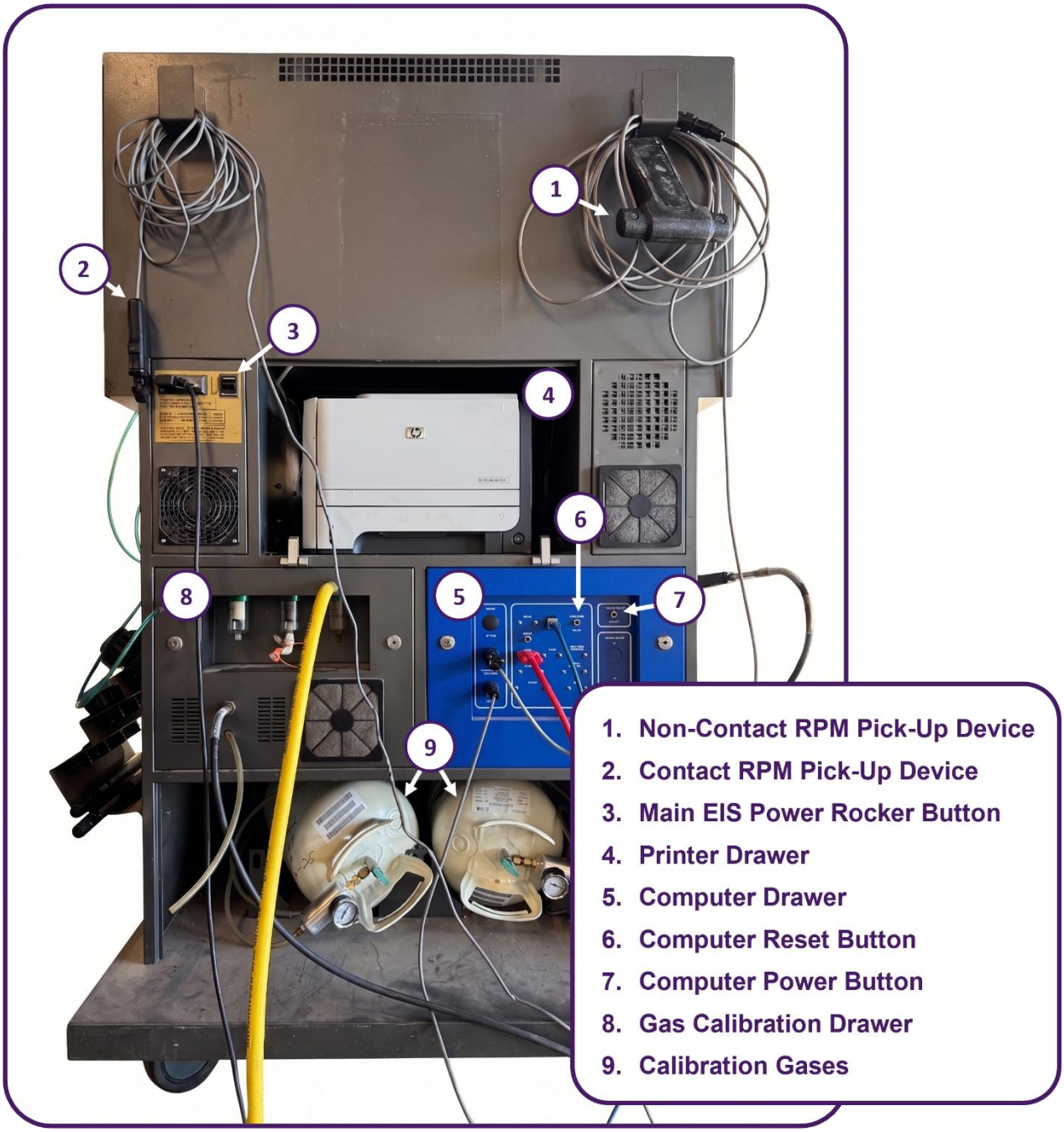
If at any point <u>either</u> the scanner or cradle's light is green instead of blue, this indicates the devices need to be resynced/paired:

1. Press the small button on the side of the scanner cradle for 2 full seconds.
2. Use scanner to scan the barcode affixed to the cradle side.
3. Watch for the cradle and scanner lights both to turn blue.
4. The lights will be blue and the scanner will play a series of beeps when fully synced.

An out-of-sync scanner and cradle

Analyzer Rear Controls

Below is a key to the various controls and connections on the back of an EIS analyzer:



Key to various devices, controls, and equipment on the back of an EIS analyzer

Section 5: The Emissions Inspection Procedure

Procedure Overview

The official emissions inspection procedure consists of eight (8) main steps, which are explained in full detail on the following pages:

- **Step 1:** Verify Vehicle Eligibility
- **Step 2:** Verify Vehicle Safety
- **Step 3:** Prepare for the Inspection
- **Step 4:** Gather Details & Conduct Visual Inspection
- **Step 5:** Begin the Official I/M Test in EIS
- **Step 6:** Conduct OBD-II or Two-Speed Test
- **Step 7:** Conduct Gas Cap Evaluation (2005 and older)
- **Step 8:** Conclude & Provide VIR to Customer

Step 1: Verify Vehicle Eligibility

Determine whether the vehicle is subject to testing, per **Section 3: Vehicle Eligibility & Inspection Frequency**.

- ✗ If **NO**, you must advise the customer the vehicle is not subject to emissions testing
- ✓ If **YES**, proceed to **Step 2: Verify Vehicle Safety**

Step 2: Verify Vehicle Safety

Before starting any test, you must verify the vehicle's safety. If the vehicle is deemed safe, you can proceed with the test. If it exhibits any of the following conditions, it should be rejected:

- ✗ Major system leaks (fuel, oil, transmission, coolant, exhaust, etc.)
- ✗ Unusual engine noises (ex: loud knocking) or unsteady vehicle RPMs
- ✗ Emergency/parking brake system is inoperable
- ✗ Unsafe hood operation (ex: hood does not stay open)
- ✗ Engine warning lights are on (engine temperature, oil, etc.)

Use the EIS analyzer to document any rejection, so VPMD can resolve potential complaints:

- Initiate an Official I/M Test from the Emissions Inspection Menu
- Enter the vehicle's Vehicle Identification Number (VIN), then immediately abort the test
- When prompted, select the safety reason(s) for aborting
- Do NOT collect a testing fee for a rejected vehicle

If vehicle is safe to test, you may proceed to the next step, **Prepare for the Inspection**.

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Step 3: Prepare for the Inspection

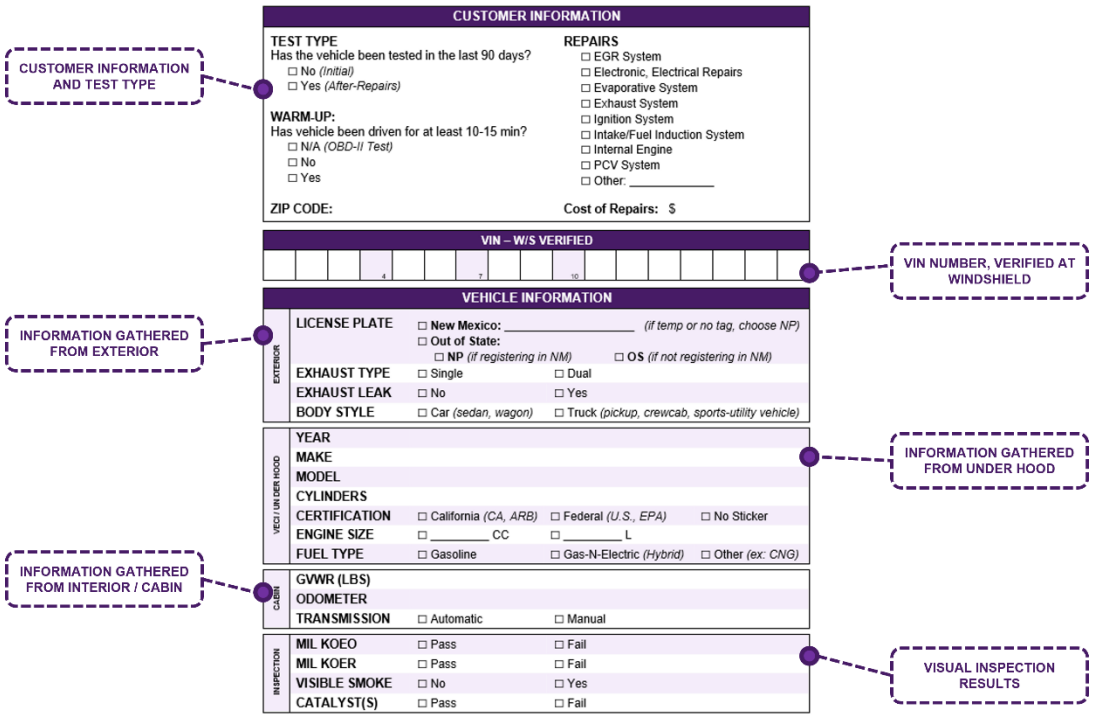
Now you'll prepare your workspace and the vehicle for an emissions inspection.

- Apply the parking or emergency brake
- Open the vehicle's hood
- Put the vehicle's transmission in park (automatic) or neutral (manual)
- Turn off all accessories (air conditioning, heated seats, radio, etc.)
- For a two-speed test **ONLY**, ensure the engine is running and check the vehicle's temperature gauge – if the engine isn't at normal operating temperature, tell the customer they must drive at least 15 minutes before you can conduct an inspection
- For an OBD-II test **ONLY**, ensure the vehicle is off
- Ensure a direct line of sight to the area behind the vehicle, for visible smoke check

Step 4: Gather Details & Conduct Visual Inspection

Next, you'll gather vehicle details and conduct a visual inspection. Using a form can help you stay organized while you do this. The complete, blank form is on the next page, then each section will be described in full detail.

Sample Form & Sections



NOTE: You have been provided this form for training and testing, but some stations have their own version of the form. Ask your Station Manager if your station has something different.

CUSTOMER INFORMATION

TEST TYPE
Has the vehicle been tested in the last 90 days?
- ☐ No *(Initial)*
- ☐ Yes *(After-Repairs)*

WARM-UP:
Has vehicle been driven for at least 10-15 min?
- ☐ N/A *(OBD-II Test)*
- ☐ No
- ☐ Yes

ZIP CODE: _____

REPAIRS
- ☐ EGR System
- ☐ Electronic, Electrical Repairs
- ☐ Evaporative System
- ☐ Exhaust System
- ☐ Ignition System
- ☐ Intake/Fuel Induction System
- ☐ Internal Engine
- ☐ PCV System
- ☐ Other: _____

Cost of Repairs: $_____

VIN – W/S VERIFIED

			4			7			10							

VEHICLE INFORMATION

EXTERIOR	**LICENSE PLATE**	☐ **New Mexico:** _____ *(if temp or no tag, choose NP)* ☐ **Out of State:** ☐ **NP** *(if registering in NM)* ☐ **OS** *(if not registering in NM)*		
	EXHAUST TYPE	☐ Single	☐ Dual	
	EXHAUST LEAK	☐ No	☐ Yes	
	BODY STYLE	☐ Car *(sedan, wagon)*	☐ Truck *(pickup, crewcab, sports-utility vehicle)*	
VECI / UN DER HOOD	**YEAR**			
	MAKE			
	MODEL			
	CYLINDERS			
	CERTIFICATION	☐ California *(CA, ARB)*	☐ Federal *(U.S., EPA)*	☐ No Sticker
	ENGINE SIZE	☐ _____ CC	☐ _____ L	
	FUEL TYPE	☐ Gasoline	☐ Gas-N-Electric *(Hybrid)*	☐ Other *(ex: CNG)*
CABIN	**GVWR (LBS)**			
	ODOMETER			
	TRANSMISSION	☐ Automatic	☐ Manual	
INSPECTION	**MIL KOEO**	☐ Pass	☐ Fail	
	MIL KOER	☐ Pass	☐ Fail	
	VISIBLE SMOKE	☐ No	☐ Yes	
	CATALYST(S)	☐ Pass	☐ Fail	

4A: Gather Customer Information & Test Type

CUSTOMER INFORMATION AND TEST TYPE

CUSTOMER INFORMATION

TEST TYPE
Has the vehicle been tested in the last 90 days?
☐ No *(Initial)*
☐ Yes *(After-Repairs)*

WARM-UP:
Has vehicle been driven for at least 10-15 min?
☐ N/A *(OBD-II Test)*
☐ No
☐ Yes

ZIP CODE: _____

REPAIRS
☐ EGR System
☐ Electronic, Electrical Repairs
☐ Evaporative System
☐ Exhaust System
☐ Ignition System
☐ Intake/Fuel Induction System
☐ Internal Engine
☐ PCV System
☐ Other: _____

Cost of Repairs: $_____

- **Test Type:** Ask customer if the vehicle has been tested in the last 90-days:
  - If **NO**, the test type will be *Initial*
  - If **YES**, the test type will be *After-Repairs*
    - **Repairs & Cost:** If *After-Repairs*, ask what repairs were done and the approximate cost of repairs (round to the nearest whole dollar)
- **Warm Up:** If this is a two-speed test (1995 or older vehicle), ask whether the vehicle has been driven for at least 10-15 minutes
- **Zip Code:** Ask for vehicle's registration ZIP code

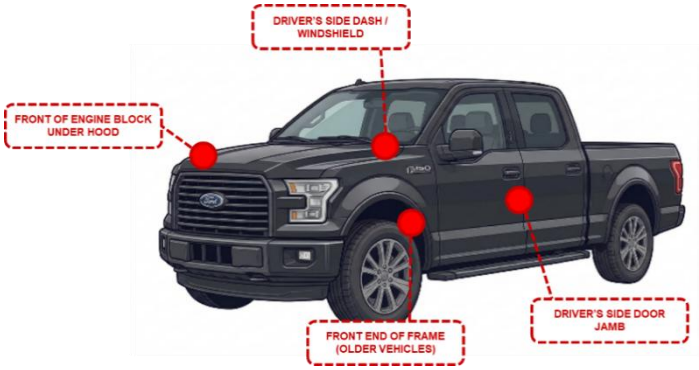
4B: Verify VIN Number on Windshield

VIN NUMBER, VERIFIED AT WINDSHIELD

VIN – W/S VERIFIED

			4			7			10							

- Write the VIN from where the dashboard meets the driver's side windshield – if dashboard VIN is faded or hard to read, cross-check what you can see with other sources (ex: door jamb sticker, engine block, etc.)
- VIN inscriptions elsewhere on the vehicle can be used for cross-verification, but these shouldn't be the main source – they might be wrong if the vehicle has any replacement parts



Possible locations of VIN

NOTE: VINs contain a mix of letters and numbers, and they are almost always 17 characters in length (only Grey Market vehicles may have fewer). VINs never contain the letters I, O, or Q. They do contain the numbers 1 (one), 0 (zero), and 9 (nine).

4C: Gather Information from Vehicle's Exterior

INFORMATION GATHERED FROM EXTERIOR

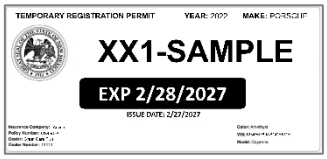
VEHICLE INFORMATION			
EXTERIOR	LICENSE PLATE	☐ **New Mexico:** _____ *(if temp or no tag, choose NP)* ☐ **Out of State:** ☐ **NP** *(if registering in NM)* ☐ **OS** *(if not registering in NM)*	
	EXHAUST TYPE	☐ Single	☐ Dual
	EXHAUST LEAK	☐ No	☐ Yes
	BODY STYLE	☐ Car *(sedan, wagon)*	☐ Truck *(pickup, crewcab, sports-utility vehicle)*

- **License Plate:** Note the vehicle's license plate state and number:
  - If it **DOES** have a New Mexico plate, note the plate number
  - If vehicle does **NOT** have a New Mexico license plate, ask if the customer will register it in New Mexico or in their home state
    - If they will register in New Mexico, note NP
    - If they will register in another state, note OS
  - If vehicle has a **TEMPORARY** tag or **NO** tag, note NP
- **Exhaust Type:** Look at the back of vehicle and count the number of exhaust pipes
  - **Single:** One exhaust tailpipe
  - **Dual:** Two exhaust tailpipes
- **Exhaust Leak:** Note whether you detected signs of an exhaust system leak when the vehicle entered the bay – these are rare
  - **What would it sound like?** A sharp ticking or tapping that gets louder and faster as the engine accelerates
  - **What would it look like?** You may also see black, "sooty" deposits on the underbody of the vehicle, indicating carbon is escaping through a hole
- **Body Style:** Note the body style of the vehicle
  - **Car:** Sedan, station wagon, hatchback etc.
  - **Truck:** Pickup, crewcab, sports-utility vehicle, van, etc.

New Mexico Plates

Out-of-state Plates

Temporary Tags

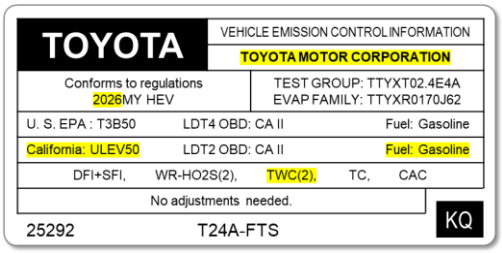


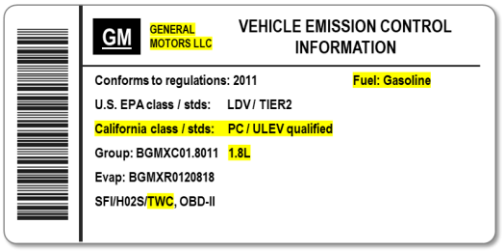
4D: Gather Information from Under Vehicle's Hood

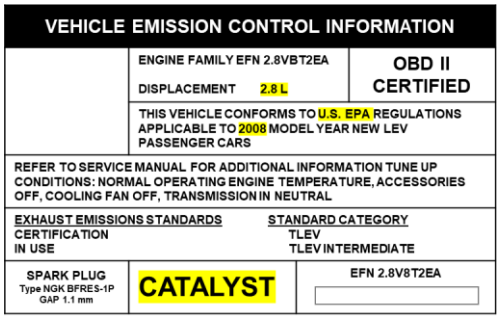
INFORMATION GATHERED FROM UNDER HOOD

VECI / UNDER HOOD			
YEAR			
MAKE			
MODEL			
CYLINDERS			
CERTIFICATION	☐ California *(CA, ARB)*	☐ Federal *(U.S., EPA)*	☐ No Sticker
ENGINE SIZE	☐ _____ CC	☐ _____ L	
FUEL TYPE	☐ Gasoline	☐ Gas-N-Electric *(Hybrid)*	☐ Other *(ex: CNG)*

- **Vehicle Make:** Manufacturer, ex: Toyota, Honda, etc.
- **Vehicle Model:** Model name, usually visible on exterior, ex: Prius, CR-V, etc.
- Find the **Vehicle Emission Control Information (VECI)** label under the hood, and note:
  - **Vehicle Year:** Use model year, not the vehicle production date – if it's not on the VECI label, you can:
    - Decode the **10th** character of the VIN number (see Appendix II)
  - **Number of Cylinders:** Usually 4, 6, or 8-cylinder but may be more or less – if not on the VECI label, you can:
    - Decode the **8th** character of the VIN number
    - Count number of visible spark plugs, wires or coils
    - Look for cues on the exhaust manifold, ex: lines, bars, etc.
  - **Emissions Certification Statement:** Identify the vehicle's certification – if the label lists both California and U.S. EPA, its certification is California
    - California (may also say CA, 50-State, CARB or ARB)
    - Federal/U.S. Environmental Protection Agency (may also say U.S. EPA)
  - **Engine Size:** It will be numerical, listed as one of the following
    - Cubic liters (L)
    - Cubic centimeters (CC)
  - **Fuel Type:** Note the fuel type – usually gas or hybrid, but may be others
    - Gasoline
    - Gas-n-Electric (Hybrid)
    - Other: Compressed Natural Gas (CNG), Propane, Gasohol, etc.

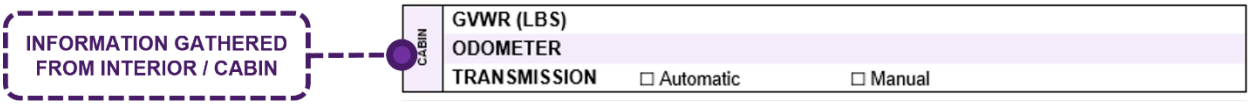




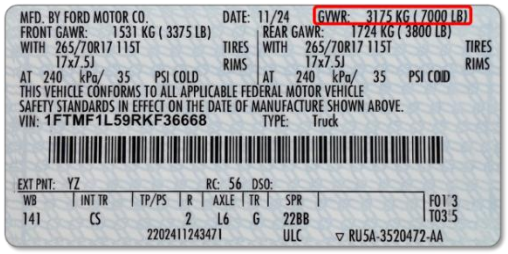


Examples of different VECI sticker styles

4E: Gather Information from Vehicle's Interior and/or Cabin



- Find the **Safety Compliance Certification Label (SCCL)** sticker, which is usually on the driver's side door jamb, and note:
  - **GVWR:** Write in pounds/lbs – if the VECI label isn't there, you can decode the VIN number (see Appendix II)
- **Odometer:** Write the mileage, to the nearest whole number
- **Transmission Type:** Identify if vehicle is
  - **Automatic**
  - **Manual** (has stick shift and a clutch)



Example of an SCCL sticker

- If conducting an OBD-II test, this is a good time to run two required tests of the Malfunction Indicator Light (MIL), also known as the "check engine" light
  - **<u>Key On, Engine Off (KOEO)</u>:** Turn ignition to **ON**, but don't start the engine:
    - **PASS:** MIL light is **ON** (bulb is working)
    - **FAIL:** MIL light is **OFF**
    - Turn ignition key back to **OFF**
  - **<u>Key On, Engine Running (KOER)</u>:** Start the engine with transmission in park (automatic) or neutral (manual) and let it idle:
    - **PASS:** Light turns **OFF** (no active faults)
    - **FAIL:** Light stays **ON** or **FLASHES**
    - Turn ignition key back to **OFF**

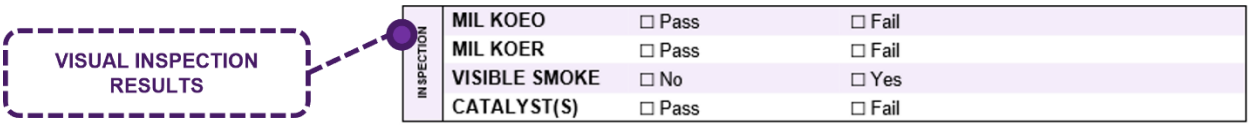
Examples of "check engine" lights

TEST TYPE	VEHICLE STATE	LIGHT STATUS	RESULT
KOEO	Key On, Engine Off	On	PASS
	Key On, Engine Off	Off	FAIL
KOER	Key On, Engine Running	Off	PASS
	Key On, Engine Running	On or flashing	FAIL

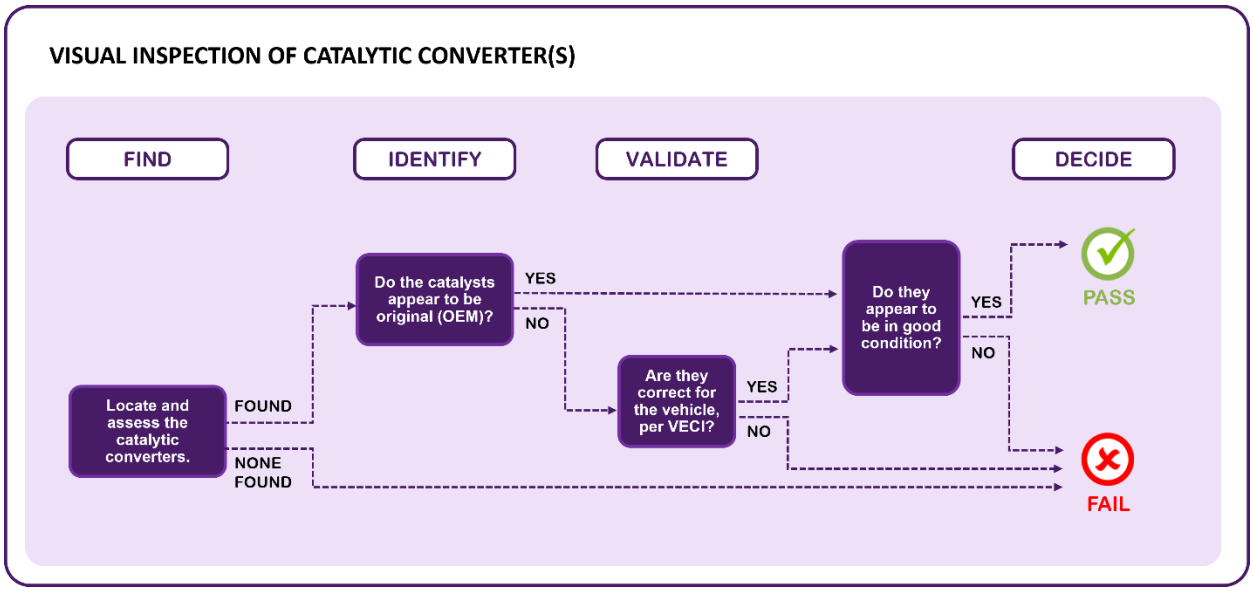
IMPORTANT: If you can't find or read the odometer, do **<u>NOT</u>** put zero, guess, or make up a number. If the odometer is missing or unreadable, you should put "N" in this field.

WHY DOES IT MATTER? Emissions data feeds into national databases that insurance and vehicle history companies use. If you make up a number or input zero in the odometer field, it will reflect on the vehicle's permanent record and may harm current and future owners (ex: via CarFax reports).

4F: Conduct Visual Inspection

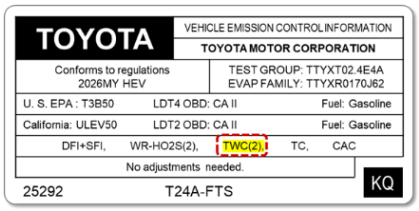


There are four steps to visual inspection of a vehicle's catalytic converters: **FIND**, **IDENTIFY**, **VALIDATE**, and **DECIDE** the result. Follow the flowchart or detailed instructions below.



- **FIND** the catalytic converters
  - Look under the vehicle and in the engine compartment to find its catalysts
  - If the catalytic converters are missing or have been replaced with a straight pipe, the vehicle immediately **FAILS** the catalyst question immediately
- **IDENTIFY** the equipment
  - Determine if the vehicle's catalytic converter(s) appear to be Original Equipment Manufacturer (OEM) or aftermarket – how do you tell the difference?
    - **Outer Shell:** OEM catalysts are bigger and heavier, while aftermarket catalysts are often lightweight, shorter, and may be shiny outside
    - **Welds:** OEM parts will look accurate to the vehicle for age and wear, while aftermarket catalysts may have fresh cuts, new seams, and chunky or "bubbly" welding joints
    - **Markings:** Original parts usually have an embossed logo (like Ford or Toyota) and an OEM serial number; modified catalysts have stamped-on approval numbers and generic serial numbers (NG, NC, etc.)
  - **If parts are OEM and in good condition,** the vehicle **PASSES** the catalyst question
  - **If parts are not OEM, are modified, or they are in poor condition,** additional review and validation will be needed

- **VALIDATE** the quantity and condition
  - For modified or non-OEM parts, you need to review whether the equipment is correct and sufficient for the vehicle
  - On the VECI label, check which type and how many catalyst(s) are required – usually it will be an acronym like one of the following:
    - **TWC:** Three-Way Catalyst
    - **WU-TWC:** Warm-Up Three-Way Catalyst
    - **OC:** Oxidation Catalyst
  - If the VECI label is missing or illegible, look for the vehicle by model, weight, and year in an application manual
  - Compare the catalysts present on the vehicle to its manufacturer requirements



Emissions system on a VECI label

- **DECIDE** the result
  - **If all required converters are present and in good condition,** the vehicle **PASSES** this section
  - **If there are insufficient catalysts or they are in poor condition,** the vehicle **FAILS** this section

LEARN MORE: Air Care New Mexico currently only inspects catalytic converters. However, modern vehicles use many other emissions control devices which are checked by OBD-II technology. Here are a few examples:

- **Exhaust Gas Recirculation (EGR) Valve:** Reroutes exhaust back into the intake manifold.
- **Evaporative Emission Control (EVAP) System:** Traps fuel vapors from the gas tank to prevent them from escaping into the atmosphere.
- **Positive Crankcase Ventilation (PCV) System:** Directs harmful crankcase vapors back into the engine to be burned.
- **Air Injection System:** Adds oxygen to the exhaust stream to combust unburned fuel.
- **Oxygen Sensors:** Monitors oxygen level in exhaust to ensure the air/fuel mixture is correct.

Step 5: Begin the Official I/M Test in EIS

Now that your visual inspection is complete, you are ready to begin an official I/M Test. The EIS analyzer will prompt you what to do throughout this process. You'll use the computer mouse, keyboard, "Enter" key, and "Tab" key to work through each screen.

- Navigate to the **Emission Inspection Menu**
- Select the first option, **"Official I/M Test"**
- Enter your Air Care Inspector **access code**
- Select the **test type**:
  - *Initial*
  - *After-Repairs* (select if tested at any station within the last 90-days)
- Enter the **VIN** on the EIS:
  - You can scan the VIN barcode or QR code, but always cross-check the scanned result with the dashboard VIN
  - If you enter the VIN manually, you'll have to enter it twice for accuracy
- Enter the **license plate** as appropriate (for help on this, go back to **Step 4C: Gather Information from Vehicle's Exterior**)
- Once you continue, the analyzer will attempt to auto-populate vehicle details from the VID database
- Compare the auto-populated vehicle details with your own notes and always correct any errors in data if you find them
- If vehicle details don't auto-populate, you must enter them manually:
  - **Year** (remember to use the model year, not production date)
  - **Manufacturer** ("make")
  - **Model**
  - Body **style** (car, pickup, truck, etc.)
  - **GVWR** (in pounds/lbs)
    - To change or add, select "OTHER"
  - **Certification** (California or Federal)
  - **Cylinders** (or select "R" for rotary)
  - Engine **size** ("displacement"), in liters (L) or cubic centimeters (CC)
    - To change or add, select "OTHER"
  - **Transmission** type
    - Automatic
    - Manual
- Review the vehicle information again and confirm, when prompted
- On the next screen, you'll be asked to:
  - Select the **fuel type** (gasoline, gas-n-electric, etc.)
  - Enter the **odometer** mileage, to the nearest whole number
  - Type "Y" or "N" in the space for **dual exhaust**
  - Enter registration **ZIP code**

- Next, you'll be prompted for the outcomes of your visual inspection
  - **Catalytic Converter(s):** Type "P" (pass) or "F" (fail)
  - **Exhaust Leaks:** Type "Y" or "N"
- Review and confirm or edit the vehicle information, when prompted

NOTE: If "Y" is selected on exhaust leaks, the EIS will skip step 6 completely (the OBD-II/two-speed test). The software will jump forward to step 7 (gas cap), if applicable to the vehicle. You must conclude the test, but overall results will be a FAIL due to the exhaust leak.

Step 6: Conduct OBD-II or Two-Speed Test

At this point, the EIS will guide you through running either a "second generation onboard diagnostic" (OBD-II) test or a two-speed (tailpipe) test, as appropriate to the vehicle. The EIS uses the vehicle's age and other information to determine which test to run.

- Follow the steps in **6A: OBD-II Emissions Test** for 1996 and newer vehicles
- Follow the steps in **6B: Two-Speed Test** for 1995 and older vehicles

6A: OBD-II Emissions Test (1996 and Newer Vehicles)

An OBD-II cable from the analyzer connects to the vehicle's Diagnostic Link Connector (DLC) and gathers emissions data directly from its on-board computer. Any emissions-related issues will also result in the Malfunction Indicator Light (MIL) being illuminated continuously.

IMPORTANT: Make sure the vehicle is OFF when plugging or unplugging to the connector – certain vehicles will malfunction if the OBD-II is plugged in while they are on.

- If you haven't already done so, you'll run the KOEO and KOER tests now
- First, conduct the **Key On Engine Off (KOEO)** test to make sure the MIL is operable
  - Turn ignition key to the ON position, but don't start the vehicle's engine
    - Type "P" if the MIL illuminates
    - Type "F" if the MIL does not illuminate
  - Turn ignition key back to OFF
- Connect the analyzer's cable to the vehicle's OBD-II/DLC port ; this is usually under the driver's side dashboard but not always – see Appendix V for more possible locations
- Next, conduct the **Key On Engine Running (KOER)** test to check for warnings
  - Start the vehicle's engine with the transmission in park (automatic) or neutral (manual) and let it idle
    - Type "P" if the MIL does not illuminate
    - Type "F" if the MIL remains on or flashes
- Review and type "Y" or "N" to confirm or edit the information onscreen when prompted

- The EIS will now attempt to communicate with the vehicle's OBD-II unit; if successful, the EIS will determine whether the vehicle's emissions equipment is satisfactory
- On the next screen, you'll be asked if the vehicle produced visible emissions (smoke); select "Y" or "N" as applicable:
    - Select "Y" if you saw smoke at any time, including when the vehicle entered the bay or during the test
    - Select "N" if there was no smoke
- Turn the vehicle off, disconnect the OBD-II connector, and put away the cable
- Type "C" or select Continue to proceed
- The next step will depend on the vehicle's model year:
    - Continue to **Step 7** if the vehicle is 2005 and older (gas cap evaluation)
    - Continue to **Step 8** if the vehicle is 2006 and newer (no gas cap evaluation)

6B: Two-Speed Test (1995 and Older Vehicles)

Vehicles 1995 and older must undergo a two-speed test. During a two-speed test, a sample probe is placed in the vehicle's tailpipe to collect emissions at both high and idle speeds. Engine speed is confirmed by an RPM pick-up device. The EIS analyzes both emissions samples using an infrared system, then compares them with programmed emissions standards. As with an OBD-II test, the EIS will guide you through each step of a two-speed test.

- On the first screen after the visual inspection portion, gas will begin flowing within the EIS as it prepares for a two-speed test
- When the EIS is ready, you'll be prompted to prepare the vehicle for two-speed testing:
    - Put the vehicle's transmission in park (automatic) or neutral (manual)
    - Apply the parking or emergency brake
    - Attach the RPM pick-up device
    - Insert the sample probe into vehicle's tailpipe
    - Type "C" or select Continue to proceed
- The RPM set-up will allow you to confirm or modify **vehicle information**:
    - The number of cylinders
    - The RPM pickup device being used (typically it will be contact)
    - Vehicle's engine cycle (typically it will be four)
    - The RPM should be stable before proceeding

NOTE: Here are some tips for a successful two-speed (tailpipe) test:

- Make sure there are no kinks or bends in the probe hose, as kinks can interfere with the test.
- If vehicle has two tailpipes, use the dual probe adapter and insert one probe in each tailpipe.
- If vehicle has a spark arrestor on the tailpipe, switch from the standard to a narrow-gauge probe.

- Next, observe the vehicle for **visible emissions (smoke)**:
  - Raise the engine speed to 2500 RPM and hold it there for 10 seconds while observing the tailpipe for visible emissions (use a properly positioned mirror)
  - Return vehicle to idle and observe the tailpipe for an additional 10 seconds
  - On the next screen, you'll be asked if the vehicle produced visible emissions (smoke); select "Y" or "N":
    - Select "Y" if you saw smoke at any time, including when the vehicle entered the bay or during the test
    - Select "N" if there was no smoke at any time

AI-generated image

IMPORTANT: How do you tell the difference between smoke and steam? Steam (water vapor) will typically dissipate and disappear within a few feet of the tailpipe. Steam is usually odorless or may smell slightly "sweet." Smoke is thicker and opaque. It will linger and drift away from the source, maintaining its cloud-like form for a while. Smoke smells acrid, burnt, or like fuel.

- Now the EIS will guide you through an emission test at both speeds:
  - **High-Speed Emission Test:** Depress the accelerator pedal, holding the engine speed between 2200-2800 RPM for 30 seconds
  - **Idle Emission Test:** Let the vehicle idle between 450-1200 RPM for 30 seconds; do not depress the accelerator
- The EIS will prompt when the test is complete
- Turn the vehicle, remove the probe from the tailpipe, and put away the probe
- Acceptable emissions vary according to vehicle model year and weight; analyzers automatically identify pass/fail results, but the following table shows the limits too:

MAXIMUM ALLOWABLE EMISSIONS						
Test Type	**Model Year***	**GVWR (lbs)**	**Idle Mode HC PPM**	**Idle Mode CO%**	**2500 RPM Test HC PPM**	**2500 RPM Test CO%**
OBD II	1996-newer	All to be tested*	N/a	N/a	N/a	N/a
Two-Speed	1991-1995	8,501-10,000	220	2.0	220	2.0
Two-Speed	1989-1995	6,001-8,500	220	1.2	220	1.2
Two-Speed	1991-1995	0-6,000	180	1.2	180	1.2

** Certain vehicles 1996 and newer which have been determined to be OBD-II non-compliant will be tested using the two-speed idle test. The EIS analyzer will recognize these and prompt you accordingly. The emissions standard of 100 ppm HC and 1.0% CO at idle and 2500 RPM will be used for these OBD-II incompatible vehicles.*

Step 7: Conduct Gas Cap Evaluation (2005 and older)

If the vehicle is 2005 and older, the gas cap will need evaluation. The EIS analyzer will guide you through the steps.

- After an OBD-II or two-speed test is complete, the next screen will show you the vehicle's year, make, model and a possible gas cap adapter type
- You'll be prompted to respond if the vehicle's gas cap is the **correct type** for the vehicle; select "YES" or "NO"
- You will be prompted **whether an adapter is available** to fit the vehicle's gas cap; select "YES" or "NO" – if no adapter is available, you must enter "NO"

NOTE: Less than 1% of vehicles will have no gas cap adapter – VPMD monitors when you input this during testing and will investigate if it is regularly selected.

- Make sure there are no caps on the gas cap checker and select "OK" to let the checker calibrate according to ambient pressure
- When prompted, place the vehicle's gas cap on the gas cap checker and adapter, then select **"Start Test"**
- The next screen will say whether the gas cap evaluation **PASSED** or **FAILED**
- Replace the gas cap on vehicle, then select **OK** to continue
- If the vehicle has more than one gas cap (when the vehicle has multiple gas tanks) select "YES" and repeat the gas cap evaluation with additional cap(s)
- Select "NO" on this prompt when you've checked all gas caps

Step 8: Conclude & Provide VIR to Customer

Now you will conclude the test. You should let the customer know if their vehicle passed or failed, and provide them a Vehicle Inspection Report (VIR) in physical and/or digital format. Further details on interpreting test results can be found in **Section 6** of this reference manual.

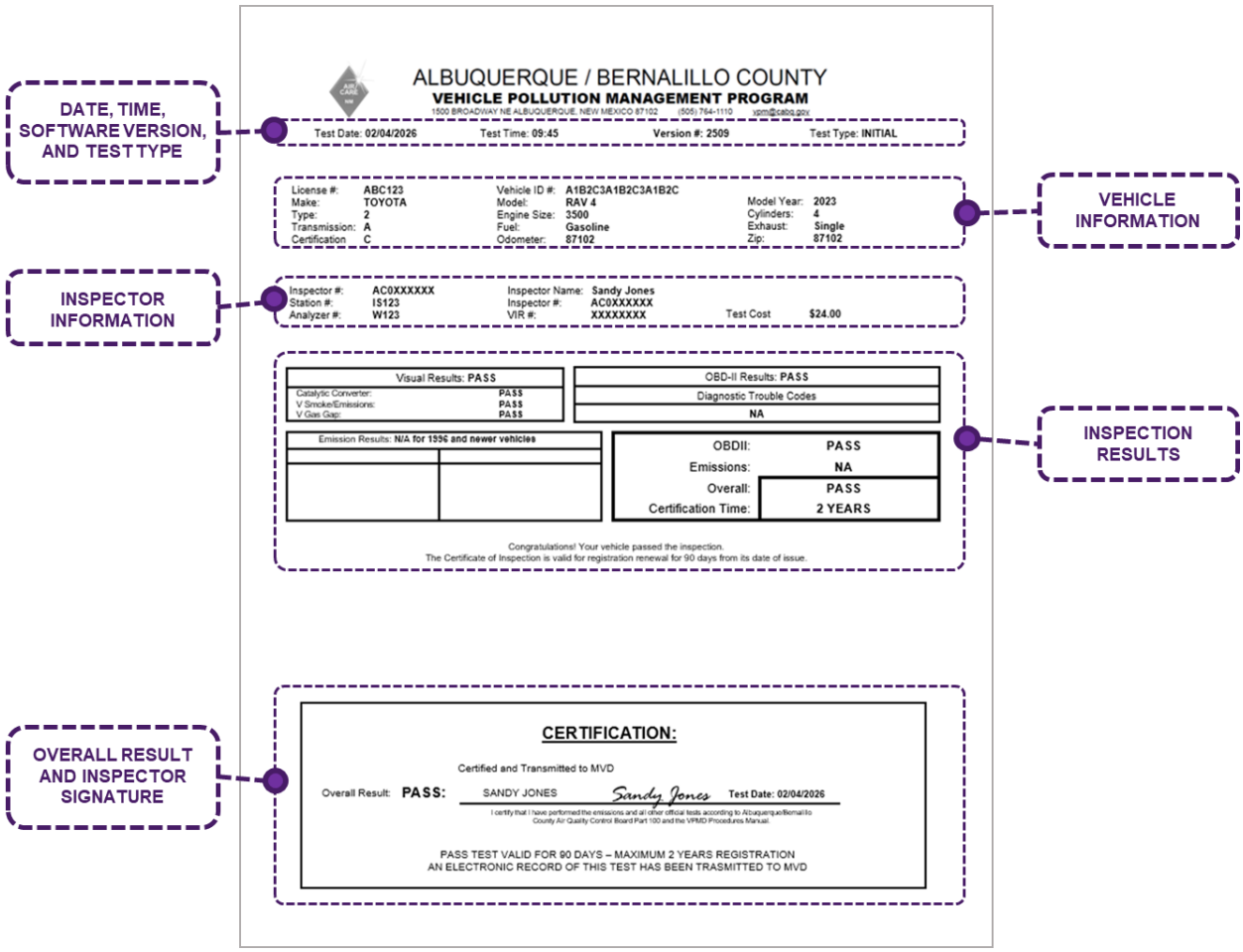
- If this was an *After-Repairs* test, the you'll be prompted to enter repair information:
  - **Repair Categories:** Enter "Y" or "W" in the boxes to say what types of repairs were done; use the tab or enter key to move through this list
  - **Cost:** Enter the repairs cost, rounded to the nearest whole dollar
- Enter the **inspection test cost** your station will charge, in dollars and cents
- At this point, the test is concluded and results are automatically sent to MVD; however, you should provide a VIR to the customer:
  - Print or email the VIR
  - If printing, wait while the VIR prints and troubleshoot as needed
  - Sign any printed VIRs
  - Let the customer know the overall inspection result and next steps

Section 6: Vehicle Inspection Reports (VIRs)

Report Overview

The EIS will produce a Vehicle Inspection Report (VIR) once the emissions inspection is successfully concluded. Each complete VIR includes:

- Test date, time, software version, and test type
- Vehicle information
- Inspector and station information, including VIR # issued
- Overall inspection results and result by sections
- Certification and inspector signature area – a certification will only appear here for passing vehicles



Providing VIRs to Customers

After an emissions inspection, you must provide the customer a copy of their inspection report.

In the Air Care Program, there are three ways an inspection report may be provided – the method(s) available to you will depend on your specific station's equipment and software. If you don't know which method to use, ask your Station Manager. The methods are as follows:

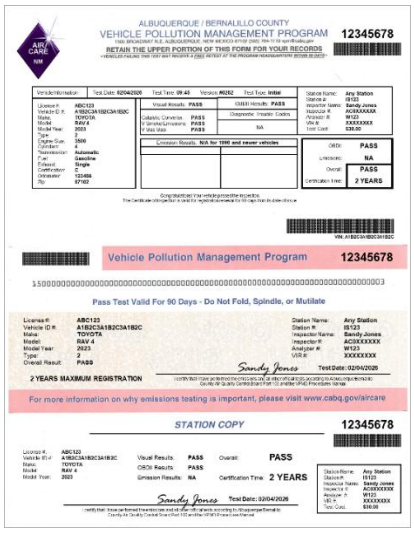
- **Email the VIR:** If your station has access to emailing VIRs and the customer requests it, you may select the "Email VIR" or "Print and Email VIR" button on the EIS analyzer to email the customer a VIR. A copy of the VIR can still be printed on standard paper, at your station's discretion, at no additional charge. VPMD will not charge your Station per printout on standard paper.
- **Print the VIR on Standard Print Paper:** If your station uses standard paper only, you can provide a printed VIR on standard 8.5 x 11-inch copy/print paper. You do not need to retain a Station copy or separate any portion of the certificate. VPMD will not charge your Station per printout on standard paper.
- **Print VIR on VPMD-Issued VIR Certificates:** If your station still uses VPMD-issued VIR certificate paper, inspection results will be printed on special 8.5 x 11-inch paper. A portion of each certificate must be retained for your station records (see Appendix IV for detailed instructions). Your Station will be charged $4.50 per printout, so be sure to notify your Station Manager or VPMD of any mistakes and correct the VIR sequence manually.

Regardless of how you provide results to the customer, a digital record of every inspection is automatically transmitted to the VID and, therefore, MVD.

The inspection result is valid for 90-days from the date of testing. If the customer doesn't register the vehicle within 90-days, they must obtain a new, passing emissions test.

VIR on Standard Print Paper

VIR on VPMD-Issued Certificate Paper



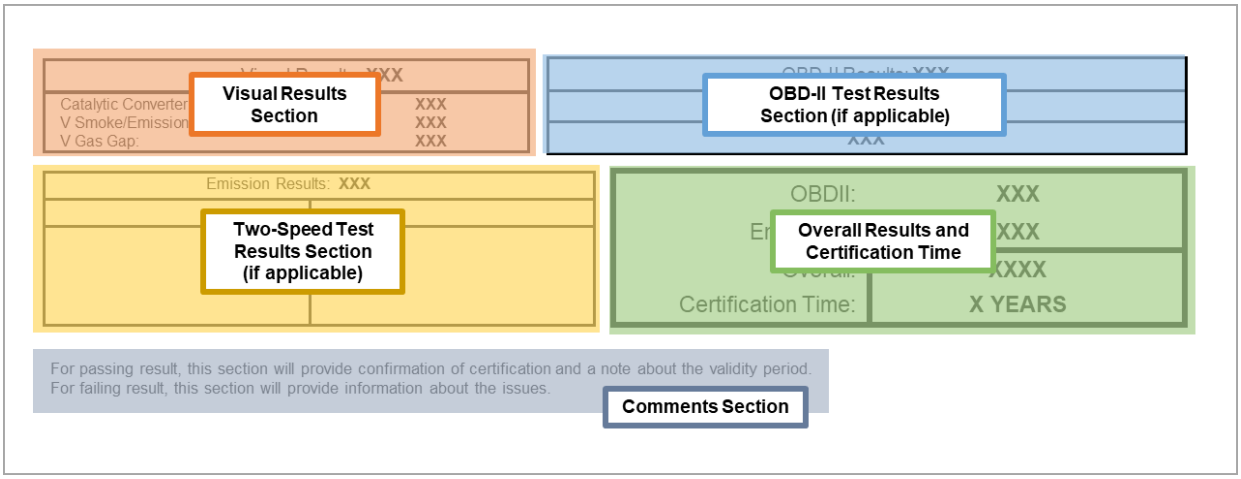
VIR Interpretation

Most emissions inspections will result in either an overall **PASS** or **FAIL** result for the vehicle. Occasionally an inspection will have an **INVALID** or **ABORTED** result.

- **Overall PASS:** This is called an Emissions Inspection Certificate. It indicates that the vehicle passed all portions of the inspection, and it can be now registered with MVD.
- **Overall FAIL:** Indicates that the vehicle did not pass one or more part of the inspection and repairs or adjustments are required. MVD will not accept its registration.
- **INVALID or ABORTED:** Indicates an incomplete emissions inspection.

If an overall PASS or FAIL result is generated from the inspection, MVD has received the result and you may charge the customer your station's standard fee. If the test is INVALID or ABORTED, the results are inadequate and you may not charge the customer.

Overall results are typically found in the bottom, right-hand corner of the VIR:



** Section position on the page may vary depending whether your station is using VPMD-issued certificate paper or standard print paper for issuing VIRs.*

A table in Appendix III can help you interpret each section of the VIR with more detail if needed.

Customer Reports

After producing a VIR, the EIS will also offer to print a Customer Report. Printing a Customer Report is optional. It does not affect how or whether the results are transmitted to MVD.

Although the dimensions and information are similar to that of a VIR, it is for information only and cannot be used for registration.

Failed Inspections

If a vehicle fails its emissions inspection, the owner must have it repaired and pass a retest, or obtain a time extension, before they can renew registration.

You must inform customers with a failed vehicle that they are entitled to a **free retest** at VPMD headquarters within 90-days of the initial test.

Retests may be conducted because the customer questions the accuracy of the initial test, or because they have since repaired the vehicle.

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Time Extensions

VPMD may issue time extensions for eligible vehicles in certain situations. In order to qualify for a time extension, the owner must bring the following to VPMD headquarters:

- ✓ An official failed emissions inspection no more than 90-days old
- ✓ A written estimate and/or repair receipt of $300+ from a licensed repair facility*
- ✓ Proof of ownership (last registration, title, bill of sale, etc.)
- ✓ Driver's license or government-issued ID

When a vehicle fails its emissions inspection, you must notify the customer about the time extension option. Only VPMD can issue extensions; Air Care Stations cannot.

** The owner may choose to repair the vehicle themselves or have it repaired by another individual or shop, but in order to qualify for a time extension, they must bring a quote from a licensed repair facility.*

Repairs

If your station is a licensed repair facility **("Inspection Repair")**, you may provide details about specific repairs, including those that may be necessary to pass a test. You may also provide them a quote for emissions-related repairs. You must not force customers to have their vehicle repaired by your facility, nor should you urge them to have repairs that are unnecessary and/or unrelated to emissions. Doing so may result in yours or your station's certification being revoked.

If your station is not a licensed repair facility **("Inspection Only")**, you may only advise the customer which items failed. Do not attempt to provide details about repairs needed.

Section 7: Quality, Compliance Assistance & Violations

Correcting Mistakes on Official Inspections

We're all human and mistakes happen. However, the customer should not have to deal with the consequences of an inaccurate test. If you realize you made a mistake, do the right thing for the customer and correct the error:

- Redo the test at no cost to the customer, with corrected information.
- Save a copy of the VIR from both the incorrect (original) and correct (second) test.
- Let your manager know so they can request a reimbursement of the station fee.

Quality & Compliance Assistance

The VPMD wants you to succeed. Our Air Care Program Auditors are here to help you and your station stay on track by:

- Clarifying and enforcing compliance requirements.
- Providing thorough training and resources
- Providing annual recertification, observation and personalized coaching
- Reviewing your station and equipment to make sure you have everything you need to conduct official emissions inspections

ASK FOR HELP: Call VPMD directly at 1 (505) 764-1110, then dial extension 5 for Inspector and Station Support.

How We Monitor Testing Quality

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The VPMD monitors information from multiple sources, to ensure Air Care Program rules and regulations are being upheld:

- **Data Analysis:** Our online database (the VID) contains data from every inspection conducted. This data is regularly analyzed for quality and evidence of violations.
- **Audits:** VPMD conducts two types of audits:
  - **Overt Audits:** A VPMD auditor observes testing procedures to ensure compliance, and the inspector and/or station will be made aware. This may happen at VPMD headquarters (as part of recertification) or at an Air Care Station (in the field).
  - **Covert Audits:** A VPMD auditor observes testing procedures to ensure compliance, and the inspector and/or station will not be made aware. This will only happen at an Air Care Station.
- **Whistleblowers:** Any member of the public may notify VPMD of potential violations.

Potential violations are thoroughly investigated to determine a course of action. The consequences of non-compliance depend on the frequency and severity of violation(s).

Violation Categories & Consequences

Violations are broken down into three categories based on how severe they are. This is not an exhaustive list of all possible infractions; VPMD may identify additional violations as technology and the Air Care Program evolves.

CATEGORY	EXAMPLES	CONSEQUENCES
Minor Violations These are small errors that don't typically change the vehicle's emissions inspection result but show carelessness or insufficient training.	• Simple data entry errors (typos) • Accidental VIN errors that don't change the outcome of the test • Incorrect test types entered • Not entering repair costs for After-Repairs tests • Forgetting to sign VIRs	• Formal warning • Additional training recommended
Serious Violations These are more serious mistakes which may or may not always be intentional, but can cause emissions inspection results to be wrong. This is harmful to the customer and to the general public.	• Passing vehicles with missing emissions controls • Entering wrong vehicle weight • Entering wrong exhaust type • Charging for invalid tests • Testing "cold" vehicles (two-speed) • Incorrect or missing equipment • Improper VIR handling and storage • Not posting inspection costs or incorrect costs posted	• Additional training required • Mandatory conferences • Possible suspension of certification until behavior(s) addressed
Intentional Violations These are deliberate actions where an inspector purposefully breaks Air Care Program rules or acts recklessly. This is harmful to the customer and public, and will be considered a violation of New Mexico Administrative Code (NMAC).	• Pre-testing* • Clean scanning or clean piping • Offering or accepting bribes • Temporarily replacing emission control devices • Tampering with emission control devices after a vehicle passes • Adjusting vehicle before or during inspection to influence outcome • Allowing someone who isn't certified to perform an inspection • Purchasing or using VPMD-issued certificate paper from anywhere besides VPMD	• Suspension or revocation of certification • Referral to criminal investigation in cases that may involve illegal activity

** If the station is also a licensed repair facility (ex: mechanic or dealership), the inspector may notify customer of clear issues prior to testing, such as an illuminated MIL/check engine light. VPMD will assess these scenarios on a case-by-case basis.*

Station & Inspector Access Revocation

VPMD maintains the right to revoke any certification, at any time, with or without proof of violations. This may happen if you or your station are suspected to be conducting emissions inspections in a dishonest or unprofessional manner.

Station Managers may also request that an inspector's access be declined or revoked. Access may be reinstated, subject to review and approval, by submitting the **Deactivating/Reversal of Deactivation** request form. This form is available in-person only at VPMD.

IMPORTANT: If your inspector certification is suspended or revoked, your access code will be deactivated until issues are resolved. You may not conduct inspections at any Air Care Station.

How We Handle Violations

VPMD actively tracks all violations. **Compliance Assistance Plans (CAPs)** may be enforced at an individual level or to an entire station.

Minor, individual violations typically result in a written warning and the offending inspector may be asked to attend training. Their Station Manager will be notified.

More serious and intentional violations can result in the inspector's certification being suspended or revoked until concerns are resolved.

When ongoing patterns of violation arise, VPMD will investigate further, with or without immediate notice. These proceedings take time. You may not be aware your inspection outcomes are being investigated until you receive formal written notice of VPMD's concern.

If violation patterns suggest illegal activity may be taking place, the accused may be referred to legal bodies for criminal investigation as well.

Furthermore, Station Managers will be held responsible if their inspectors aren't supervised properly. If an entire Air Care Station is flagged due to multiple inspectors committing violations, that station will be similarly investigated and held accountable.

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Your Rights in an Investigation

If you are accused of serious or ongoing violations, the VPMD will formally notify you in writing. You have the right to appeal or ask for a hearing. If this occurs, follow the instructions in the paperwork you receive.

Appendices

Appendix I: Inspector & Station Supplies Required

Certified Air Care Stations must have adequate technology, materials, and signage to conduct official testing. The following checklists outline minimum requirements for each.

EIS Analyzer Requirements

- ☐ A dedicated internet network connection
- ☐ A dedicated 120v electrical outlet

Station Materials Checklist

- ☐ A full extra high gas bottle
- ☐ A full extra low gas bottle
- ☐ Two (2) new spare flex probes
- ☐ A dual exhaust tee connector
- ☐ A narrow-gauge probe for spark arrestor exhaust
- ☐ Two (2) leak check caps
- ☐ Six (6) spare filters for sample probe
- ☐ Extra ream of copy paper for printer
- ☐ Gas cap adapter set – includes one (1) red FAIL cap, one (1) green PASS cap, and 12 adapter rings:
    - Tan with grey ring
    - Orange with grey ring
    - Cream
    - Yellow
    - Grey
    - Threaded green
    - Dark green
    - Dark blue
    - Light blue
    - Red with white ring
    - Black with white ring
    - Pink
- ☐ A mirror positioned for observation of vehicle emissions (including smoke)
- ☐ An up-to-date emission control system application guide, hard copy or digital (ex: Mitchell or Motor manual)
- ☐ An up-to-date gas cap application guide, hard copy or digital (ex: Stant)

Station Signage and Documentation

- ☐ Accurate, clearly visible signage with station hours and inspection fees
- ☐ Current Station and Inspector certificates and/or badges, visibly posted
- ☐ Customer consent forms for testing*

** Air Care Stations are permitted to have customers sign a consent form, stating that the station is authorized to test the vehicle, and that the customer will pay the posted inspection fee. Having a signed consent form may help the station in the event of a dispute.*

Appendix II: VIN Decoding

Overview of VIN Numbers:

VIN numbers are combinations of 17 characters, including digits and capital letters. VIN numbers encode specific vehicle details like manufacturer, year, brand, make, model, trim level, and more. Every vehicle has a unique VIN which is used to track its inspection history, recalls, registration, warranties, theft, and insurance – that's why it's so important to conduct accurate emissions tests.

Possible Locations of the VIN Number:

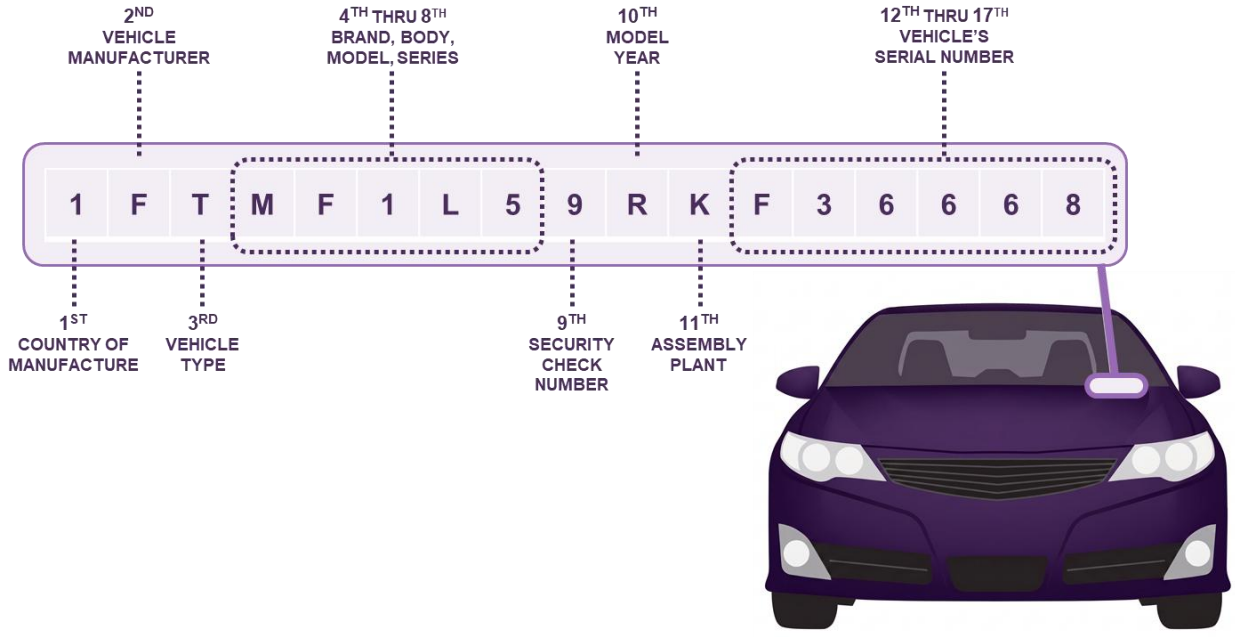
The best, most accurate VIN to use for testing is found on the driver's side dashboard near the windshield. The VIN may also be found printed on the door jamb sticker, etched in windows, or stamped on the front surface of the engine block.

Decoding the VIN Number:

The easiest way to decode a VIN is by typing it into online search function, like the NHTSA VIN Decoder site (https://vpic.nhtsa.dot.gov/decoder/). However, you can manually decode certain parts of the VIN by using the table below and conversion charts on the following pages.

#	CORRELATES TO VEHICLE'S…
1	Country of manufacture
2	Manufacturer (make)
3	Type (car, truck, SUV, etc.)
4-8	Body, engine size, model, series

#	CORRELATES TO VEHICLE'S…
9	Security check number, validity
10	Model year
11	Assembly plant of the vehicle
12-17	Unique serial number



VIN to Model Year Conversion Chart:

Find the row containing the 10th character of the vehicle's VIN. Pick column based on whether the 7th character of the VIN is a number or letter. That box will contain the vehicle's model year.

10TH CHARACTER OF VEHICLE'S VIN	WHEN 7TH CHARACTER OF VIN IS A NUMBER	WHEN 7TH CHARACTER OF VIN IS A LETTER
A	1980	2010
B	1981	2011
C	1982	2012
D	1983	2013
E	1984	2014
F	1985	2015
G	1986	2016
H	1987	2017
J	1988	2018
K	1989	2019
L	1990	2020
M	1991	2021
N	1992	2022
P	1993	2023
R	1994	2024
S	1995	2025
T	1996	2026
V	1997	2027
W	1998	2028
X	1999	2029
Y	2000	2030
1	2001	2031
2	2002	2032
3	2003	2033
4	2004	2034
5	2005	2035
6	2006	2036
7	2007	2037
8	2008	2038
9	2009	2039

VIN to Weight Conversion Chart:

Find the row containing the 4th character of the vehicle's VIN. Pick column based on the vehicle's make or manufacturer.

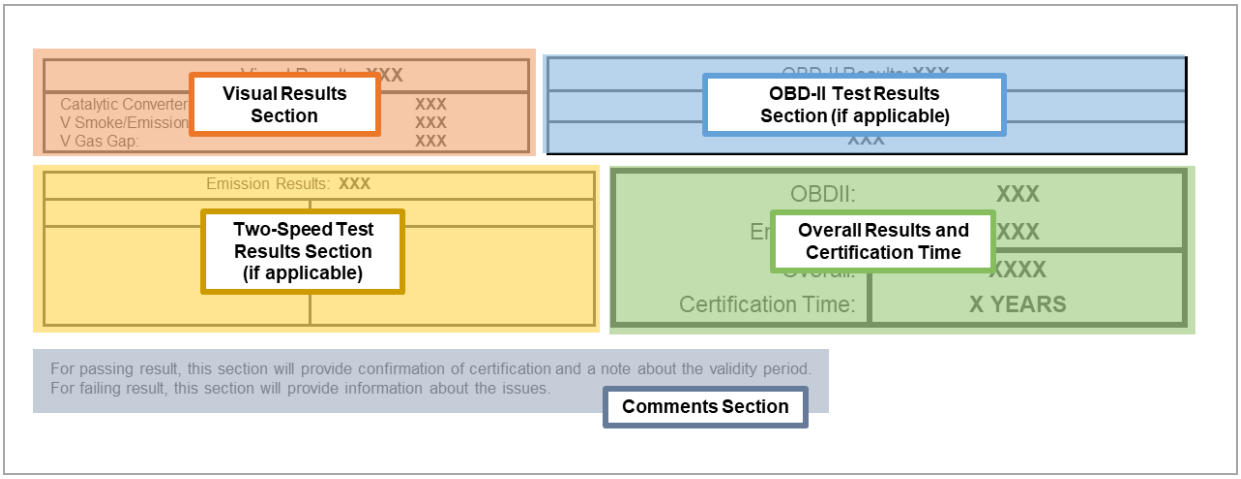
4TH CHARACTER OF VEHICLE'S VIN*	GENERAL MOTORS	FORD MOTOR COMPANY	CHRYSLER MOTOR COMPANY
A	-	0-3,000 lbs	-
B	3,001-4,000 lbs	3,001-4,000 lbs	-
C	4,001-5,000 lbs	4,001-5,000 lbs	-
D	5,001-6,000 lbs	5,001-6,000 lbs	1-3,000 lbs
E	6,001-7,000 lbs	6,001-7,000 lbs	3,001-4,000 lbs
F	7,001-8,000 lbs	7,001-8,000 lbs	4,001-5,000 lbs
G	8,001-9,000 lbs	8,001-8,500 lbs	5,001-6,000 lbs
H	9,001-10,000 lbs	8,501-9,000 lbs	6,001-7,000 lbs
J	10,001-14,000 lbs	9,001-10,000 lbs	7,001-8,000 lbs
K	14,001-16,000 lbs	10,001-14,000 lbs	8,001-9,000 lbs
L	-	14,001-16,000 lbs	9,001-10,000 lbs
M	-	16,001-19,500 lbs	10,001-14,000 lbs

** Use with discretion; chart provides a general range and applies only to certain makes of truck.*

Appendix III: Inspection Results & Detailed Interpretation

Here's a key to interpreting the inspection results by each subsection. You do not need to describe all results to a customer, but it may be useful to know just in case you are asked.

Test Results Section Key



RESULTS SECTION		DETAILED INTERPRETATION
Overall Inspection Results and Certification Time	**OBD-II**	• **PASS:** The vehicle passed the OBD-II portion of the test. • **FAIL:** The vehicle failed the OBD-II portion of the test, or the test was aborted by the inspector before it was complete. • **ABORTED:** If the OBD-II Result section (in blue) was NOT READY, the overall OBD-II section will read FAIL. This may also occur if the OBD-II connector wasn't reading or inaccessible. • **NA:** The OBD-II test was not performed on this vehicle
	Emissions	• **PASS**: The vehicle passed the two-speed portion of the test. • **FAIL:** The vehicle failed the two-speed portion of the test, or the test was aborted by the inspector before it was complete. • **NA:** The emissions analysis was not performed on this vehicle.
	Overall	• **PASS:** The vehicle passed all parts of the inspection and can now be registered with MVD. This result is called an official Emissions Inspection Certificate. • **FAIL:** The vehicle failed one or more part of the inspection. It cannot be registered with this outcome. Details of what caused the failing result will be printed beneath the results table. • **ABORTED:** If the inspection is aborted by the inspector at any time, the Overall Result section will read ABORTED and all other sections will read N/A.
	Certification Time	• **2 YEARS:** Vehicle can be registered for two years. • **1 YEAR:** Vehicle can be registered for only one year due to elevated emissions – only occurs with two-speed (tailpipe) tests.

RESULTS SECTION		DETAILED INTERPRETATION
Visual Results Section	**Overall Visual Results**	• **PASS:** Vehicle passed all three parts of the Visual Inspection section: (1) Catalytic Converter, (2) V Smoke/Emissions, and (3) V Gas Cap. • **FAIL:** Vehicle failed any of the Visual Inspection elements.
	Catalytic Converter	• **PASS:** Vehicle passed visual inspection of catalytic converter(s). • **FAIL:** Vehicle failed visual inspection of catalytic converter(s).
	Visible Smoke / Emissions	• **PASS:** Vehicle passed because smoke was not present. • **FAIL:** Vehicle failed because smoke was present.
	Gas Cap	• **PASS:** Vehicle passed the Gas Cap test. • **FAIL:** Vehicle failed the Gas Cap test. • **N/A:** Vehicle is not subject to a Gas Cap test (2006 or newer) or there was no adapter available. N/A in this field will not lead to a fail of the Visual Results or Overall Results.
Emission Results Section	**Two-Speed Emission Results**	• **PASS:** Vehicle passed the two-speed portion of an inspection. • **FAIL:** Vehicle failed the two-speed portion of an inspection. • **N/A for 1996 and newer vehicles:** Vehicle was not subject to a two-speed test; it will have an OBD-II test result.
	High Speed RPM	• **HC (hydrocarbon):** Numerical reading and limit • **CO (carbon monoxide):** Numerical reading and limit • **CO2 (carbon dioxide):** Numerical reading • **O2 (oxygen):** Numerical reading
	Low-Speed RPM	• **HC (hydrocarbon):** Numerical reading and limit • **CO (carbon monoxide):** Numerical reading and limit • **CO2 (carbon dioxide):** Numerical reading • **O2 (oxygen):** Numerical reading
OBD-II Results Section	**OBD-II Results**	• **PASS:** The vehicle passed the OBD-II portion of the test. • **FAIL:** The vehicle failed the OBD-II portion of the test due to Diagnostic Trouble Codes (DTC) or a MIL (check engine light) failure. If DTC, the code(s) will be listed in the box below. • **NOT READY:** Means three or more readiness monitors (ex: O2 Sensor, Evap) are not ready and the vehicle needs to complete a drive cycle. Before retesting, the vehicle must be driven steadily at 55-60mph for 15 minutes and in stop-and-go traffic for another 15 minutes on the same key start. If the error persists after retesting, the vehicle should be taken to a mechanic. • **N/A:** Vehicle was not subject to an OBD-II test; it will have a two-speed test result.
	Diagnostic Trouble Codes	• Any DTC error codes produced by the engine will be listed here. These will typically, but not always, cause a vehicle to fail the test overall.

Appendix IV: VPMD-Issued Certificate Paper

Handling Inspection Results on VPMD-Issued Certificate Paper

Depending on your station's current EIS software, you may be using VPMD-issued VIR certificate paper.

Each certificate is pre-printed and perforated so it can be divided into three segments after printing. What happens to each segment depends on the inspection outcome:

Vehicle PASSED

- Sign and date all segments (1), (2), and (3).
- Provide segments (1) and (2) to customer. Segment (1) is the customer's copy of results. Segment (2) is the Emissions Inspection Certificate they give to MVD for registration. Do not bend, fold, or detach.
- Separate segment (3) and keep for your station's files. This is a station copy and official record of the test.

Passed VIR certificate

Vehicle FAILED

- Sign and date all segments (1), (2), and (3).
- Provide only segment (1) to customer. This is the customer's copy of the failed inspection.
- Separate segments (2) and (3) and keep both for your station's files.

Failed VIR certificate

If the vehicle fails, explain that the customer may apply for a 1-year limited time extension if the cost of fixing emissions-related issues is over $300. To apply for an extension, the customer must bring the following to VPMD Headquarters (1500 Broadway):

- ☐ An official failed emissions inspection less than 90-days old
- ☐ A written estimate and/or repair receipt of $300+ from a licensed repair facility, for emissions-related repairs
- ☐ Proof of vehicle ownership (registration, title, bill of sale, etc.)
- ☐ Driver's license or government-issued ID

IMPORTANT: Regardless of the inspection outcome, the bottom portion of every VPMD-issued certificate page must be retained for your station's files. Two years of these records should be securely stored in numerical order, ready to present or surrender to VPMD staff in case of an audit.

Correcting a VIR Sequence Number for Problematic VPMD-Issued Certificate Paper

If any VPMD-issued VIR paper is misprinted, voided, or you make a mistake and correct the test for a customer, you must also manually correct the VIR sequence in the EIS analyzer. There are two ways to correct the VIR sequence:

After a VIR Prints (after an official inspection)

- After a VIR prints, the EIS analyzer will prompt you to check the printed VIR number: "Is the VIR number XXXXXXXX? YES or NO".
- If the VIR number doesn't match, select "NO".
- In the next prompt, enter the actual number from the VIR that printed.
- The EIS will ask to verify the new number against what was printed – select "YES" if correct or "NO" to correct it again.
- The EIS will ask what happened to the unused VIR certificates – select the appropriate response:
    - Damaged
    - Voided
    - Missing/Stolen
- The EIS will show that the printed VIR was found and determine how many VIRs are missing – select OK or enter to proceed.
- You'll be prompted to report any missing VIRs to VPMD and request a notification form – select OK to proceed.
- Wait while the EIS reprints the VIR for customer use; select "YES" when the VIR prints or "NO" if it doesn't print correctly.
- VIR numbering should now be correct – sign the corrected VIR and provide to customer.
- Sign and void the first VIR with improper numbering and file.

From the Station Menu (at any time)

- You can correct the VIR sequence at any time from the Station Menu.
- Select "Enter Damaged/Missing VIR" (option may vary depending on your station's equipment and software).

Handling Unusable/Voided Certificates

When correcting a sequence error, be sure to void and retain all unusable VPMD-issued certificates. Notify your Station Manager anytime this happens. Your station is charged $4.50 for each sheet of certificate paper used, so VPMD can be notified to get credit for any unusable certificate sheets used.

Loading VPMD-Issued Certificate Paper

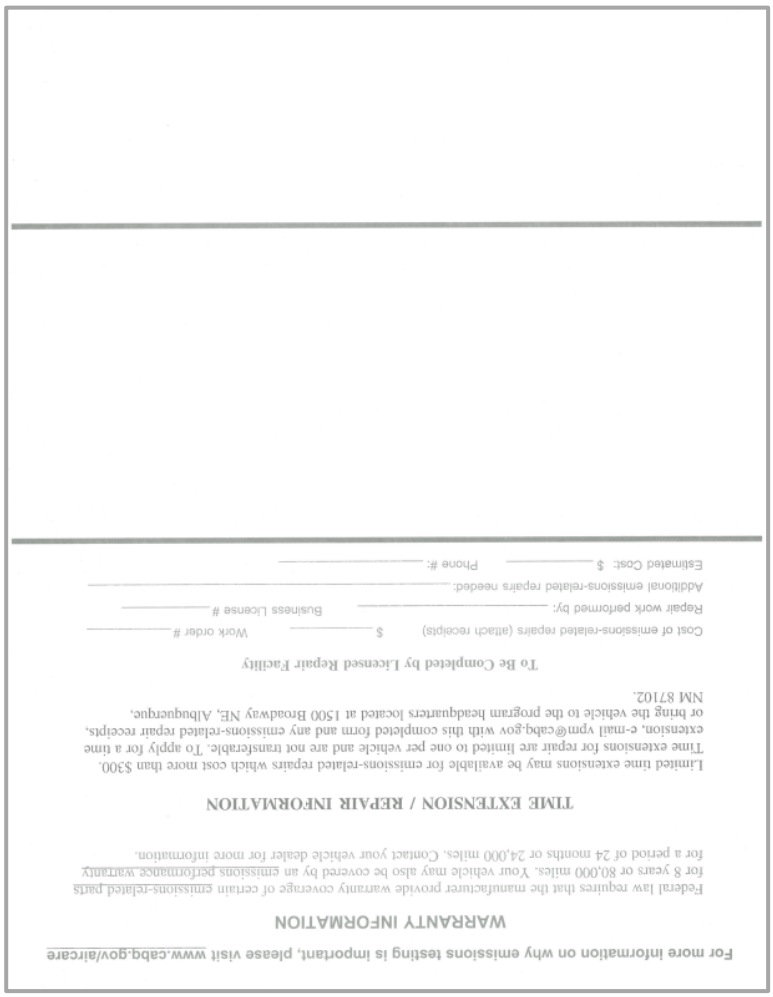
Before Loading Certificates

- Only load one package of 100 certificates in EIS printer at a time
- Only load a new pack of certificates when the analyzer is completely out of certificates
- Remove wrapper, carboard, and cover sheet before loading the certificates

When Scanning Certification Number Bar Codes

- Cover ending number when scanning starting number
- Cover starting number when scanning ending number

PRINTER



YOU

CERTIFICATES FEED THIS DIRECTION

Bottom (blank end) of form should be near the printer.

Top of the form should be near to you**.**

THIS SIDE UP

Load certificates with the back facing you (back side has the warranty, time extension, and repair info).

The front of certificates must be facing down (front side has the inspection results and Air Care logo).

Appendix V: Learn More About OBD-II Technology

Overview of the OBD-II:

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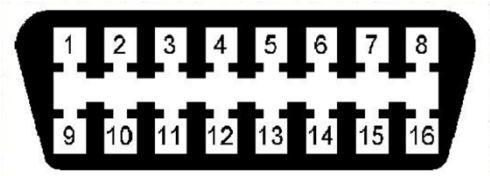
What we call Onboard Diagnostics, Second Generation (OBD-II) is a universal connector used to perform vehicle diagnostics. Sometimes it is also referred to as a Data Link Connector (DLC).

Scanners are plugged into the OBD-II to communicate directly with the vehicle's built-in computer. This allows them to track and report issues with engine performance, emissions, and other critical systems. Any issues detected are read out as Diagnostic Trouble Codes (DTCs), also known as trouble codes or fault codes.

The OBD-II port consists of a 16-pin connector found in almost all modern vehicles. Many pins are standardized across all vehicles:

- **Pins 2 & 10:** BUS positive and negative pins.
- **Pins 4 & 5:** Chassis and signal grounds.
- **Pins 6 & 14:** CAN high and low.
- **Pins 7 & 15:** K- and L-line.
- **Pin 16:** Battery power, either 12V or 24V, depending on the vehicle.



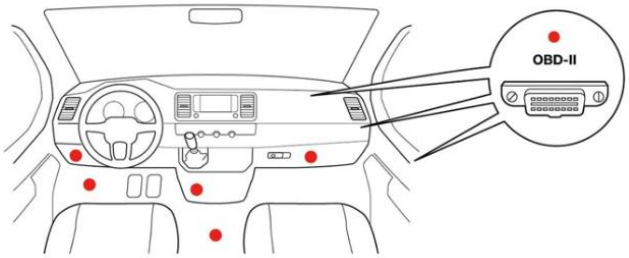
OBD-II pin numbering

Pins 1, 3, 8, 9, 11, 12, and 13 are non-standard and their function varies across manufacturers. They are not needed for emissions inspections.

Possible Locations of the OBD-II/DLC Port:

The OBD-II port is usually under the steering column or dashboard on the driver's side, but it may vary. Here are the possible locations of an OBD-II port:

- **Underneath the steering column:** In the middle, left, or right of the steering wheel beneath the dashboard. For 2010 and newer, it will almost always be on the left.
- **Near the middle console:** Below the "infotainment" system or around the gear shifter.
- **Driver's side kick panel:** Close to the fuse box.
- **Under the driver's seat:** For various commercial vehicles.
- **Inside the glove box or passenger-side dashboard:** This is fairly uncommon but occasionally the case for European and luxury vehicles.



Possible locations of the OBD-II port

If you ever have trouble finding the OBD-II port for a vehicle, you can search the internet, ask your Station Manager, or contact VPMD for help (1-505-764-1110, extension 5).

OBD-II Trouble Codes:

OBD-II trouble codes are triggered when a vehicle's computer detects a malfunction in one or more of its systems. Emissions-related faults are indicated by certain codes, usually in a range of **P01XX**, **P03XX**, or **P04XX**. Failed OBD-II tests will list trouble codes on the VIR. Here are some common emissions-related OBD-II trouble codes you may see, and their potential causes:

SYSTEM/CATEGORY	CODES	DESCRIPTION & POTENTIAL CAUSES
Catalyst System	P0420 P0430	**Catalytic converter efficiency is below its threshold.** The converter isn't cleaning tailpipe emissions effectively. Often caused by a worn converter, failing O_2 sensors, or an internal engine leak.
Evaporative Emission (EVAP)	P0440 P0455 P0442	**System leaks.** Fuel vapors are escaping. Frequently caused by something as simple as a loose, missing, or degraded gas cap.
	P0446 P0456	**Control malfunction or a very small leak.** Points to a bad EVAP canister vent solenoid or a very minor leak in the vapor lines.
Oxygen, Air, Fuel Sensors	P0131 thru P0141	**Sensor or heater circuit faults.** Failing O2 sensor, incorrect voltage, or a broken internal heater circuit.
	P0171 P0174	**System too lean.** Too much air or not enough fuel. Commonly caused by a vacuum leak or unmetered air entering the engine.
	P0101	**Mass air flow (MAF) sensor circuit.** The MAF sensor is miscalculating the amount of air entering the engine, throwing off the fuel mix.
Engine Misfires	P0300	**Random or multiple cylinder misfire.** Engine is misfiring across multiple cylinders at random, sending unburned fuel into the exhaust.
	P0301 thru P0308	**Single cylinder misfire.** Misfire is detected in a specific cylinder (the last digit tells you which cylinder it's in, like P0303 for cylinder 3).
Exhaust Gas Recirculation (EGR)	P0401 P0402	**Incorrect EGR Flow.** Insufficient or excessive exhaust gas recirculation. Usually due to carbon buildup clogging the passages or a stuck valve.
	P0403 thru P0406	**EGR circuit faults.** Electrical faults, broken wiring, or solenoid failures within the EGR control system.

Appendix VI: Learn More About Vehicle Emissions & Exhaust

Internal Combustion & Exhaust Analysis:

Vehicle engines use internal combustion to generate heat and power. This chemical reaction produces enough power to move heavy objects like a car. However, the process also results in exhaust – remnants of the fuel and chemical reactions those have with our atmosphere.

Let's take gasoline, for example, which is essentially a hydrocarbon. Perfect combustion would convert all the gasoline into just carbon dioxide (CO_2), water vapor (H_2), and nitrogen – relatively harmless chemicals. But real-world engines aren't perfect, and vehicles emit all these plus other, more harmful, substances into the air.

Well-maintained engines have fewer emissions. Poorly maintained engines are likely to develop issues leading to higher emissions and possible inspection failure. Analyzer systems like the EIS you use look at the amount of 4 specific emissions to diagnose an engine's health:

- **Hydrocarbons (HC):** The analyzer measures HC, which is unburned fuel exiting the vehicle's system. High HC levels indicate incomplete combustion, which can be caused by a weak spark, incorrect air-fuel ratio, engine misfires, or valve timing issues.
- **Carbon Monoxide (CO):** The analyzer also measures CO, which is partially burned fuel. High CO results from an excess of fuel and not enough oxygen in the cylinder to burn the hydrocarbons off completely.
- **Carbon Dioxide (CO_2):** CO_2 exiting the system represents completely burned fuel. CO_2 levels indicate the overall efficiency of the combustion process. A high CO_2 percentage (typically 12-15%) means the engine is burning the hydrocarbon fuel well.
- **Oxygen (O_2):** The analyzer measures how much free, unreacted oxygen is left in the exhaust. High O_2 emissions means the engine is running "lean" (too much air), while low O_2 means the mixture is running "rich" (too much fuel).

Why It Matters:

Some of these chemicals are very dangerous to people, animals, and the environment:

- **Hydrocarbons:** Many HCs are toxic and known to cause cancer. HCs also react with nitrous oxides (NO_x) in our atmosphere, forming ground-level ozone (O_3). The ozone layer in Earth's atmosphere is extremely important and protects us from the sun's ultraviolet rays, but O_3 at ground level is harmful – it damages plants and leads to serious health problems in living creatures.
- **Carbon Monoxide:** CO is colorless, odorless, and highly toxic. In low doses, it can cause headaches, dizziness, poor mental health, and heart problems. In high doses, CO causes breathing issues and can cause you to suffocate.

AI-generated image

The vehicle emissions inspections you conduct help keep these harmful chemicals out of the air we breathe in Albuquerque-Bernalillo County.

Appendix VII: Glossary of Terms

ACRONYM	FULL TERM
ASE	[National Institute for] Automotive Service Excellence
A/F	Air/Fuel
BAR	Bureau of Automotive Repair
CAP	Compliance Assistance/Performance Audits
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CO_2	Carbon Dioxide
DAD	Data Acquisition Device
DLC	Diagnostic Link Connector
DTC	Diagnostic Trouble Code
EHD	Environmental Health Department
EIS	Emissions Inspection System
EPA	Environmental Protection Agency
GVW	Gross Vehicle Weight
GVWR	Gross Vehicle Weight Rating
HC	Hydrocarbon
HEV	Hybrid Electric Vehicle
HP	Horsepower
I&M or I/M	Inspection and Maintenance
KOEO	Key On Engine Off
KOER	Key On Engine Running
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MCO	Manufacturer's Certificate of Origin
MIL	Malfunction Indicator Light (also called “Check Engine Light”)
MPH	Miles Per Hour
MVD	Motor Vehicle Division
NDIR	Non-Dispersive Infrared
NIST	National Institute of Standards and Technology
NMAC	New Mexico Administrative Code, also called “Part 100”
NO_x	Oxides of Nitrogen
O_2	Oxygen
OBD-II	On-Board Diagnostics II
PPM	Parts Per Million
PHEV	Plug-In Hybrid Electric Vehicle
PCV	Positive Crankcase Ventilation
QA	Quality Assurance
RPM	Revolutions Per Minute
SCCL	Safety Compliance Certification Label
VECI	Vehicle Emission Control Information
VID	Vehicle Inspection Database
VIN	Vehicle Identification Number
VIR	Vehicle Inspection Report
VPMD	Vehicle Pollution Management Division

Appendix VIII: Frequently Asked Questions (FAQs)

Vehicle Eligibility:

- **A customer came in with a diesel-powered vehicle, saying the MVD is requiring them to test it. What should I do?**

  Let the customer know that diesel vehicles are not subject to testing and there may be an error in the vehicle's registration record with MVD. They should proceed to MVD to have their registration checked and corrected.

- **A customer came in with a vehicle with GVWR 10,001 pounds or more, saying the MVD is requiring them to test it. What should I do?**

  Let the customer know vehicles over GVWR 10,000 pounds are not subject to testing and there may be an error in the vehicle's registration record with MVD. They should proceed to MVD to have their registration checked and corrected.

OBD-II Testing:

- **Where can I find the OBD-II/DLC connector port?**

  The port is usually in an open location under the driver's side dashboard. You can search the internet or refer to Appendix V for other possible locations. The vehicle's user manual and the EIS will also contain detailed recommendations for finding the port.

- **What should I do if the vehicle's OBD-II connector is missing, damaged, tampered, or cannot be located?**

  If the OBD-II connector is missing, damaged, tampered, or cannot be located, you can select that option on the appropriate screen while administering the test. The vehicle will fail its emissions test if the OBD-II is inaccessible.

Lost VIRs/Certificates

- **The customer lost their Emissions Inspection Certificate, and they've requested another copy so they can register the vehicle. What should I do?**

  All inspection results are electronically transmitted by EIS analyzers to the VID (and therefore, MVD) so the customer does not need to have the certificate for registration. If they still want a copy of their results, a Customer Report can be produced only by the exact EIS analyzer that conducted the original test. They can also present the customer copy of the VIR or the Customer Report at VPMD for a free retest of the vehicle.

OBD-II Testing:

- **I forgot my analyzer access code or PIN. What should I do?**

  Visit VPMD headquarters with a photo ID to recover your access code. You may call ahead to let us know you're coming, but access codes can't be provided over the phone.

- **I lost my Air Care Inspector badge. What should I do?**

  This is an official credential, and there's a limit to the number of badges you can be issued. Take care not to lose it. However, if it does happen, visit VPMD headquarters with a photo ID.

Appendix IX: Additional Resources

RESOURCE	QR CODE
Albuquerque-Bernalillo County Air Care Inspector Reference Manual Link to the updated Air Care Inspector Reference Manual. If you're looking at a downloaded (offline) or physical print copy of the Manual, you can open this link to see if there's a newer version of it available online.	
Albuquerque-Bernalillo County Air Care Inspector Resources This page is a dedicated resource for individuals seeking to become or maintain their status as Air Care Inspectors. It outlines the specific training and certification processes required to legally perform vehicle emissions testing in Albuquerque and Bernalillo County.	
Albuquerque-Bernalillo County Vehicle Emissions Testing Information This is the official portal for the Albuquerque and Bernalillo County Vehicle Pollution Management Program. The page provides practical information regarding mandatory emissions testing, such as which vehicles are eligible and where they can get tested.	
Gas Cap Application Guide (Stant, 2016) This reference document can be used to identify gas/fuel caps for specific vehicle makes, models, years, and engine types.	
New Mexico Motor Vehicle Division (MVD) Home Page The MVD homepage is the hub for driver and vehicle services in the state of New Mexico. Residents have access to self-service tools and essential information such as renewing vehicle registration and appointment scheduling.	
New Mexico Administrative Code Part 100 (Vehicle Emissions) New Mexico Administrative Code (NMAC) Part 100 "Motor Vehicle Inspection – Decentralized" describes the rules and requirements for the Albuquerque-Bernalillo County Vehicle Pollution Management Program.	
On-Board Diagnostic Test Reference, Bureau of Automotive Repair A summary of pass/fail standards for the OBD test portion of an inspection and instructions for handling vehicles with known OBD test difficulties. See Section E: Permanent diagnostic trouble code vehicles of interest of the page for known OBD-II issues related to specific makes and models.	
VIN Decoder Tool This page features a VIN decoder tool hosted by National Highway Traffic Safety Administration (NHTSA). It allows users to input a 17-character VIN and learn specific information about the vehicle, including its make, model, and location of manufacture.	

Appendix X: Quick Access to Inspector Forms & Modules

FORM NAME, DESCRIPTION & LINK	QR CODE
Initial Application and Introduction to Emissions Testing Complete this application to express interest in becoming an Air Care Inspector. You'll input your details and get a quick overview of the program. Scan the QR code on mobile or type on a browser: https://forms.gle/BBrRXXsKobttyG1R8.	
Module A: Being an Air Care Inspector and Maintaining the Analyzer Learn what it means to be an Air Care Inspector and how to operate and maintain the analyzer equipment. Scan the QR code on mobile or type on a browser: https://forms.gle/6vcJqcQiKAp2jNsL9.	
Module B: Overview of Performing an Emissions Inspection Explore the steps of performing an official emissions inspection in the Air Care Program. Scan the QR code on mobile or type on a browser: https://forms.gle/Xc4r8Uq1ghXR2pH39.	
Module C: The OBDII Test Learn about conducting the OBD-II test on vehicles 1996 and newer. Scan the QR code on mobile or type on a browser: https://forms.gle/hr1niEvu1yqtQMtZ6.	
Module D: The Two-Speed Test Learn about conducting two-speed (tailpipe) tests on vehicles 1995 and older. Scan the QR code on mobile or type on a browser: https://forms.gle/yUFJzJD1RQ4u1jy19.	
Module E: Review and Preparation for Practical Training at VPMD Recap the information covered in the virtual training and complete a quiz. At the end of the quiz you'll be prompted to schedule your practical training. Scan the QR code on mobile or type on a browser: https://forms.gle/tt1hAaQs2vuc36Dw8.	
Inspector Request for Station Emissions Access (Addendum) Submit this form to request access to testing on your station's analyzers. You must submit this form if you change stations. Scan the QR code on mobile or type on a browser: https://forms.gle/GbRQnnpbKBC8VWKX6.	
Recertification Application Input your details, review the testing process, and complete a quiz before attending your recertification appointment at VPMD. Scan the QR code on mobile or type on a browser: https://forms.gle/eptPG8uiYdqikwjK9.	

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