The Connecticut Vehicle Inspection Program

NEW CTI TRAINING, *VERSION3.060623*

These training materials are to be used by **new applicants only**, in preparation for the Certified Testing Inspector (CTI) exam.

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Chapter 1: The Emissions Program Overview

Why do we need an emissions program?

Why do we need an emissions program?

- Emissions testing is done for one simple reason – to reduce the amount of pollution created by automobiles on the road today.

- Motor Vehicles contribute 36% of man-made pollutants that contribute to the formation of ozone. Emissions Inspections are important to ensure that your car is not producing excess pollution. This can happen for several reasons, including a deteriorating exhaust system, problems with engine components, and more. To help ensure that such maintenance occurs, the Clean Air Act requires certain areas with air pollution problems to run inspection and maintenance (I/M) programs.

- Breathing ozone can trigger a variety of health problems, therefore reduction of ground level (bad) ozone protects our health. The EPA 8-hour ozone standard is designed to protect human health.

Why do we need an emissions program?

- Connecticut's Inspection and Maintenance (I/M) Program is an important part of the strategy to ensure that Connecticut is positioned to attain the National Ambient Air Quality Standard for Ozone and provides a corollary benefit in particulate matter reduction.
- Connecticut's I/M Program dates to 1983, and with a long history of effectively minimizing vehicle emissions, it has resulted in more emission reductions than any other state implemented air pollution control strategy. These emission reductions are an integral part of our air quality attainment efforts and are important as part of a balanced strategy that includes reductions from stationary, area, and mobile source sectors.

Health Effects

There are three major pollutants that come from cars:

- Particulate Matter —a mixture of solid particles and liquid droplets found in the air that contribute to atmospheric haze and can damage your lungs and get into your bloodstream.
- Carbon Monoxide (CO) —cars emit carbon monoxide when fuel is burned. Breathing air with a high concentration of CO affects critical organs like your heart and brain. According to the EPA, as much as 95 percent of all CO emissions in cities may come from motor vehicle exhaust.
- Nitrogen Dioxide (NO2) —when fuel burns, nitrogen and oxygen react with each other and form nitrogen oxides (NOx). NO2 forms from emissions from cars, trucks, buses, power plants and off-road equipment. Breathing air with a high concentration of NO2 can affect the respiratory system.

When hydrocarbons and NOx combine in sunlight, they produce ozone. High in the atmosphere, a layer of ozone protects us from the sun's ultraviolet rays. When holes in the atmosphere's ozone layer allow ozone to come closer to Earth, it contributes to smog and causes respiratory problems. Air pollutants emitted from cars are believed to cause cancer and contribute to such problems as asthma, heart disease, birth defects and eye irritation.

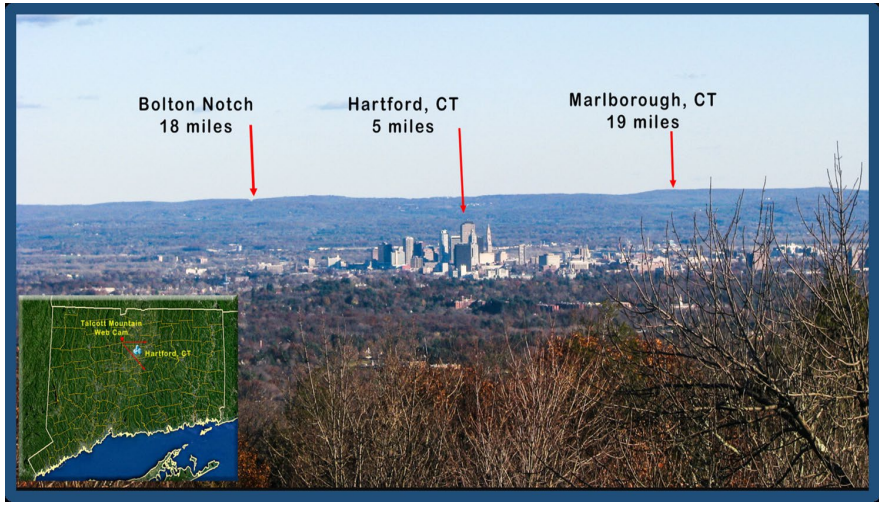
What is Ozone?

Ozone is a highly reactive gas composed of three atoms of oxygen. Ozone occurs both in the Earth's upper atmosphere and at ground level. Ozone can be good or bad, depending on where it is found.

“Good” ozone, called stratospheric ozone, occurs naturally in the upper-atmosphere, where it forms a protective layer that shields us from the sun’s harmful ultraviolet rays. This beneficial zone has been partially destroyed by manmade chemicals, causing what is sometimes referred to as a hole in the Ozone. The good news is that the hole is diminishing.

“Bad” ozone, called tropospheric or ground level ozone, is not emitted directly into the air, but is created by chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC’s). This happens when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight. Ozone is most likely to reach unhealthy levels on hot sunny days in urban environments but can still reach high levels during colder months. Ozone can also be transported long distances by wind, so even rural areas can experience high ozone levels. Ozone in the air we breathe can harm our health, especially on hot sunny days when ozone can reach unhealthy levels.

Good air quality day



Bad air quality day
(same view)

- Opus Inspection, under contract with the Connecticut Department of Motor Vehicles, implements and undertakes management of Connecticut Vehicle Inspection Program (CTVIP)

- Opus operates in 23 U.S. States and 10 countries across five continents. We are a leader in both vehicle inspection intelligent vehicle support.

- Our program management services draw on unrivalled real-world experience of setting up and running testing programs around the world. We have been a key player in the development of inspection system specifications and test procedures, helping to develop more than 40 programs worldwide in various capacities. Opus has significant experience in automotive test equipment engineering, systems development, and emissions research. We provided the engineering, specification development, and certification of testing platforms, including IM240, MSA, Two Speed Idle, OBDII, and Evaporative Emissions Systems.

- In 2023, Opus acquired Applus Technologies, Inc., broadening our reach and cementing our status as leaders and innovators.

- As facilitator of the CT Emissions Program, Opus is responsible for:

Providing Equipment
Equipment Servicing
Inspector Training
Program Support to Test Centers, CT motorists, and the DMV
Public Relations

The Help Desk 877-469-2884

The Opus Help Desk is comprised of a group of highly trained Customer Service Representatives (CSRs) whose job is to assist motorists and Test Centers with program questions/inquiries, complaints, concerns, and general assistance.

Motorist Calls:

- Test Center locations/hours
- General program information
- Testing due date
- Complaints/concerns
- DMV regulations
- Registration requirements
- Extension and waiver information

Test Center Calls:

- Service calls
- Calibration assistance
- Ordering consumable inventory
- Invoice/billing questions
- Test authorizations
- Training inquiries

Public Relations

Connecticut Emissions Program

- Opus has developed a new CTVIP website that is modern and mobile-responsive, with updated graphics as well as a tool for motorists to sign up for email and/or text reminders of their testing due date. A resource center provides access to important information such as finding qualified testing and repair centers, applying for a waiver, and what to do after a failed test
- We have also updated all emissions programs materials, including a new program logo. Materials are to be accessible and clearly visible to all motorists. Materials include:
  - Customer Bill of Rights
  - Station hours and parking signage
  - Motorist information and education brochures
- Motorists will continue to receive a reminder postcard, updated with the new logo, via US mail. Motorists will also have two new options for reminders:
  - A self-cling decal, to be dated and placed on the vehicle's windshield during the inspection
  - Email and/or text reminders, which motorists can sign up for on the program website

Chapter 2: Program Requirements

Vehicles that Require Testing

Unless exempted by the state of Connecticut, the program requires emissions inspections every two years on all vehicles with the GVWR of 10,000 pounds or less.

EXEMPT VEHICLES

- Newer vehicles that are less than four (4) years old
- Vehicles over twenty-five (25) years old
- Vehicles with a gross vehicle weight rating (GVWR) of 10,001 pounds or more
- Composite Vehicles (must be titled as a composite vehicle)
- Full electric-powered (non-hybrid)
- Bicycles with motors attached
- Motorcycles
- Farm vehicles
- Class-1 School Buses

FUEL TYPES TESTED

- Gasoline
- Compressed natural gas (CNG)
- Diesel-ethanol-hybrid (electric/gasoline)
- Liquid propane gas (LPG)
- Methanol

Hours of Operation

NOTE: Any Test Center closures MUST be reported to Opus via the Help Desk or on ctemissions.com

- Monday through Friday, 8 AM - 5 PM
- Saturday, 8 AM - 1 PM
- *Test Centers may offer optional extended hours and holiday testing; see Chapter 11, Program Updates, for more information*
- During Hours of Operation, Test Centers are required to offer paid inspections and free re-tests to the motoring public. Testing must be continuous, and you must accept motorists both by appointment or drive-up basis during all Program Hours of Operation. All motorists arriving BEFORE the close of program hours of 5:00 PM Monday through Friday & 1:00 PM Saturdays MUST be placed in the waiting queue. The CDAS is programmed to allow Inspection for one (1) hour after the close of program hours so that you may complete inspections for motorists in queue.

Test Center Closures

- All Test Center closures must be reported immediately to Opus. Test Centers can report their own closures at ctemissions.com or contact the Opus Help Desk.
- It is essential that Test Centers adhere to this requirement to provide real time, accurate information to the public, both on the emissions website and through the Opus Help Desk regarding Test Center availability for inspections. Any Test Center closed without proper notification will be subject to program sanctions.

Dealers and Repairers License

- All Test Centers are required, at all times, to maintain a valid, current Dealers and Repairers license issued by the CT DMV Dealers and Repairers division.
- A valid and current copy of this license is to be submitted to Opus. Any changes, renewals, etc., must immediately be sent Opus. Failure to renew, maintain, or provide current documentation will result in the CDAS equipment being locked out, preventing the Test Center from performing emissions inspections until proof of current licensure is received and verified.
- *The inspection software on the CDAS will notify you of an approaching expiration date.*

Appointments and Drive-up Motorists

- Test Centers may not operate by appointment only, nor can they refuse a motorist's request for an appointment.
- For a scheduled appointment, the inspection must be completed within 40 minutes of the scheduled appointment time (not arrival time). If the motorist is late for an appointment, they may be placed in the waiting queue as a drive-up inspection.
- Test centers may not operate by drive-up only, nor can they refuse a motorist's request for a drive-up appointment.
- Motorist wait time must not exceed 20 minutes for their vehicle inspection to be initiated; once initiated, the inspection must be completed within 10 minutes.

If you have a queue, you must provide the motorist with the number of vehicles ahead in the queue and projected wait time to allow the motorist to determine if they would like to wait.

Customer Waiting Area

Test Centers are required to designate a clean and safe motorist waiting area

- Waiting area must be separate from the test bay
- Must provide an unobstructed view of the test bay through a window *or* include a customer viewing monitor that is no less than 17 inches diagonally and must remain turned on during program hours of operation
- Must be easily identifiable
- Must have adequate seating
- Must be outfitted with a fully functional Carbon Monoxide (CO) detector
- Must provide access to a clean customer restroom

Program Signage and Literature

Test Center must prominently display required program signage and literature for public viewing, including, but not limited to:

- Official CT Emissions Test Center sign with assigned station number. The sign must be clearly visible and permanently affixed to the building or a stand.
- Two (2) Designated and clearly marked Emissions Only Parking spaces
- All Certified Testing Inspector License Certificates must be mounted/displayed in the customer waiting area
- Emissions Program Bill of Rights, program brochures, literature and/or other related program materials must be openly displayed in the customer waiting area
- Emissions inspection hours, clearly visible to approaching motorists, preferably door or window mounted
- Cash Only signage if your Test Center only accepts cash payment for Emissions Inspections
- Inspection Fee notice
- Test Center Closure sign, when applicable

Inspection Fees

The Connecticut Emissions Inspection fee is set at $20.00. This fee is set by State legislation and test centers cannot collect any amount over or below the $20.00 Inspection fee.

CTIs are not permitted to collect fees for any of the following:

- Sales tax on motorist test fee
- Environmental or shop fee(s) for emissions inspections
- Registration or registration late fees
- Emissions inspection late fees
- The reprint of a Vehicle Inspection Report (VIR)
- A printed Certified Emissions Repair Facility List
- An Emissions Repair Form
- A re-test in free re-test status (within 60 days of the failure), regardless of where the vehicle was previously inspected
- Fees for aborted inspections, turn-away documents or training tests
- Fee for a challenge test. The Test Center must cooperate with the DMV and Opus if a motorist challenges the validity of the inspection performed or its result, and requests that a new (Challenge) test be performed.
- Fee for an inspection correction due to a data entry error made by an inspector.
- Compressed air for tire inflation before or after an emissions inspection

Solicitation of Services/Bribery

- Solicitation of services during the inspection process is strictly prohibited. Services may be offered after the Inspection has been completed and the vehicle is removed from the inspection bay. Additionally, Test Centers are prohibited from offering promotions or discounts of emissions inspection services. Test Centers are also prohibited from soliciting gratuity.

- It is possible that a motorist may approach you and/or an employee at your Test Center offering compensation for a passing/satisfactory result of a vehicle Inspection. This is against the law; violations connected to bribery may result in liquidated damages as well as criminal charges.

- Any offers of bribery MUST be immediately reported to The Department of Motor Vehicles (DMV). If possible, document the vehicle information of the motorist. If you are unsure of how to proceed with the inspection, consult with Opus and/or DMV on how to proceed.

Emissions Tampering Is Illegal – And Pollutes Our Air

WHY IS TAMPERING ILLEGAL?

Emissions controls prevent respiratory disease, premature death, and environmental harm. EPA enforces these prohibitions to protect public health and the environment.

DOES THIS AFFECT YOU?

These prohibitions apply to anyone who services any emissions-related aspect of any EPA-certified vehicle, engine, or piece of equipment. These prohibitions also apply to anyone who manufactures, distributes, or installs emissions-related parts.

MAKE SURE YOU WON'T BE SUBJECT TO PENALTIES

Do not remove or alter emission controls on any EPA-certified vehicle, engine, or piece of equipment.

Emissions controls are all parts that may affect emissions, such as catalysts, filters, the electronic control unit, the fuel system, and the onboard diagnostic system.

BEFORE YOU SELL... Have proof that the parts will not increase emissions (for example, emissions test results or an Executive Order from California Air Resources Board demonstrating no illegal emissions increase for the intended use of the part).

BEFORE YOU INSTALL... Have proof that the vehicle will be returned to its original, stock configuration after installation; or have proof that the parts will not increase emissions.

EPA United States Environmental Protection Agency

Complaints and Damage/Accident Reports

- Test Centers have a responsibility to handle complaints made by customers
- All complaints made to Opus by motorists are documented and investigated. DMV is provided with records of all complaints received regardless of escalation. DMV may also refer a motorist complaint to Opus for investigation and handling. When a complaint is received, the information is reviewed to determine what/if further action is necessary. An Opus representative may contact a Test Center, Test Center manager, or CTI regarding the nature of the complaint.
- In the event of an incident that results in personal injury to a motorist or vehicle damage to a motorist's vehicle, the Test Center Manager is required to verbally report that incident to Opus within one (1) hour of the occurrence and a written statement to follow within one (1) business day of the occurrence. All incidents must be reported.
- Any damage to a motorist's vehicle while in the possession of the Test Center, is the full responsibility of the Test Center. The Test Center must resolve the incident with the motorist. Liability Insurance coverage is a mandatory Program Requirement as outlined in the Test Center Participation Agreement.

Test Center Staffing

- Each Test Center is required to have a minimum of two (2) inspectors enrolled and active to remain in compliance with program requirements. Test Centers may have as many additional inspectors as they deem necessary for their business. A Test Center manager is permissible as one of the CTIs.

- Test Centers are required to operate fully during Emissions Program Hours of Operation to accommodate motorists seeking an Emissions Inspection. There are no closures for lunch periods. You must have continuous coverage during ALL program hours of operation.

- The station Staffing Form can be found on ctemissions.com. A new form MUST be submitted to Opus Inspection for all emissions staffing changes, via fax at 860-392-2106 or publicrelations@opusinspection.com, within 24 hours of the change, if not immediately.

CTI Requirements and Responsibilities

- **All CTIs must be at least 18 years old and have a valid, current driver's license**
  - Your driver's license must be and remain valid for you to remain an active inspector. If at any time your driver's license is suspended or revoked, your CTI certification will also become suspended.
  - Out of state driver's license are accepted. You will be required to provide a certified driver's record once a year, due on the anniversary date of your certification. State statue mandates if you have an out of state driver's license and establish residency in Connecticut, you have 30 days to obtain a Connecticut driver's license.

- **Training**
  - All prospective CTIs are expected to study the training materials found on the official emissions website. In addition, all CTIs must attend a mandatory hands-on training session at the Opus Tech Center in Berlin. You can contact the Opus Help Desk to sign up for one of these classes.
  - Only active CTIs can perform official emissions inspections. While you train to become certified, you may use the CDAS and perform training inspections. The Test Center manager should assist and supervise trainees in utilizing this function.
  - If a CTI allows a trainee to observe an official inspection, the trainee must observe only and NOT perform any functions of the official inspection.

- **Active CTIs, unenrolled**
  - Active CTIs transferring from one facility to another CANNOT perform emissions inspections until they have been assigned to that station's CDAS. Active or inactive inspectors CANNOT perform inspection under another CTI's credentials.

CTI Requirements and Responsibilities, cont'd

- CTIs are NOT permitted to perform emissions inspections on their own vehicles

- To maintain active inspector status, CTIs are required to perform at least one (1) inspection within a six-month period. If a continuous six-month period passes from the date the inspector last performed an inspection, the CTI will become inactive, and be unable to perform inspections until the certification is renewed.

CTI Requirements and Responsibilities, cont'd

- CTIs must NEVER perform vehicle inspections outside of approved test bay. Vehicle inspection, including image capture, must not occur before vehicle is inside the test bay.

- CTIs must provide ALL inspection documents directly to the motorist at the conclusion of each inspection.

- If the Test Center printer is not functioning, Test Center MUST contact Opus Help Desk to open a service call and report station closure – **IF YOU CAN NOT PRINT THE VEHICLE INSPECTION REPORT (VIR), YOU CANNOT PERFORM INSPECTIONS**

- CTIs MUST capture clear, legible images and check upon upload. If images are not legible, CTI must retake the photo.

Allowable Requested Documents

The verbal request for an emissions test is all you need to queue a vehicle for an emissions inspection.

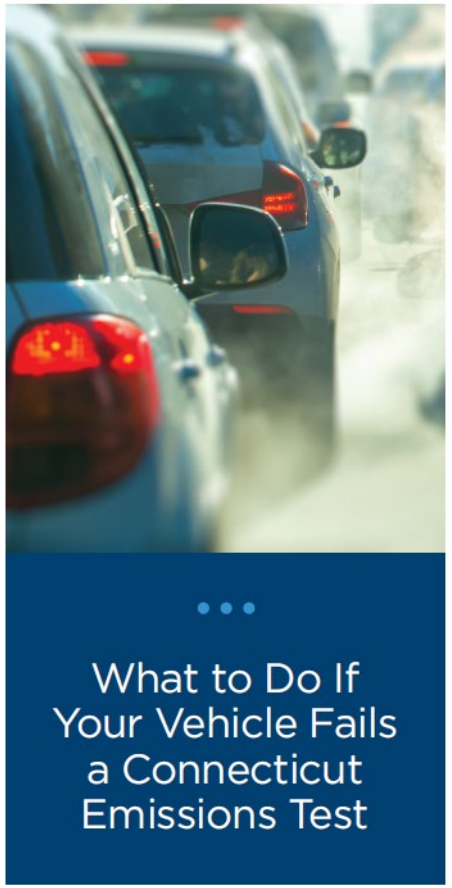
- Motorists are NOT required to provide any documentation when requesting an emissions test, including the notification card, registration, or any other alternative document. You may request the notification postcard, registration, previous VIR, or title if there is a question regarding the vehicle identification number. However, if the motorist cannot provide any of these documents, an emissions test cannot be denied. If you are provided with a notification postcard, registration, previous VIR, or title, you must be sure to verify the vehicle information you are testing; do not assume the information on the provided document is accurate or belongs to the vehicle presented for an emissions test. YOU MUST RETURN ANY AND ALL DOCUMENTATION provided to you by the motorist.

- **Prohibited Requests**
  - You are prohibited from asking motorists for an Insurance Card.
  - You are prohibited from asking motorists for a driver's license.
  - You are prohibited from requiring a motorist to provide personal information; if a motorist declines to provide name, contact information, home address, etc., your personnel CANNOT persist in obtaining this information.
  - You are prohibited from making copies of registration documents.

Program Documents to Provide to Motorist

Motorists must be provided with the VIR at the conclusion of the inspection. The VIR must be signed (no initials) by the CTI acknowledging their review of the accuracy of the inspection and all relevant vehicle information as captured on the VIR. The CTI must ensure that all pertinent information, forms and literature be provided to the motorist. ***Failure to provide the motorist with proper documentation is a program violation and is subject to liquidated damages.***

- **When the vehicle passes, CTI must provide:**
  - VIR (Vehicle Inspection Report)
  - Recall notices
- **When the vehicle fails, CTI must provide:**
  - VIR (Vehicle Inspection Report)
  - Emissions Repair Form
  - Certified Emissions Repair Facility list
  - Brochure: 'What to do if your vehicle fails a CT Emissions Test'
  - Recall notices
- **When you turn away a vehicle, CTI must provide:**
  - Turn-away document; a reason for turn-away must be entered, and document must be signed by CTI
- **When the inspection aborts, CTI must provide:**
  - Abort document
  - Brochure: 'Your guide to the CT Emissions Program'



Explaining the VIR

- Regardless of the overall result, **always** explain the inspection results with the motorist. The Test Center is required to provide a signed VIR regardless of the result and the motorist should be advised to keep the documentation with their vehicle's registration. If the vehicle fails, you must explain the free re-test policy, as well as the due date and time for the reinspection, and provide the motorist with all the required documentation.
- When the inspection is a Pass, the new due date will be calculated for two years from the old due date, even if the vehicle was late for its inspection.
- When a vehicle fails, it has 60 days counted from the hour and minute of the failed Inspection record date and time to receive a free re-test. It is the responsibility of the CTI to inform motorists of this due date and time.
- If the due date falls on a Sunday or a program holiday, then the due date will default to the next program business day.

Emissions Repair Form

The motorist must submit a completed Emissions Repair Form along with the original failed VIR to the Test Center at the time of retest, regardless of whether any repairs have been made to the vehicle

- When a vehicle Fails, the Emissions Repair Form and Certified Emissions Repair Facility List will be printed along with the VIR. The motorist MUST receive these documents along with the appropriate failure brochure. **You must inform the motorist that both the VIR and Emissions Repair Form are to be returned with the vehicle for re-test.**

- If the motorist does not provide the Emissions Repair Form, you may print one for them at no charge to complete and acknowledge either “no repairs made” or “self” repair and continue with the re-test. If repairs were made by either a CERT or non-CERT Repair Facility, they must return to that repair facility to have the form completed and signed.
- Only repairs made at a CERT (Certified Emissions Repair Facility) are eligible toward a cost waiver (see Waivers, slide 30).
- You may reprint a failed VIR for a motorist at no charge.

Emissions Repair Form, cont'd

Be sure to enter all relevant fields of the form:

- **Vehicle Information:**
  - VIN, license plate, year, make, model, engine size
  - Inspection type failed (OBD, TSI, MSA)
- **Repairs by a Certified Emissions Repair Facility (CERT):**
  - Name, address and D&R license number
  - CERT ID, name and signature
  - Repair part/labor costs, repair date
- **Repairs by Non-CERT Facility:**
  - Name, address and D&R license number
  - CERT ID, name and signature
  - Repair part/labor costs, repair date
- **Repairs by Owner**
  - Owner's name, signature, repair date, part cost
- **No Repairs**
  - The owner must acknowledge no repairs were made and sign the form
- **List Repairs Made**
  - The repairs are to be documented with the appropriate abbreviations

Data Entry During Re-Test

- When performing a re-test, you will be prompted to enter repair information. CTIs should verify the accuracy of all data, as it is used for reporting to the EPA and for the cost waiver analysis.
- All paperwork collected is to be retained for pick-up by the DMV.
- Collect and retain the failed VIR and the completed Emissions Repair Form.
- Return all other paperwork to the motorist, especially repair receipts.
- ***If the vehicle fails the retest, return ALL paperwork to the motorist.***

Waivers

There are three types of waivers to aide motorists in meeting the requirements of the Connecticut Emissions Program

- **Cost Waiver**
  - To qualify for a cost waiver, motorists must meet the minimum expenditure requirement on the related emissions repairs. **To qualify, the repairs must be performed by a Certified Emissions Repair Technician (CERT).** Effective January 1, 2023, the minimum emissions-related repair expense required to be eligible for a cost waiver is $1069.00. This figure is linked to the Consumer Price Index (CPI) and could change annually. The minimum repair cost is for actual repairs made to the vehicle by a CERT, after available emissions-related warranty coverage or written denial of such warranty coverage by the vehicle manufacturer. Receipts are required; estimates will not be eligible.

- **Economic Hardship**
  - Motorist must submit documentation to the DMV indicating annual income is at or below state and federal poverty level guidelines. Motorist must attend they have no other assets they could use to pay for the necessary repairs. All information shall remain confidential.

- **Functional Diagnosis**
  - There must be a known reason for a vehicle's failure, which the manufacturer has documented. In addition, the manufacturer must provide documentation, on its letterhead, indicating the known reason for why the vehicle cannot pass an emissions test. The vehicle will then require an inspection by DMV personnel. Note: Letters from local dealerships and repair facilities will not be accepted. The letter must be from the vehicle's manufacturer.

Warranties

There are two federal emissions control warranties for 1995 and newer light-duty cars and trucks under 8500 pounds Gross Vehicle Weight Rating (GVWR)

- **Performance Warranty**
  - The Performance Warranty covers repairs that are required during the first 2 years or 24,000 miles of vehicle use (whichever first occurs) because the vehicle failed an emission test. Specified major emission control components are covered for the first 8 years or 80,000 miles (whichever first occurs).

- **Design and Defect Warranty**
  - The Design and Defect Warranty covers repair of emissions-related parts that become defective during the warranty period for model years 1995 and newer light-duty cars and trucks.

Full publication from the EPA can be viewed and/downloaded at: https://nepis.epa.gov and search publication: EPA 420-F-92-002, or scan the QR code, right.

Acceptable Reasons to Turn Away a Vehicle

- Inoperable odometer
- Passengers or pets in vehicles
- Missing or unidentifiable VIN
- Emissions Repair Form not completed (re-test only)
- Mechanical issues
  - Fluid leaks (other than condensation from AC compressors)
  - Excessive engine or transmission noise indicating a mechanical issue
  - Visibly missing or inaccessible exhaust system components
  - Excessive exhaust smoke
  - Diesel vehicles with modified exhaust (i.e., “stacks”)

Accommodations

- Test Centers are required to make reasonable accommodation to handicapped motorists as well as provide inspections to a handicap-equipped vehicle. Test Centers may allow a handicapped motorist to drive into the inspection bay and remain in the vehicle while the inspection takes place, however, if operation of the vehicle is necessary, the CTI must operate the vehicle. No other occupants may remain in the vehicle.

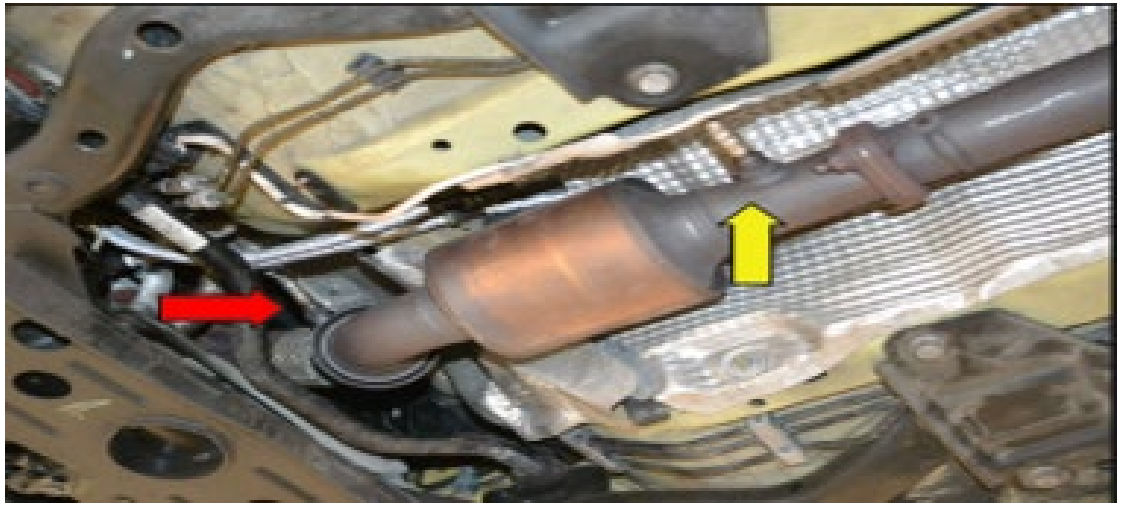
- Test Centers are required to make reasonable accommodation to motorists with a vehicle that is outfitted with an Ignition Interlock Device. The motorist may remain in the vehicle, in the passenger seat, in case the device requires attention during the inspection. No other occupants may remain in the vehicle.

Inspection Types

- **Onboard Diagnostic (OBD)**
  - The Onboard Diagnostic (OBD) Inspection is the most common and requires a connection between the emissions analyzer and the vehicle's Diagnostic Link Connector (DLC) utilizing a communication cable. The analyzer requests and records specific protocols and datasets, including the requirement for RPM. The test verifies and reports the integrity of the vehicle's onboard computer and emission control systems. Vehicles requiring this test include:
    - *24 model years and newer gasoline, CNG/LPG, hybrid, or ethanol/methanol-powered vehicles with the GVWR of 8,500 LBS or less.*
    - *24 years and newer and newer diesel-powered vehicles with the GVWR of 8,500 LBS or less.*
    - *2007 and newer diesel-powered vehicles with the GVWR between 8,501 and 10,000 lbs.*
    - *2008 and newer gasoline, CNG/LPG, or ethanol/methanol-powered vehicles with the GVWR between 8,501 and 10,000 lbs.*
- **Preconditioned Two Speed Idle (PCTSI)**
  - During the inspection, the analyzer captures tailpipe emissions at both cruise speed (high RPM) and then at idle with the vehicle's drive wheels stationary throughout the test. Vehicles requiring this test include:
    - *2007 and older gasoline, CNG/LPG, hybrid, or ethanol/methanol-powered powered trucks, SUVs, and vans with the GVWR between 8,501lbs and 10,000 lbs.*
- **Modified Snap Acceleration (MSA)**
  - The drive wheels remain stationary throughout the test, while the inspector 'snaps' the accelerator pedal momentarily. Vehicles requiring this test include:
    - *2006 and older diesel-powered trucks, SUVs, and vans with the GVWR between 8,501 LBS and 10,000 LBS*

Catalytic Converter Visual Inspection

- **The visual verification of the catalytic converter is required on every vehicle tested, including vehicles returning for retests. Based on their inherent design, catalytic converters are located near the engine, or on some vehicles, under the hood. Catalytic converters should not be mistaken for resonators or mufflers and should resemble the various styles pictured below.**



Chapter 3: The Compliance Action Plan

Compliance Action Plan

- Each Test Center, Test Center manager, and Certified Testing Inspector must adhere to the Program compliance standards outlined in your Test Center's Agreement, and this Certified Testing Inspector Training. The descriptions, policies, and procedures contained in this manual are intended to help define and set forth sanctioning guidelines as applied to each participating Test Center, Test Center manager, and individual CTIs. The full document of the Compliance Action Plan outlines these topics and is included in this manual. You must read this Plan thoroughly; the Plan and any future updates will be communicated to you and posted on the Program dashboard.

- You will be required to sign an acknowledgement that you have received and agree to the Compliance Action Plan.

Connecticut Emissions Program Compliance Action Plan

The **Compliance Action Plan** establishes guidelines for regulating and managing all Certified Test Centers and Certified Program Inspectors. The Plan provides guidelines for Liquidated Damages, the suspension of testing privileges and/or expulsion from the Program. Severity levels are based on the type of Program violation. You and/or your Test Center are subject to Liquidated Damages, remedial training, and suspension of testing privileges for first time and repeated procedural and administrative violations.

The integrity of the Program is critical; There is ZERO tolerance for intentional, fraudulent testing.

Quality Assurance is controlled and identified by continuous monitoring each day through a variety of quality control audits, which may identify procedural, administrative, or testing violations. These violations can be identified by the CT DMV, and, or Opus and when necessary, the motorist complaint process. Violations may result from the actions of an individual Inspector or the actions of the Test Center. As the contractor for the Program, Opus is the primary party responsible for processing procedural, administrative, and testing violations, as well as imposing sanctions. Violations will be processed in accordance with the Test Center Agreement and may include Liquidated Damages and Termination of the Agreement, each Test Center, and each Inspector found to violate the said requirements, will be subject to remedial training, suspension, and monetary penalties for disregarding Program statutes, regulations, and Program policies and procedures.

Each Test Center, Test Center Manager, and Certified Testing Inspector must adhere to the Program Compliance standards outlined in your Test Center's Agreement, and this Certified Testing Inspector Training. The descriptions, policies, and procedures contained in this manual are intended to help define and set forth sanctioning guidelines as applied to each participating Test Center, Test Center Manager, and individual Inspectors. You must read this Plan thoroughly; the Plan and any future updates will be communicated to you and posted on the Program dashboard.

EPA Requirements

The Environmental Protection Agency ("EPA") provides requirements for sanctioning Test Centers and Inspectors who deliberately or unintentionally violate Program requirements. Accordingly, published in the Code of Federal Regulation (CFR), Title 40 Protection of Environment, §Section 51.364, Enforcement against Contractors, Stations, and Inspectors, are the requirements for developing, maintaining, and implementing a penalty schedule for participating Test Centers and Inspectors. Compliance Action Plan In accordance with the requirements set by the EPA, outlined in this training have been developed by Opus in collaboration with the Connecticut Department of Motor Vehicles ("CT DMV"), for use in regulating and managing Test Centers and Inspectors that participate in the Program.

For further clarification, a "Test Center" is defined as a privately-owned automotive service facility that participates in the Program as part of the testing network. "Inspector" is defined as an individual who has completed the required training and meets specific program requirements to earn the designation of a Certified Testing Inspector (CTI). "Test Center Manager" is defined as the responsible designee for the Test Center who will act as a Test Center program contact and must be fully trained as a Certified Testing Inspector.

Administration of Program Violations

Program violations are addressed by both DMV and Opus.

DMV:

- All Monetary Assessments shall be paid directly to DMV and payments must be accompanied by a copy of the Assessment Letter.
- Violations may be referred to the DMV Dealers and Repairers Division for test center licensing action and/or to law enforcement, if appropriate.

Opus, as Administrator of the Program, will be responsible for the assessment and delivery of:

- Written/verbal warnings
- Liquidated Damages
- Suspensions
- Expulsions

Notification of Violation

All Notices of Compliance Action are sent via Certified U.S. Mail and Standard U.S. Mail with supporting documentation and appropriate instruction. DMV is copied on all Notices of Compliance Action. Test Center Managers and/or the Business Principal will be copied for all Inspector Violations that occur in their Test Center.

Tracking of violations, indefinite period

Opus Inspection, for an indefinite period of time, will retain digital copies of identified violations, including all Notices of Violations.

Remedial Training

At the discretion of Opus Inspection or CT DMV, an inspector may be suspended until such time they complete a remedial training class. If an existing Inspector is identified as needing remedial training, they must attend the next available training at their own or the Test Center's expense.

Suspension

All Notices of Suspension are sent via Certified U.S. Mail and Standard U.S. Mail with supporting documentation and appropriate instruction. DMV is copied on all Notices of Compliance Action. Test Center Managers and/or the Business Principal will be copied for all Inspector Violations that occur in their Test Center. A Test Center/ Inspector may be suspended for an indefinite period as necessary to conclude investigation of an alleged

Compliance Violation. Subsequent offenses may warrant a second or third suspension and will be imposed at the discretion of Opus Inspection and DMV.

Expulsions
All Notices of Expulsion are sent via Certified U.S. Mail and Standard U.S. Mail with supporting documentation and appropriate instruction. DMV is copied on all Notices of Compliance Action. Test Center Managers and/or the Business Principal will be copied for all Inspector Violations that occur in their Test Center. A Test Center/ Inspector may be suspended for an indefinite period as necessary to conclude investigation of an alleged Compliance Violation.

Liquidated damages
A Monetary penalty (fine) may be included with either a "Written Warning", "Suspension" or "Expulsion"; These are referred to as Liquidated Damages. The Liquid Damages amount assessed is dependent on the Level of the Violation as well as the number of the offense (1st, 2nd, 3rd offense) for the individual inspector concerning the same violation type.

Paying Liquidated Damages
If you have received Notice of Violation resulting in Liquidated Damages, as instructed in the letter, payment must be made directly to DMV. Opus does NOT collect payment of Liquidated Damages. Payments made to Opus will be returned to the sender. Infraction payments may NOT be made in person. You must mail a check to the DMV at the address below:

CT Department of Motor Vehicles
Fiscal Services
Attention: Mary Fuller
60 State Street
Wethersfield, CT 06161

You must include a copy of the Notice of Violation with all payments.

Disputing assessments
Test Centers or it's Inspectors may dispute/appeal an assessment of Liquidated Damages, Suspensions, and/or Expulsions. Appeals must be filed by the 15th business day from the date of the Letter of Compliance Action. Appeals must be submitted in written format, to the Program Manager at Opus Inspection, verbal Appeals will not be considered. The Appeal must clearly describe why the Test Center and/or Inspector disagrees with the Action taken by DMV/Opus. The Appeal should include supporting evidence to validate the dispute. Written Disputes of "human error", the inability to pay or insufficient explanations will result in sustainment of the Compliance Action rendered. Upon receipt of the Appeal, Opus and DMV will review

the details of your Appeal and supporting evidence to determine whether the Compliance Action will be sustained or be overturned. If upon review, Opus and DMV fail to reach agreement of decision then an informal panel, adding a third party will consulted to review all evidence to come to a final decision. There is no second Appeal process, the decision is considered "FINAL". If the Test Center/Inspector disagrees with the Final decision, they may pursue Binding Arbitration, as outlined herein.

Binding arbitration
If an Appeal decision is disputed, the Test Center/Inspector may pursue Binding Arbitration at their own cost. A panel of three arbitrators will be selected in accordance with the Commercial Arbitration Rules of the American Arbitration Association.

Excusable Situations- (performance delays due to natural disaster)
Excusable performance delays will not be subject to Compliance Action, these may include:

- An act of God, War, Fire, Flood
- Epidemic Quarantine and/or Restrictions imposed by Governmental Jurisdiction
- Acts of any other third party not under the Testing Centers reasonable control
- National Emergency

Inspections performed by uncertified personnel and/or Tag Teaming
There may be times an Inspector requires the assistance of another Inspector/shop employee with vehicle identification, opening a hood, obtaining RPM, locating the Catalytic Converter/OBD DLC location, etc., this is acceptable, however any assistance provided may not interfere or replace the Inspectors responsibility to perform all functions of the Inspection.

Bribery
It is possible that a motorist may approach you and/or an employee at your Test Center offering compensation for a passing/satisfactory result of a vehicle Inspection. This is against the Law and Program Requirements. The Inspection (I/M) Program is Federally Mandated, and violations connected to bribery may result in Liquidated Damages as well as criminal charges imposed by State Law. Any offers of Bribery MUST be ***immediately*** reported to The Department of Motor Vehicles (DMV). If possible, document the vehicle information of the motorist. If you are unsure of how to proceed with the Inspection, consult with Opus and/or DMV on how to proceed.

Solicitation of Services
Solicitation of Services during the Inspection process is strictly prohibited. Services may be offered after the Inspection has been completed and the vehicle is removed from the inspection bay. Additionally, Test Centers are prohibited from offering promotions or discounts of Emissions Inspection

Services. Test Centers are prohibited from using company letterhead, watermarked or colored paper for the printing of the Vehicle Inspection Report (VIR); only plain white 20lb weight, paper may be used. Test Centers are also prohibited from soliciting gratuity.

Violations

Creating a False Inspection Record

Violations of creating a false Inspection Record are subject to immediate expulsion from the Program for the Inspector on record and the possibility of expulsion for the Test Center.

Creating a false Inspection record is illegal and punishable under Federal Law. Some examples of creating a false Inspection Record include, but is not limited to:

- "Ghost Testing" or "Clean Piping" which is intentionally using another source (vehicle) for exhaust readings on a PCTSI or MSA Inspection
- Using a known passing vehicle in place of the vehicle presented and identified on the Inspection Record to obtain a passing/satisfactory result
- Use of an OBD simulation Device

Level 1 violations:

Level 1 (one) are the most severe violations. Level 1 violations will result in expulsion from the program.
Fraudulent actions committed by the Test Center Manager, Inspectors and/or Test Center, will not be tolerated and will result in Liquidated Damages and/or Expulsion from the Program. Level 1 Violations include:

- creating a false test record (i.e., "ghost testing" or "clean piping" or "clean screening")
- Improperly and/or intentionally passing a failing vehicle Improperly and/or intentionally failing a passing vehicle

Level 2 violations:

Level 2 (two) Violations are moderate to severe violations that will result in a "Warning" and/or Liquidated Damages. A Written Warning may be considered depending on the circumstance of the violation and is at the discretion of Opus Inspection and/or DMV. Level 2 Violations include:

- Failure to maintain software integrity or security (hacking the CDAS computer, unauthorized use)
- Failure to produce records on demand by authorized State personnel
- Failure to provide CT DMV personnel full and free access to the CDAS system in order to conduct audits
- Failure to provide Opus service personnel full and free access to the CDAS analyzer system in order to provide the Services described in this Agreement including equipment audits

Level 3 violations

Level 3 (three) Violations are moderate procedural violations which will result in a "Warning" and/or Liquidated Damages. A Written Warning may be considered depending on the circumstance of the violation and is at the discretion of Opus Inspection and/or DMV. Level 3 Violations include:

- Intentionally or unintentionally, skipping or incorrectly performing any portion of the test
- Improper refusal to perform an inspection
- Charging the incorrect test fee or charging a fee for a free retest
- Failure to enter correct test or repair data (i.e., VIN)
- Failure to verify the functionality of the MIL or presence of the catalytic converter(s)
- Failure to upload a legible photograph

Level 4 violations

Level 4 (four) Violations are Administrative or procedural violations that will result in a Warning for first offenses, subsequent offenses may result in Liquidated Damages. Level 4 Violations include:

- Failure to display required Test center signage/program literature (i.e., exterior sign, waiting area signs, program brochures, etc.)
- Failure to maintain an unobstructed view of the test for motorist (i.e., window, TV monitor)
- Entering vulgar or obscene comments for abort reasons

Chapter 4: OBDII Systems

The United States Environmental Protection Agency (U.S. E.P.A.) Manufacturer Requirements

- All cars and light trucks built and sold in the United States after January 1, 1996, were required by the United States Environmental Protection Agency (U.S. E.P.A) to be OBD II equipped. Under the OBD II requirements, all manufacturers must comply with a standardized convention for DTC's. The universal DTC format consists of a 5-character alphanumeric code, the first character always being a letter followed by four numbers. Whenever the MIL is illuminated, the DTC should be stored by the PCM.

- OBD II systems monitor and continually evaluate performance of the vehicle emissions control systems and components. Problems noted by the OBDII computer will cause a Diagnostic Trouble Code (DTC) to be stored and the Malfunction Indicator Lamp (MIL) will be commanded to illuminate. Emissions inspection equipment uses this information to determine an inspections pass or fail. Any DTC stored that causes the MIL to be on will be cause for emissions failure. The vehicle's PCM (Powertrain Control Module) continuously monitors the engine, transmission, and emissions control systems. The vehicle will be connected via DLC (Data Link Connector) to collect inspection data; nothing is uploaded or installed on the vehicle.

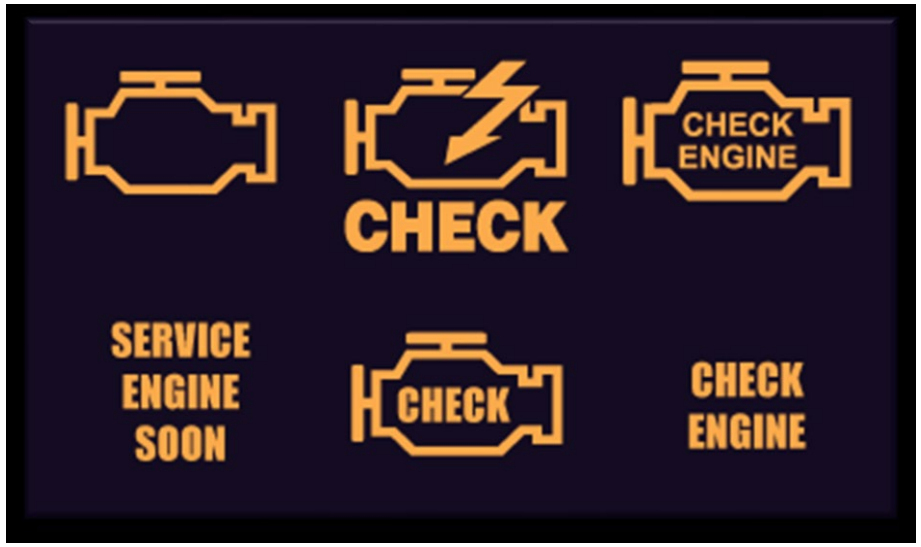
Explanation of a DTC Code: example P O 138

- **P indicates general system of the code:**
  - B-Body
  - C-Chassis
  - P-Powertrain

- **O indicates who assigned the code:**
  - O= SAE (Federally Mandated Code)
  - I= individual Vehicle Manufacturer
  - 0= Entire System

- **1 indicates specific system of malfunction:**
  - 1 = Air or fuel metering system
  - 2 = Air or Fuel metering injection system
  - 3 = Ignition System
  - 4= Aux. Emission Controls system
  - 5 = Speed or Idle Controls system
  - 6 = PCM System, computer output circuit
  - 7 = Transaxle/Transmission
  - 8 = Non-Computer Controlled Powertrain

- **38- the fourth and fifth characters are read together as a two-digit number between 0 and 99, known as the specific fault index.**



MIL (Malfunction Indicator Light)

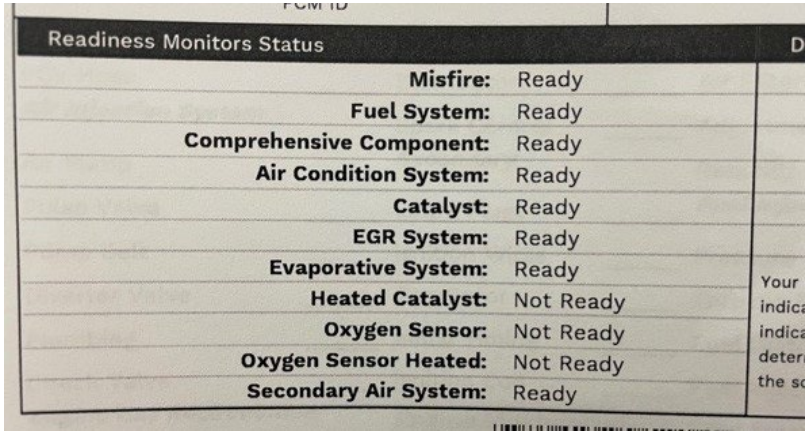
The MIL is the official term for the warning light aka “Check Engine Light” that is illuminated by the vehicle’s OBD II system when an emission control system malfunction occurs.

The MIL also alerts the driver to the malfunction so repairs can be performed.

OBD II Readiness Monitors

- Vehicles equipped with On Board Diagnostic II (OBD II) self-test their emission systems utilizing various monitors. Vehicles perform up to 11 system tests, depending on year, make, and model of the vehicle. These tests are commonly referred to as "readiness monitors." The readiness monitors identify whether the vehicle's computer has completed the required "tests" while the vehicle is being driven.

- The test equipment reads the OBD II and readiness monitor status as part of the vehicle's emissions inspection. The vehicle inspector cannot change the information reported by the vehicle. If a test has been completed, the system status will be reported "ready." An incompleted test will be reported "not ready." An OBD II vehicle will not pass the annual inspection unless the required monitors are "ready." The Vehicle Inspection Report from the test equipment will identify monitors that are not ready.



Readiness Monitors Status	
Misfire:	Ready
Fuel System:	Ready
Comprehensive Component:	Ready
Air Condition System:	Ready
Catalyst:	Ready
EGR System:	Ready
Evaporative System:	Ready
Heated Catalyst:	Not Ready
Oxygen Sensor:	Not Ready
Oxygen Sensor Heated:	Not Ready
Secondary Air System:	Ready

FAILED VIR – Not Ready

OBD II Readiness Monitors, cont'd

- Readiness monitors will be set to 'Not Ready' by:
  - Clearing codes with a scan tool
  - Loss of power when replacing the battery
  - Blown Fuse to PCM
  - Replacing PCM

- It is the vehicle owner's responsibility to get monitors set (Ready).

- Some monitors become "Ready" only after specific criteria are met, such as operating temperature, fuel level, RPM, or load.

- Monitor readiness can be performed by a repair facility or vehicle owner by performing a drive cycle. A drive cycle is a method used by a vehicle's powertrain control module (PCM) to determine whether the emissions control systems are functioning properly. There are generic and manufacturer specific drive cycles.

Oxygen Sensors

- The O2 sensors are mounted in the exhaust manifold to monitor how much unburned oxygen is in the exhaust as the exhaust exits the engine. Monitoring oxygen levels in the exhaust is a way of gauging the fuel mixture. It tells the computer if the fuel mixture is burning rich (less oxygen) or lean (more oxygen).

- A lot of factors can affect the relative richness or leanness of the fuel mixture, including air temperature, engine coolant temperature, barometric pressure, throttle position, air flow and engine load. There are other sensors to monitor these factors, but the O2 sensor is the master monitor for what's happening with the fuel mixture. Consequently, any problems with the O2 sensor can throw the whole system out of whack.

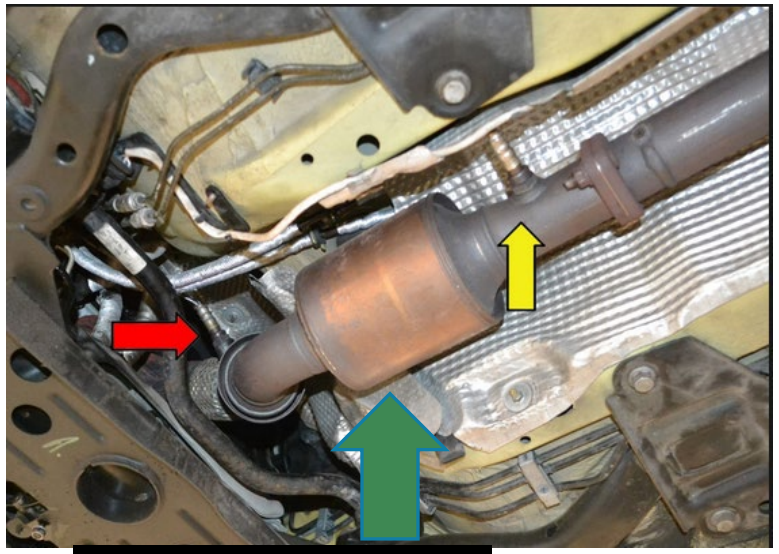
- With the introduction of OBD II in 1996, the number of oxygen sensors per engine has doubled. A second oxygen sensor is now used downstream of the catalytic converter to monitor the converter's operating efficiency. On V6 or V8 engines with dual exhausts, this means up to four O2 sensors may be used.

- The OBDII system is designed to monitor the emissions performance of the engine. This includes keeping an eye on anything that might cause emissions to increase. The OBDII system compares the oxygen level readings of the O2 sensors before and after the converter to see if the converter is reducing the pollutants in the exhaust. If it sees little or no change in oxygen level readings, it means the converter is not working properly. This will cause the Malfunction Indicator Lamp (MIL) to come on.

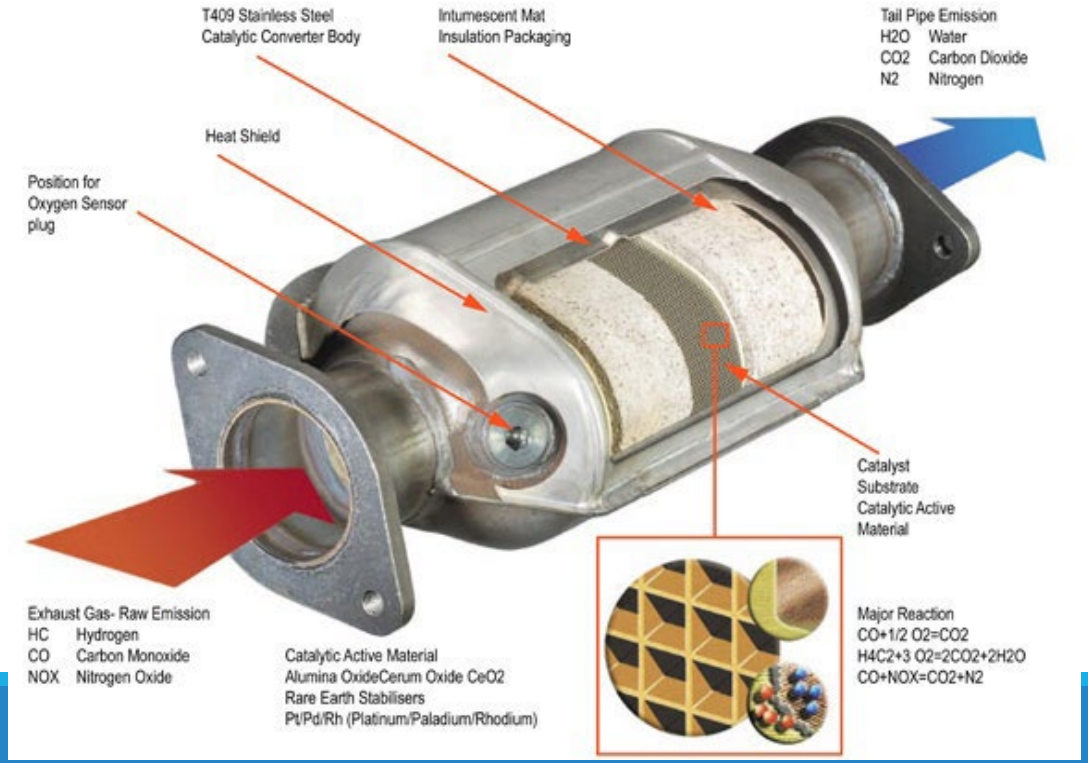
Catalytic Converter

The catalytic converter is a device placed in the exhaust pipe, which converts hydrocarbons, carbon monoxide, and NOx into less harmful gases.

- **There are two types of catalytic converters:**
  - Two-way converters reduce hydrocarbon and carbon monoxide emissions, and were common until the 1980s.
  - Three-way converters reduce nitrogen oxides, hydrocarbons and carbon monoxide emissions, and have been used since 1981.



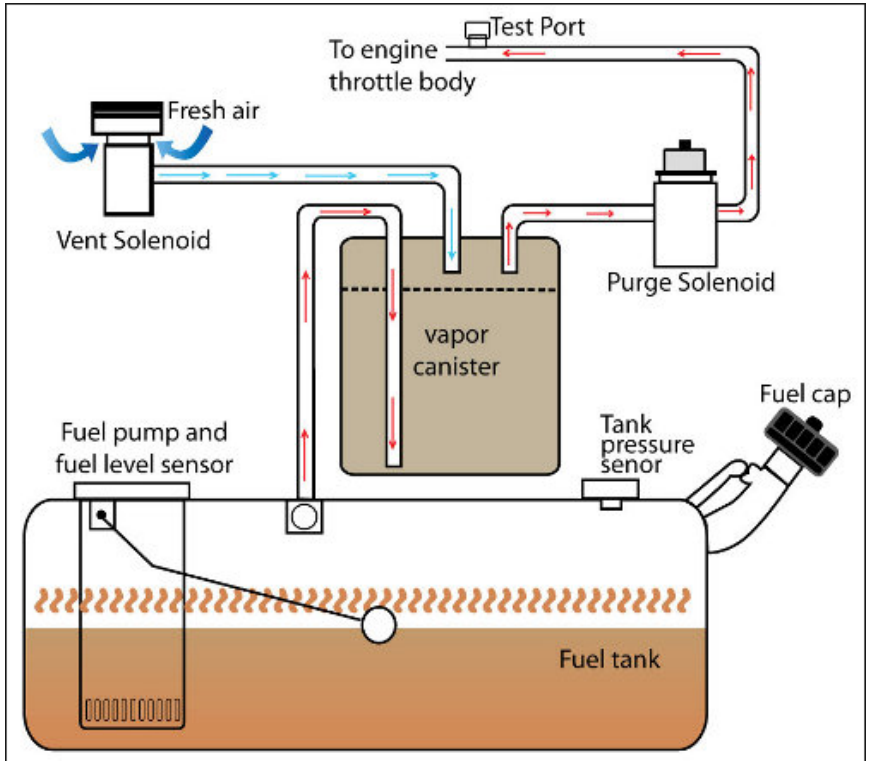
O2 Sensor/Upstream
Catalytic Converter
O2 Sensor/Downstream



Evaporative Emissions

- Evaporative emissions are the result of gasoline vapors escaping from the vehicle's fuel system. Since 1971, all U.S. vehicles have had fully sealed fuel systems that do not vent directly to the atmosphere.

- In a typical system, vapors from the fuel system are ducted to canisters containing activated carbon. The vapors are adsorbed within the canister, and during certain engine operational modes, fresh air is drawn through the canister, pulling the vapor into the engine, where it burns.



Secondary Air Injection

- One of the first-developed exhaust emission control systems is secondary air injection. Originally, this system was used to inject air into the engine's exhaust ports to provide oxygen so unburned and partially burned hydrocarbons in the exhaust would finish burning. Air injection is now used to support the catalytic converter's oxidation reaction, and to reduce emissions when an engine is started from cold. After a cold start, an engine needs an air-fuel mixture richer than what it needs at operating temperature, and the catalytic converter does not function efficiently until it has reached its own operating temperature. The air injected upstream of the converter supports combustion in the exhaust headpipe, which speeds catalyst warmup and reduces the amount of unburned hydrocarbon emitted from the tailpipe.

Canister Purge Solenoid

- The canister purge solenoid is part of the evaporative emission control system (EVAP) in your vehicle. A hose connects the canister purge solenoid to the charcoal canister and then to the engine vacuum, which makes up the entire EVAP system

- The purpose of the EVAP system is to prevent large amounts of fuel vapors from escaping into the atmosphere and from getting into your vehicle.

- The canister purge solenoid works by absorbing the fuel vapors with activated charcoal. Activated charcoal sucks up and absorbs the fuel vapors until the vehicle is started and is being driven by you. The canister is then opened by the powertrain control module, or PCM, which allows the intake vacuum to siphon the vapors into the engine via the tank vent line. Activated charcoal does not wear out, so unless the canister itself gets broken or damaged, it should not have to be replaced.

Exhaust Gas Recirculation/EGR Valve

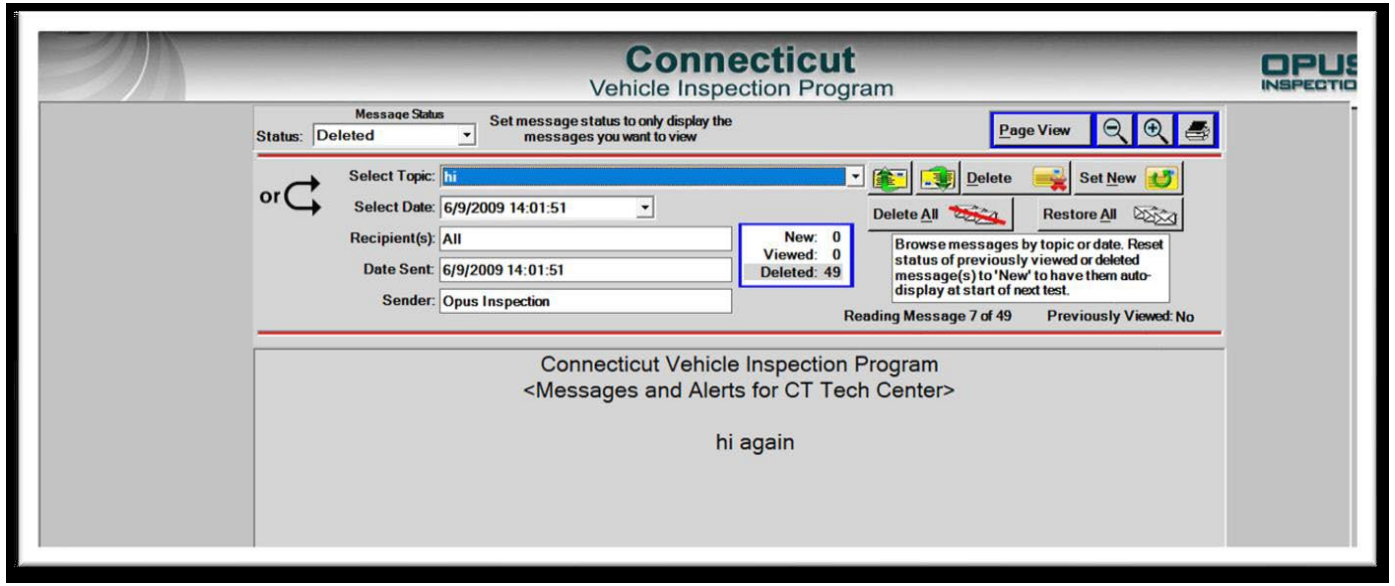
- The purpose of the exhaust gas recirculation valve (EGR) valve is to meter a small amount of exhaust gas into the intake system. This dilutes the air/fuel mixture to lower the combustion chamber temperature. Excessive combustion chamber temperature creates oxides of nitrogen, which is a major pollutant. While the EGR valve is the most effective method of controlling oxides of nitrogen, in its very design it adversely affects engine performance. The engine was not designed to run on exhaust gas. For this reason, the amount of exhaust entering the intake system must be carefully monitored and controlled. This is accomplished through a series of electrical and vacuum switches and the vehicle computer. Since EGR action reduces performance by diluting the air /fuel mixture, the system does not allow EGR action when the engine is cold or when the engine needs full power.

Chapter 5: CDAS Overview

Review the basics of the Connecticut Decentralized Analyzer System (CDAS).

Program Messages: VID Blasts

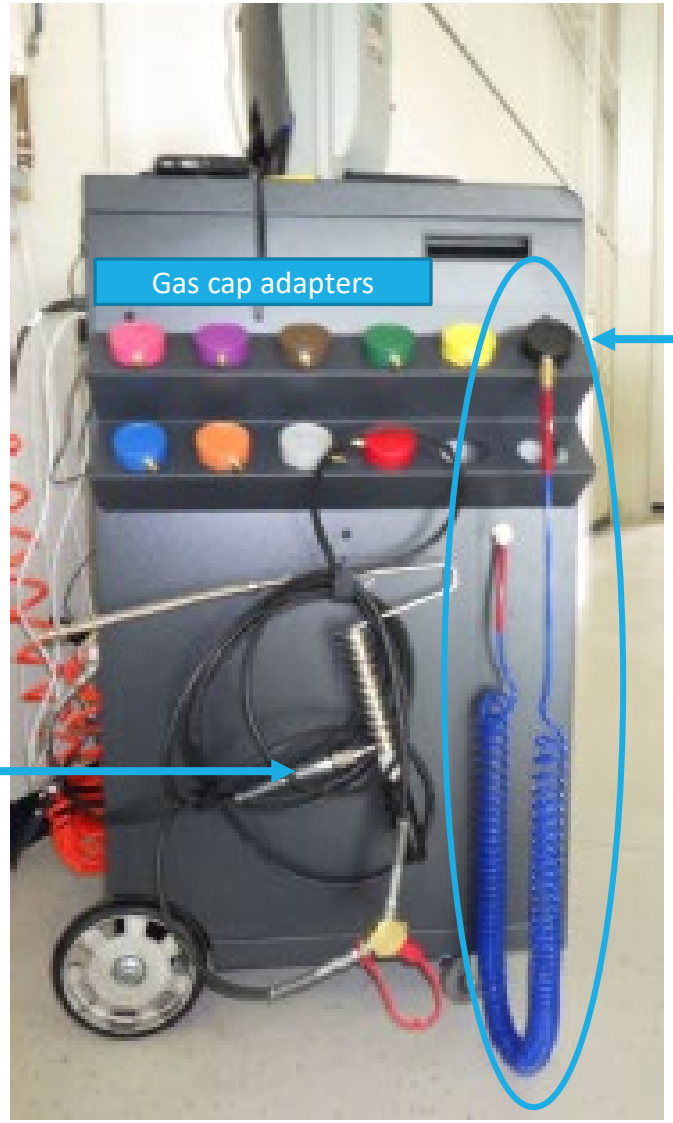
- Program messages, sometimes called ‘VID Blasts,’ are used by the DMV and Opus to communicate important program and policy messages to our network of Test Centers and CTIs. They will appear on the CDAS and should be checked immediately.
- The Test Center Agreement also requires that all Test Centers provide an email address to receive these communications.



Connecticut Decentralized Analyzer System (CDAS)

- The CDAS cabinet houses the required testing and calibration equipment necessary to perform emissions inspections.
- The CDAS equipment, its training, user support, and repair services are provided by Opus Inspection to all Test Centers and Certified Testing Inspectors (CTIs).
- The cabinet includes the following hardware necessary for testing and calibrating:
  - Monitor, keyboard, and mouse with pad
  - Printer
  - Opacity meter
  - Digital fingerprint pad/scanner
  - Monitor-mounted camera (for image capture of the authenticated user)
  - Barcode scanner
  - Pointer
  - Handheld camera (for capturing and uploading required test record images)
  - OBD cable
  - Gas cap adaptors
  - RPM cables (battery, induction, non-contact)
  - Calibration gases (high and zero)
  - Gas cap pressure test calibration tool
  - Sample probes

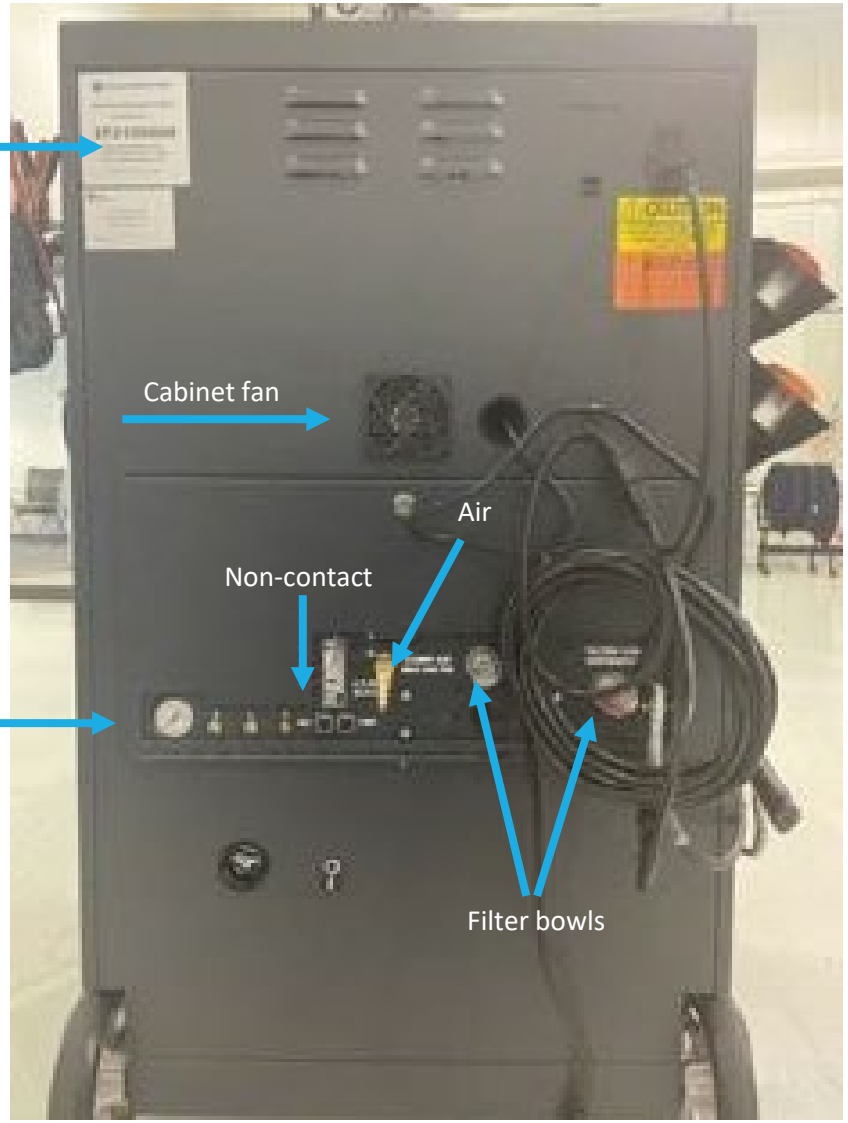
CDAS Equipment – Left and Ride Sides



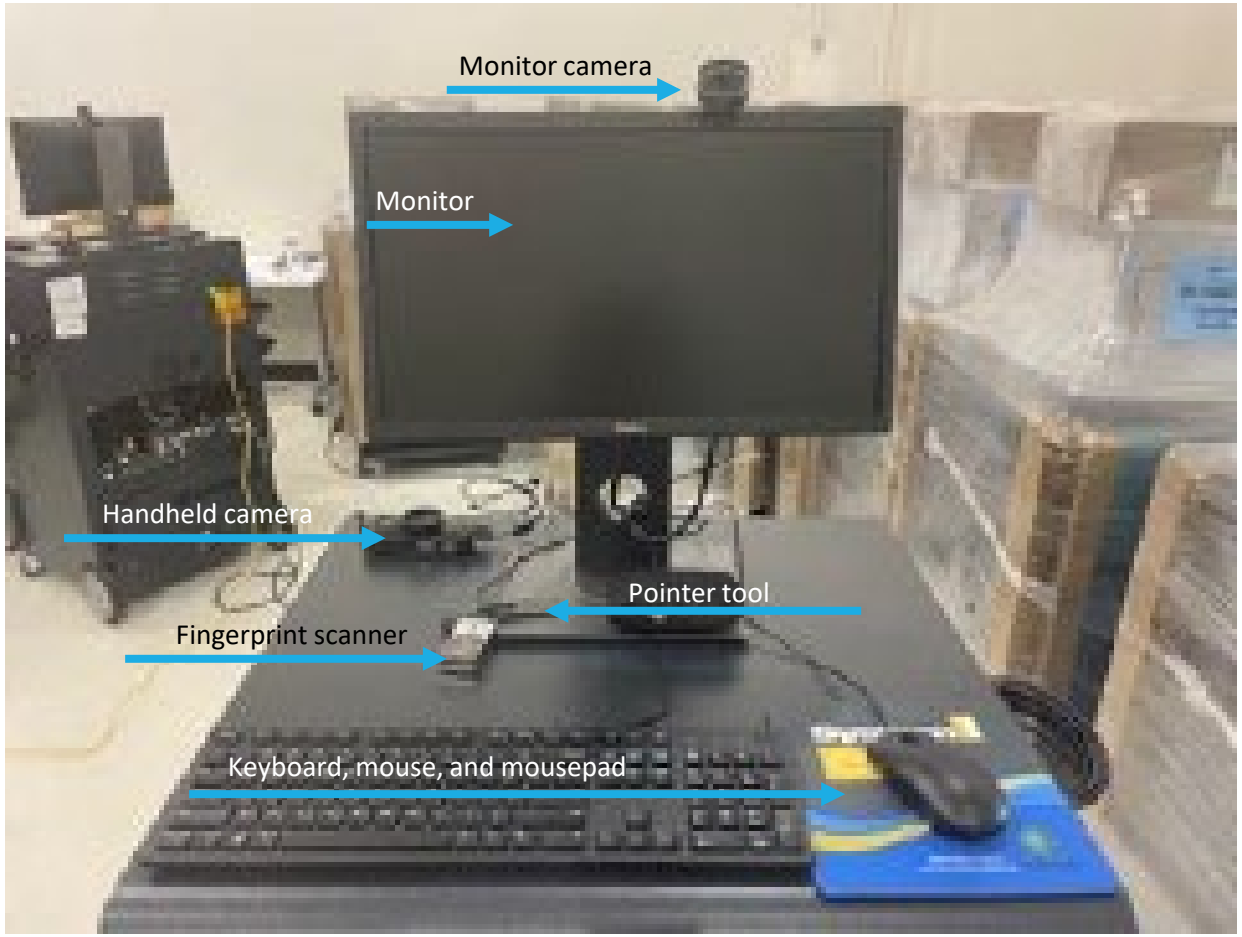
Left Side

Right Side

CDAS Equipment – Back and Top Deck



Back of CDAS



Top Deck

Equipment, continued

Opacity Meter

The opacity meter is a separate piece of equipment *not* housed on the CDAS used to measure exhaust smoke density/opacity on diesel vehicle inspections.

Printer

The CDAS unit is outfitted with an HP 404 printer, complete with starter toner and drum cartridges. Toner and drum cartridges are consumable inventory; tests center will purchase these as needed.

Equipment, continued

Monitor-mounted Camera

This is a stationary camera, which should remain in the position installed, used to capture a facial image of the logged in user of the CDAS; test record images are used to confirm user identity via fingerprint scan. Images remain part of the official test record, and should be unobstructed by hoods, hats, hair, etc. You must face the camera at the time of image capture, which occurs at the same time as the fingerprint authentication. Unprofessional, obscene, missing, or otherwise inappropriate images will not be tolerated and are subject to liquidated damages under the Compliance Action Plan.

Barcode Scanner

The barcode scanner is used to scan in the VIN as well as calibration gas bottle values.

Equipment, continued

Fingerprint Reader

The fingerprint reader allows users access to the CDAS menu functions that require user credentials. This method of user authentication ensures that credentials are not shared, and CTIs are protected against the fraudulent use of their credentials, which could lead to program violations and monetary penalties. Fraudulent use of another inspector's credentials will result in immediate expulsion from the program.

If you are having trouble getting the fingerprint reader to pick up your fingerprint, try wiping the glass with a clean towel, washing your hands, and/or placing your fingertip against your face to grab natural oils that sometimes help the reader to pick up a print.

FEATURES:

- Blue LED
- Small form factor
- Excellent image quality
- Superior ESD resistance
- Encrypted fingerprint data
- Latent print rejection
- Counterfeit finger rejection
- Rotation invariant
- Rugged
- Works well with dry, moist or rough fingerprints
- Compatible with DigitalPersona SDKs for Windows®, Linux® and Android®

Pointer Options

All stations will receive a wireless pointer

Jade RemotePoint VP4910

RemotePoint Air Point Presenter

RemotePoint Global Presenter

Ricoh Hand-Held Camera

The hand-held camera is supplied with your equipment for the capturing of three specific images required for every vehicle inspection:

- the vehicle's rear license plate
- the public VIN plate (mounted on the dashboard of the vehicle)
- the odometer reading

Once captured, you will upload the images to the test record. Although rugged, it is recommended that you use the wrist strap to prevent you from dropping the camera. Always keep connected to the charger when not in use. If you are unable to take pictures, you will not be allowed to proceed with an inspection.

Even if the vehicle is missing a license plate, you should still take the required photos.

To make sure your camera is charging, press the power button until you see a blinking green light which indicates the camera is in charging mode.

1 **Make sure that the camera is turned off and open the terminal cover.**
Move the terminal cover lock lever in the direction shown by ①, slide the cover in the direction shown by ② and open the cover in the direction shown by ③.

2 **Connect the USB cable to the power adapter.**

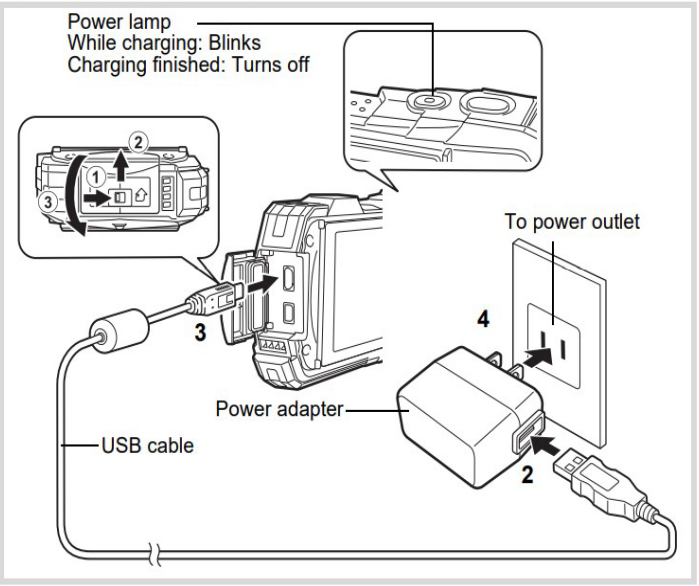
3 **Connect the USB cable to the camera.**

4 **Plug the power adapter into the power outlet.**
The power lamp blinks while charging.
When charging is finished, the power lamp turns off.
The terminal cover will not close while charging. Leave the cover open when charging and do not attempt to close it.

5 **Unplug the power adapter from the power outlet when charging is finished.**

Charging the Battery

Connect the supplied power adapter (D-PA164) to the camera and charge the battery before using it for the first time or after a long period of non-use, or when the [Battery depleted] message appears.

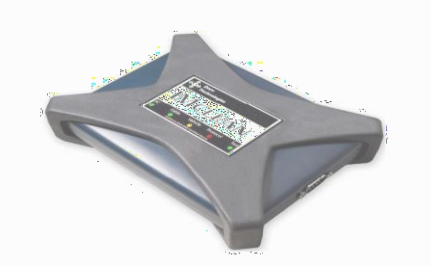


Scan QR code for full user manual PDF

On Board Diagnostics (OBD) Cable and Data Acquisition Device (DAD)

Connecticut performs OBD II Inspections on vehicle only up to 10,000 Lbs.

The OBD cable connects to the vehicle's DLC to retrieve data from the vehicle's PCM and reports the data back to the Data Acquisition Device (DAD) module. The IMclean® tool from Drew Technologies (pictured) is a DAD device designed to work with California's BAR-OIS system. This DAD can perform inspections on all OBD-compliant vehicles. The OBDII test can determine whether there is a malfunction in the components that control the vehicle's emission system through the vehicle's on-board computer.



Data Acquisition Device (DAD)

On Board Diagnostics (OBD) Cable connected to DAD unit

Gas Cap Pressure Tester and Calibration Tool

The gas cap pressure tester is located on the left side of the CDAS cabinet. This hose determines if there is a leak in the seal of the vehicle's gas cap. The adapters are for different style gas caps, although the base (black #4) adapter will fit most vehicles. If one is needed, the system will prompt you to use the recommended adapter.

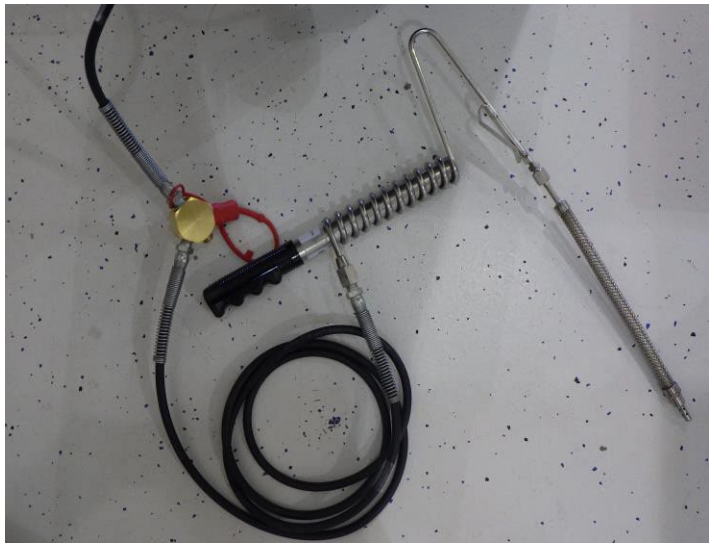
Waekon Gas Cap Calibration Tool

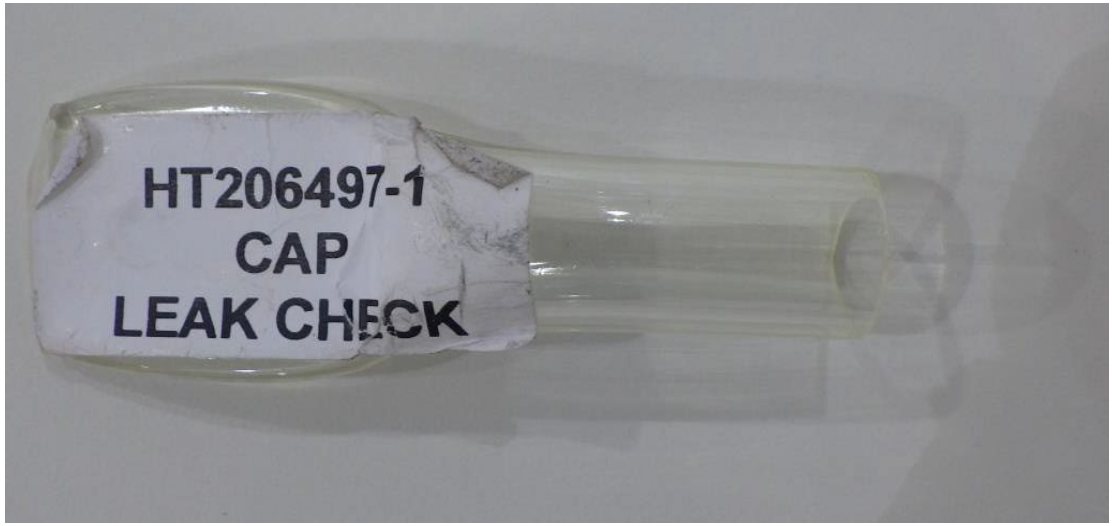
The gas cap pressure tester calibration tool will calibrate both pass and fail cap calibrations using a lever located at the top of the tool. To calibrate a pass, you will have the lever turned to the green side of the tool, and for fail you will turn it to red side (as seen in the image to the left).

There is a quick disconnect located at the bottom of the tool. At each stage of the calibration, you will release pressure by disconnecting the tool from the pressure tester hose. Follow the prompts on the screen during the calibration for instructions on when to remove the tool.

Exhaust Probe(s) for TSI Test

The exhaust probe's function is to measure tailpipe emissions (hydrocarbons/carbon monoxide) at cruise engine speed and then at an idle speed. The probe is inserted into the exhaust pipe (a second probe is provided for use on vehicles with dual exhaust) and during inspection will pull exhaust through a sample system located inside the CDAS cabinet. The sample system will measure the readings to ensure that the emissions meet the requirements of the program for a passing inspection result. If the readings are outside the required parameters, the vehicle will fail the inspection.





Leak Check Probe Cap

RPM Cables

RPM cables are used for obtaining RPM readings from the vehicle during a PCTSI inspection. There are three methods available for obtaining RPM:

- **Non-Contact** obtains RPM through the 12-volt accessory power outlet port (lighter port) *or* obtains RPM readings by connecting battery terminal clamps to the vehicles positive and negative battery terminal posts.
- **Contact** uses an inductive clamp that is placed on a vehicle's ignition wire.
- **OBD** is obtained through connecting to the DLC

Calibration Gases

Calibration gases are used to calibrate the gas bench located inside the CDAS cabinet. The gas bench is what measures the reading of the exhaust gas during a PCTSI emissions inspection. The following gases are used:

- High gas
- Zero air gas

The gas calibrations will ensure that the gas bench is reading the exhaust sample correctly by using a bottled gas that is of a specific grade.

Consumable Inventory

Consumables are CDAS equipment and maintenance inventory, which is your Test Center is responsible for purchasing as needed. To maintain the integrity of the CDAS unit and equipment, you must purchase these items through OPUS Inspection, as contractually obligated and detailed in the Test Center Participation Agreement. Purchase of consumable inventory from any alternate source is prohibited. If equipment failure occurs due to the use of unauthorized parts, the Test Center may be responsible for the replacement of failed equipment. A full consumable inventory part list is included in the Test Center Participation Agreement.

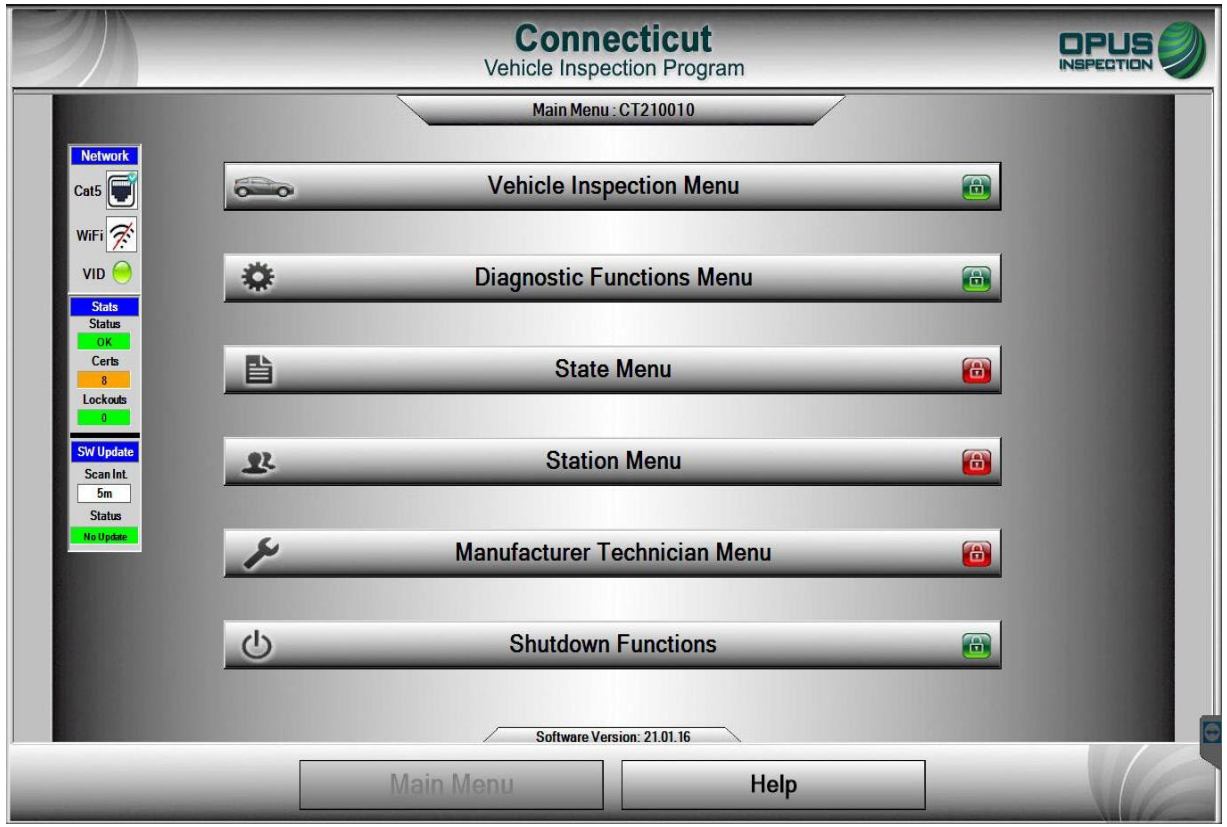
Examples of consumable parts include, but are not limited to:

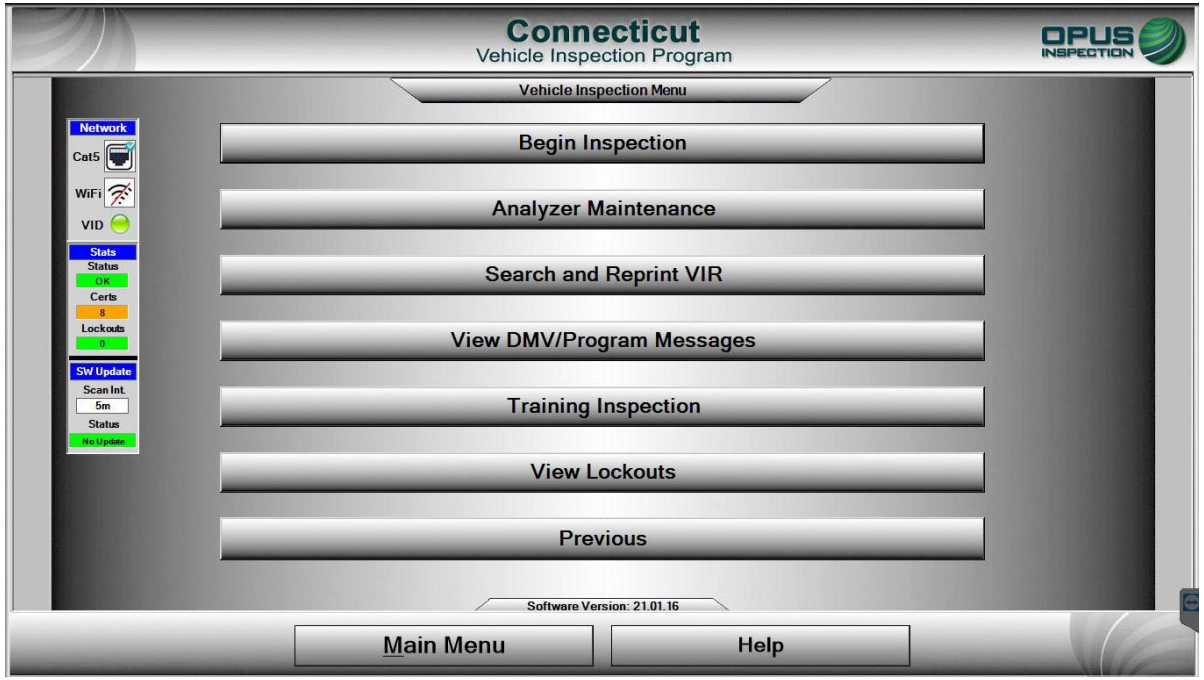
- Opacity lenses
- Filters
- Printer toner and drum cartridges
- Network cables
- High and zero air calibration gases
- Sample hose assembly
- Flexible probe tip
- Exhaust probe handle
- Exhaust hoses and Y fitting
- Exhaust hose male and female quick-disconnects
- Sample filters
- Cables (RPM & OBD)
- External power cable, 12VDC

Chapter 6: CDAS Menu Options Overview

Menus: Main Menu & Vehicle Inspection Menu

The main menu is essentially the home page of the CDAS inspection application. Some functions of the main menu will prompt for log-in while others are accessible without authentication. The status bar on the left will give you real time status of the network connection to internet and the VID. It will also show if any lockouts are present. **Certs** refers to the number of test authorizations remaining. **SW** refers to software updates; the application will automatically update new software releases. If the software update fails, a CDAS lockout will be initiated; Test Centers should contact the Opus Help Desk for resolution.

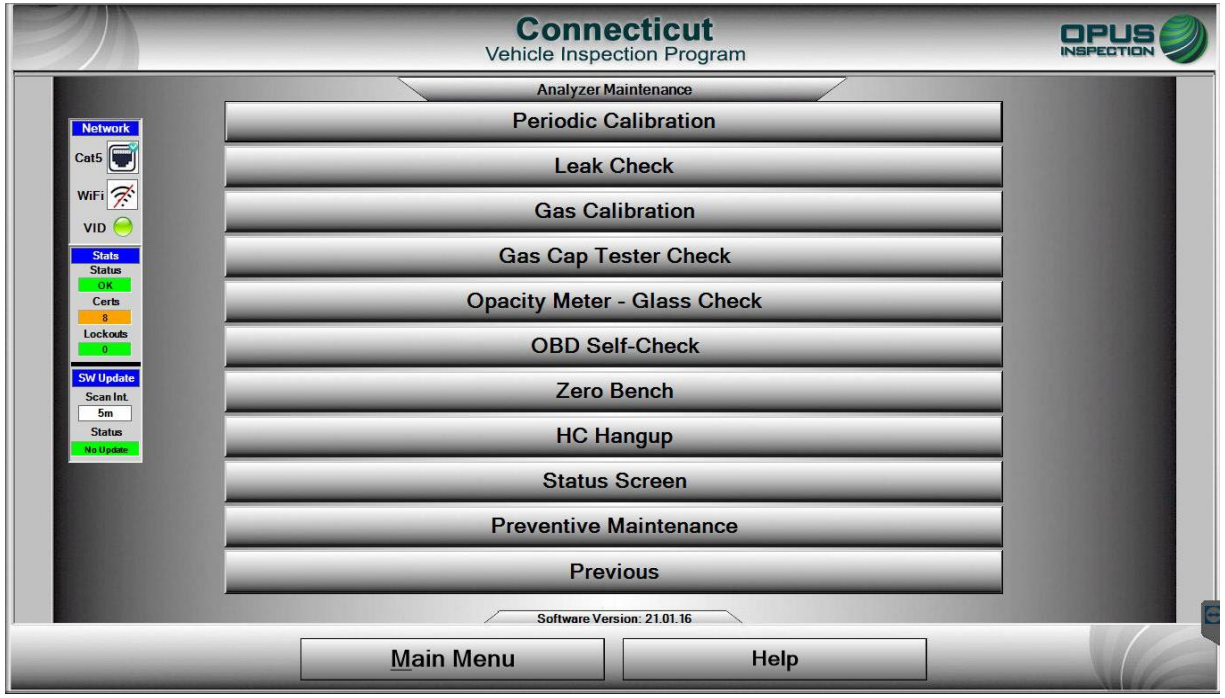


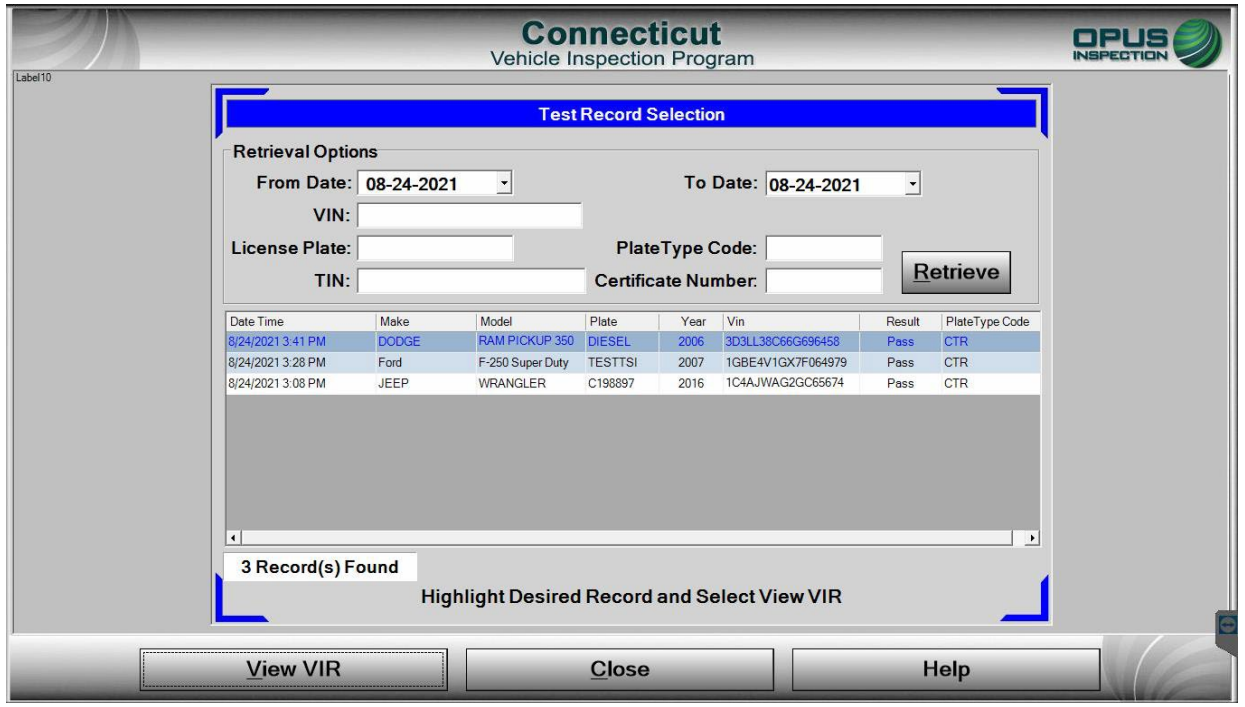


Vehicle Inspection Menu >Begin Inspection

Begin Inspection will take you to immediately begin an inspection. Inspections will be demonstrated later in this manual.

Vehicle Inspection Menu: Analyzer Maintenance & Search and Reprint VIR





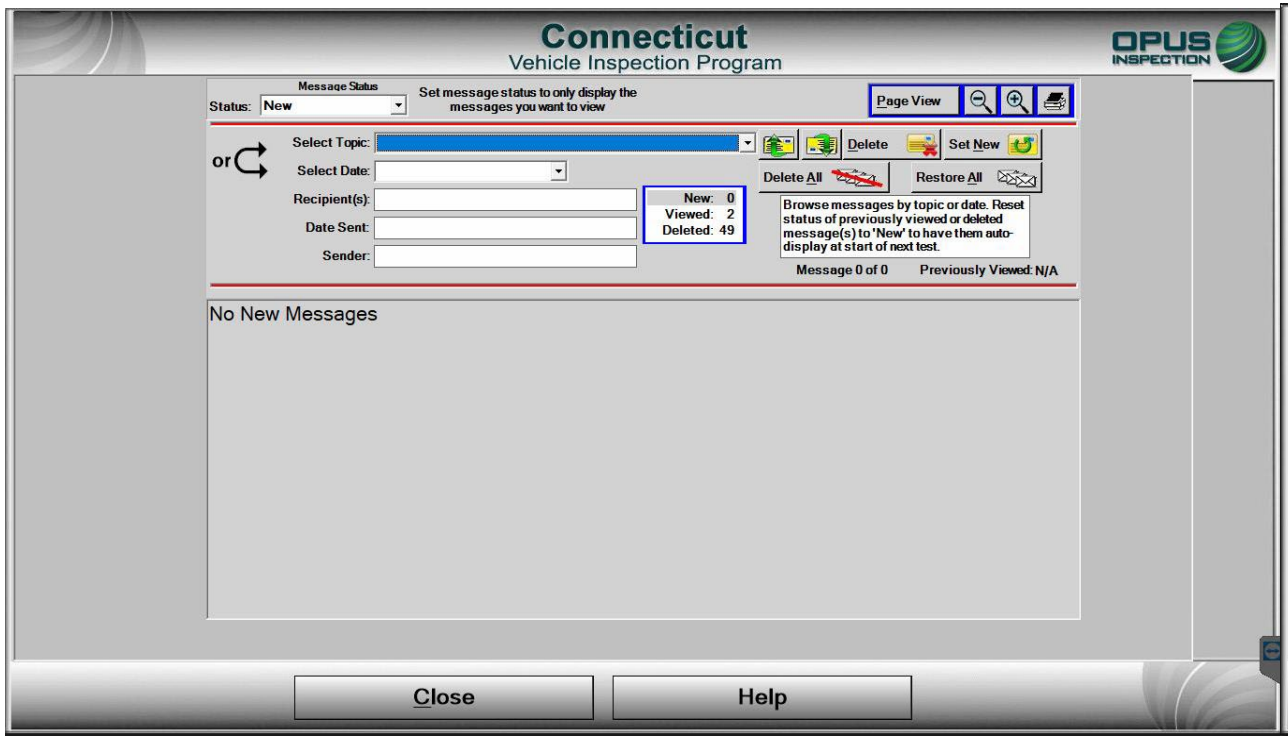
Vehicle Inspection Menu >Analyzer Maintenance

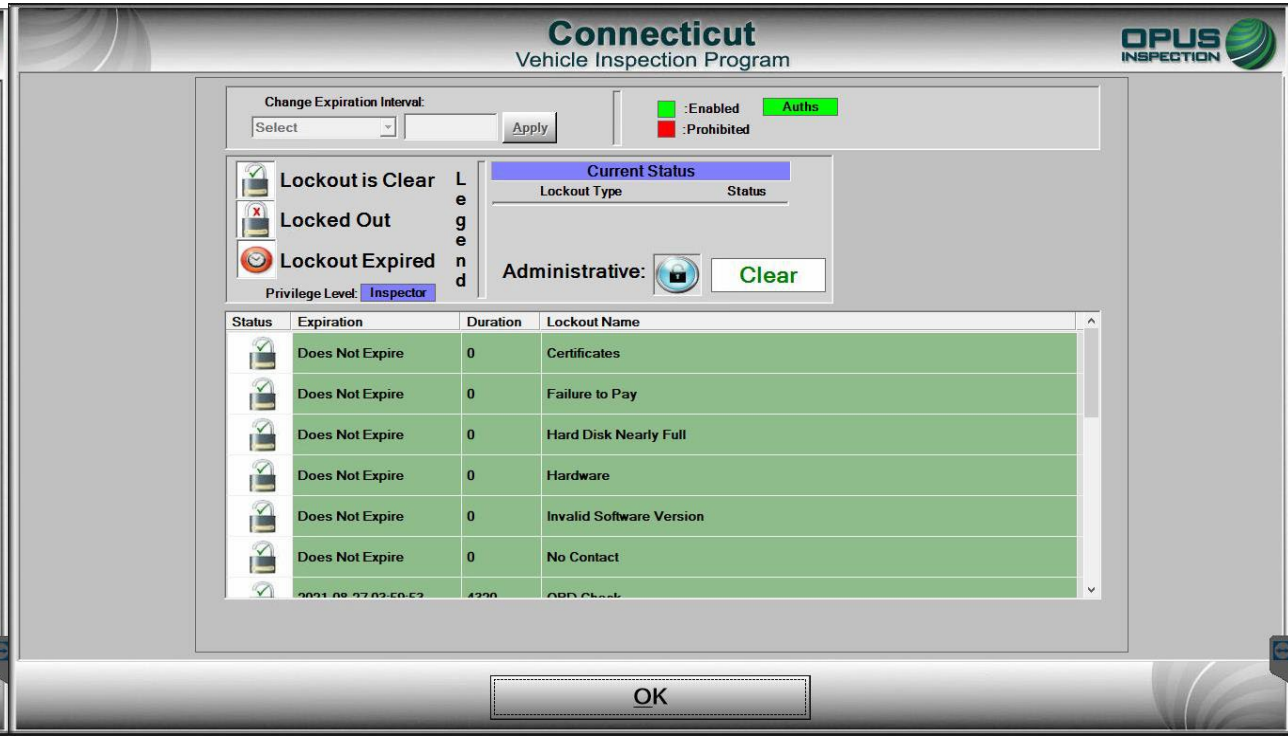
Periodic calibrations and preventative maintenance are found in the Analyzer Maintenance menu.

Vehicle Inspection Menu >Search and Reprint VIR

This menu option is used for reprinting the VIR. Reprinting a VIR for a motorist is done free of charge.

Vehicle Inspection Menu: View DMV / Program Messages & View Lockouts





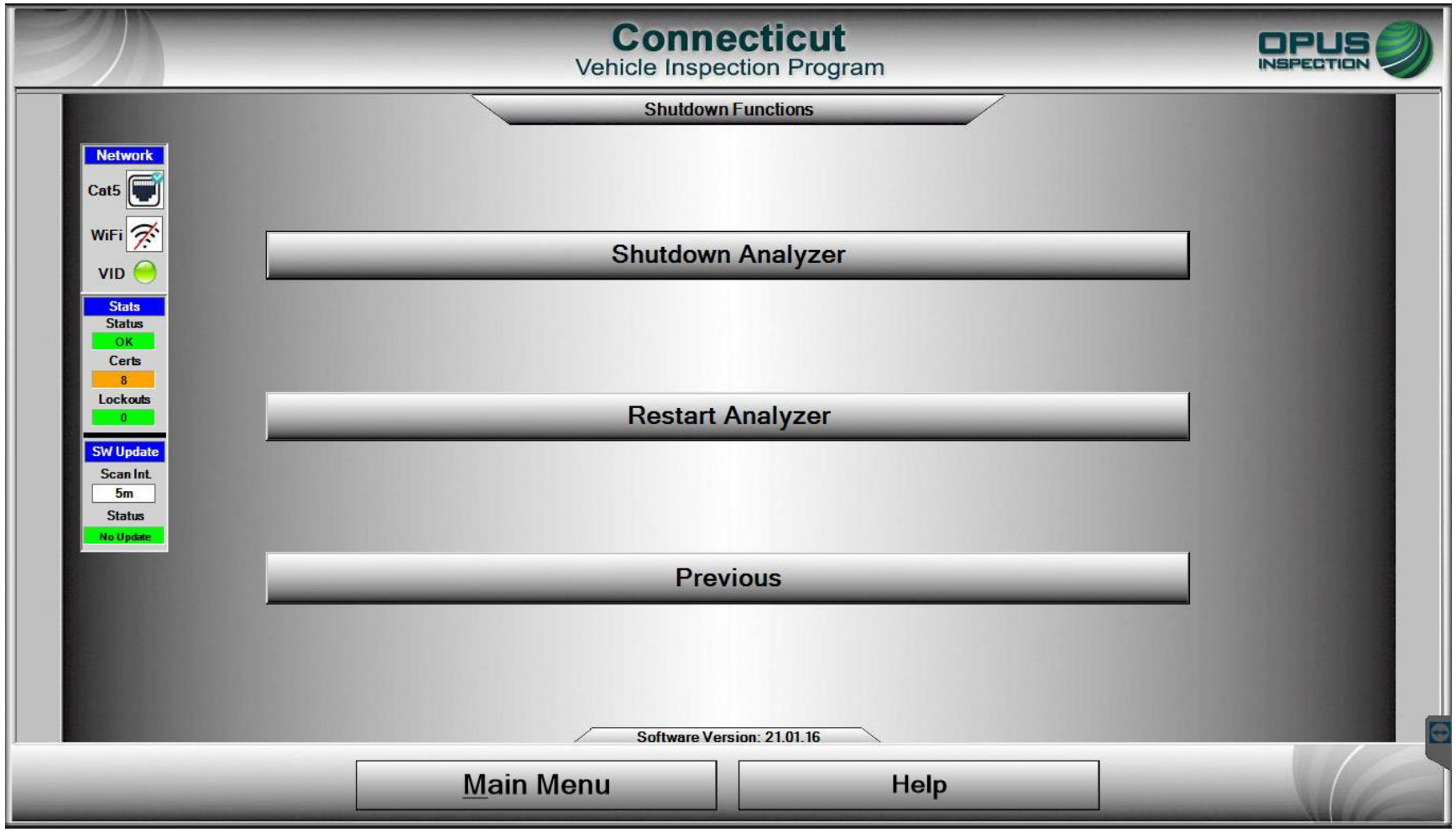
Vehicle Inspection Menu >DMV/Program Messages

Here is where you will find all DMV and program messages, including VID Blasts. New messages will appear upon login for inspectors who have not yet read them. Messages are stored and searchable.

Vehicle Inspection Menu >View Lockouts

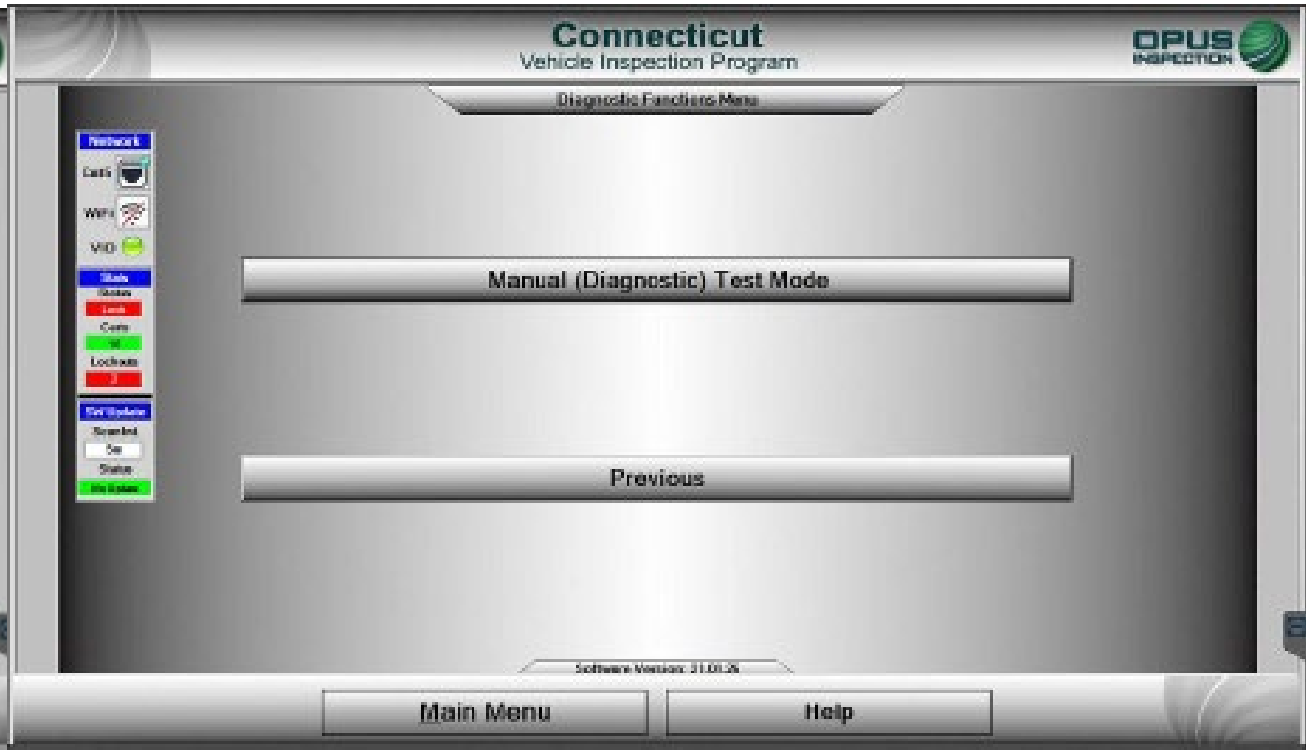
This menu is used to view CDAS lockouts that will prevent you from performing certain functions and/or inspections and must be addressed. If a lockout cannot be cleared by the inspector, such as expired calibrations, a call to the Opus Help Desk is required.

Vehicle Inspection Menu: Shutdown Functions



The shutdown function menu will allow you to properly shutdown or restart the CDAS at any point.

Main Menu: Diagnostic Functions Menu: Manual (Diagnostic) Test Mode

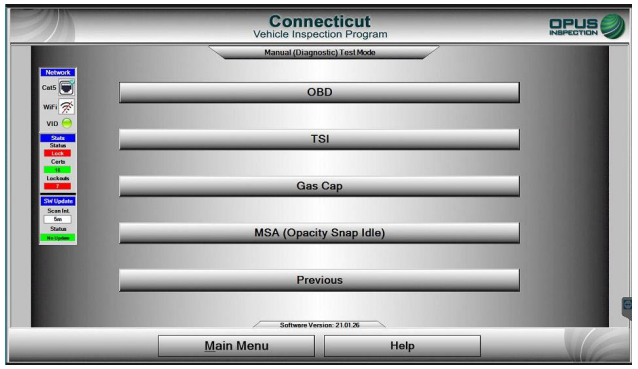


Main Menu>Diagnostic Functions Menu>Manual (Diagnostic) Mode

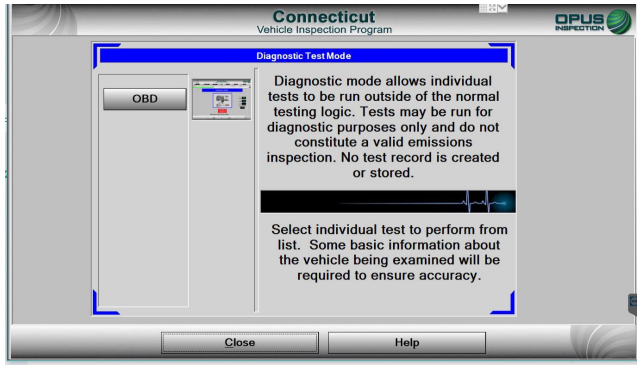
The Manual (Diagnostic) Test Mode Menu allows individual tests to be run outside the normal logic. Tests may be run for diagnostic purposes only and do not constitute a valid emissions inspection. **No test record is created or stored.**

Main Menu: Diagnostic Functions Menu: Manual (Diagnostic) Test Mode: OBD

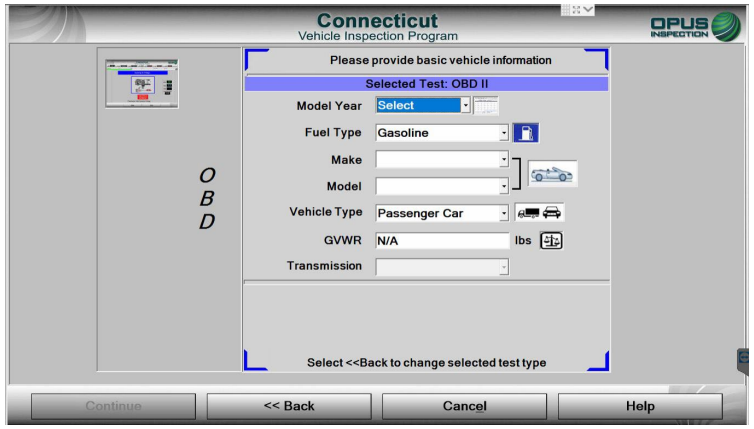
1.



2.

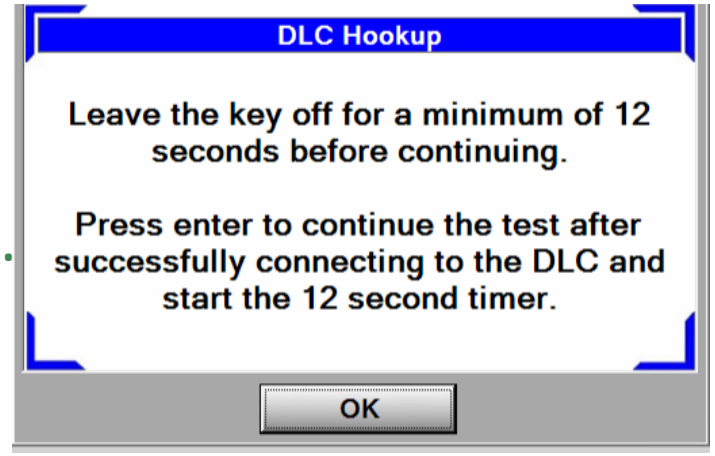


3.

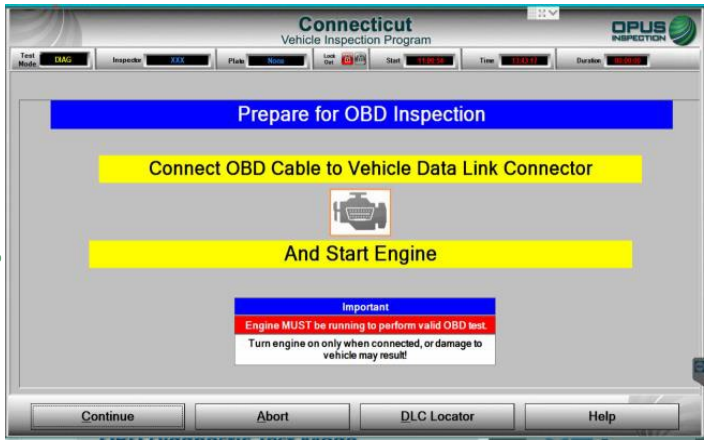


4.

5.



6.

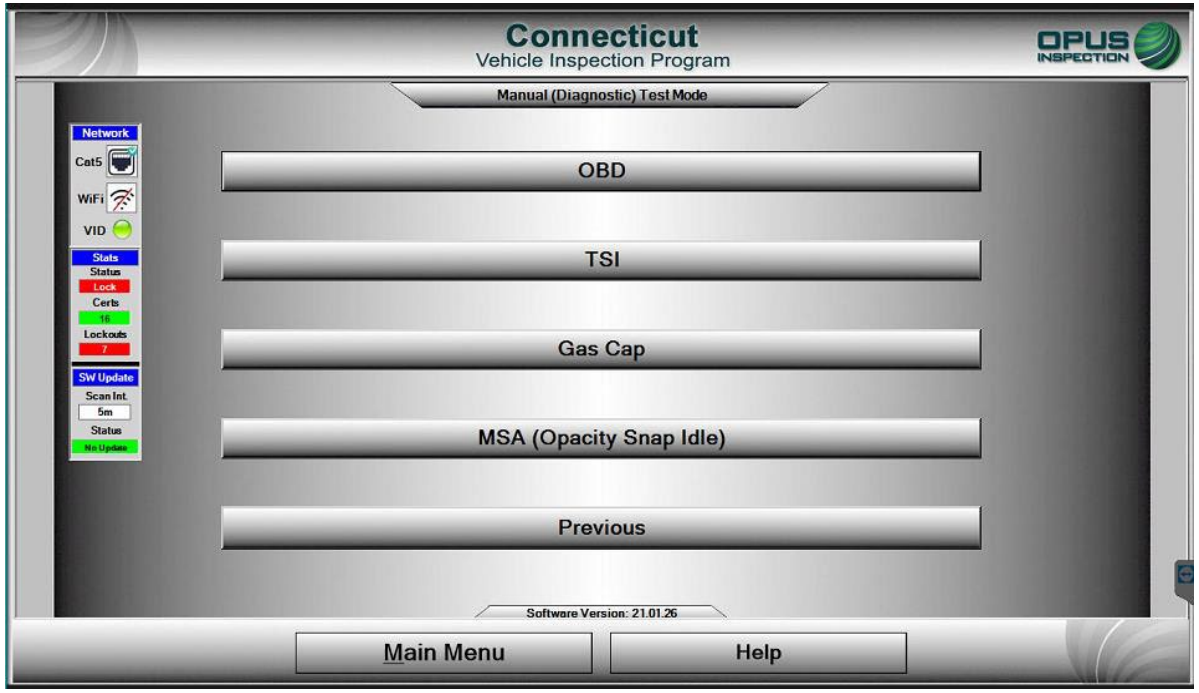


Main Menu>Diagnostic Functions Menu>Manual (Diagnostic) Test Mode>OBD

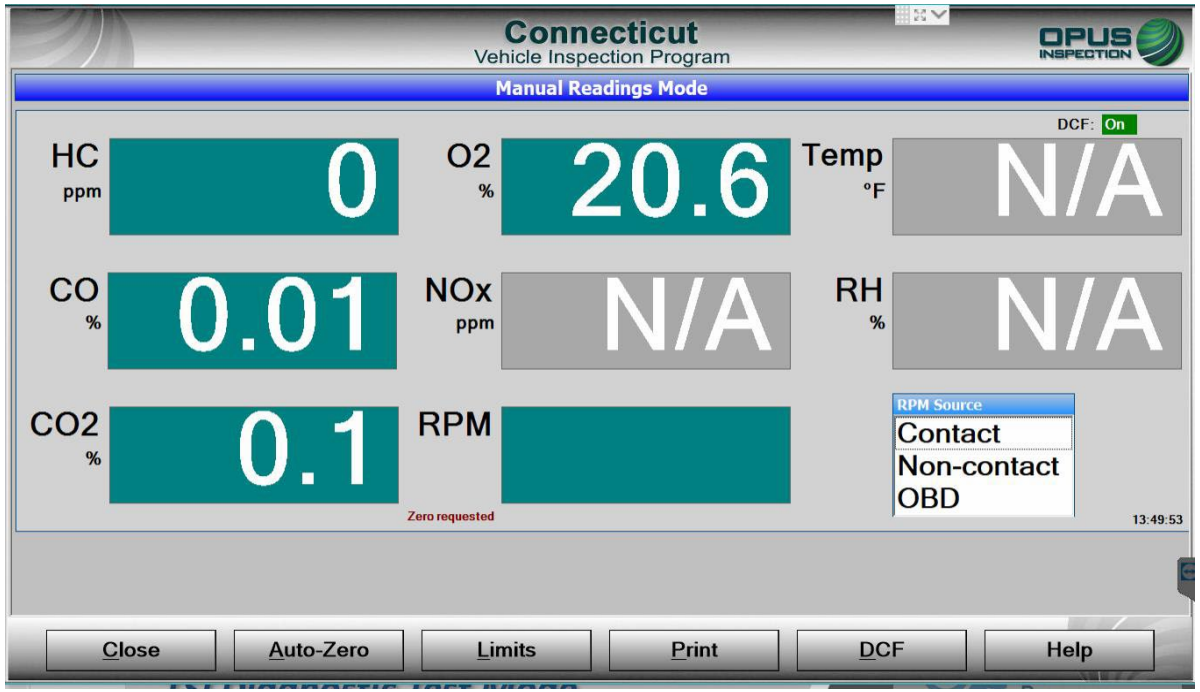
To diagnose OBD, such as communication, click on OBD, then click OK to proceed to the next slide, where you will enter requested information. Proceed to the test screen for OBD; it will have you perform a KOEO check before initiating the test.

Main Menu: Diagnostic Functions Menu: Manual (Diagnostic) Test Mode: TSI

1.



2.

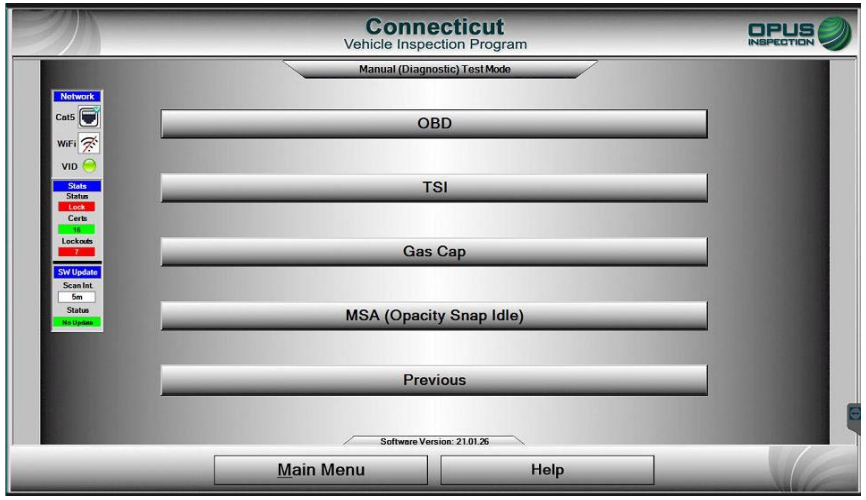


Main Menu>Diagnostic Functions Menu>Manual (Diagnostic) Test Mode>TSI

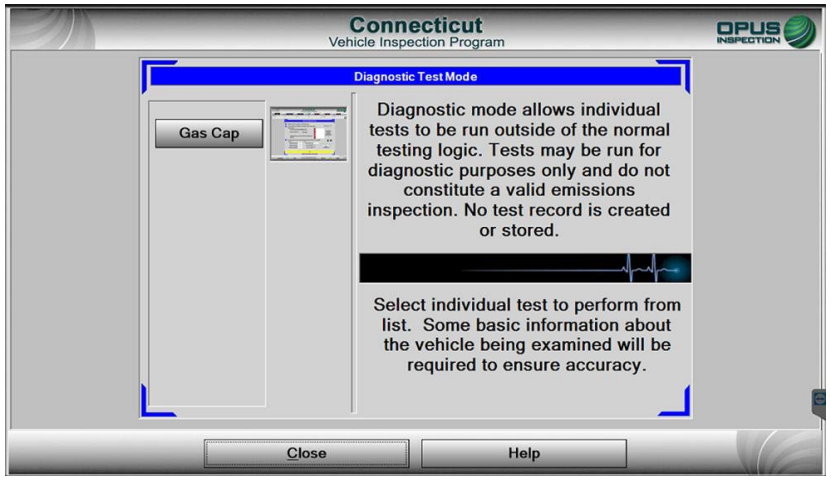
Click on TSI from the Manual (Diagnostic) Test Mode menu. The software will bring you into the manual test screen for TSI. It will have you obtain RPM; inserting the probe will give you sample exhaust readings.

Main Menu: Diagnostic Functions Menu: Manual (Diagnostic) Test Mode: Gas Cap

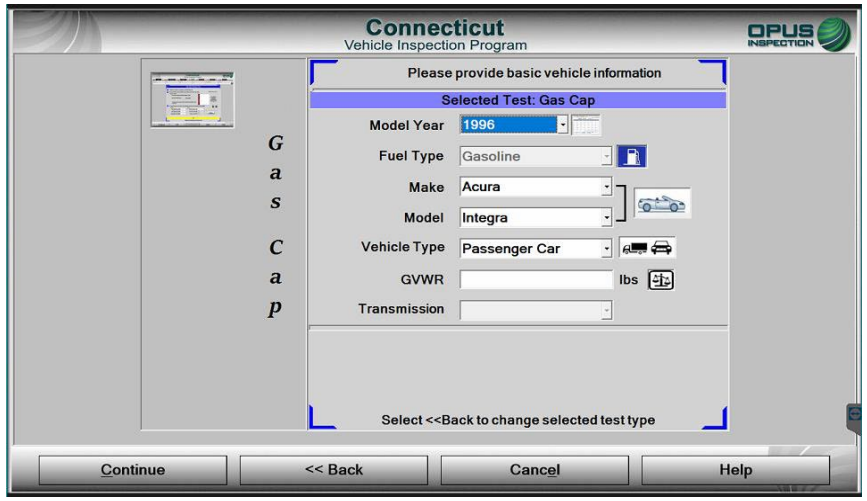
1.



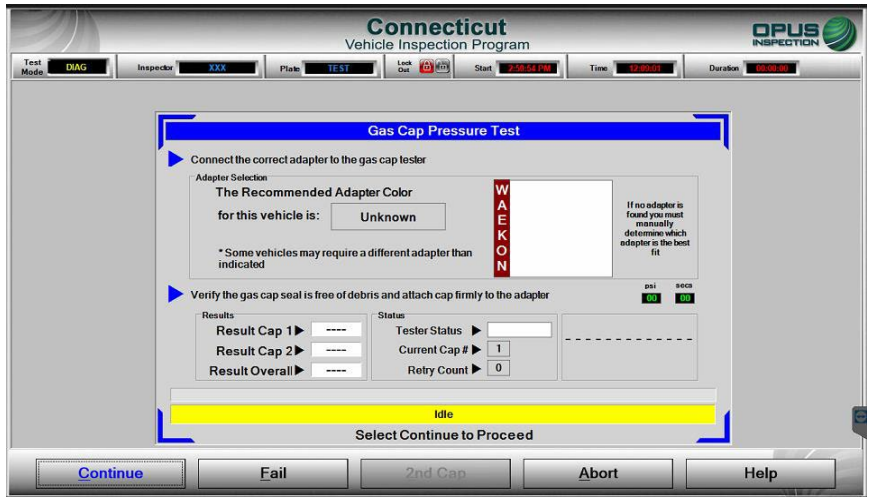
2.



3.



4.

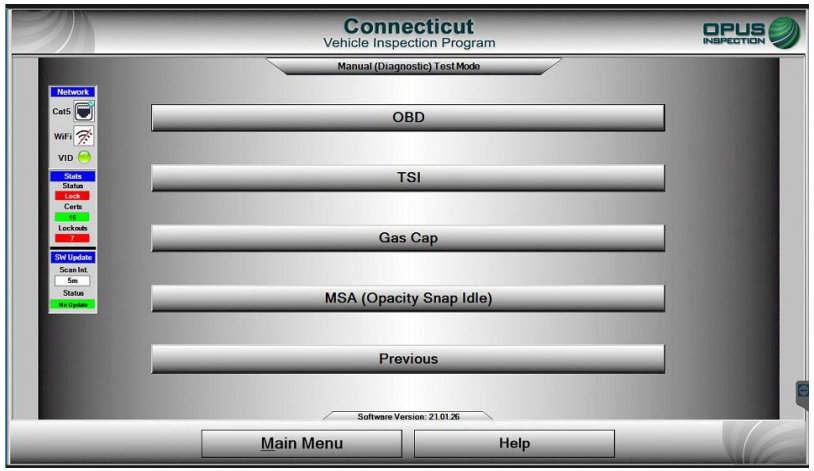


Main Menu>Diagnostic Functions Menu>Manual (Diagnostic) Test Mode>Gas Cap

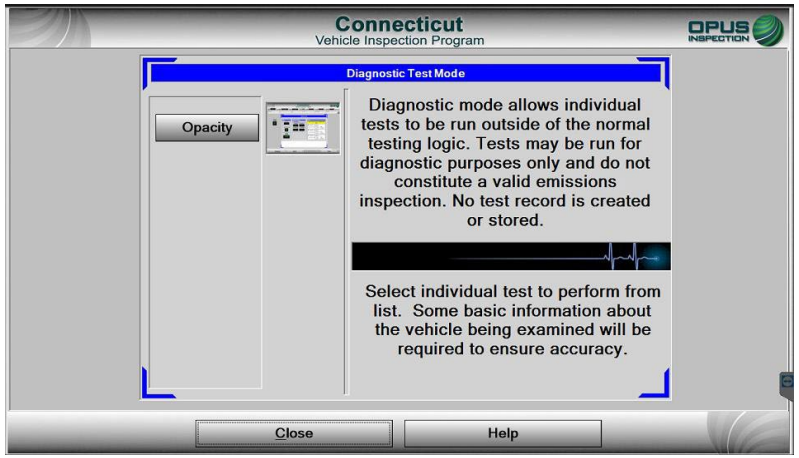
To diagnose a gas cap, click on Gas Cap and then proceed to the next slide. Enter the requested information and click continue; the software will bring you to the test screen for the gas cap test.

Main Menu: Diagnostic Functions Menu: Manual (Diagnostic) Test Mode: MSA (Opacity Snap Idle)

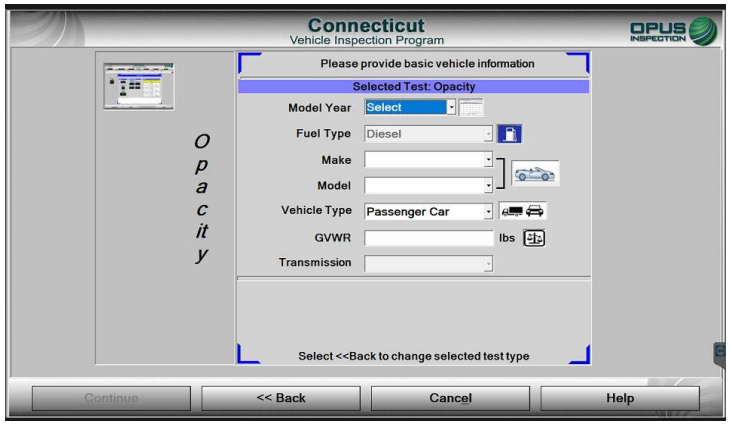
1.



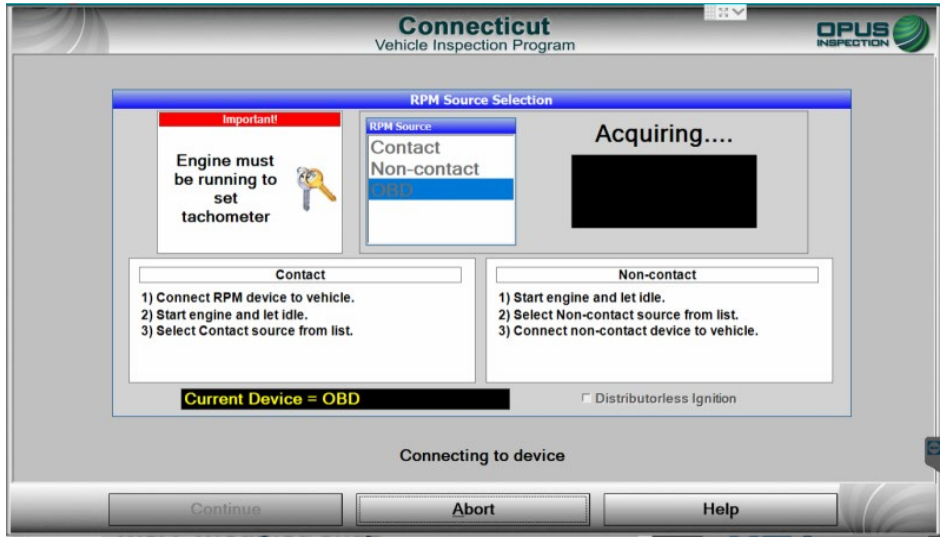
2.



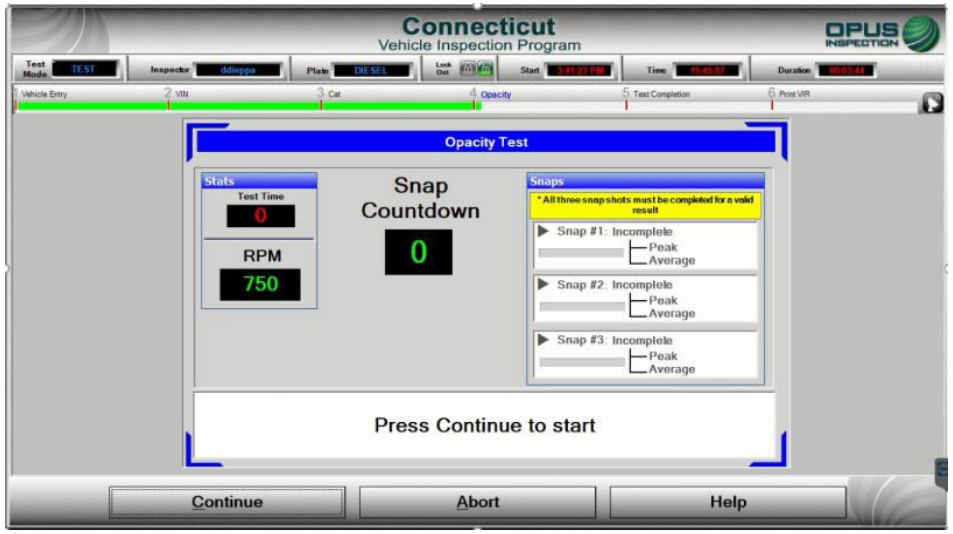
3.



4.



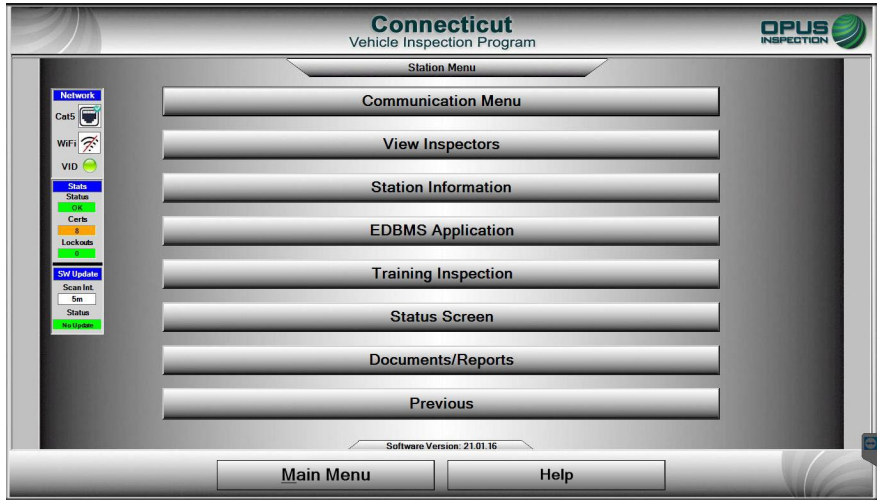
5.



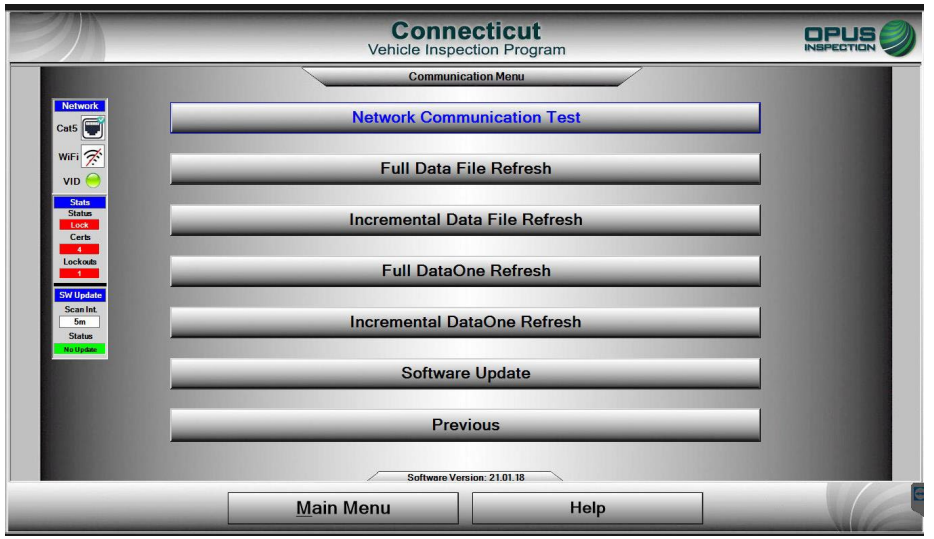
Main Menu>Diagnostic Functions Menu>Manual (Diagnostic) Test Mode>MSA

To diagnose/read a diesel exhaust sample, click on MSA (Opacity Snap Idle) and then on the following screen, again, click opacity to proceed to next slide. Enter the requested information and click continue. The software will bring you to the test screen for the gas cap test; you will be prompted to first obtain RPM, and then you will perform the snap inspection.

Main Menu: Station Menu: Communication Menu

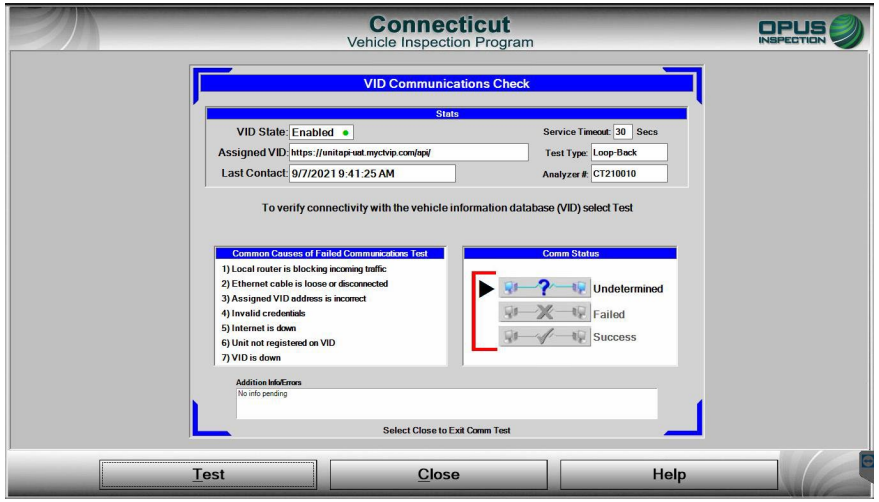


Main Menu>Station Menu



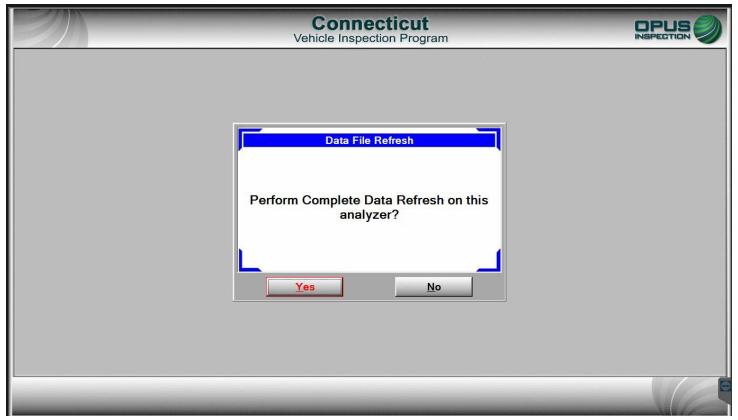
Station Menu>Communication Menu

The communication menu will allow you to troubleshoot communication issues and software updates.



Station Menu>Communication Menu>Network Communication Test

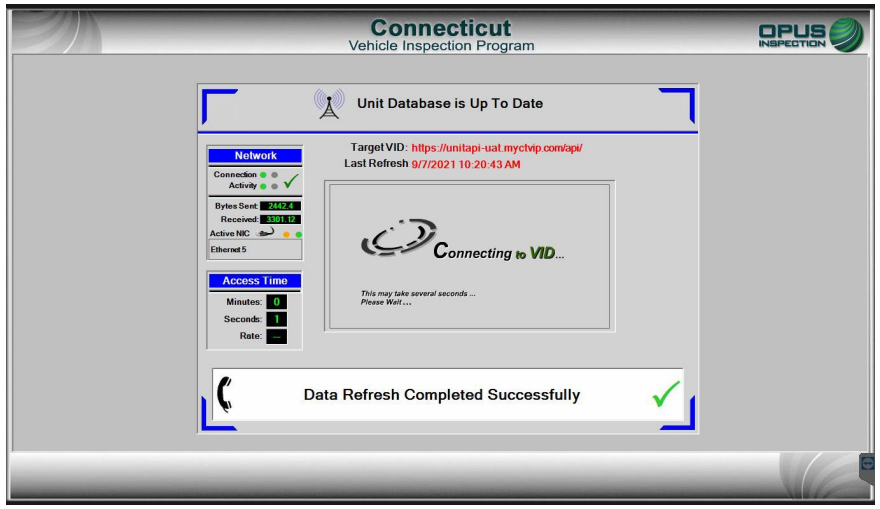
This menu option is used to test communication with the network (VID).



Station Menu>Communication Menu>Full Data File Refresh

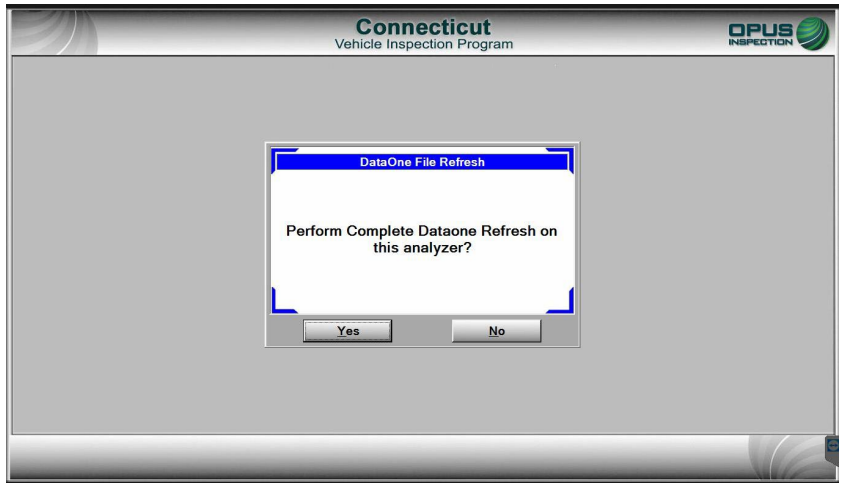
This menu option is used to ensure all official test records are uploaded to the VID; it also performs a check of configurations, data, files., etc., including CTI enrollment data.

Main Menu: Station Menu: Communication Menu



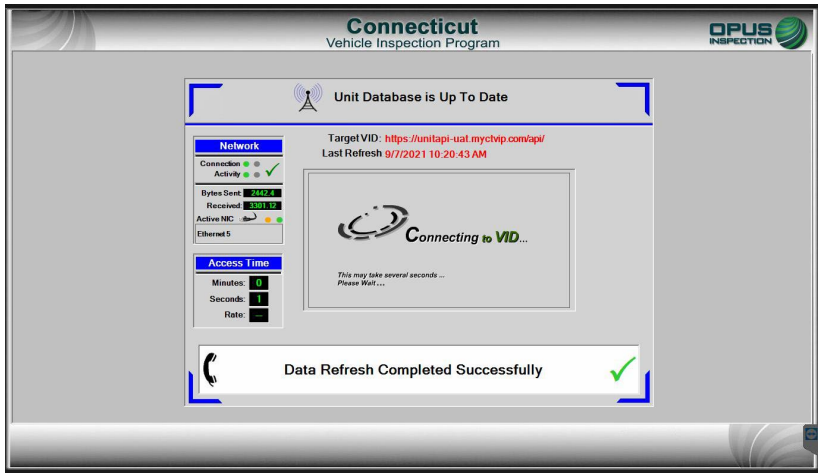
Station Menu>Communication Menu>Incremental Data File Refresh

Performs configurations of data files



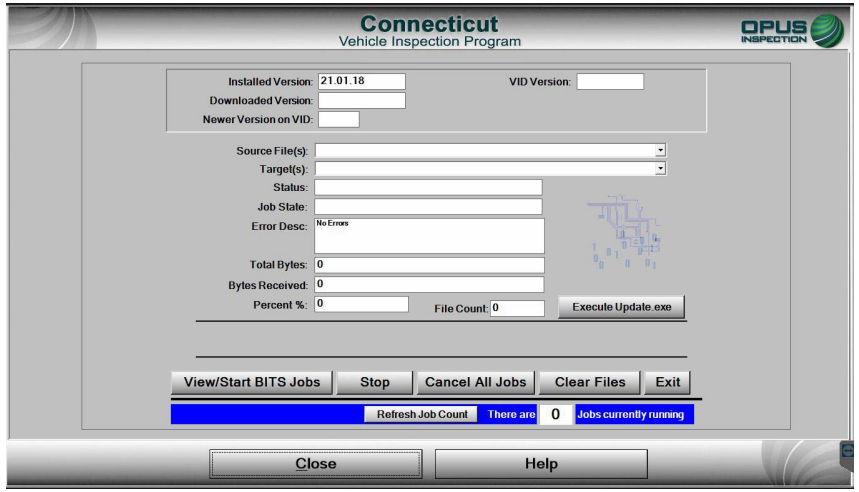
Station Menu>Communication Menu>Full DataOne Refresh

Uploads VLT data



Station Menu>Communication Menu>Incremental DataOne Refresh

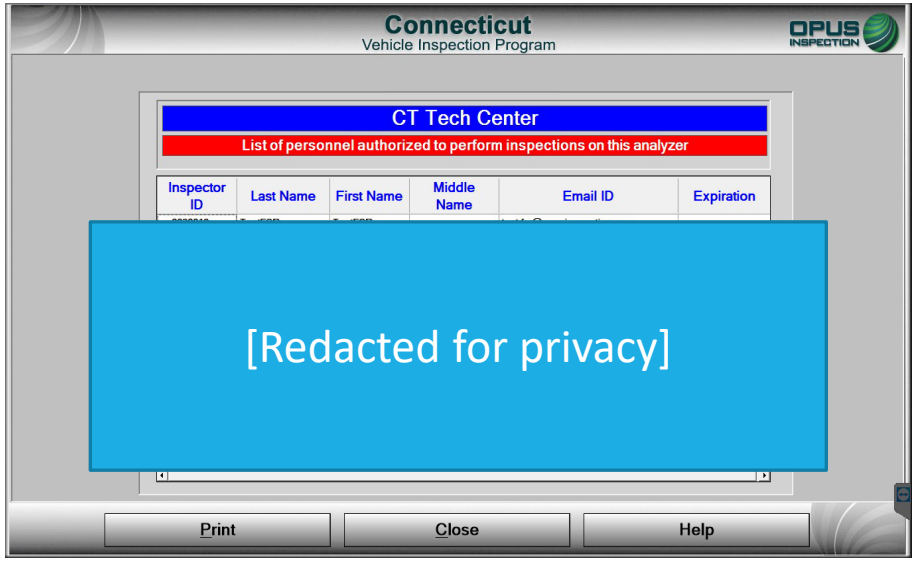
Retrieves configurations of VLT data



Station Menu>Communication Menu>Software Updates

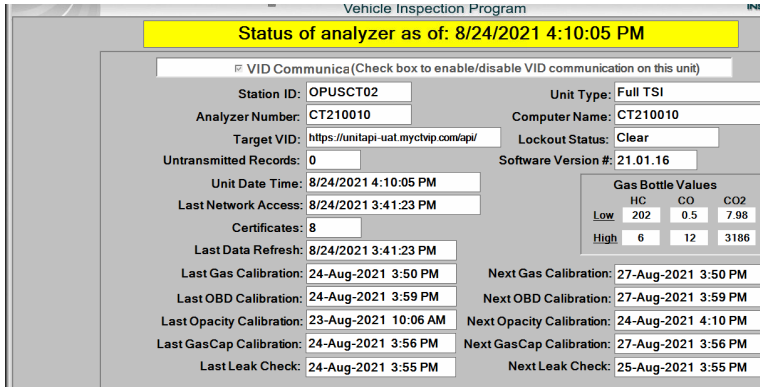
This menu option will allow you to manually push an update that has failed to automatically upload.

Main Menu: Station Menu: View Inspectors



This menu option will allow you to view authorized users assigned to your station. If a change needs to be made, i.e., an inspector needs to be added or removed from employment at that Test Center, a station staffing plan form, available on ctemissions.com, must be submitted to Opus Inspection.

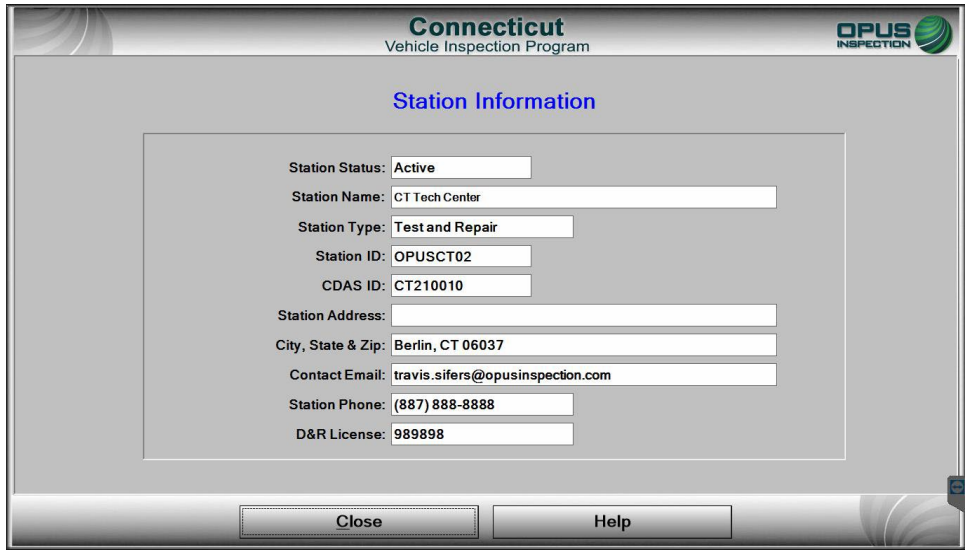
Main Menu: Station Menu: Station Information: Status Screen



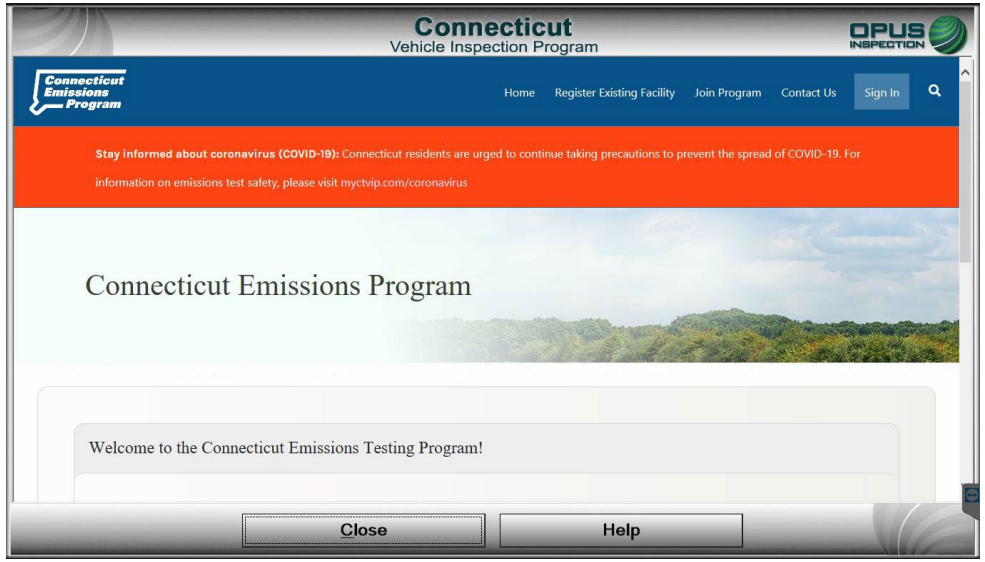
The status screen reports information on software, CDAS and station identification, status of the communication to the VID, test authorizations on hand, and calibration records.

Main Menu: Station Menu: Station Information

This menu options displays detailed station contact information.

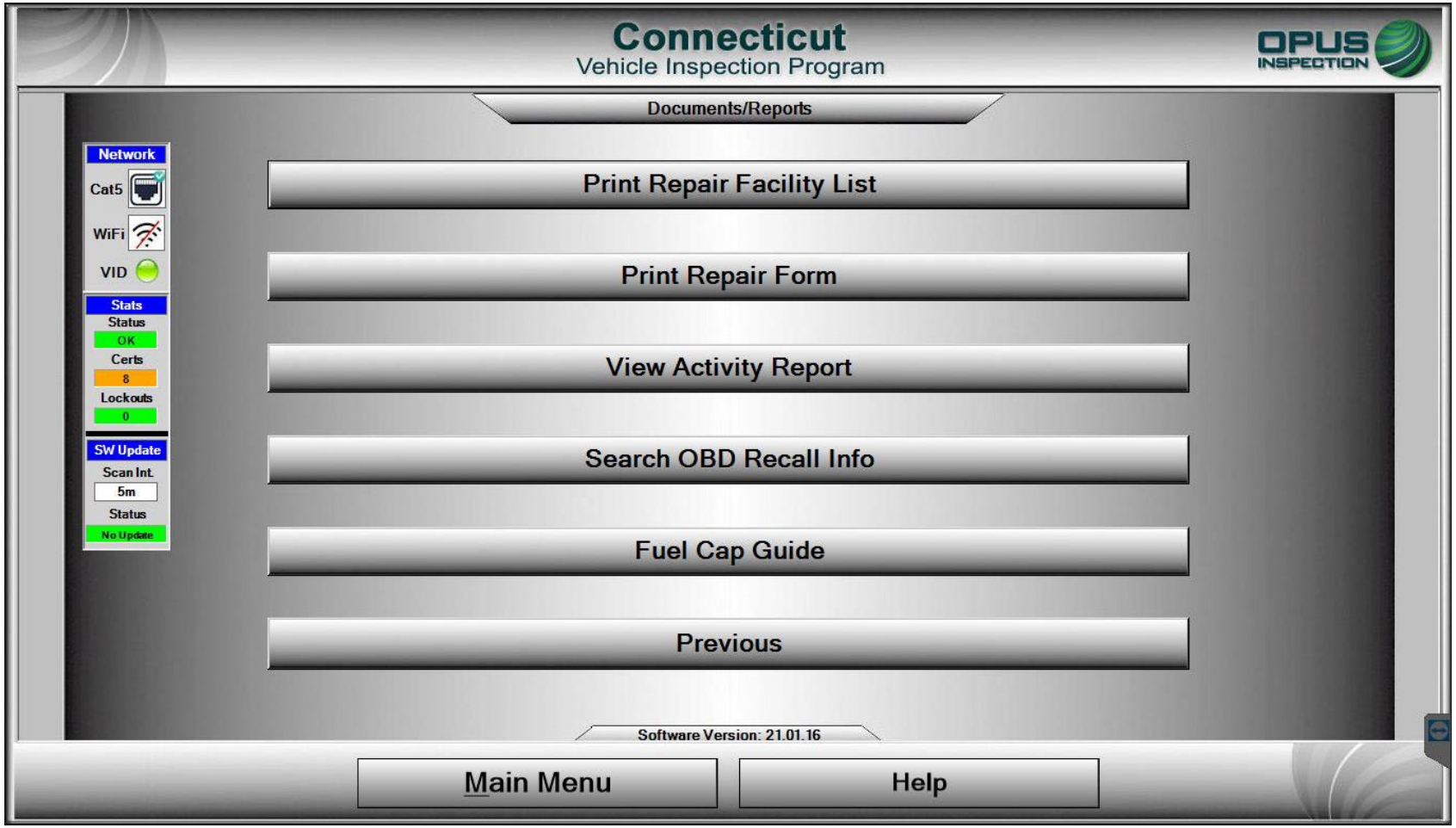


Main Menu: Station Menu: Station Information



This menu option gives you access to the EDBMS website to purchase test authorizations

Main Menu: Station Menu: Documents/Reports

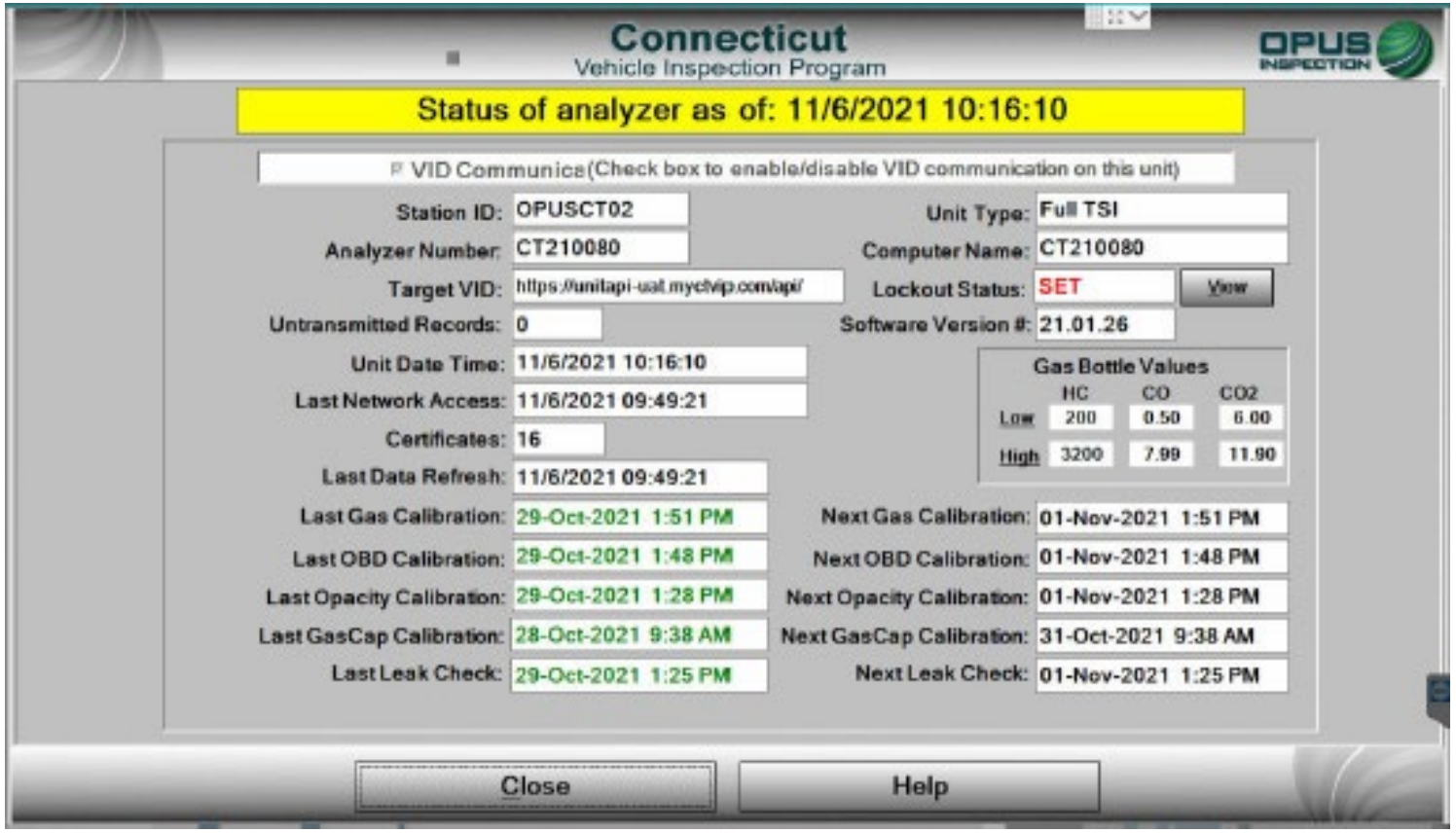


The documents/reports menu will give you access to the options as seen above. This is not a full access list to all program forms, but includes forms related to inspections. *A full list of program forms can be found on ctemissions.com.*

Main Menu: State Menu: Analyzer Maintenance: Status Screen

The status screen shows the status of the CDAS. Below is a list of what is featured in the image to the right:

- Station ID: station number
- Analyzer number: number assigned to the CDAS unit
- Target VID: the URL of the VID
- Untransmitted records: inspections that have not uploaded to the VID (stored tests)
- Unit date time: actual time
- Last network access: last pushed communication with the network
- Certificates: test authorizations remaining
- Last data refresh: last refresh of data with the VID
- Unit type: station test type (diesel/no diesel)
- Computer name: matches the CDAS number
- Lockout Status: shows the status of any lockouts on the CDAS; click view to view lock-outs
- Software version #: the version of software running on the CDAS
- Gas bottle values = stored gas bottle values entered for calibration gas bottles.



Note: Calibration statuses are shown at the bottom of the image; the left column is the date of the last calibration, and the right column is the date the next calibration is due.

Chapter 7: Inspections

Review of all types of emissions performed in the Connecticut Vehicle Inspection Program:

OBD (On-Board Diagnostic)

PCTSI (Pre-Conditioned Two-Speed Idle)

Gas Cap Pressure Leak Test

MSA (Modified Snap Acceleration Test)

Important VIN Entry Reminder

Remember! It is your responsibility as a CTI to verify the accuracy of all vehicle data that has been collected before completing an inspection. This includes VIN, GVWR, and make and model. Sometimes, such as when a vehicle's computer has been replaced, the OBD cable will pull an incorrect VIN. ***Be SURE to verify that the VIN on the Vehicle Inspection Report (VIR) matches the VIN on the vehicle's public VIN plate on the front windshield.***

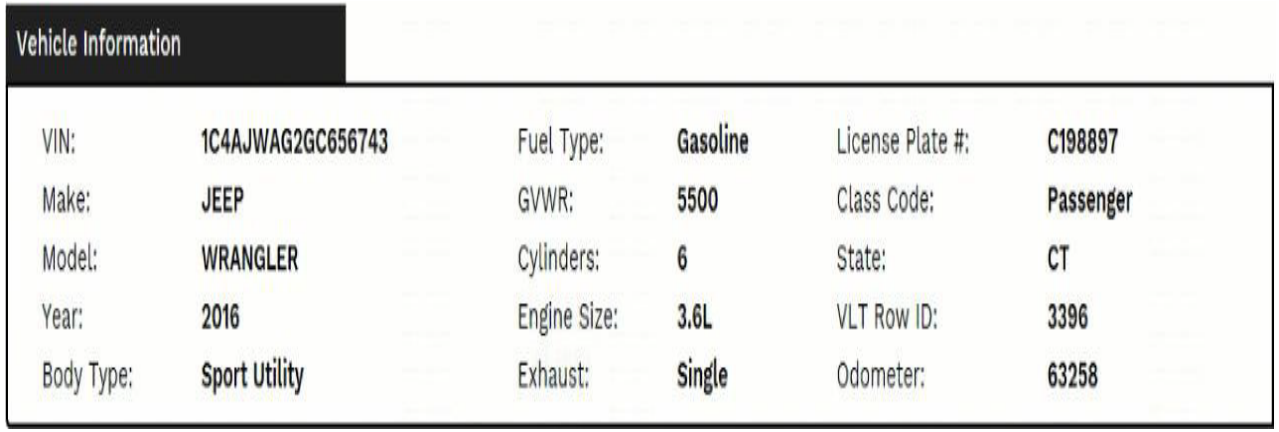
Remember that all emissions inspections are video recorded and reviewed, and failure to follow proper procedural protocols will result in monetary assessments per the Compliance Action Plan. Any data that has been entered incorrectly will result in a free retest for the motorist, at the Test Center's expense.

Inspections: Data Entry

You will be required to collect and enter the following information from the vehicle at the start of the inspection:

- VIN
- Year, Make, Model
- Body Type
- Fuel Type
- Engine Size
- Number of Cylinders
- Exhaust (single or dual)
- License Plate
  - Number
  - Issuing State
  - Class code
- GVWR
- Odometer
- Required Images
  - Rear License Plate
  - VIN Plate (public VIN, dash mounted)
  - Manufacturer Label (door jamb)
  - Odometer Reading

If there is a missing identifier, such as a door jamb label that includes Gross Vehicle Weight Rating (GVWR), you can obtain that information by contacting the Opus Help Desk.



Vehicle Information

VIN:	1C4AJWAG2GC656743	Fuel Type:	Gasoline	License Plate #:	C198897
Make:	JEEP	GVWR:	5500	Class Code:	Passenger
Model:	WRANGLER	Cylinders:	6	State:	CT
Year:	2016	Engine Size:	3.6L	VLT Row ID:	3396
Body Type:	Sport Utility	Exhaust:	Single	Odometer:	63258

Above: This snapshot, taken from the VIR, shows the vehicle information as it was entered. This information must be verified by the inspector. Signing of the VIR indicates the inspector confirmed the accuracy of the information. ***ALWAYS verify that the VIN on the VIR matches the VIN on the vehicle's public plate.***

Reminder: assigned VINs should **never be turned away.** For vehicles with an officially assigned VIN (those that don't have a public 17-character VIN), CTIs should take a picture of the VIN assignment tag issued by a state.

Inspections: Catalytic Converter Visual Inspection

Visual verification of the catalytic converter is required on every vehicle tested, including vehicles returning for retests. The only cars on the road today that have no converters at all are:

- All-electric cars – the models that you plug in to recharge their batteries, and which use no gasoline or diesel fuel at all. (Again, all hybrid models that use gas or diesel fuel, both plug-in and non-plug-in, still use catalytic converters.)

- Fuel Cell Vehicles (FCV) or Fuel Cell Electric Vehicles (FCEV) is an electric vehicle that uses a fuel cell to power its onboard electric motor. Fuel cells in vehicles generate electricity generally using oxygen from the airand compressed hydrogen. Most fuel cell vehicles are classified as zero-emissions vehicles that emit only water and heat, therefore do not require a catalytic converter.

NOTE: you must perform the visual catalytic converter check at the time you are prompted to do so. Failure to follow proper procedures will result in a monetary assessment per the Compliance Action Plan.

There are two catalytic converter questions in each inspection:

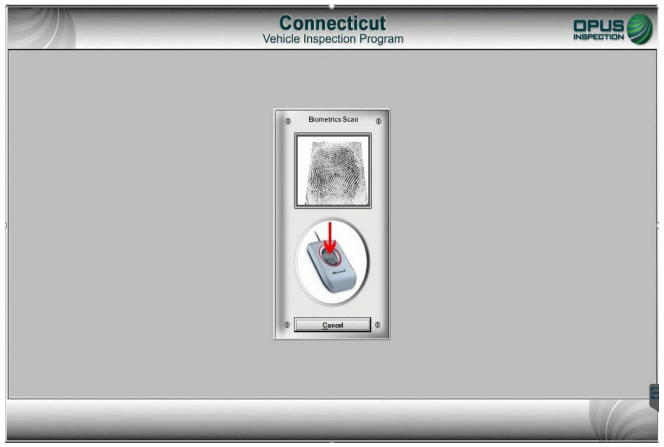
1. "Was this vehicle originally equipped with a catalytic converter as manufactured?" *Emissions regulations vary considerably from jurisdiction to jurisdiction. Most automobile spark-ignition engines in North America have been fitted with catalytic converters since 1975.*

2. Is this vehicle equipped with a properly installed catalytic converter?" *You must answer truthfully. A fraudulent response is a Program Violation and may be punishable by law.*

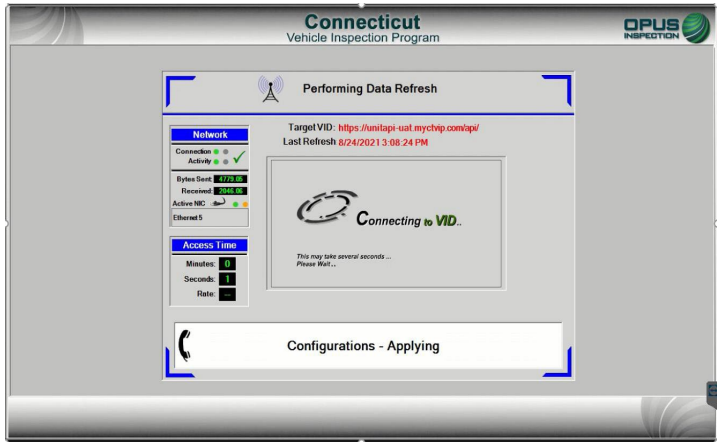
Yes: Yes, you were able to visually verify the presence and proper installation of the catalytic converter
No: No, the catalytic converter is not present, or it is visibly noticeable that it is not properly installed (connected)
Obscured: The ability to visually verify the catalytic converter is obscured by OEM equipment (undercarriage or engine compartment covers). Selecting obscured **will not** cause the vehicle to fail the test.

Inspections: Begin the Inspection

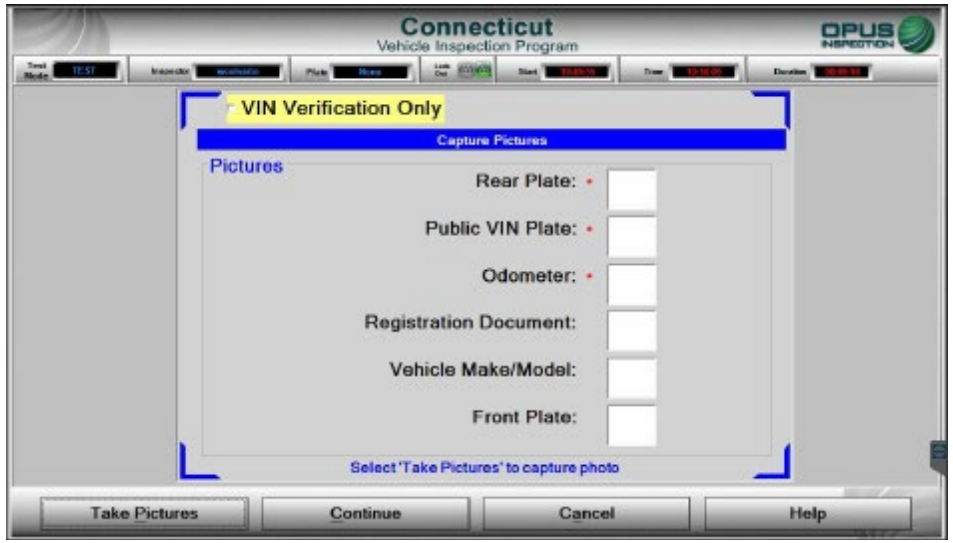
1. Begin Inspection



2. Scan Fingerprint



3. A full data file refresh occurs upon recognition of credentials



4. Upload the required images, marked with an asterisk. Click Take Pictures to proceed to the upload image screen.

Note: please be sure all images are clear and all data (i.e., VIN, plate number) is legible. Do not upload any blurry or illegible images. Failure to upload legible images will result in liquidated damages, per the Compliance Action Plan.

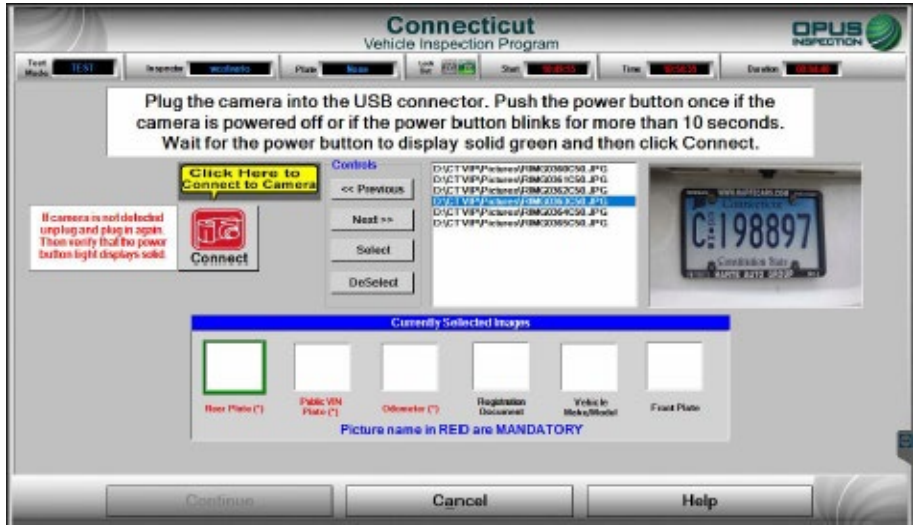
Inspections: Image Upload

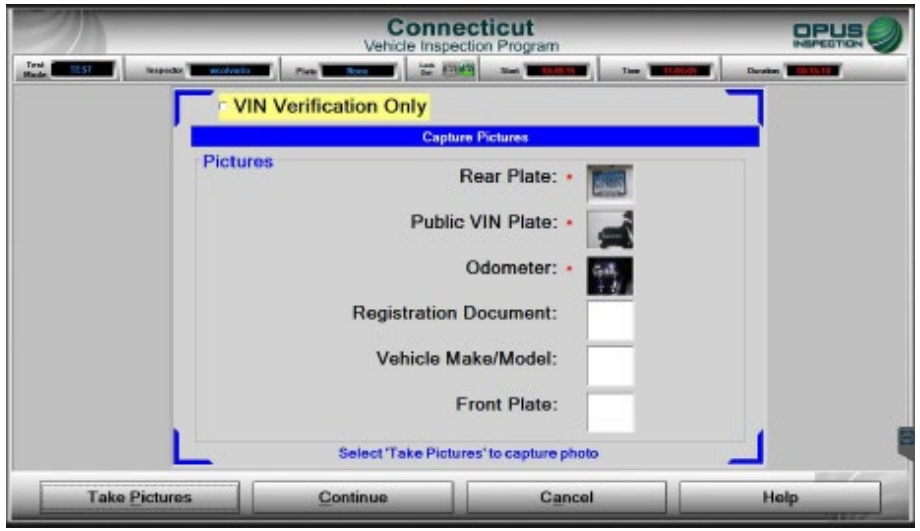
1. Once the images have been taken, connect the camera, power it on, and click Connect.

2. The image files will appear as seen in the photo to the right. Highlighting an image file will produce a preview of the image; match each image to the image description at the bottom of the page click Select.

3. Verify the images are present and accurate and continue, or adjust any errors by clicking Take Pictures to start the process over and retake all three photos. **Be sure all information is clearly visible in each photo (i.e., VIN, plate number, etc.) or else retake the photos.**

4. Click Continue to proceed to VIN entry.





Note: please be sure all images are clear and all data (i.e., VIN, plate number) is legible. Do not upload any blurry or illegible images. Failure to upload legible images will result in liquidated damages, per the Compliance Action Plan.

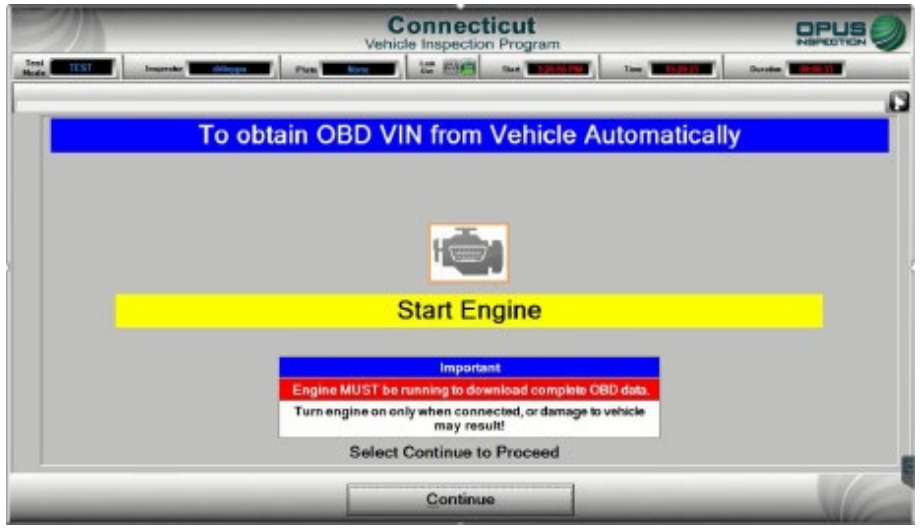
Inspections: VIN Entry

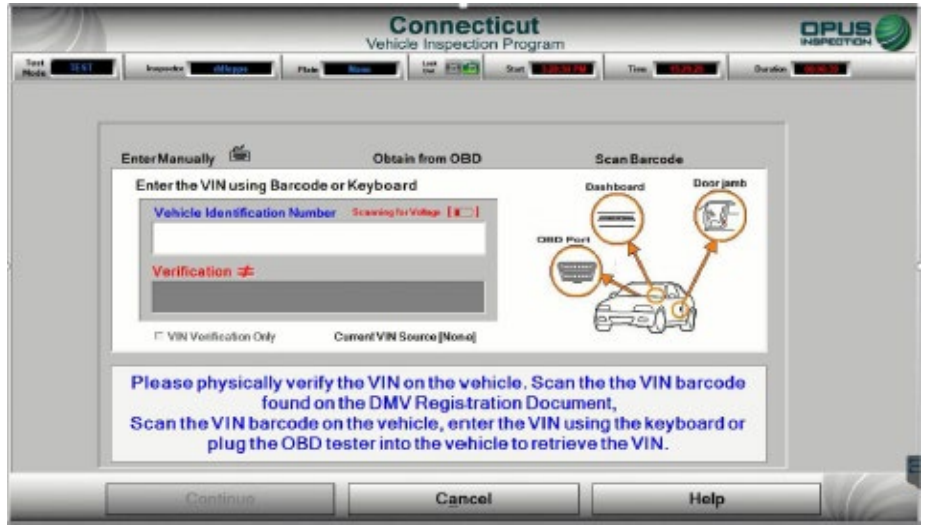
1. The software will now give an option to enter the VIN using the OBD cable. This option will collect all inspection data and will not prompt a second connection later in the inspection. Click Continue to proceed with the OBD cable connected, or without if there is no cable available.

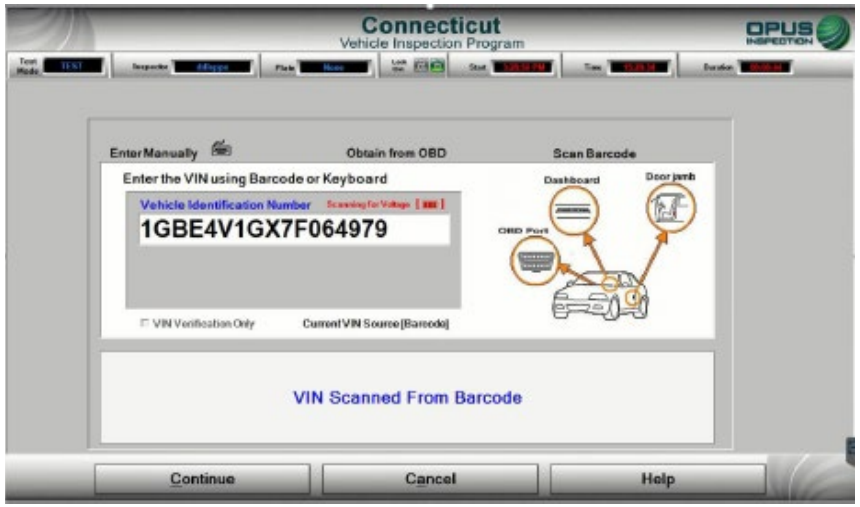
2. The next screen will present all options for VIN entry: scan barcode, obtain from OBD, or enter manually. Your selected method will be automatically recognized.

REMEMBER:

It is your responsibility to verify accuracy of the VIN

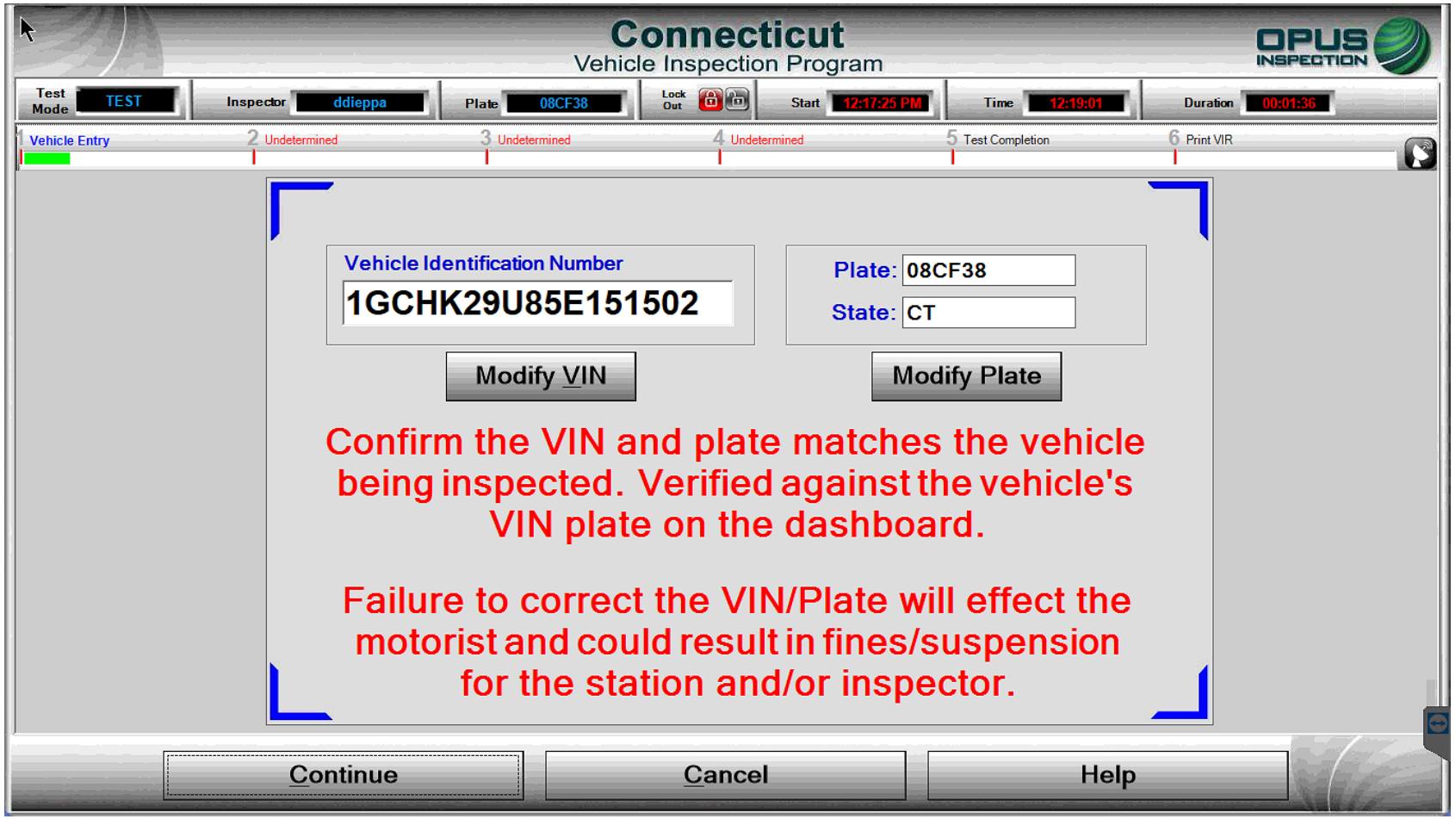






Above: In this example, the barcode was scanned from a reminder postcard, previous VIR, vehicle VIN plate, or door label.

Inspections: VIN Entry

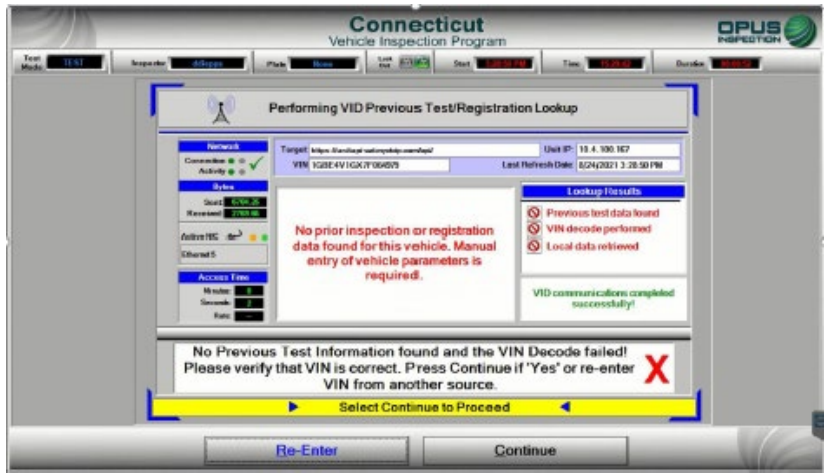


REMEMBER:

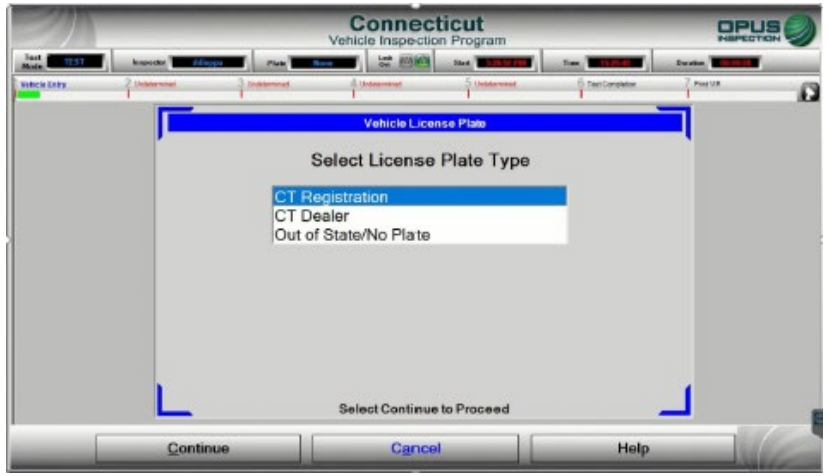
It is your responsibility to verify accuracy of the VIN

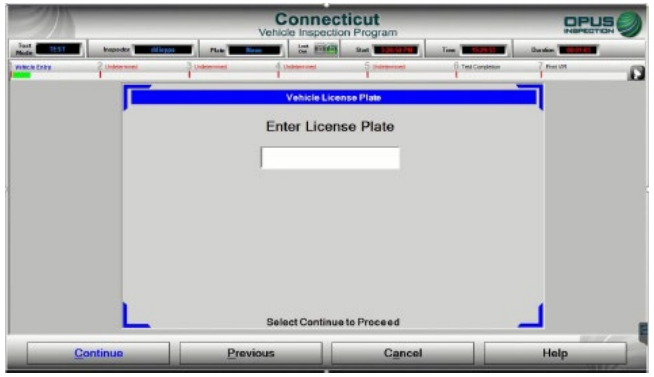
Inspections: Additional Data Entry

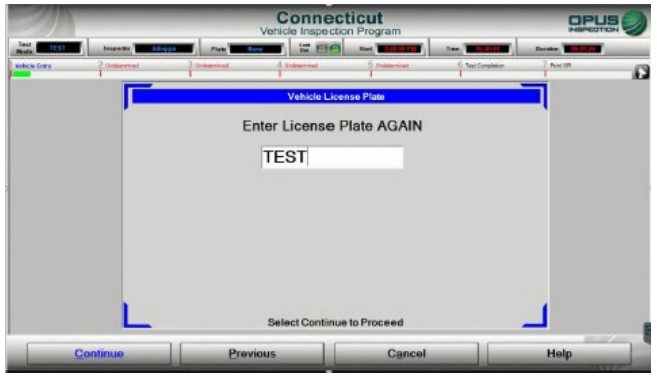
1. Once the VIN entry is complete, the software will perform the VID lookup and any previous Inspection data will be present if the vehicle has an inspection history.



2. In this example, with no previous test records found, you will be prompted to enter all vehicle information. First it will prompt for entry of the license plate type.



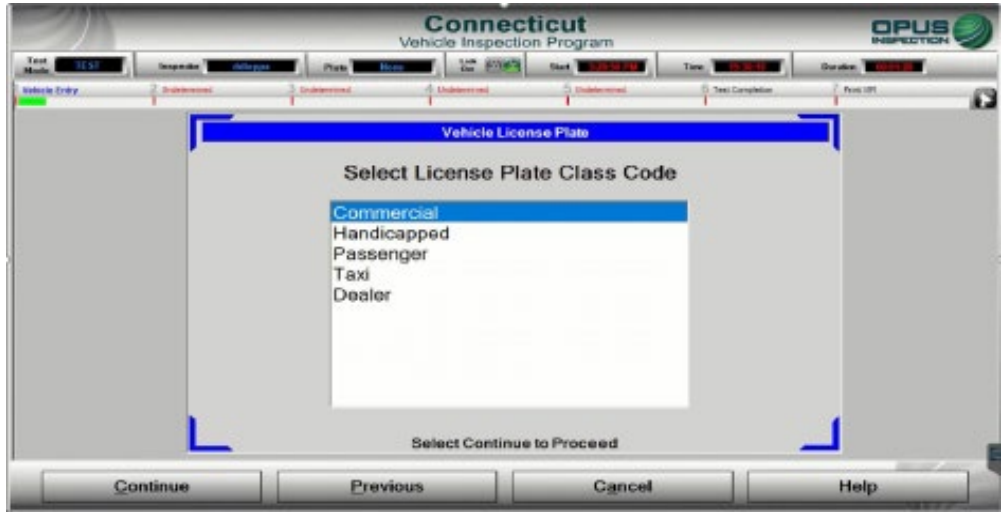




3. You will next be prompted to enter the license plate number twice.

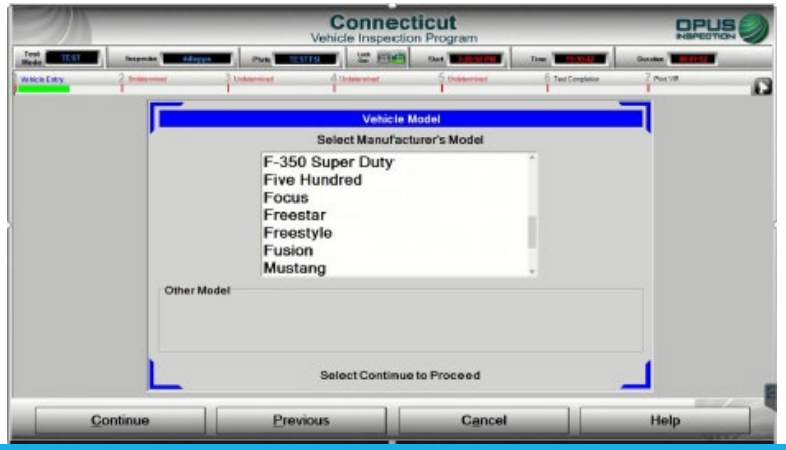
Inspections: Additional Data Entry

1. You will next be prompted to enter the license plate class code; the following photos will demonstrate data entry when the VLT provides no results upon VIN entry.



2. You will be prompted to enter the vehicle model year.

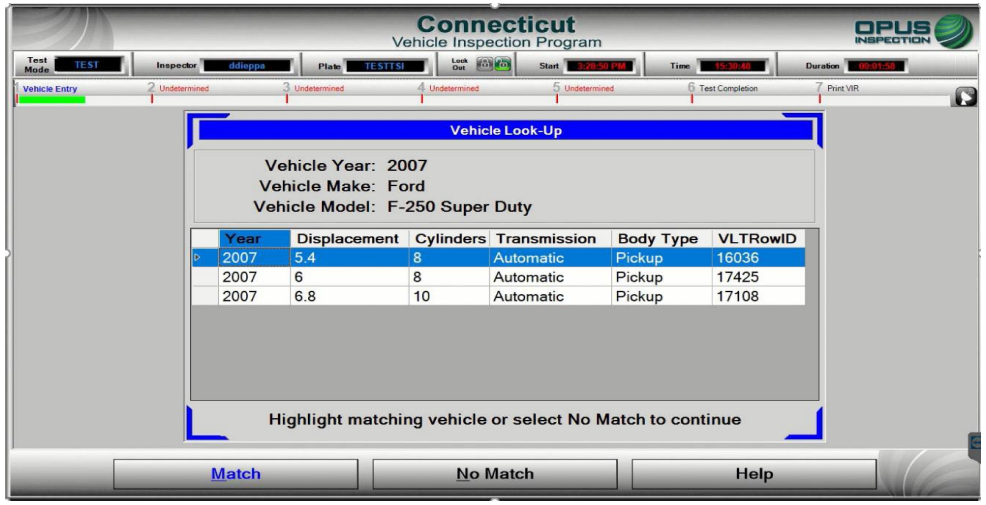
3. Next, enter the vehicle make and model, using either the quick select buttons for the most common manufacturers or by scrolling through the list of options using the arrow slides.

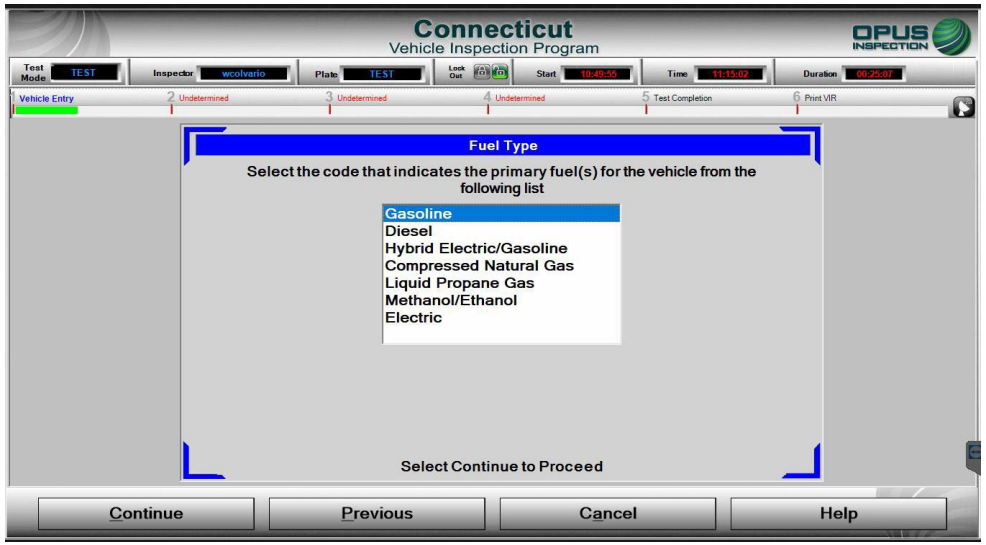


Inspections: Additional Data Entry

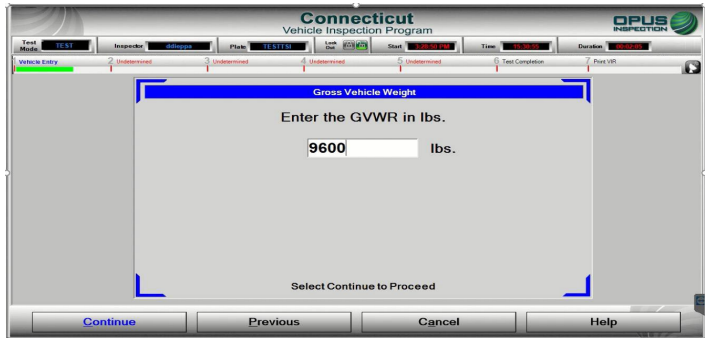
1. The vehicle look-up will provide possible matches based on the options you selected. If all of the information of a row is not a match to the vehicle, select “No Match”. You will be prompted to enter the information manually if no match is found.

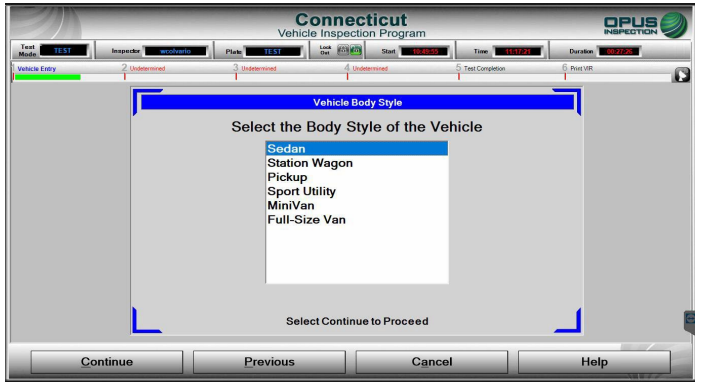
2. You may be prompted to enter fuel type. Select the appropriate fuel type from the list, then click continue to proceed.





3. Next you will enter the Gross Vehicle Weight Rating (GVWR). If you cannot obtain the GVWR from the vehicle, it may be obtained from the vehicle registration or, if necessary, a call to the Opus Help Desk. Inspection Types are partly determined by this information, and it must be correct. You may also be prompted to enter body style. Click continue to proceed.

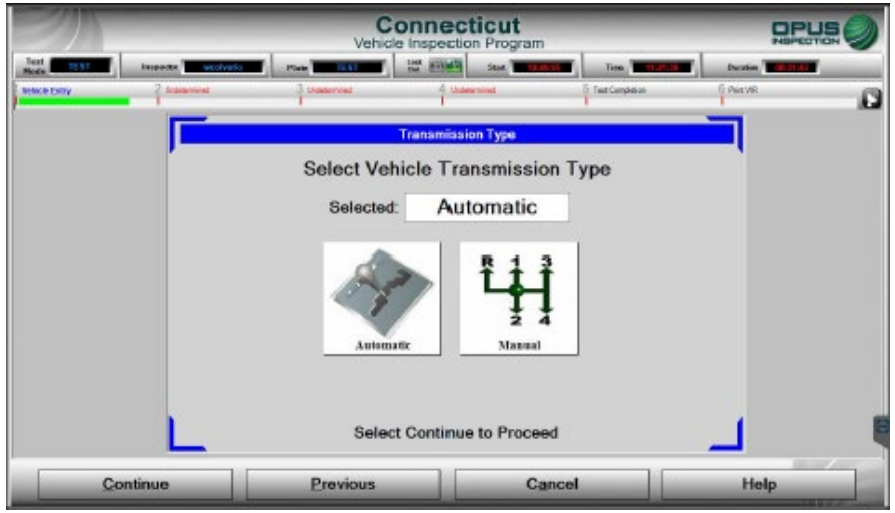


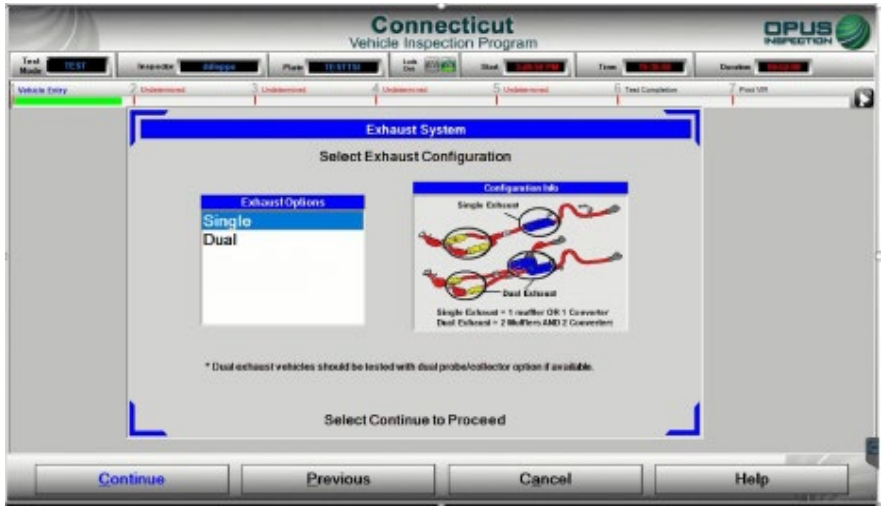


Inspections: Additional Data Entry

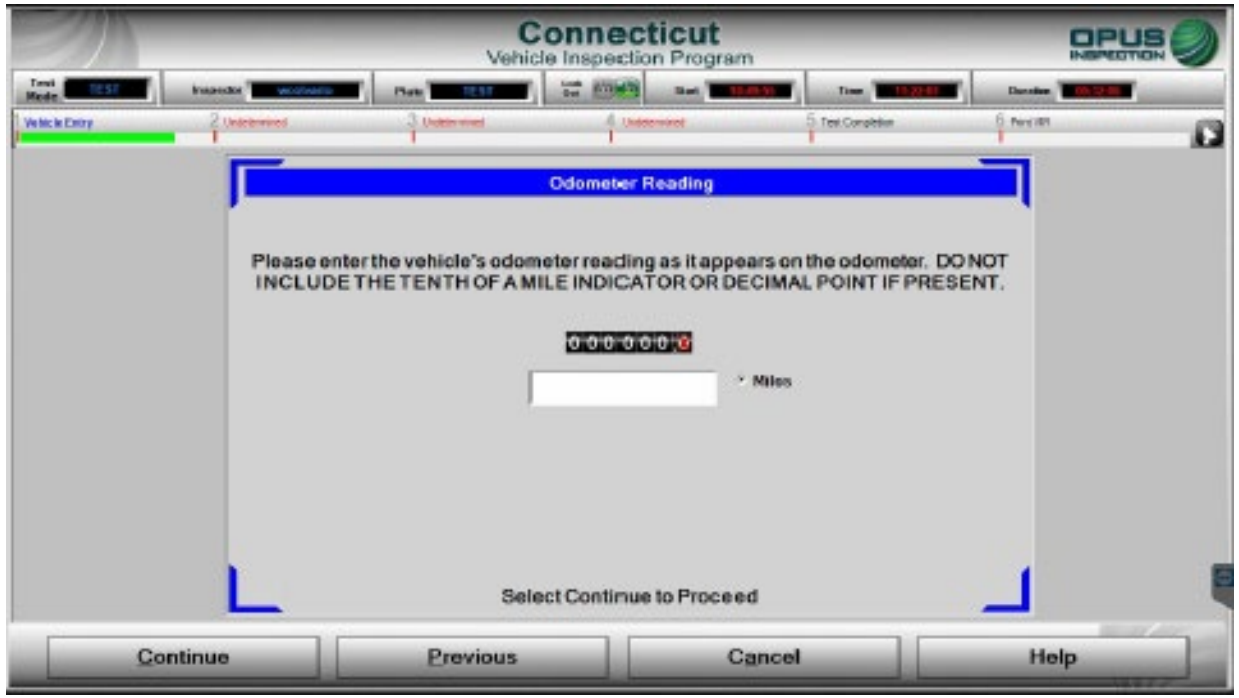
You may next be prompted to enter the following information:

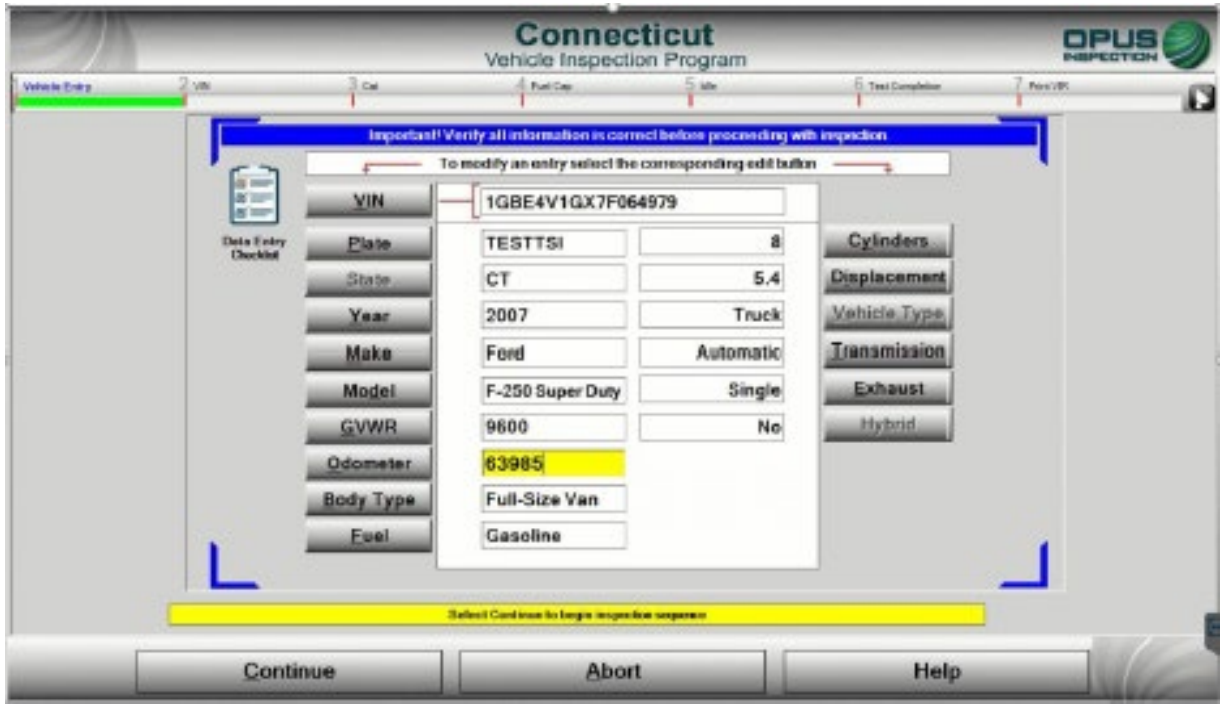
- Number of engine cylinders
- Engine displacement size
- Vehicle transmission type
- Single or Dual Exhaust





Inspections: Odometer Reading

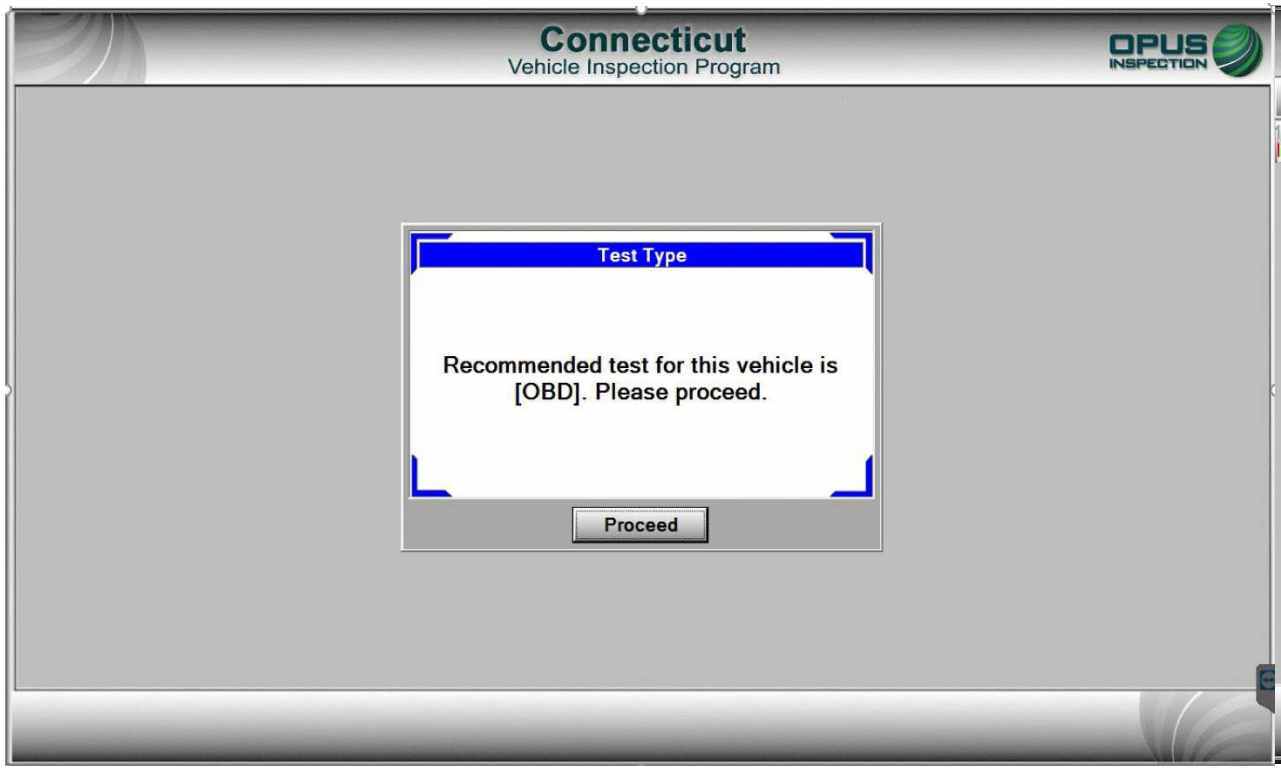


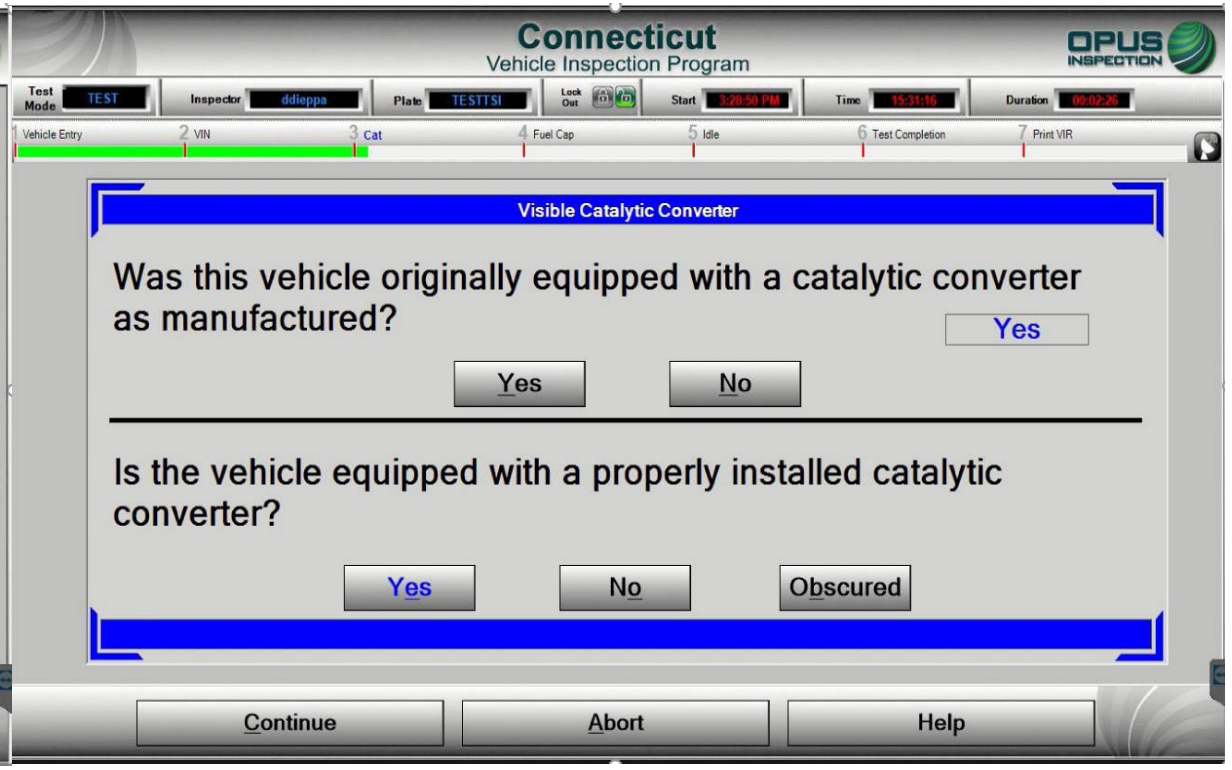


The entry of the Odometer reading is required for all inspections and is the last step of the data entry process.

At this time, all vehicle information MUST be verified. Please be sure to verify the VIN, license plate and plate class code, year, make, model, mileage, GVWR, and all vehicle specifications. You will be unable to make changes to vehicle information once the inspection type is determined. ANY ERRORS IN DATA ACCURACY THAT RESULT IN THE NEED FOR AN ADDITIONAL INSPECTION WILL BE AT THE STATION'S EXPENSE.

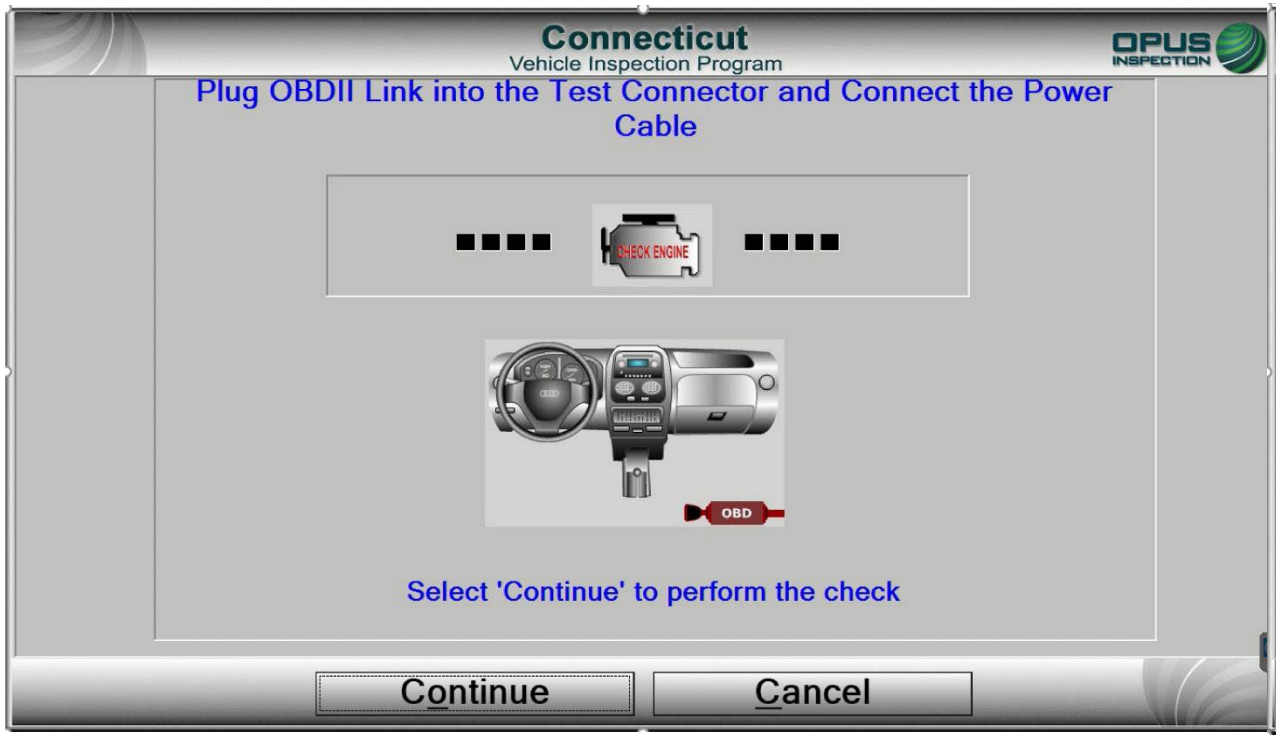
Inspections: On-Board Diagnostic (OBD)

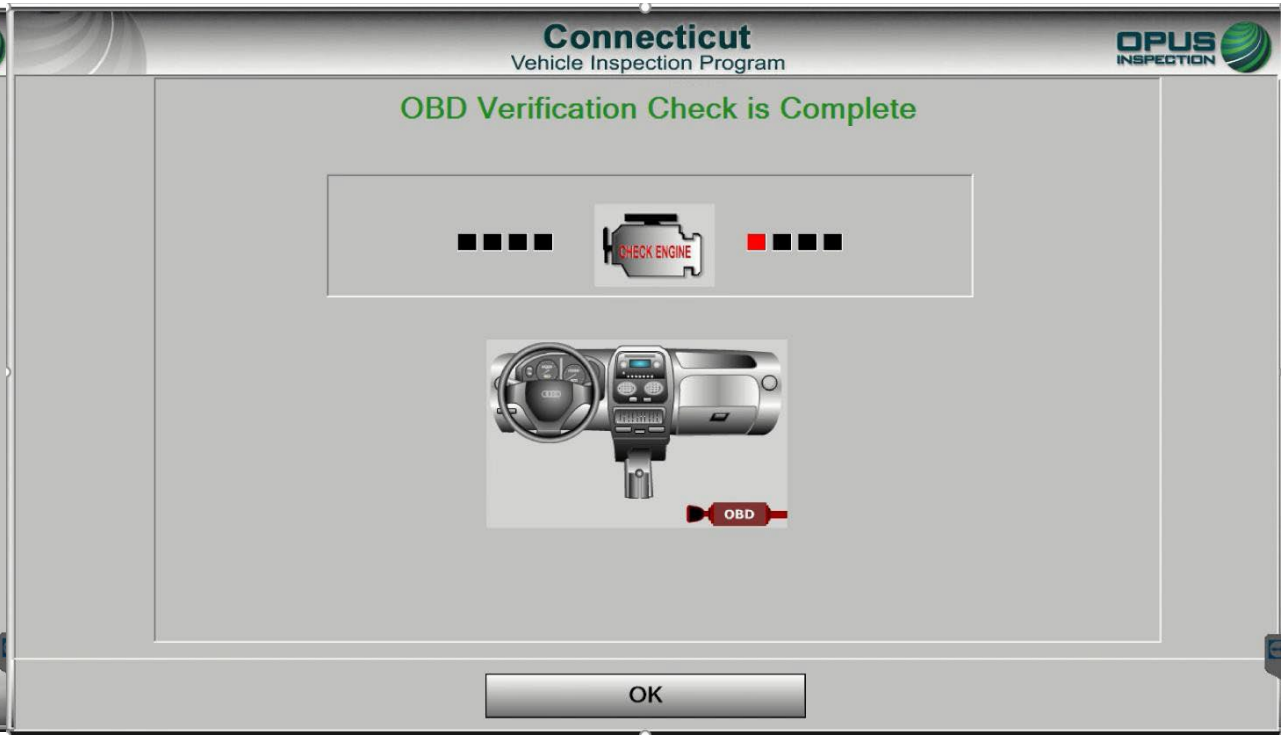




After the inspection type is determined (see above), next will be the visual catalytic converter check. Be sure to select the appropriate response, as the outcome of the test will be affected. Be SURE to perform the visual CAT check; do NOT answer without physical verification.

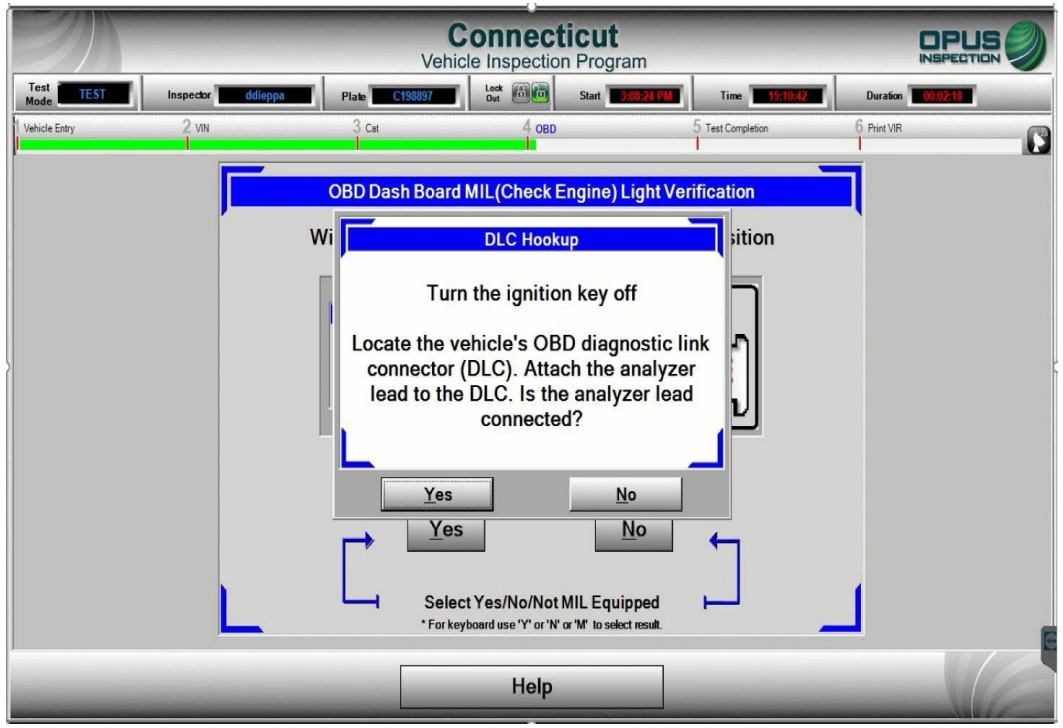
Inspections: On-Board Diagnostic (OBD)

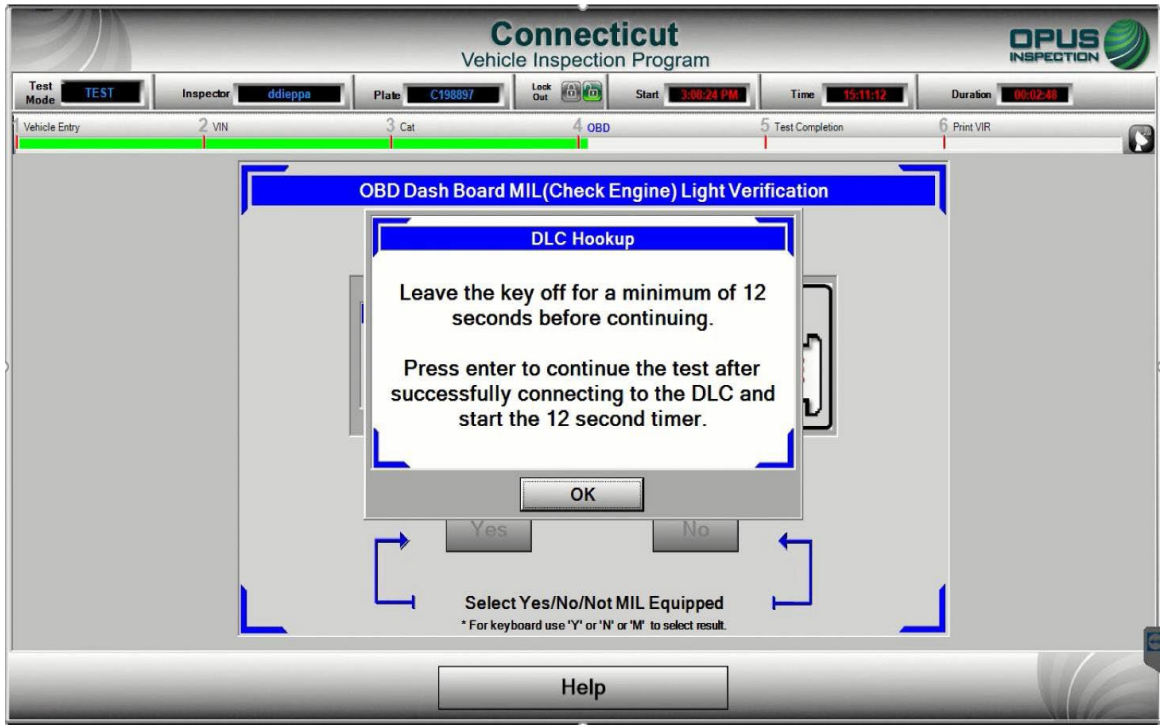




Next, connect the OBD cable to the DAD unit for a self check. The verification will complete. If there is an issue with the DAD module, check all connections and try again.

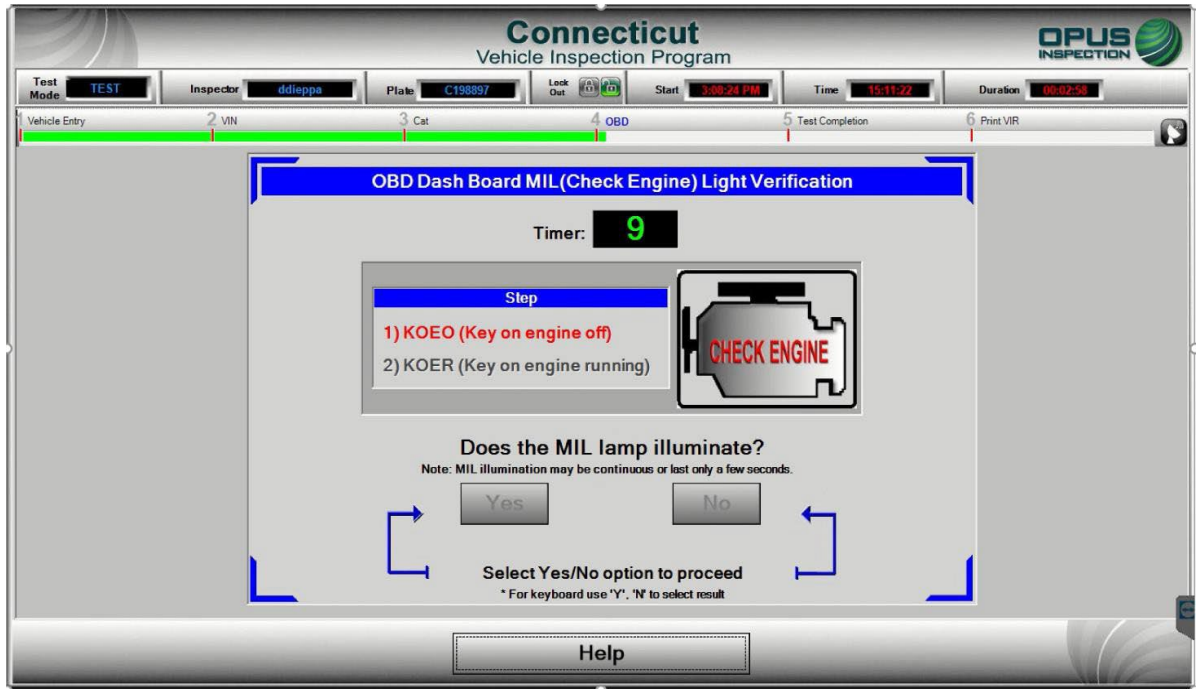
Inspections: On-Board Diagnostic (OBD)

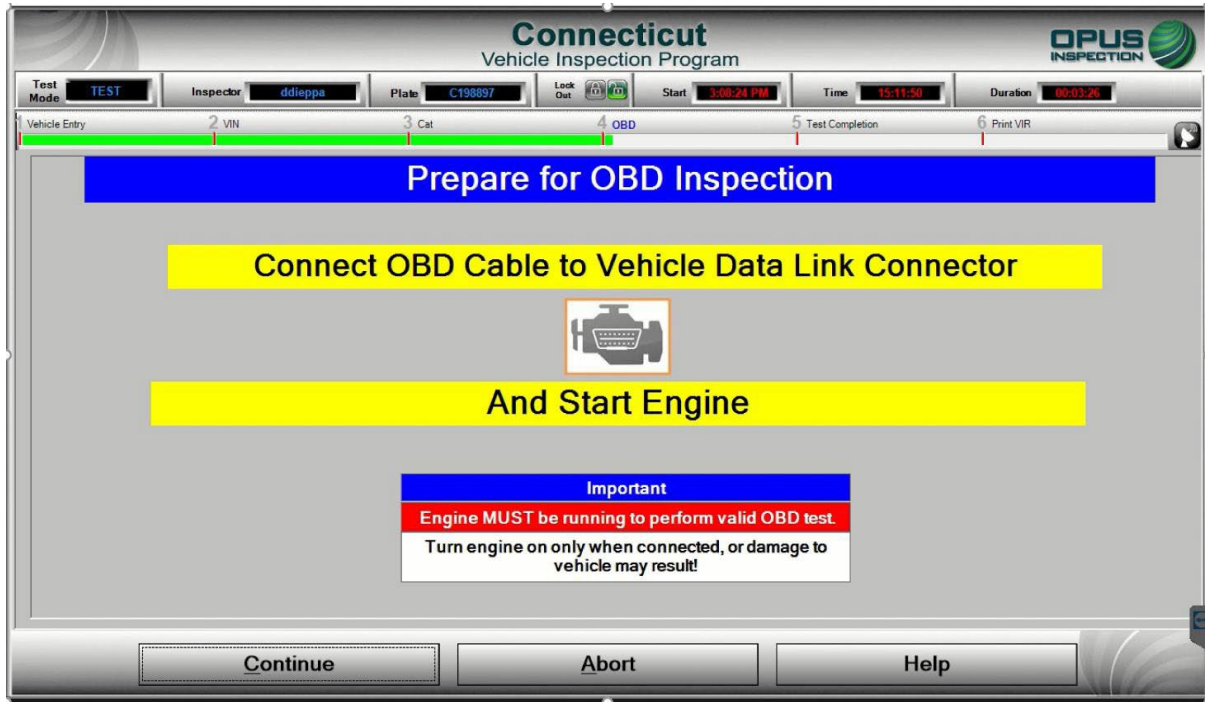




Next you will be prompted to shut the engine off and connect the OBD cable to the vehicle's DLC. You will then be prompted to verify the OBD cable is connected; upon verification, the 12-second timer will begin.

Inspections: On-Board Diagnostic (OBD)

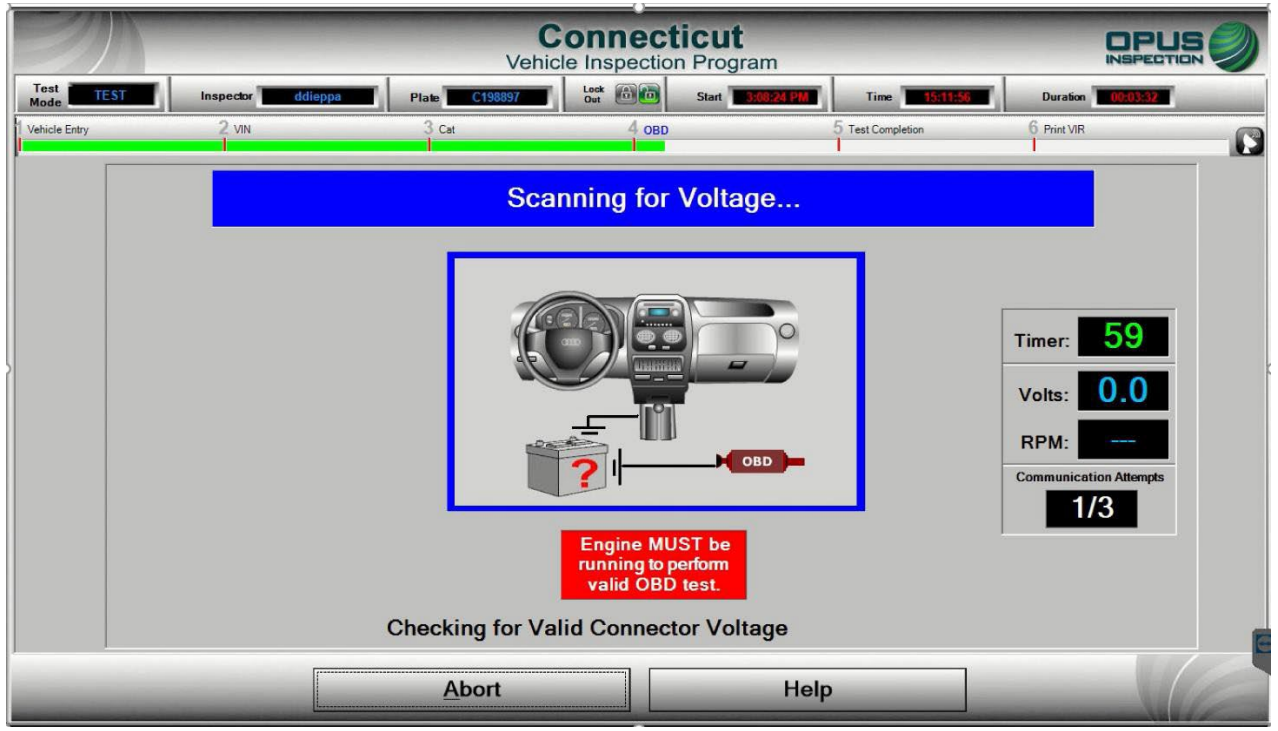




You will next be prompted to perform a Key On Engine Off (KOEO) check of the vehicle's Malfunction Indicator Lamp (MIL, also referred to as the Check Engine Light). You will then be prompted to connect the OBD cable to the vehicle's DLC. **DO NOT connect to the DLC while the vehicle's engine is running!**

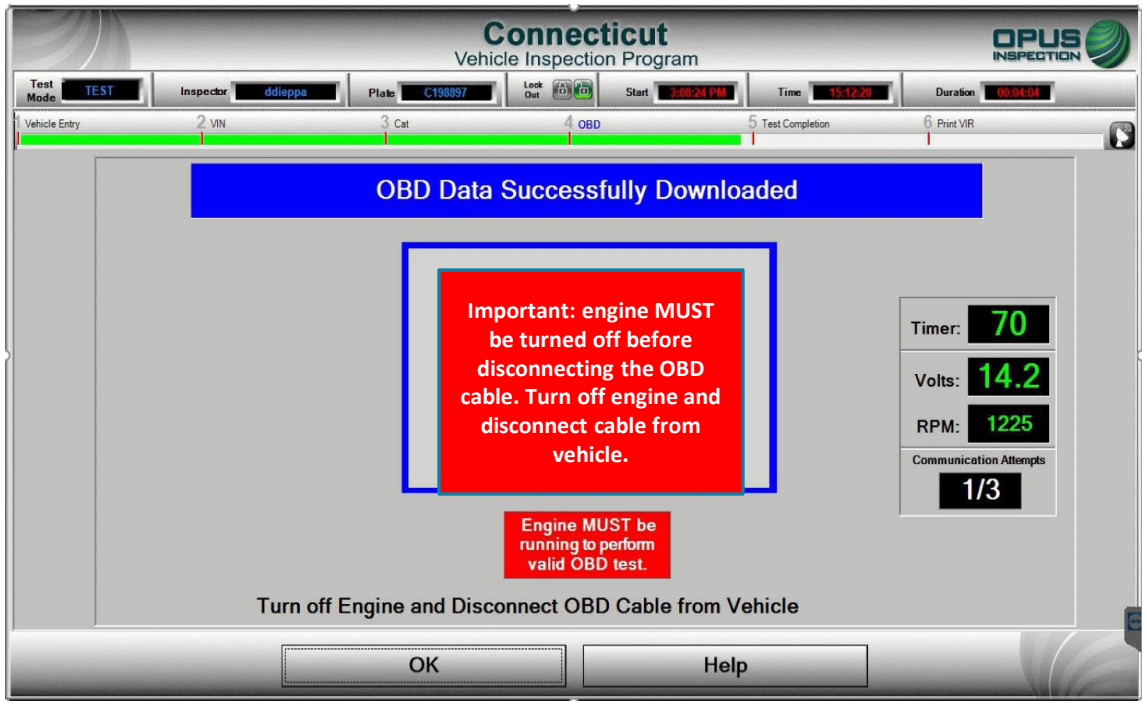
Inspections: On-Board Diagnostic (OBD)

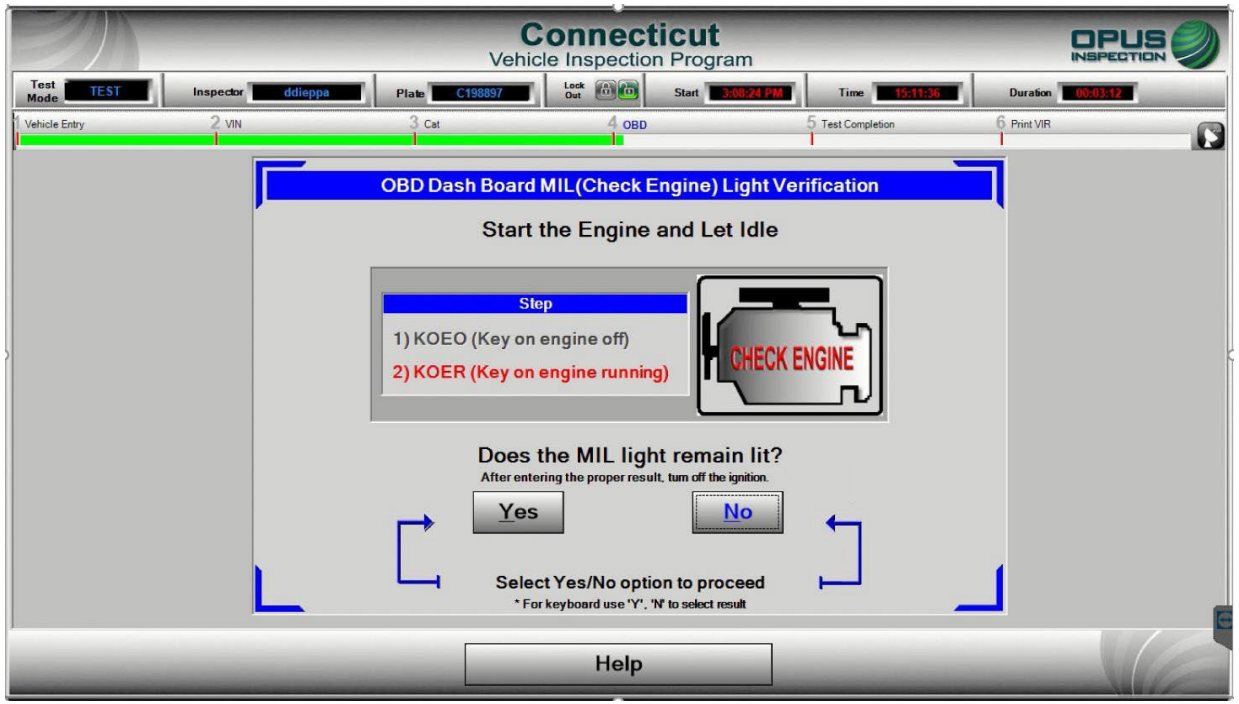
- Valid Voltage Detected - Connecting to OBD Port
- Connected to OBD Port
- Waiting for Valid Idle RPM
- Detected Valid Idle RPM
- Obtaining Readiness Monitors Status
- Obtaining Diagnostic Trouble Codes
- Obtaining Malfunction Indicator Lamp Status
- Obtaining Permanent Diagnostic Trouble Codes
- Obtaining Vehicle Identification Number



Once connected to the vehicle, the program will run through a series of protocols (above); the blue bar as shown above will display progress as the inspection continues.

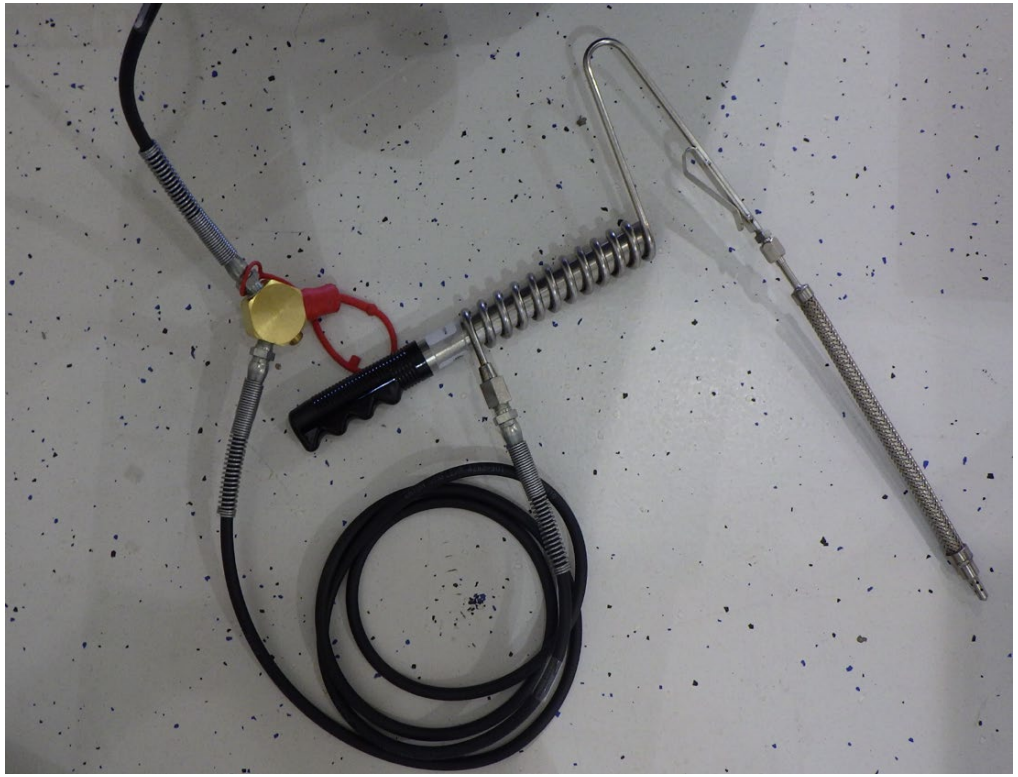
Inspections: On-Board Diagnostic (OBD)





When the OBD inspection data retrieval is complete, you will be prompted to turn the engine **OFF** and disconnect the OBD cable from the vehicle's DLC. Next, perform a Key On Engine Running (KOER) check to confirm that the MIL light does not remain illuminated while the engine is running. The inspection is now complete.

TSI and MSA Inspections: Probe Reminders

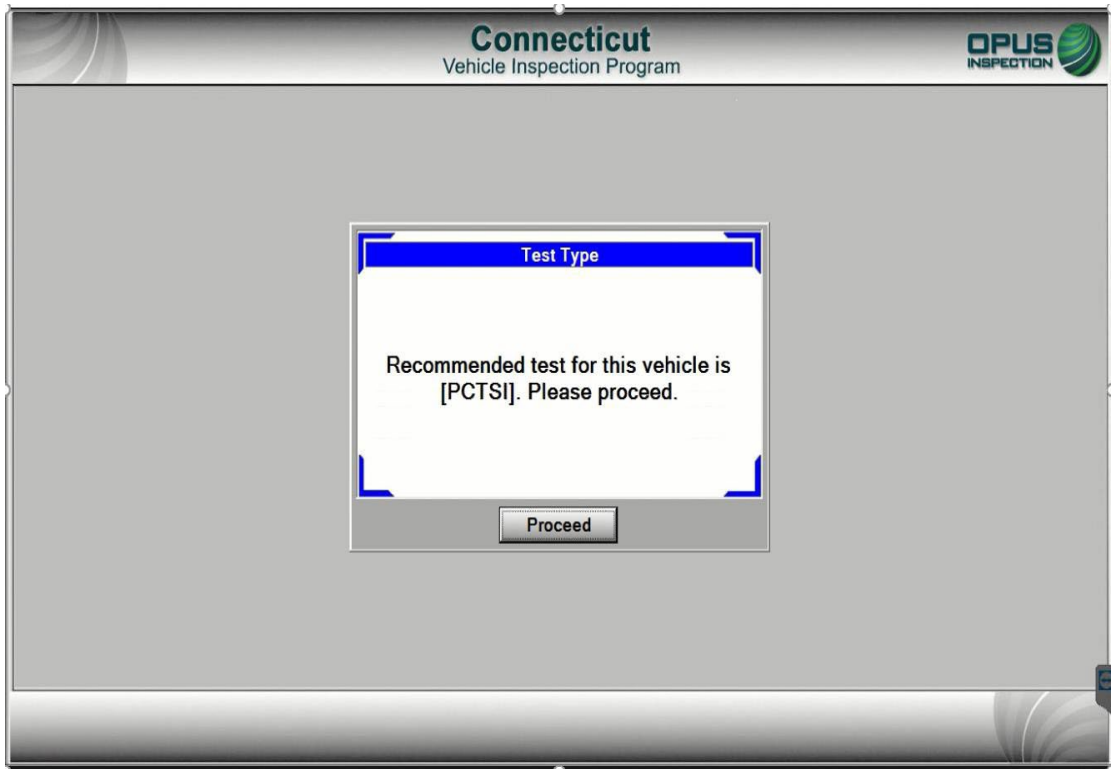


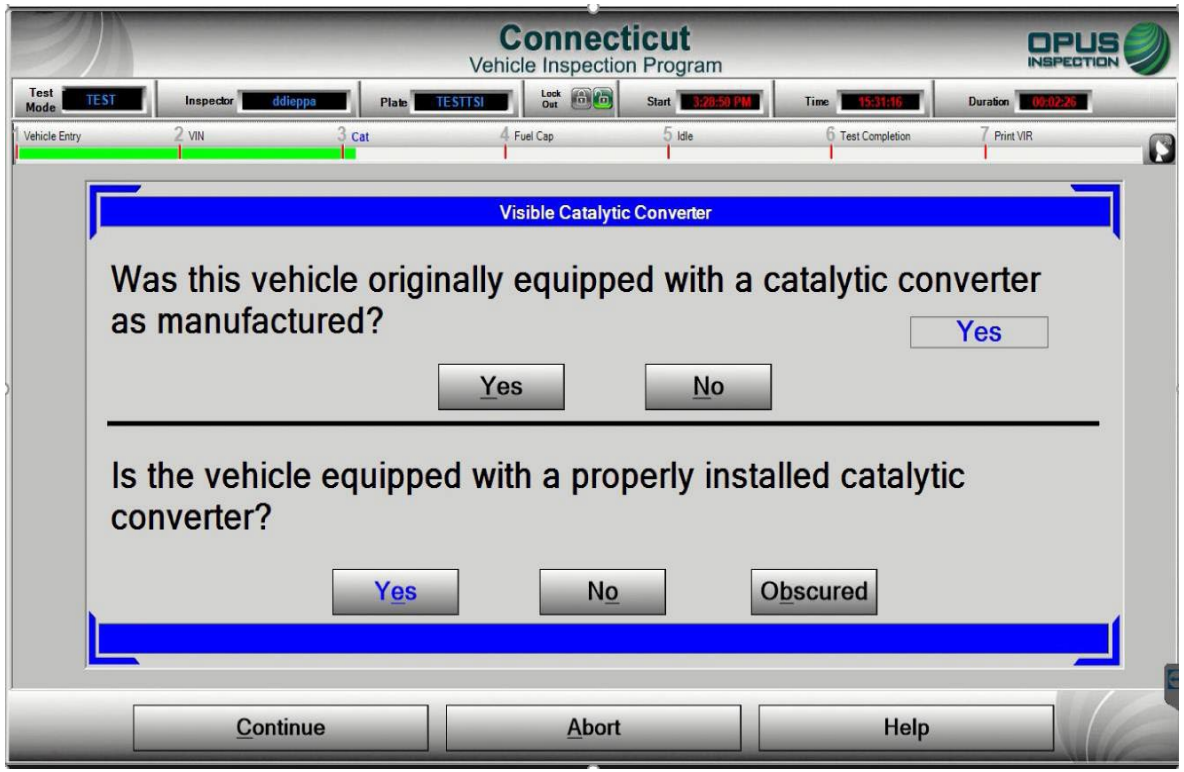
TSI probe

Opacity meter and probe, for diesel inspections

Important reminder: **please be sure to use the TSI probe, pictured above left, for the TSI test. Use the opacity meter, pictured above right, for the MSA test.**

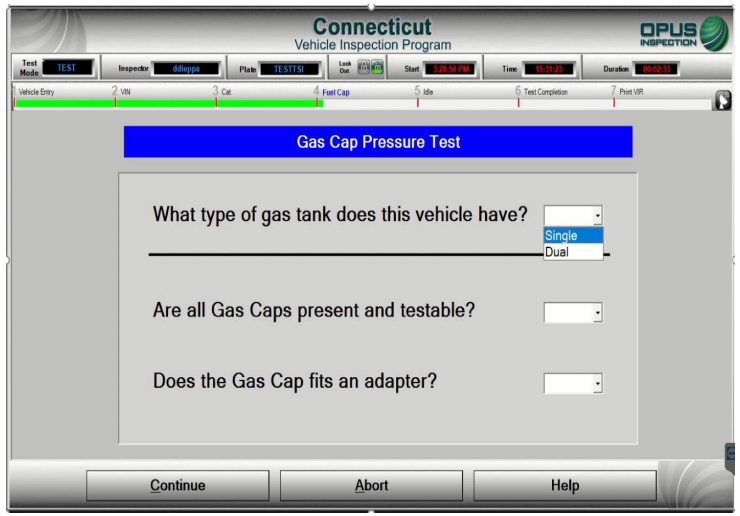
Inspections: Pre-Conditioned Two-Speed Idle (TSI)

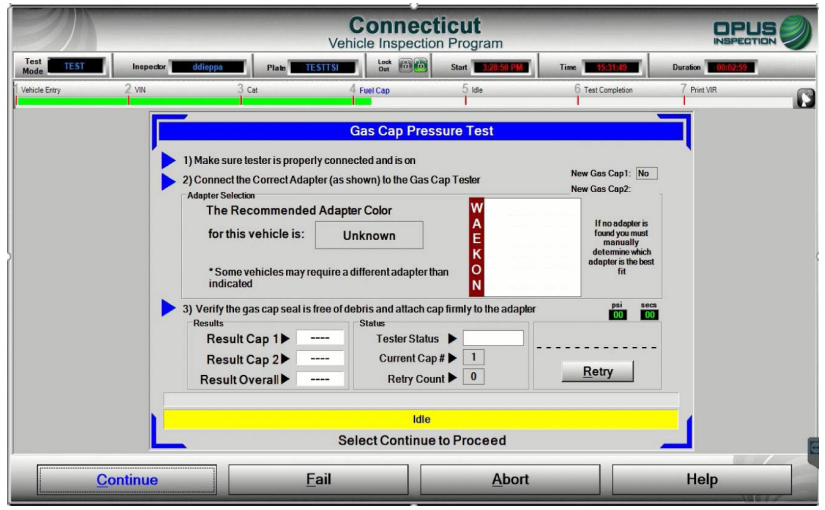


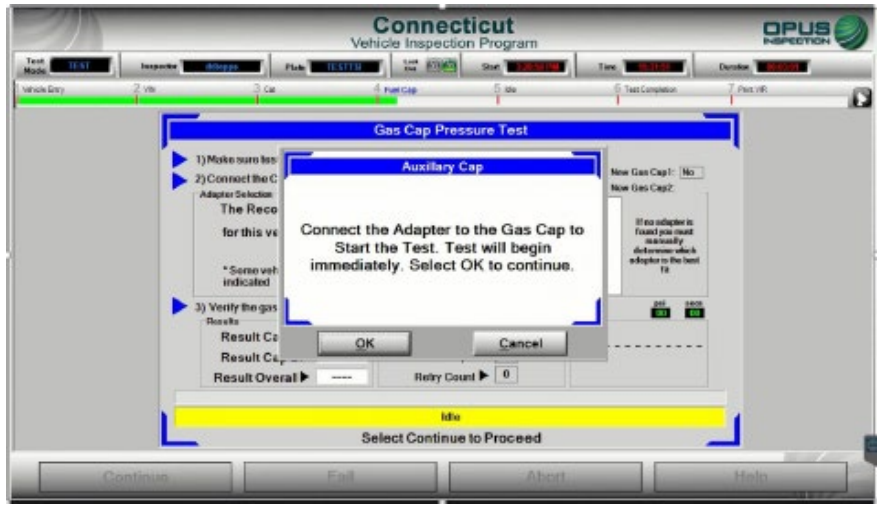


After the inspection type is determined (see above), next will be the visual catalytic converter check. Be sure to select the appropriate response, as the outcome of the test will be affected. Be SURE to perform the visual CAT check; do NOT answer without physical verification.

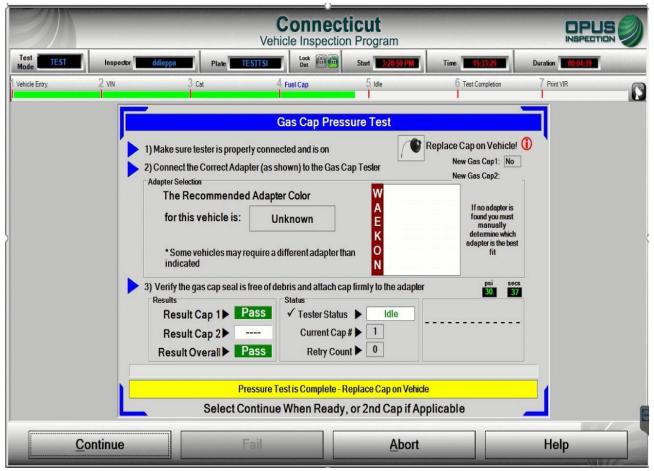
Inspections: Pre-Conditioned Two-Speed Idle (TSI)







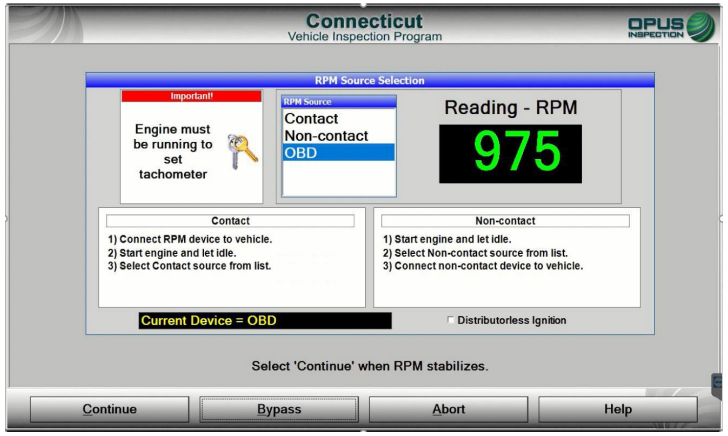
Next, the gas cap pressure test will perform a leak down test of the vehicle's gas cap. Answer all questions and proceed by clicking continue. You MUST select the appropriate response for how many tanks/gas caps the vehicle is equipped with. Vehicles with dual gas tanks MUST have both gas caps inspected. Place the gas cap on the appropriate adapter and click continue to begin the test.



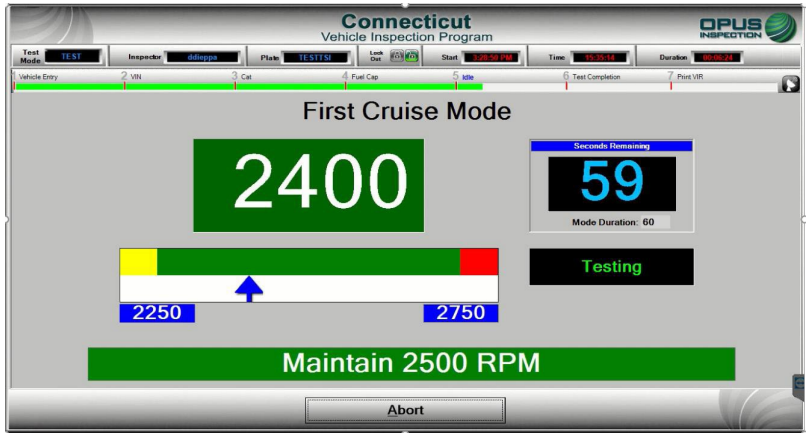
Important reminder: be sure to CLOSE the zero gas bottle after the gas cap test is complete.

When the test is complete, remove the gas cap from the tester, return it to the vehicle, and continue.

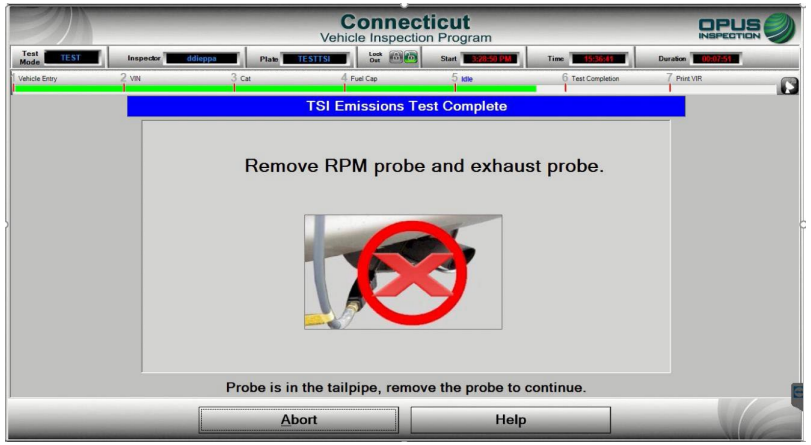
Inspections: Pre-Conditioned Two-Speed Idle (TSI)

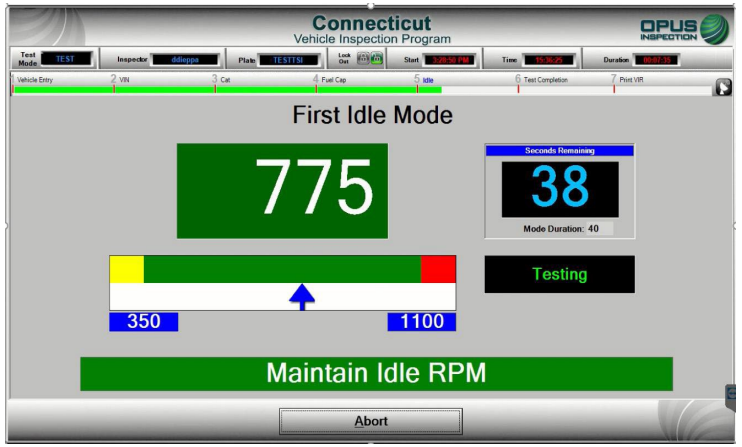


First you will capture RPM by choosing one of the methods available. You must make three attempts, using any source available before bypassing RPM. RPM bypassing is strictly monitored and bypassing without a sufficient attempt is a Program Violation subject to Monetary Assessments.



The first cruise mode will have you maintain the vehicle's RPM at 2500; the timer will indicate the time remaining for first cruise mode.

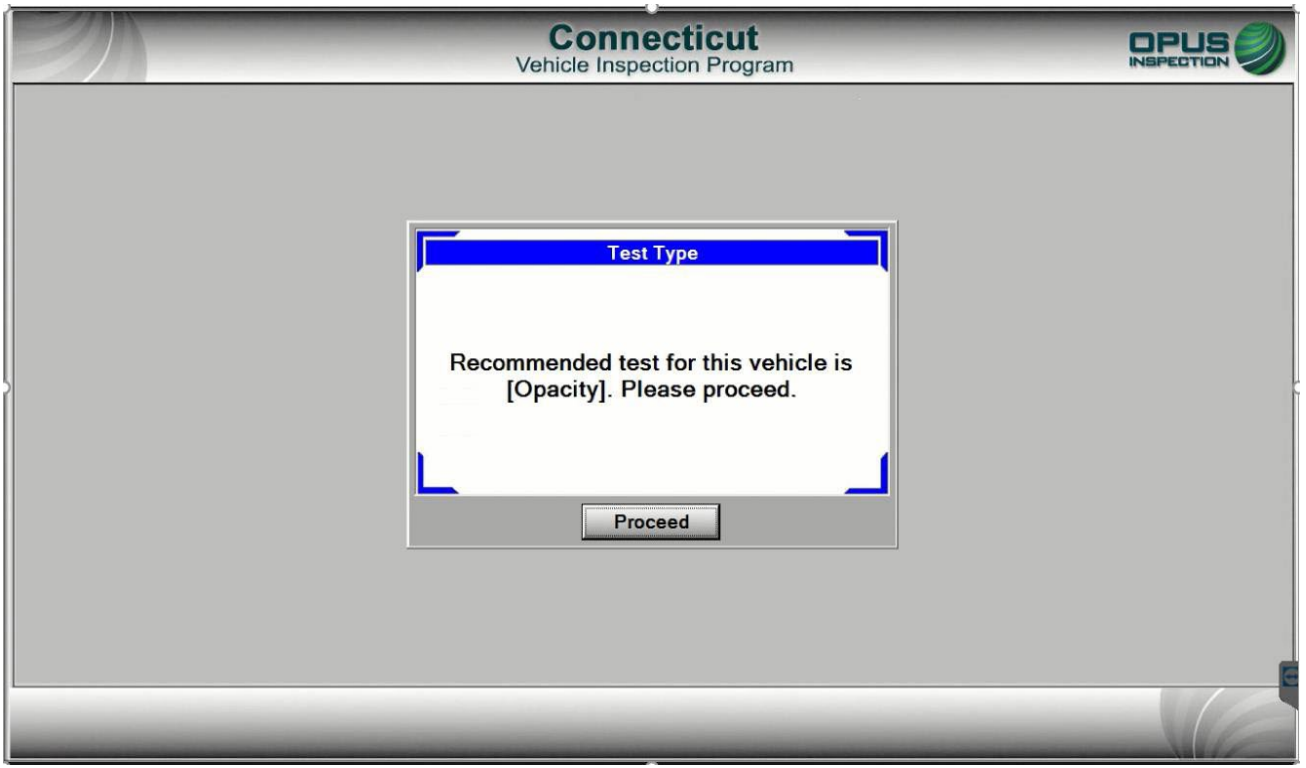


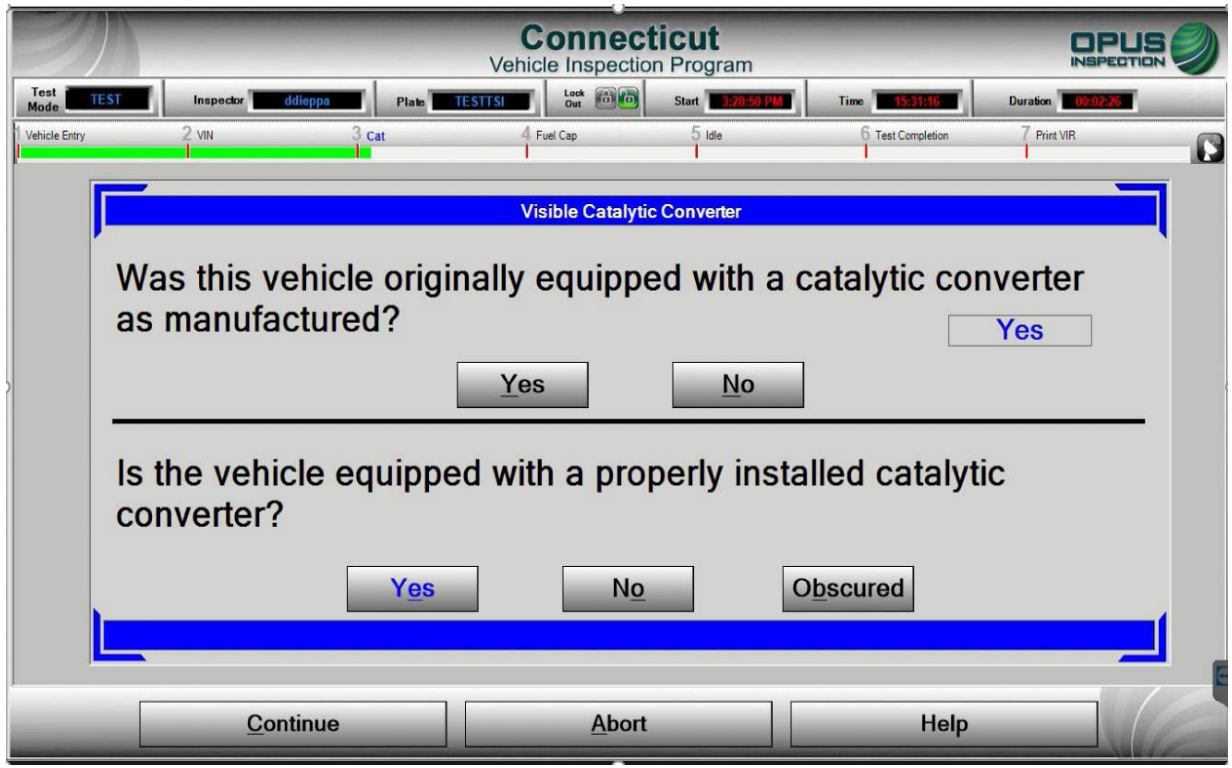


The first idle mode will measure RPM at idle. The timer will indicate the time remaining for idle mode. **The inspection will only require one cruise and one idle mode if the readings obtained are sufficient to deliver a result.*

This completes the PCTSI inspection. You will be prompted to remove RPM cables and exhaust probes before you proceed to the inspection result.

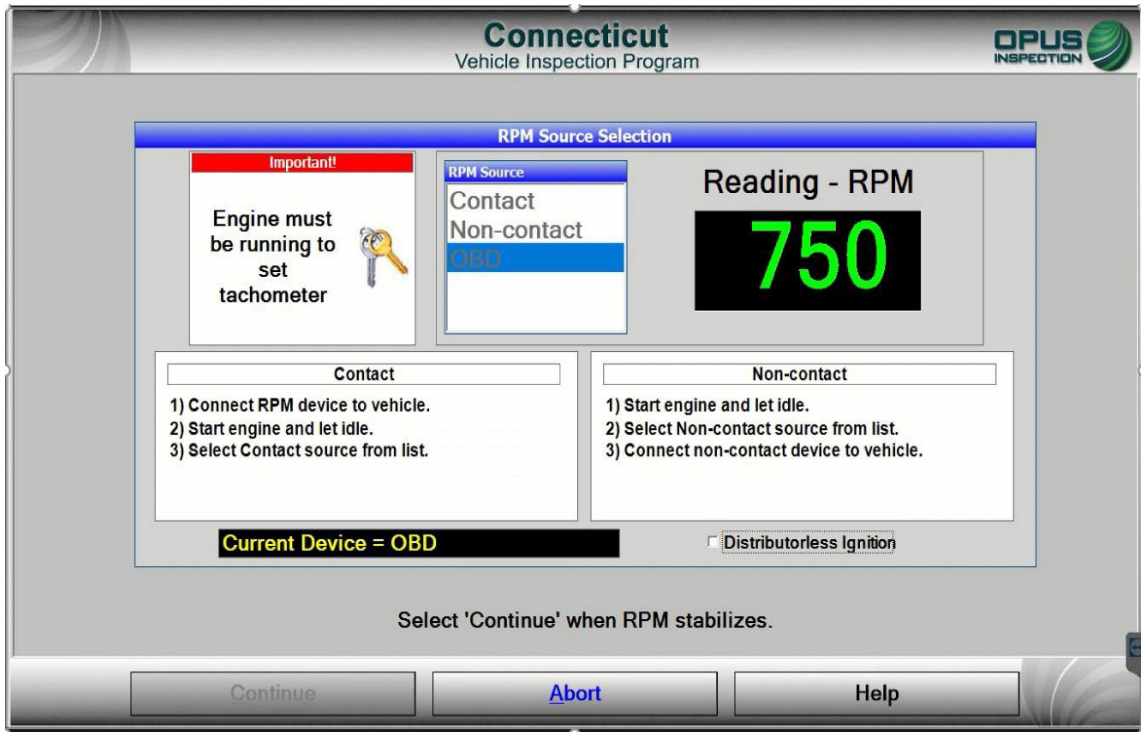
Inspections: Modified Snap Acceleration Test (Opacity)

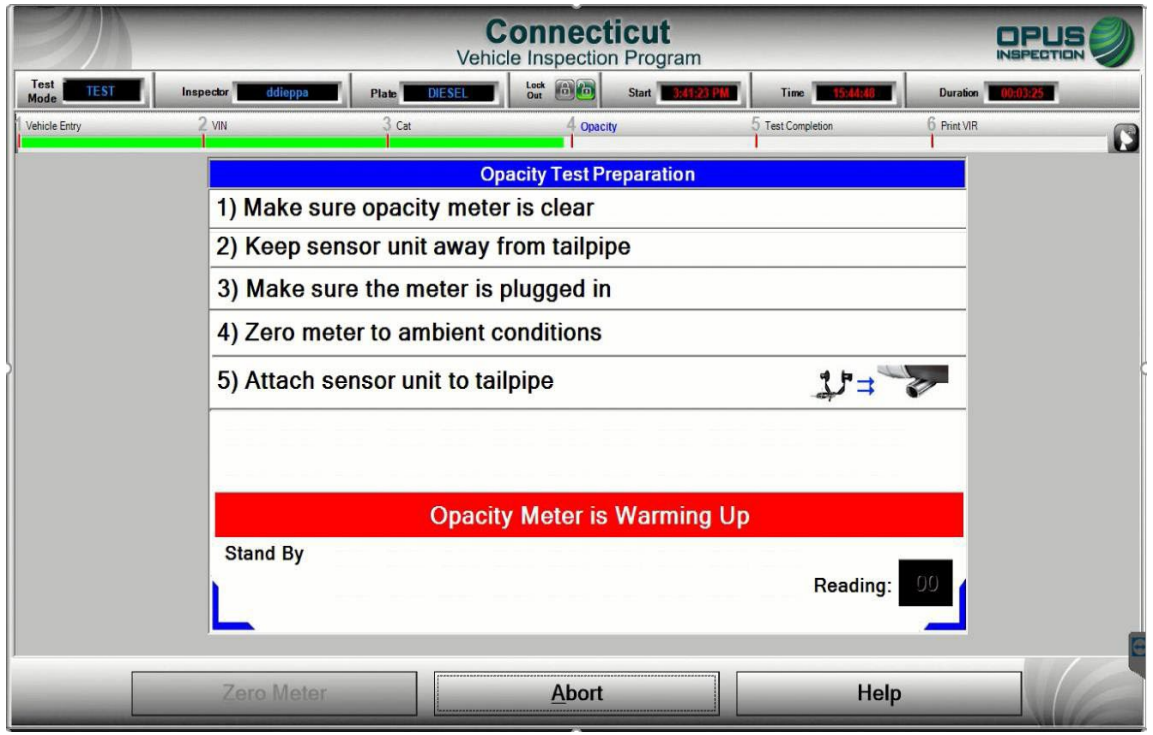




After the inspection type is determined (see above), next will be the visual catalytic converter check. Be sure to select the appropriate response, as the outcome of the test will be affected. Be SURE to perform the visual CAT check; do NOT answer without physical verification.

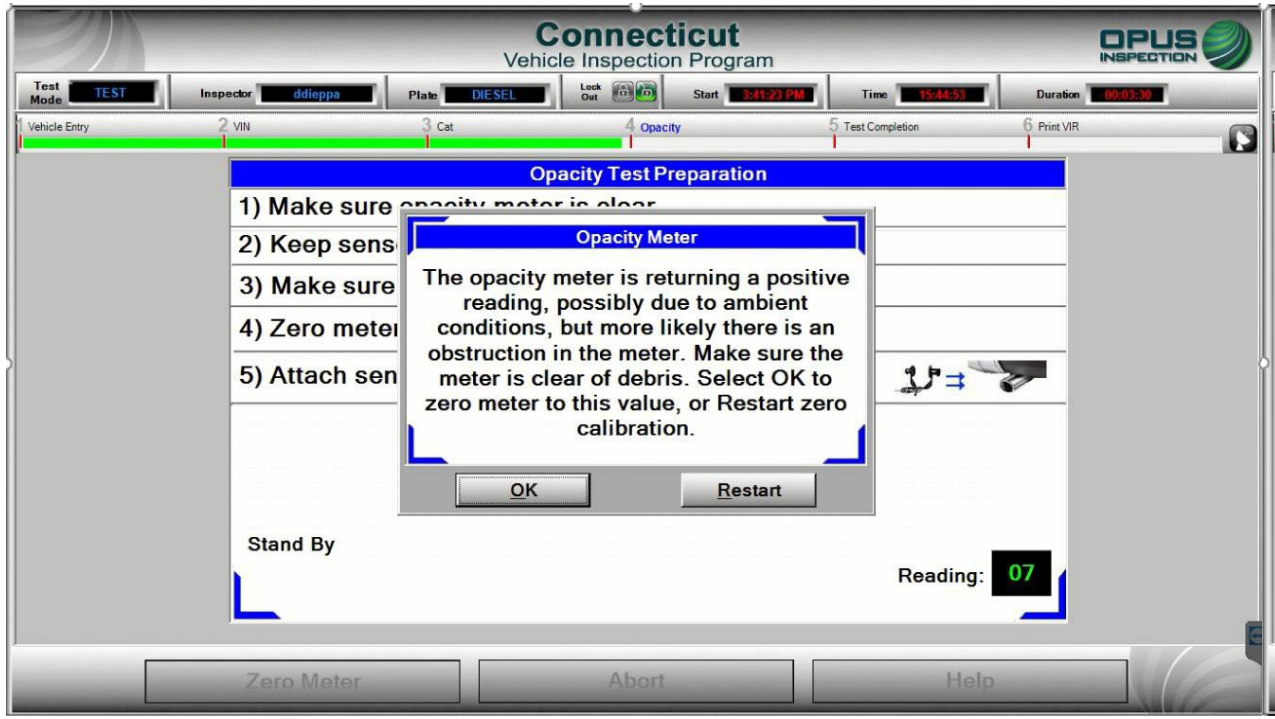
Inspections: Modified Snap Acceleration Test (Opacity)

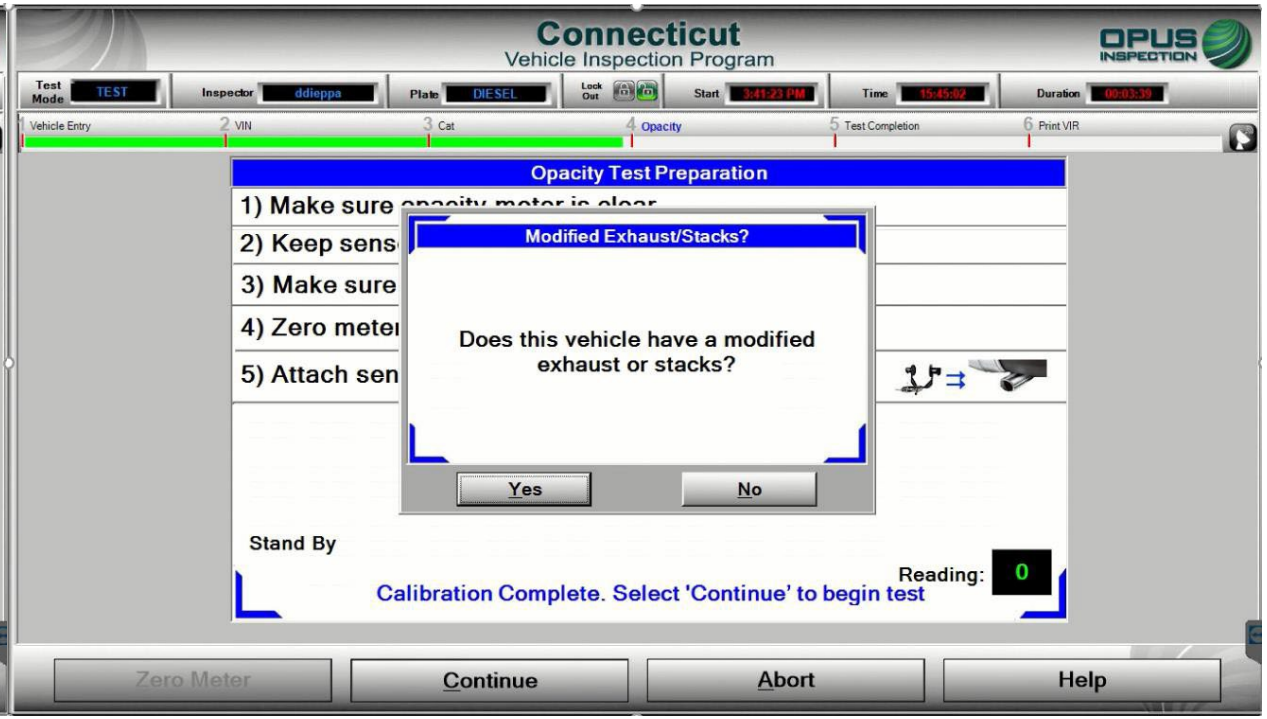




First you will capture RPM by choosing one of the available methods. You must make three attempts using any source available before bypassing RPM. Bypassing RPM is strictly monitored; bypassing without a sufficient attempt is a program violation subject to monetary assessments. Next you will be prompted to prepare the vehicle for inspection (see order of operations, above). Click continue to proceed to the inspection.

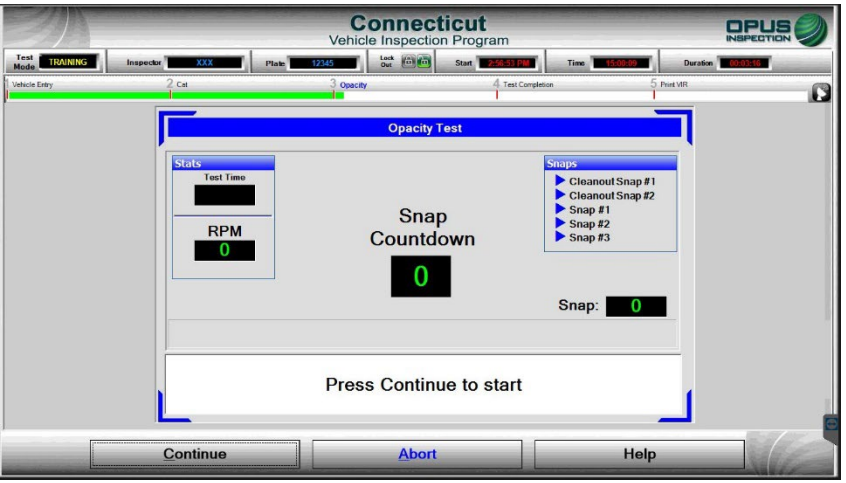
Inspections: Modified Snap Acceleration Test (Opacity)

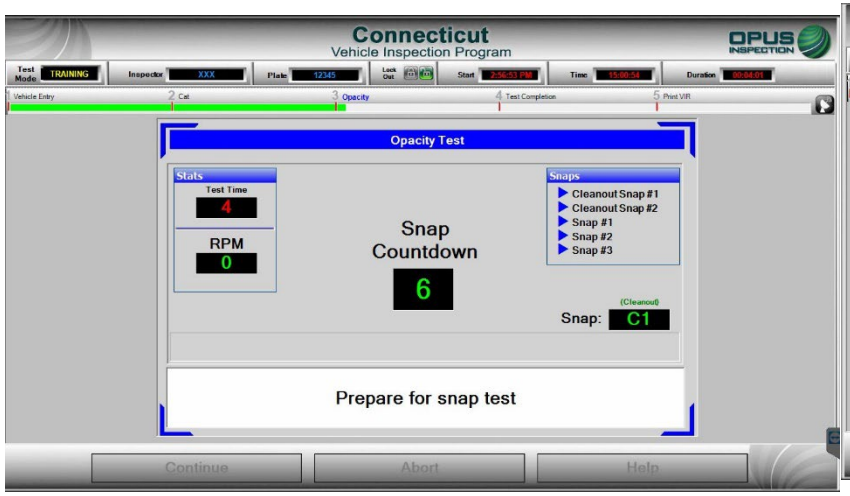


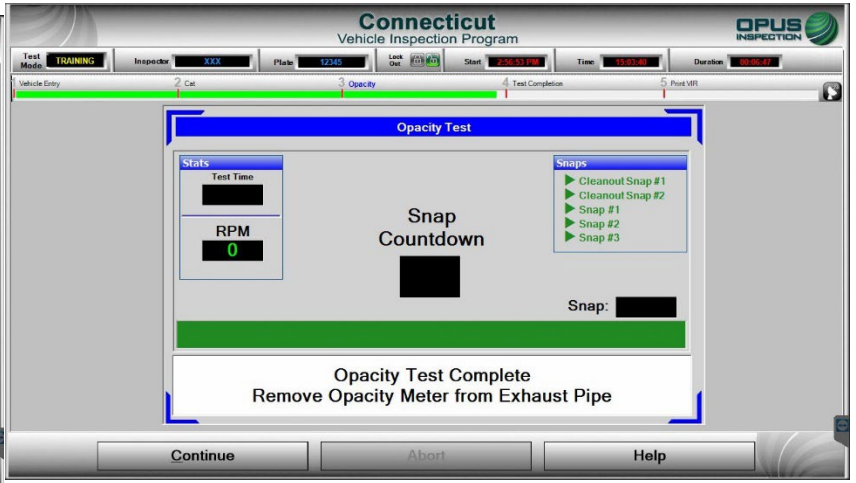


If there is an obstruction or the meter has not returned a zero result in preparation for the inspection, click OK to zero the meter. This should allow you to begin the inspection, however, you may have to exit the inspection to troubleshoot the opacity meter. Next, you will answer Yes or No to modified exhaust OR exhaust stacks.

Inspections: Modified Snap Acceleration Test (Opacity)



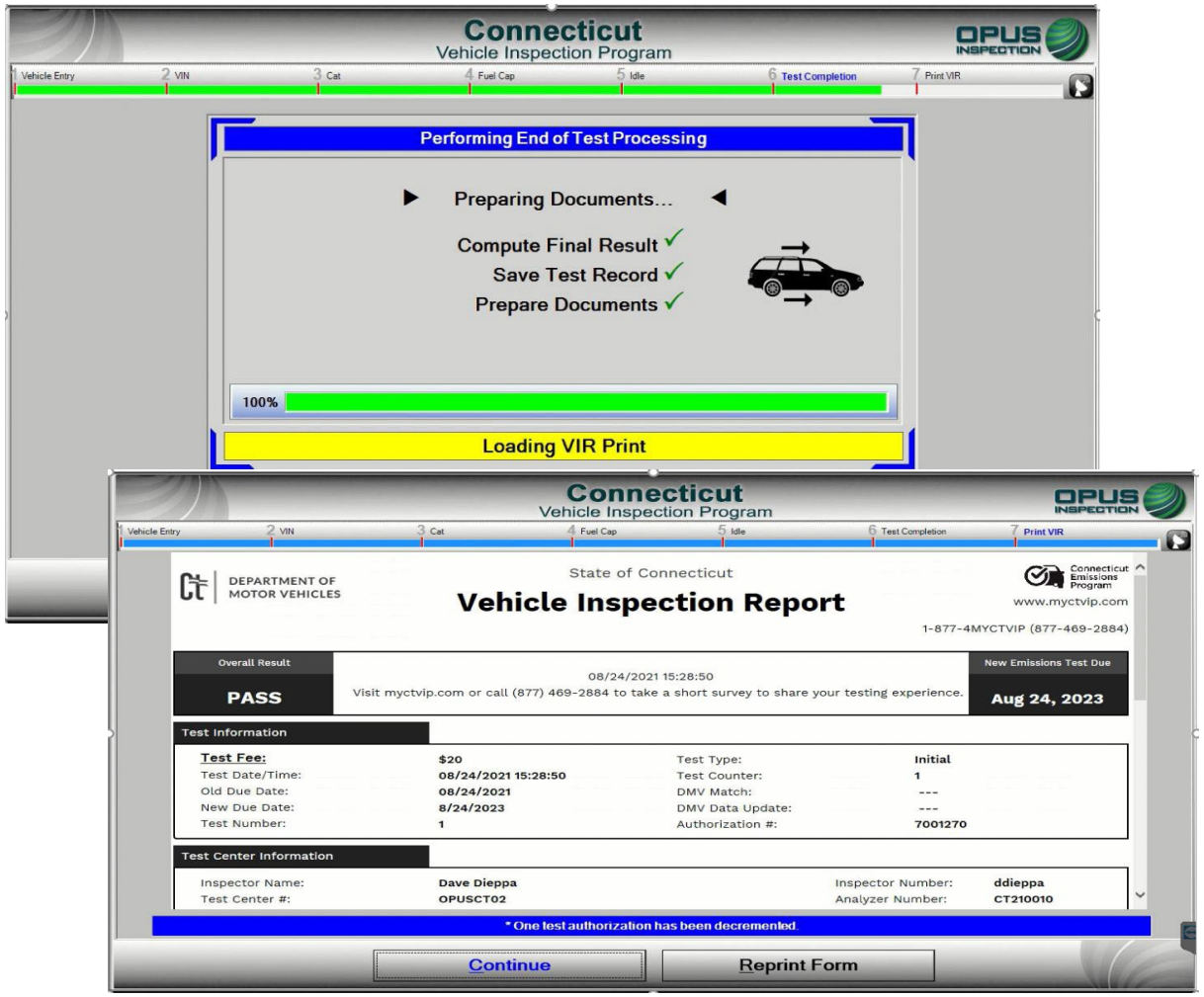




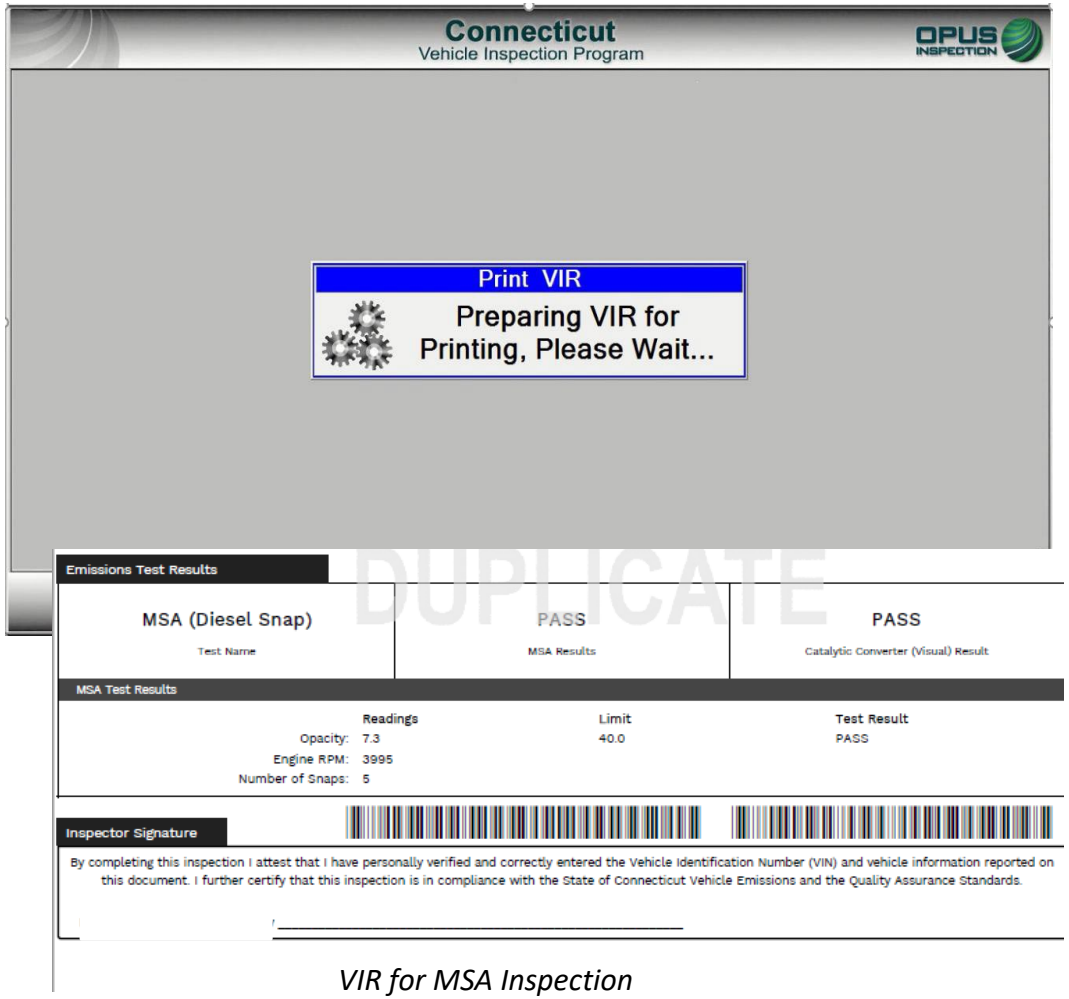
The Opacity MSA test consists of quick revs, or snaps, of the engine while the probe of the opacity meter is inserted in the tailpipe of the vehicle. Get the opacity meter set and the probe inserted into the tailpipe and hit Continue. You will see a 10 second countdown timer on the screen. At any point during the 10 seconds, step on the gas pedal to rev the engine to record each snap. You will need to do this 5 times. Two cleanout snaps are performed, followed by the 3 snaps needed for the test. Each successful snap will show as green in the Snaps box in the upper right-hand corner of the screen. **Additional snaps may be required if readings are out of tolerance range. Please follow the prompts on the screen.** Once you have successfully performed all 5 snaps and see all snaps show as green in the snaps box, hit continue to complete the test.

When the inspection is complete, remove the opacity meter probe from the exhaust pipe and click Continue.

End of Inspections: ALL TYPES



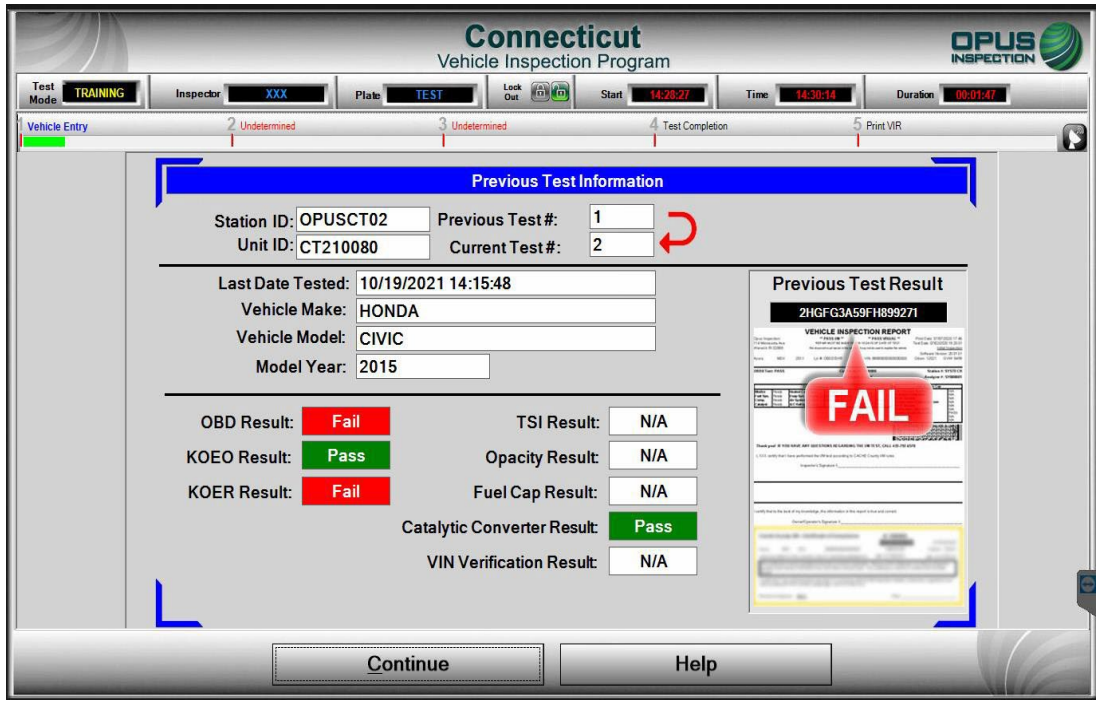
VIR for OBD, TSI Inspection



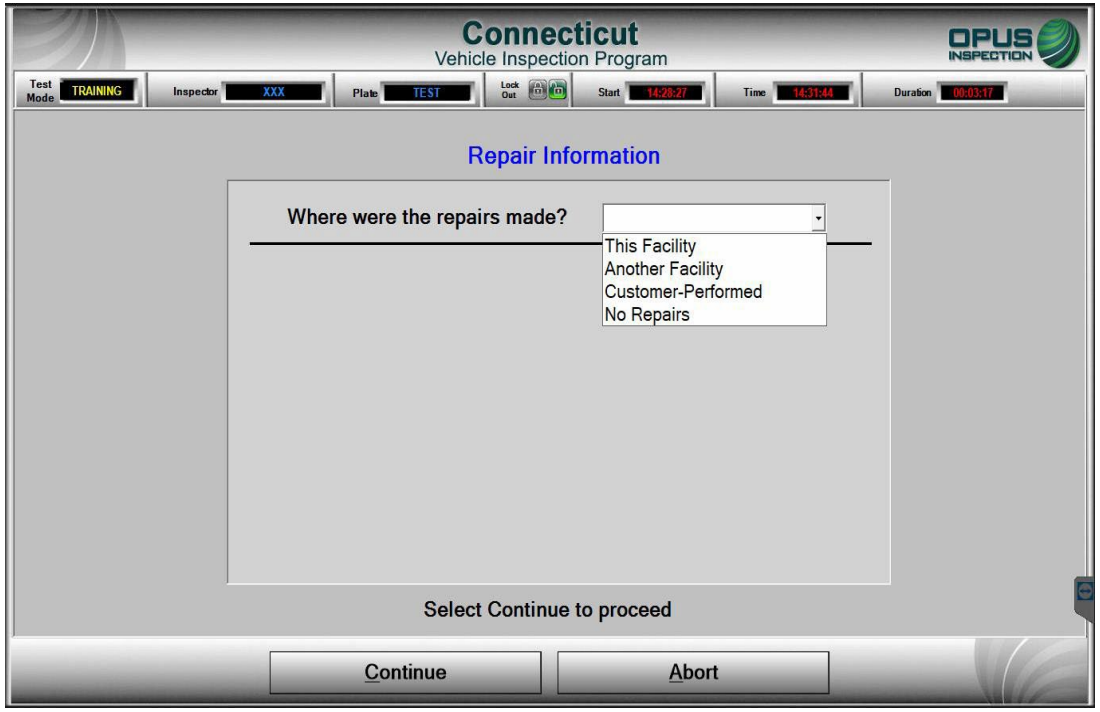
VIR for MSA Inspection

Three screens will appear when the inspection is complete, as shown above. The VIR will automatically print; there is also an available Reprint option. Click continue to exit the inspection and return to the main menu to ensure the inspection is uploaded to the VID. ***Note:** ***All VIR pages MUST be given to the motorist.***

Inspections: Retest (previous fail)

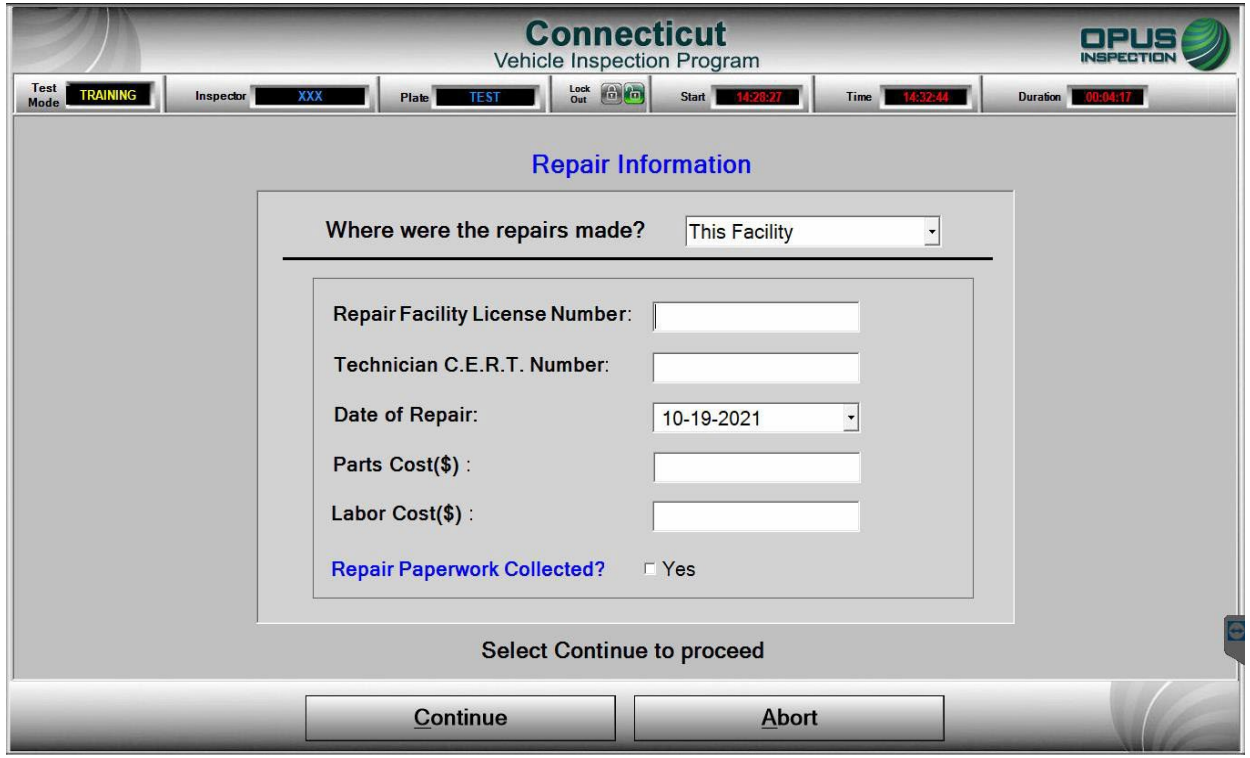


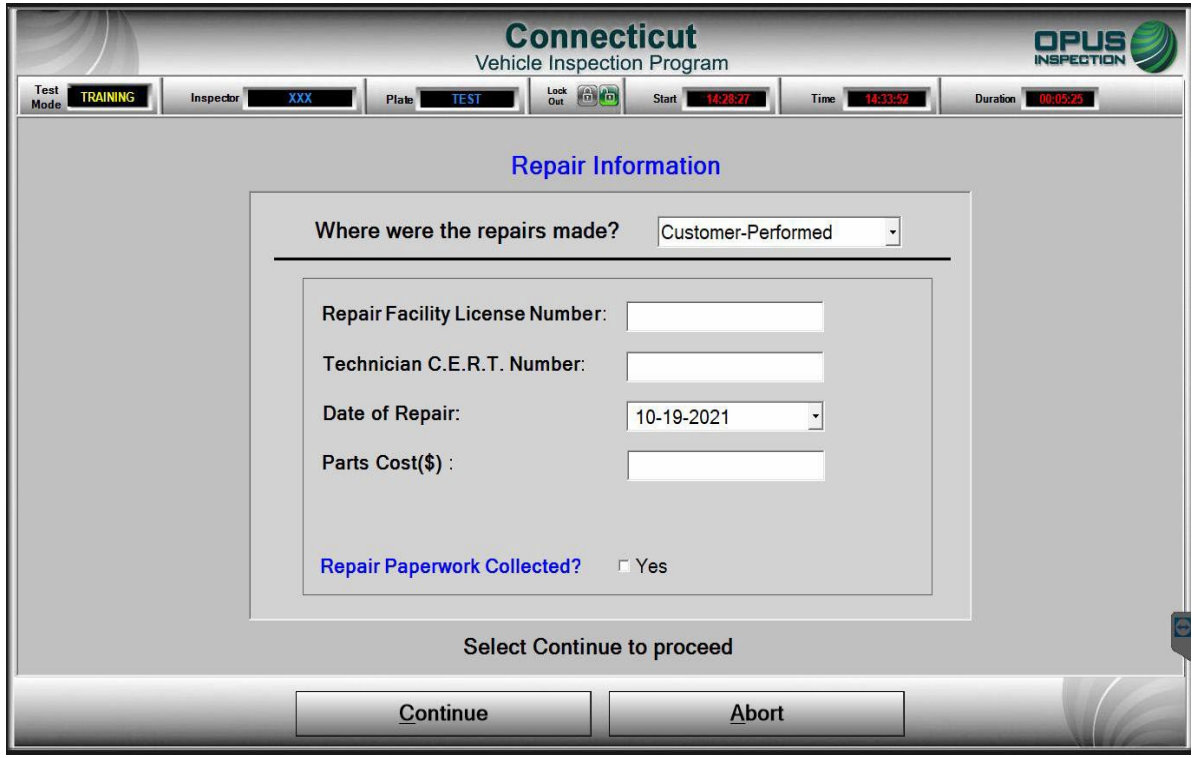
The CDAS will show you the results of the previous inspection once you have entered the VIN. If the previous inspection failed, the results will be displayed, as shown above. Collect all repair paperwork before proceeding; you will need both the Emissions Repair Form and the previous VIR.



Using the Emissions Repair Form and the previous VIR from the motorist, follow each screen prompt and enter requested information, starting with whether any repairs were made.

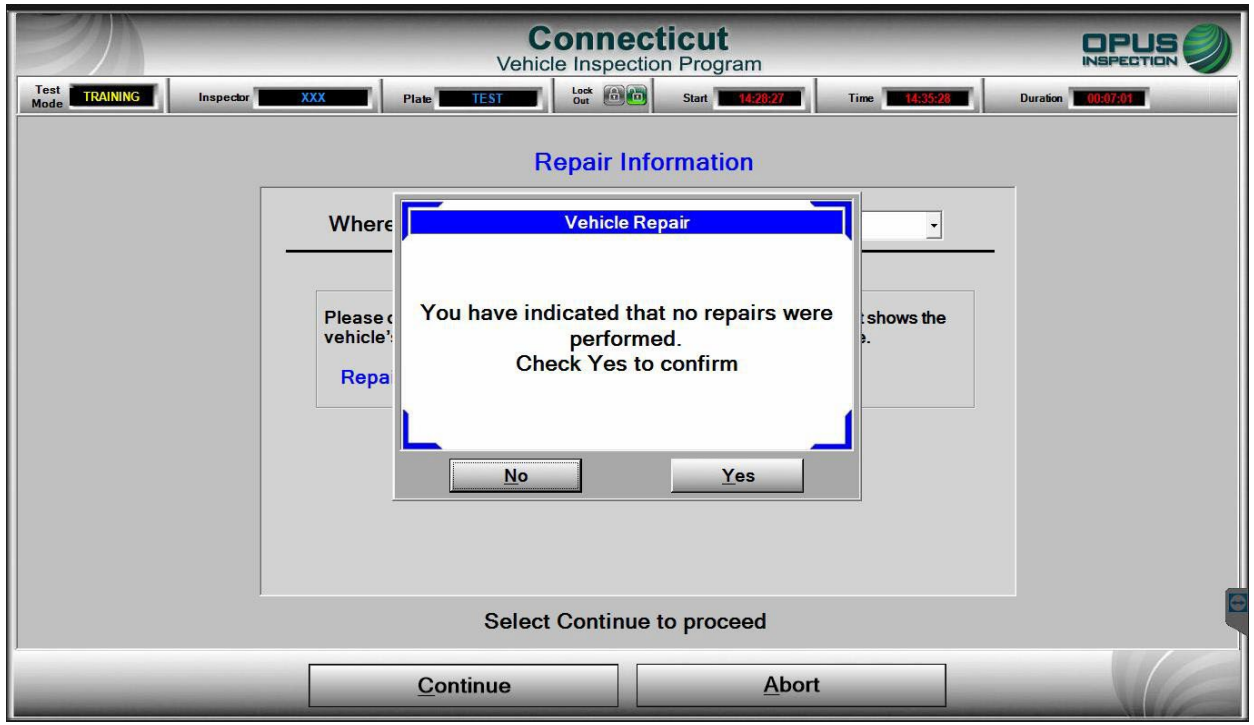
Inspections: Retest (previous fail)





Based on the Emissions Repair Form, choose the correct option (at a facility or customer-performed) from the drop-down box and enter the information from the repair form. Check yes to “Repair Data Form Collected?”

Inspections: Retest (previous fail)



If no repairs were made, select “No Repairs” from the drop-down box. Check yes to “Repair Data Form Collected?” and confirm no repairs.

Inspections: Emissions Repair Form (Retest)

If the vehicle PASSES the retest, keep the Repair Data Form and previous VIR. These will be collected by an Opus representative or a DMV agent the next time they visit your station.

If the vehicle FAILS the retest, give the Repair Data Form and the previous VIR back to the motorist along with the new VIR. The motorist will need these if they apply for a repair waiver.

Inspections: Emissions Repair Form (Retest)

When a vehicle fails, the Emissions Repair Form and Certified Emissions Repair Facility List will be printed along with the VIR.

The motorist MUST receive these documents, along with the appropriate fail brochures, and be given instruction that both the VIR and Emissions Repair Form are to be returned with the vehicle for retest.

The motorist must submit, with the current FAILED VIR, a completed Emissions Repair Form to the Test Center at the time of retest, regardless of whether any repairs have been made to the vehicle or not. Reprinted VIRs are allowed and available at any test center.

You should print the motorist an Emissions Repair Form, at no charge, for them to complete and acknowledge (sign the form) either “no repairs made” or “self repair” and continue with the retest. If repairs were made by either a CERT or non-CERT repair facility, the motorist MUST return to that repair facility to have the form completed and signed by the technician/facility that performed the repairs.

If repairs do not correct the inspection failure, the motorist may wish to apply for a Cost Waiver. Only repairs made at a CERF (Certified Emissions Repair Facility) by a CERT (Certified Emissions Repair Technician) are eligible toward the Waiver.

Test Centers may reprint the failed VIR at no charge to the motorist.

Chapter 8: VIN Verification

VIN Verification

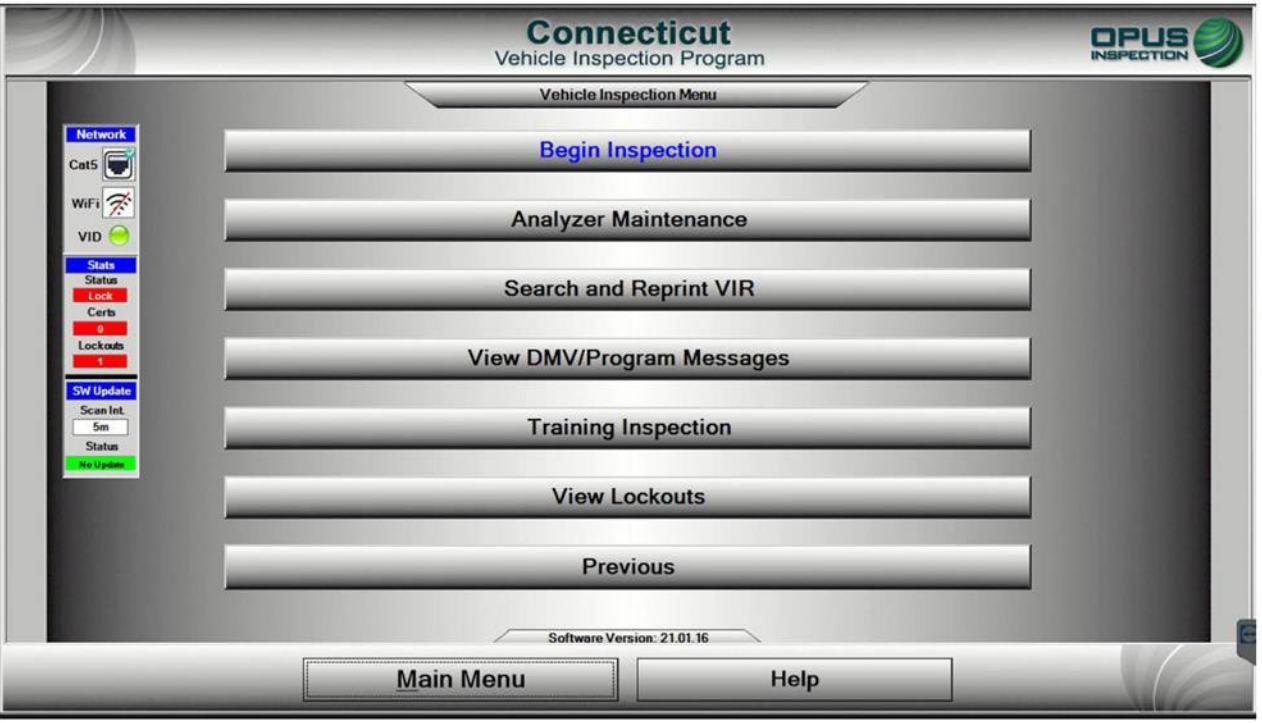
Reminder: not all vehicles are eligible for a VIN verification at Test Centers. Please refer to the list, below, of vehicles types that must have a VIN verified at a DMV Inspection Lane

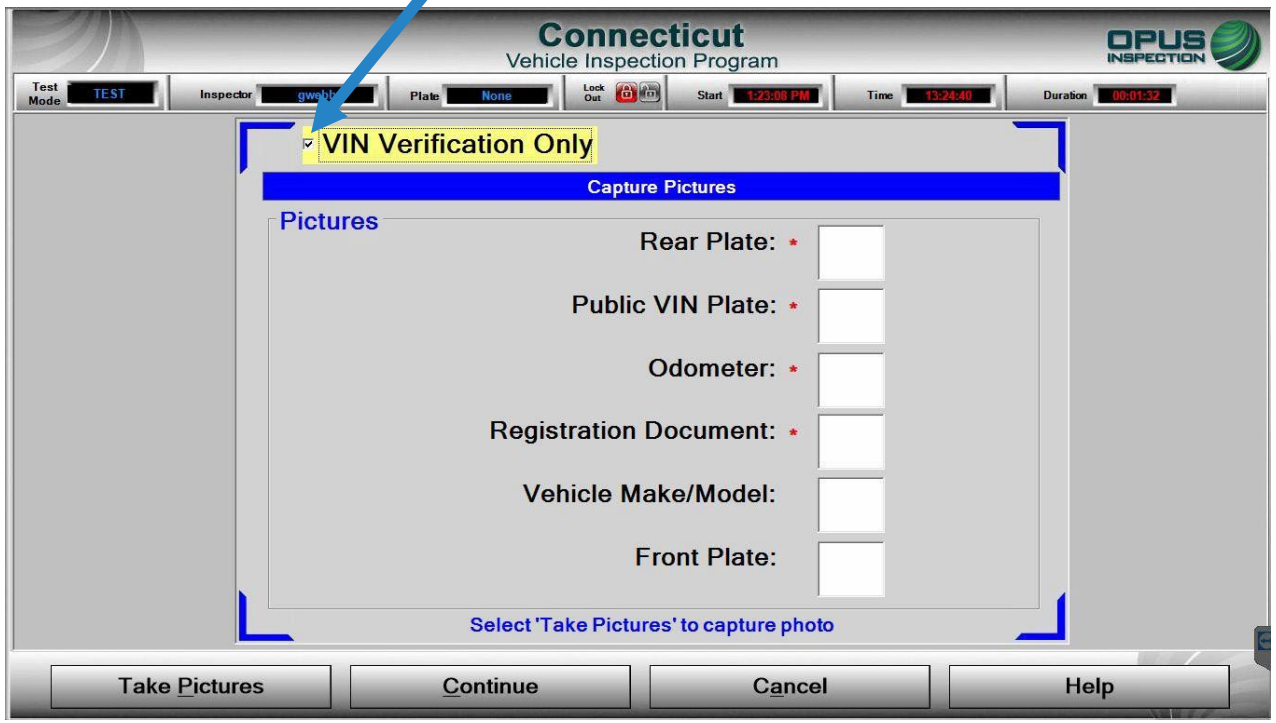
Vehicle types below **must** have a VIN verified at a **DMV Inspection Lane**; no appointment necessary:

- Vehicles that have missing, altered, or otherwise undetectable VINs Composite motor vehicles or trailers, including any homemade motor vehicles or trailers, dune buggies, and kit cars
- Salvage vehicles
- Grey market vehicles (vehicles that are imported from other countries, including Canada, and may not conform to the federal safety standards)
- Amphibious vehicles or former military vehicles
- Motorcycles with model years 1980 or older
- Three-wheeled vehicles, except Harley Davidson, and Can Am (Spyder)
- Vehicles that are not listed on **our approved list of manufacturers** (except utility trailers). ****Please be sure to refer to this list often, as it changes frequently.****
- ANY dirt bike or motorcycle that closely resembles a dirt bike regardless of whether the manufacturer is listed on the CT manufacturer's list MUST be brought to the Wethersfield DMV for a courtesy inspection

VIN Verification

Be sure to check the VIN Verification Only box at the top of the screen



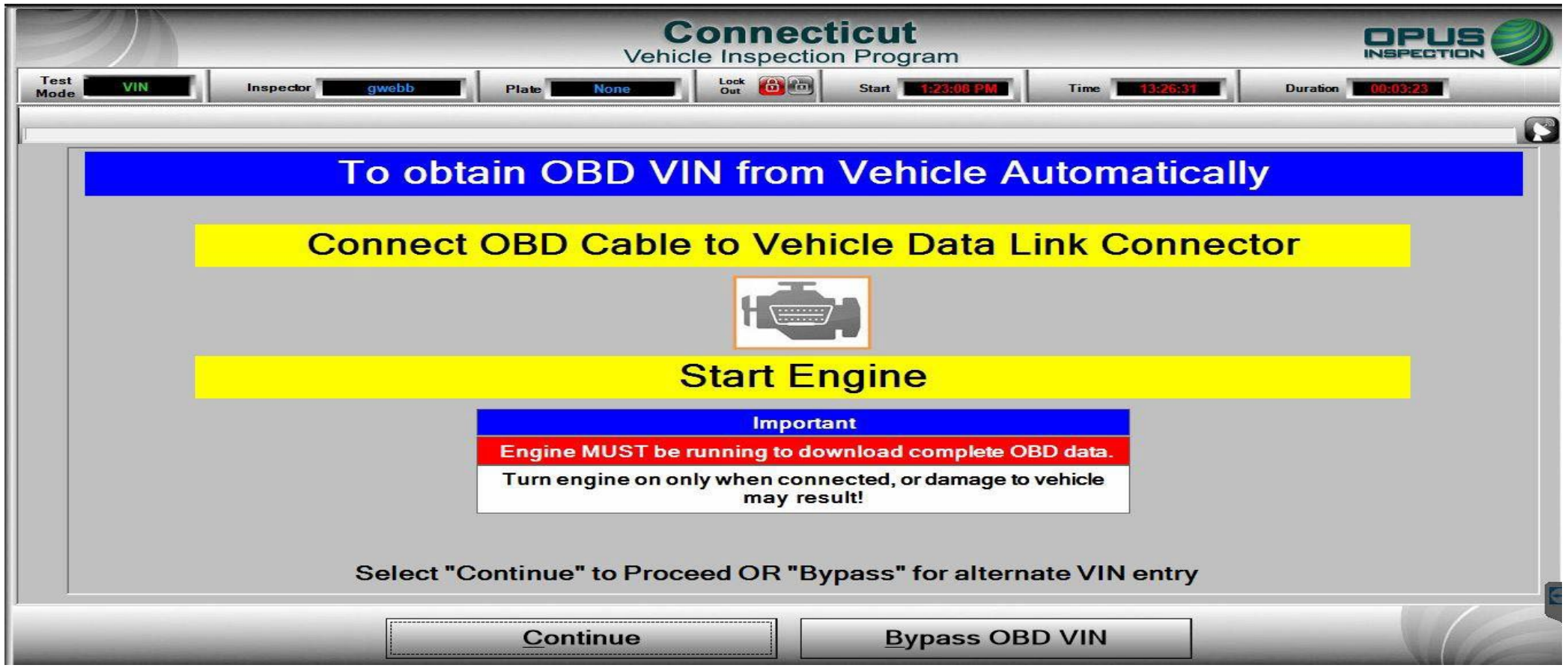


To complete a VIN Verification, start from the Main Menu >Vehicle Inspection Menu >Begin Inspection. **Be sure to check the VIN Verification Only box at the top of the screen.** Capture the required images as show above and click Take Pictures.

VIN Verification

NOTE: Be sure to capture accurate images for the VIN verification and ensure the VIN data is accurate. Above are examples of ideal image captures.

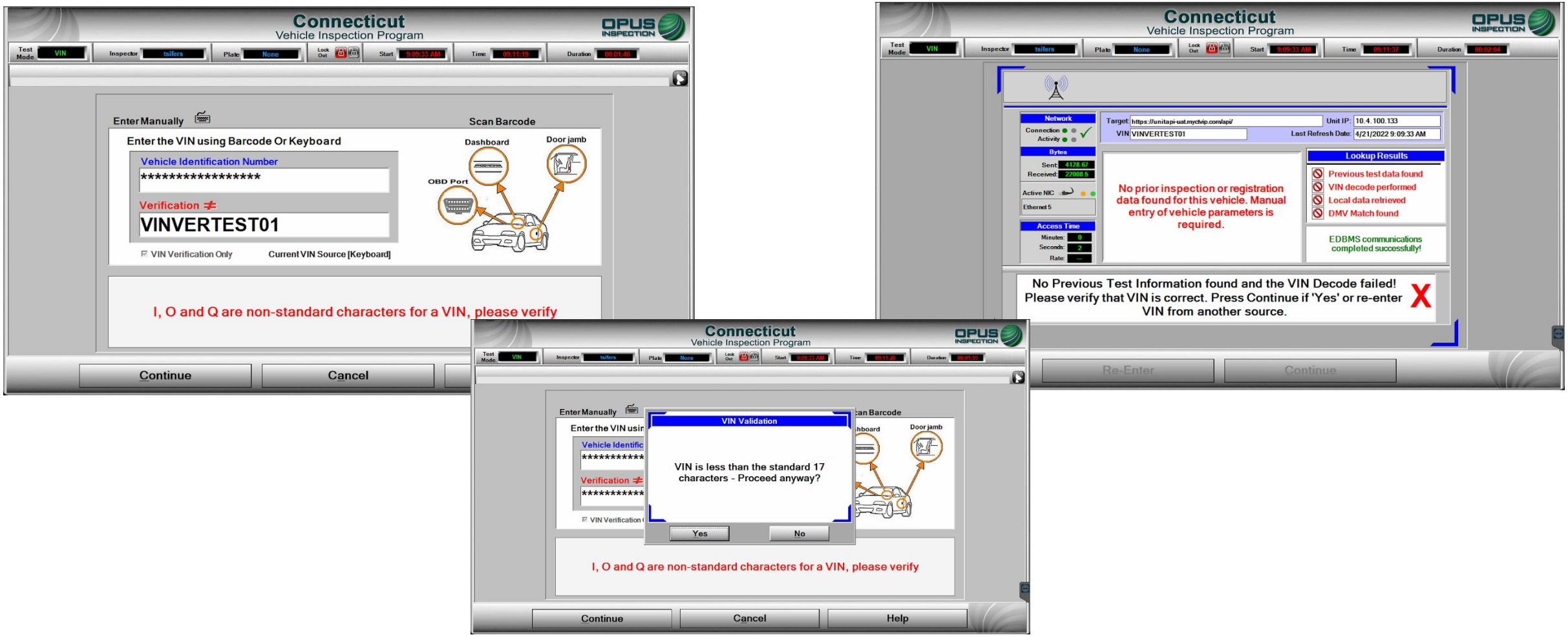
VIN Verification



If the vehicle is OBD compliant, plus the OBD cable into the DLC port and hit Continue.

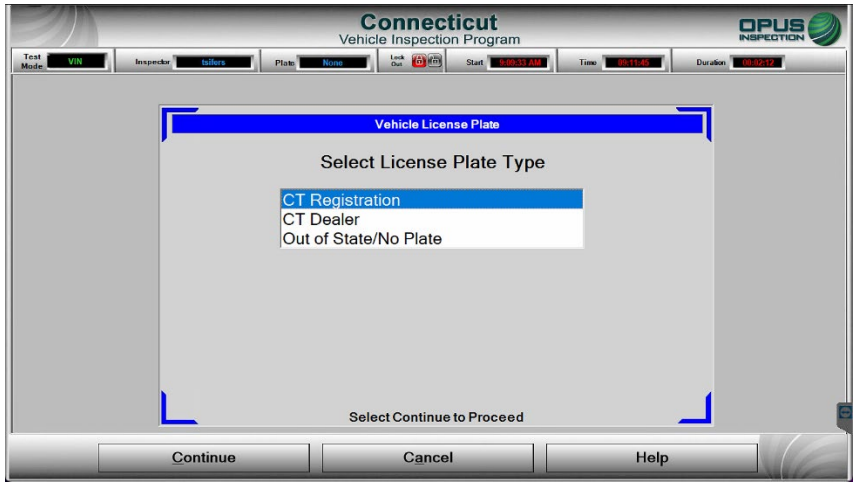
If the vehicle is not OBD compliant (i.e., a trailer or motorcycle), click the Bypass OBD VIN button to enter data manually.

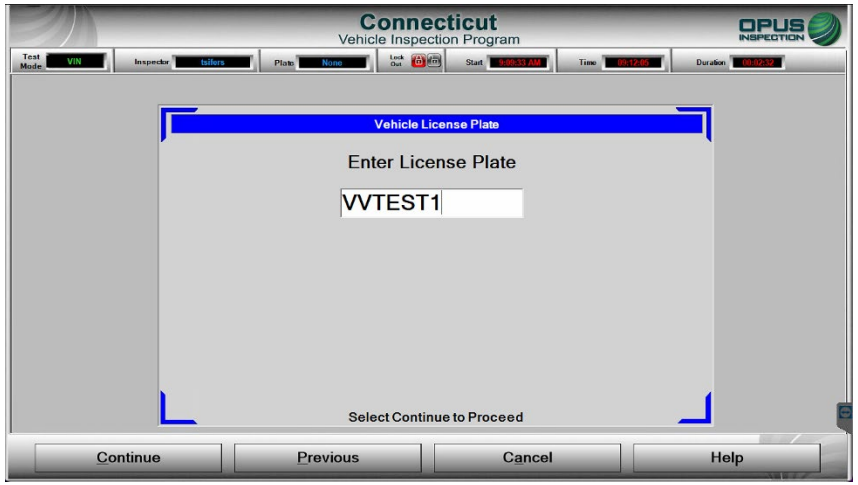
VIN Verification



Verify accuracy of VIN data (I, O, and Q are non-standard characters) or enter manually then proceed to next steps

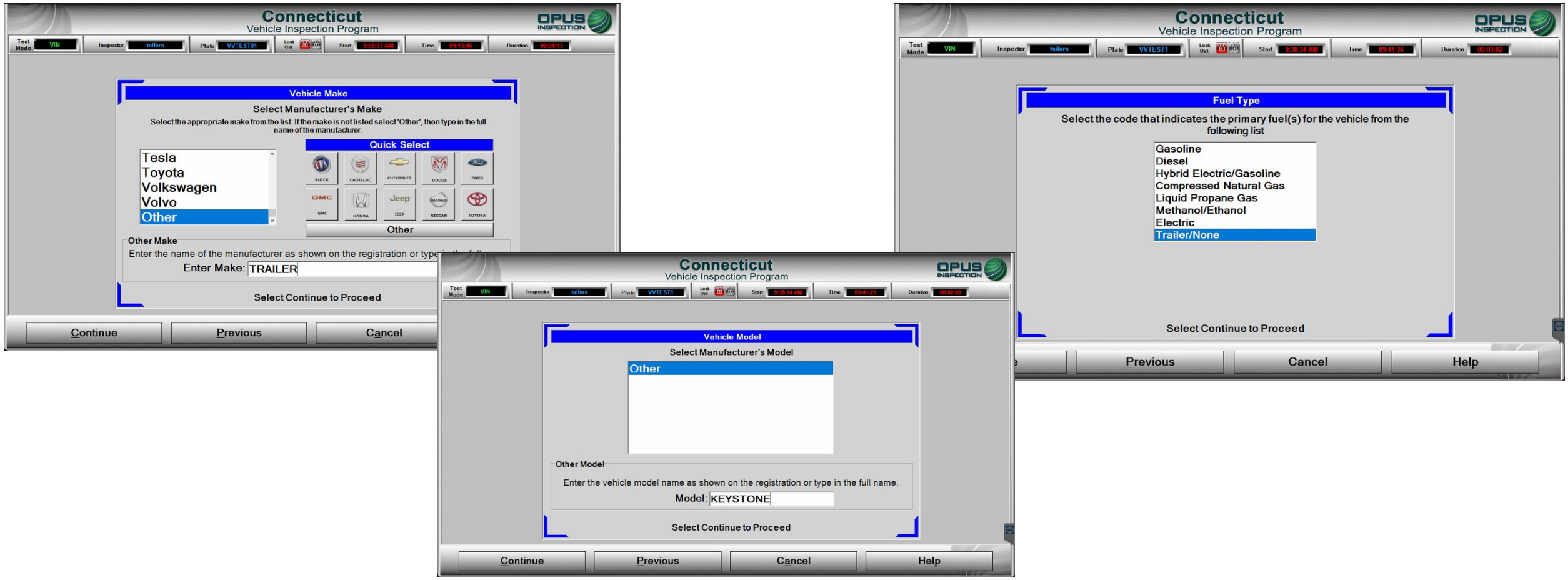
VIN Verification





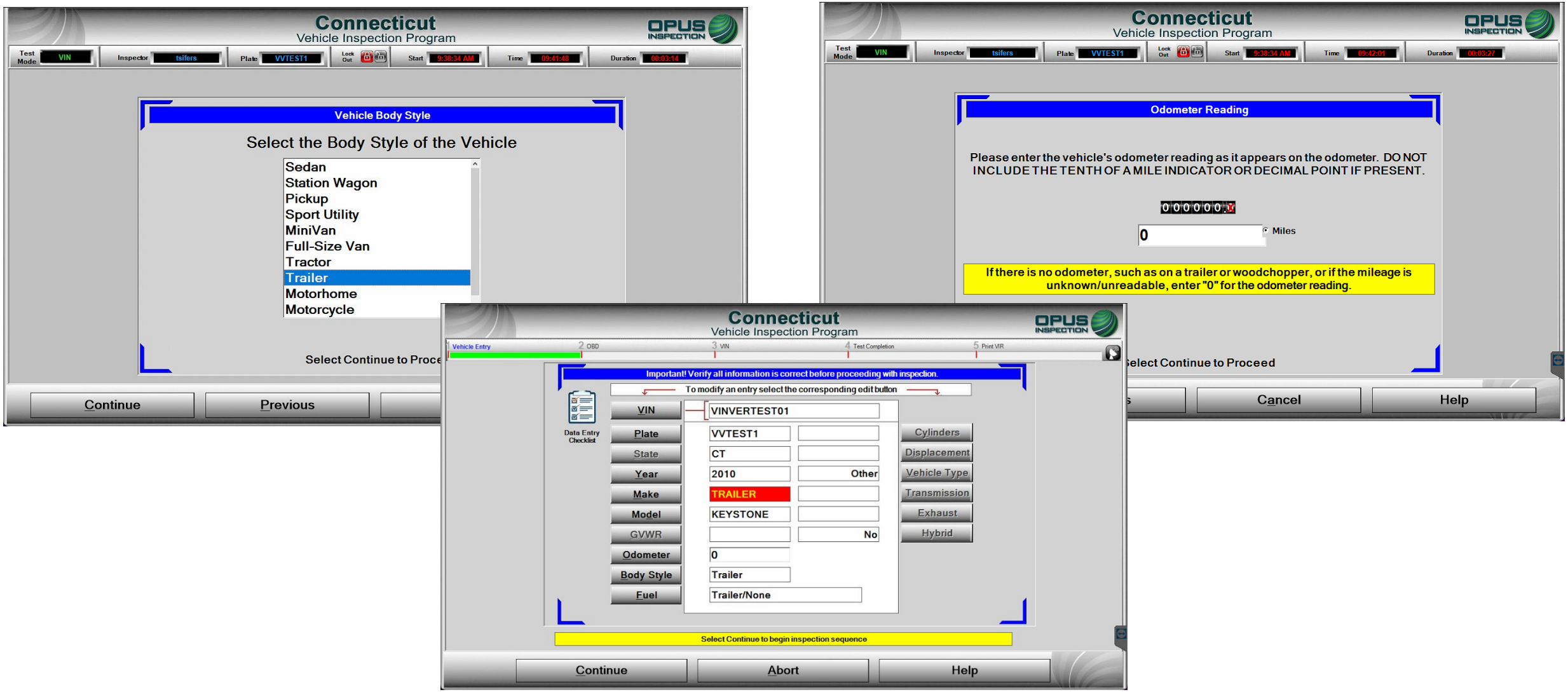
Most data on an OBD compliant vehicle will populate automatically. For manual entry on non-OBD compliant vehicles, follow the screen prompts and enter all data, being sure to confirm accuracy.

VIN Verification



In some cases (i.e., a trailer or motorcycle), you may need to manually enter information such as make, model, engine size, or weight. If you have trouble locating that information, you can ask the motorist, call the Opus Help Desk at 877-469-2884, or use this website for help: https://vpic.nhtsa.dot.gov/decoder/

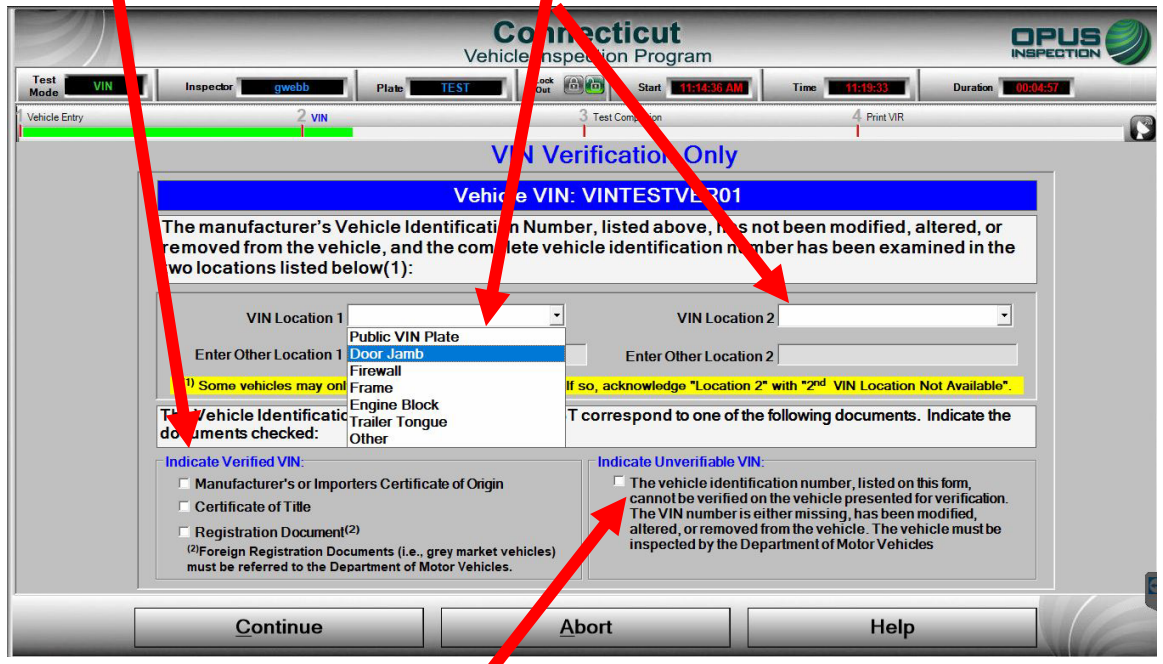
VIN Verification



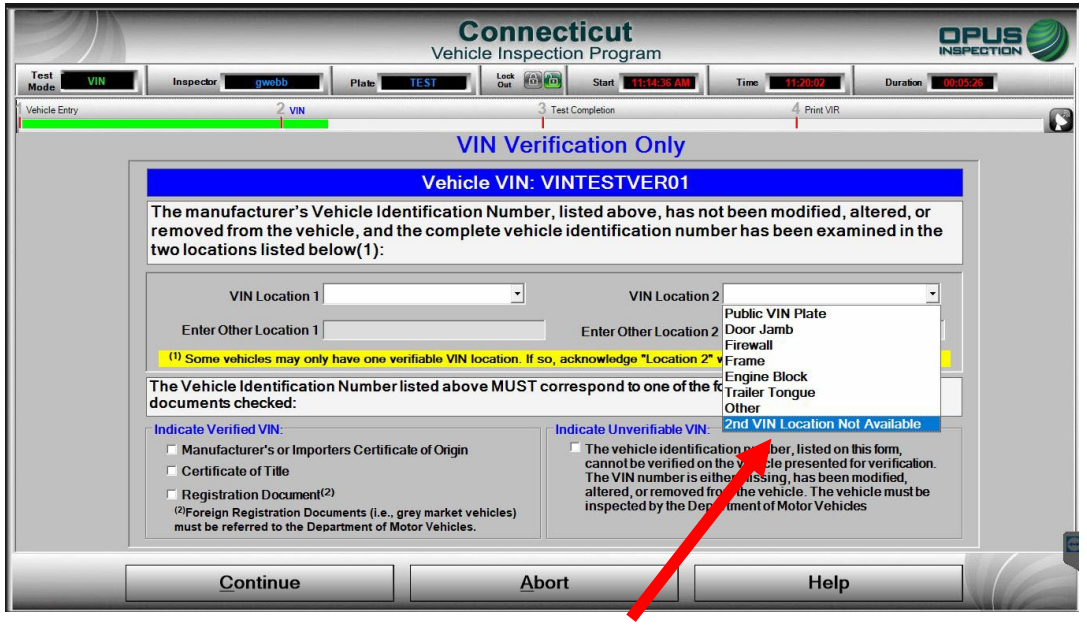
Complete data entry and verify the accuracy of all information before proceeding to the VIN verification.

VIN Verification

Be sure to confirm VIN accuracy by matching the verified VIN document (title, registration, or manufacturer's certificate) to the VIN found in two locations on the vehicle.



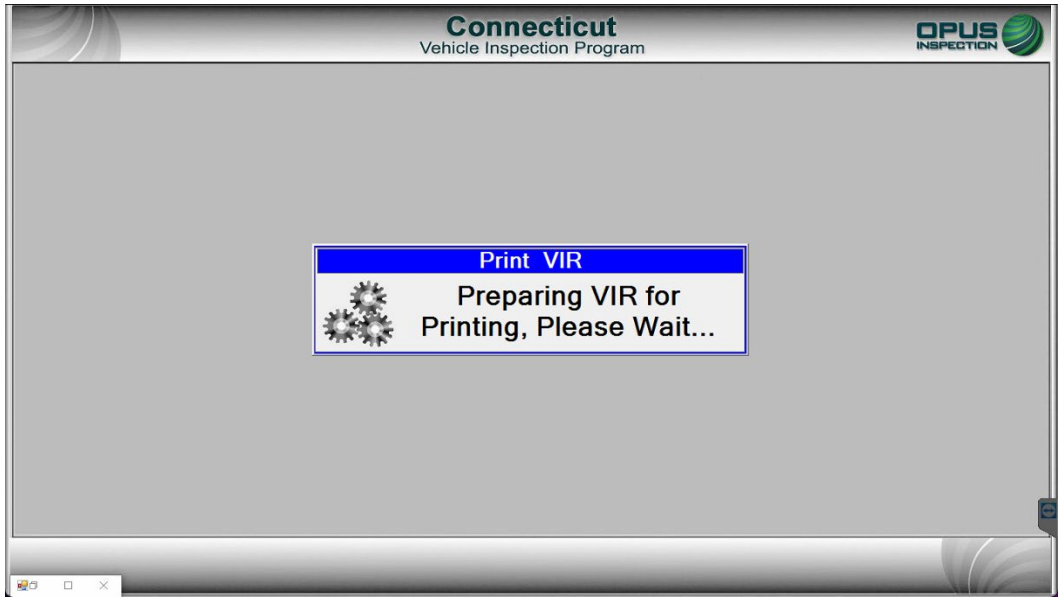
Note: If the VIN listed on the form cannot be visually verified on the vehicle (i.e., is either missing or has been modified, altered, or removed), the vehicle must be inspected by the DMV. Do not abort the test. Complete the VIN verification but be sure to check the box indicating that the VIN cannot be verified.

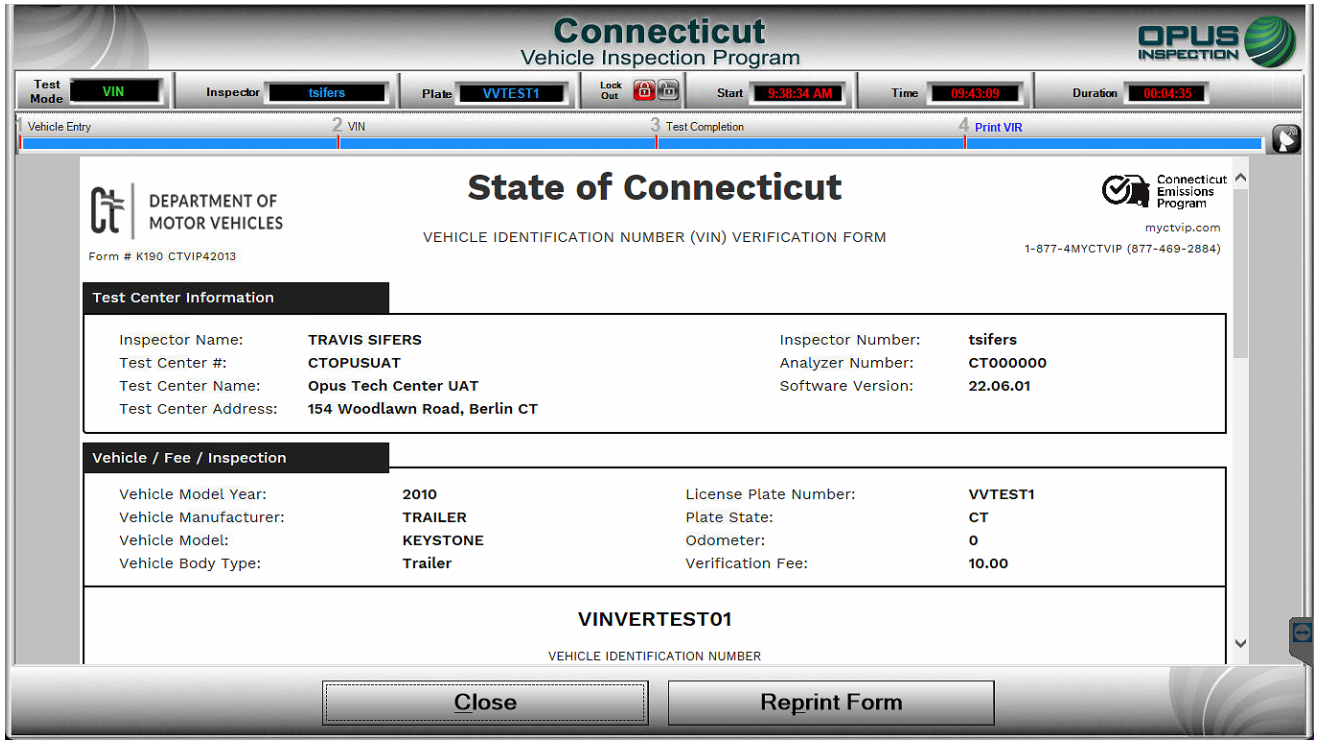


Some vehicles, such as trailers, may have only one VIN location available; be sure to select that option from the second menu.

After entering and verifying accuracy of data on this screen, clicking Continue will begin the VIN verification

VIN Verification

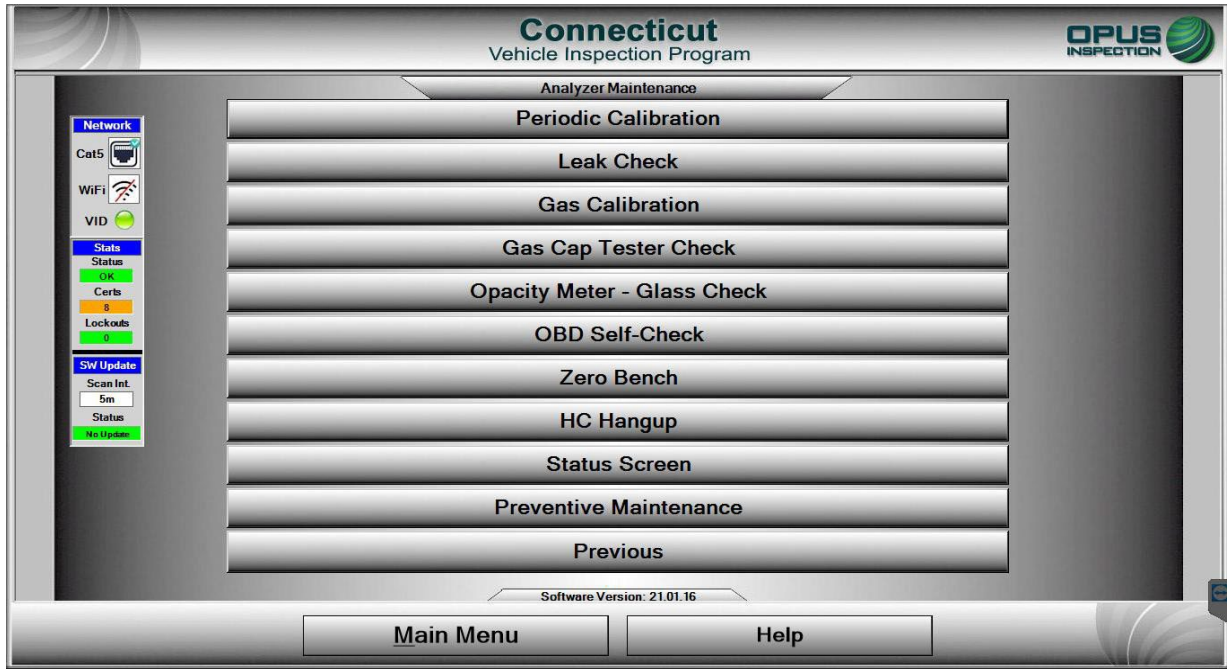




The VIR will print at the conclusion of the VIN verification. Be sure to give the VIR to the motorist.

Chapter 9: Calibrations and Maintenance

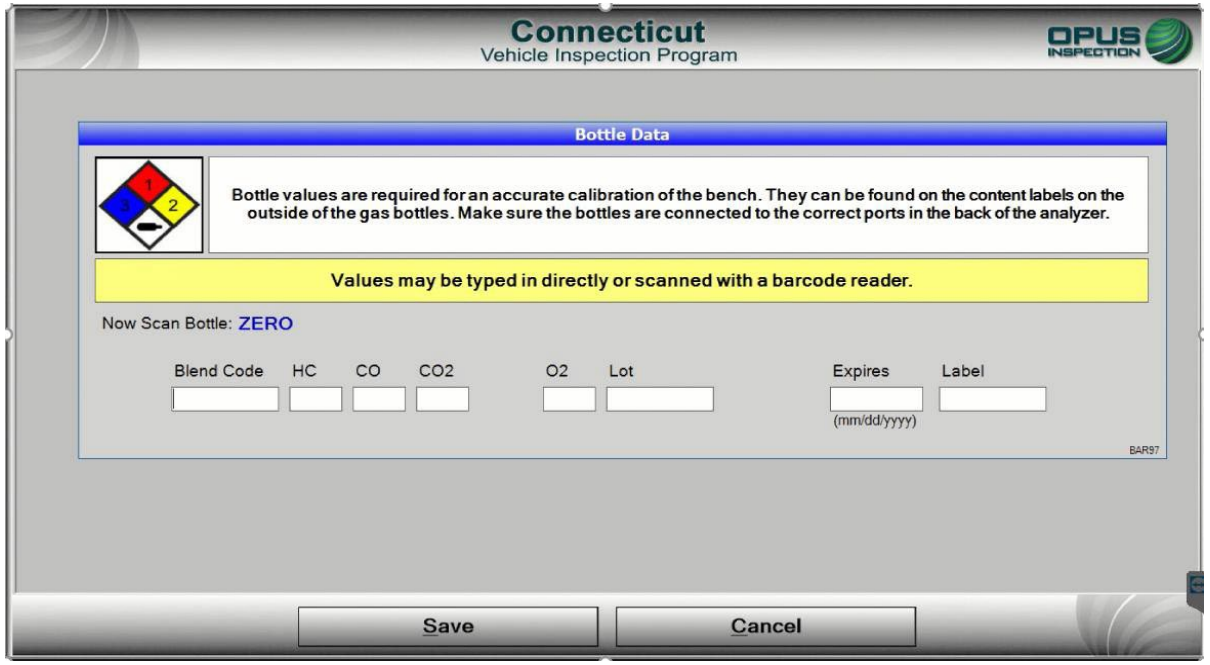
Periodic Calibrations – Every 72 Hours



Periodic calibrations are to be performed every 72 hours. All Test Centers must be ready and able to test during program operating hours. All gas bottles have an expiration date and cannot be used once expired. Modifying the expiration dates, lot numbers, or concentration values is a program violation and is strictly prohibited.

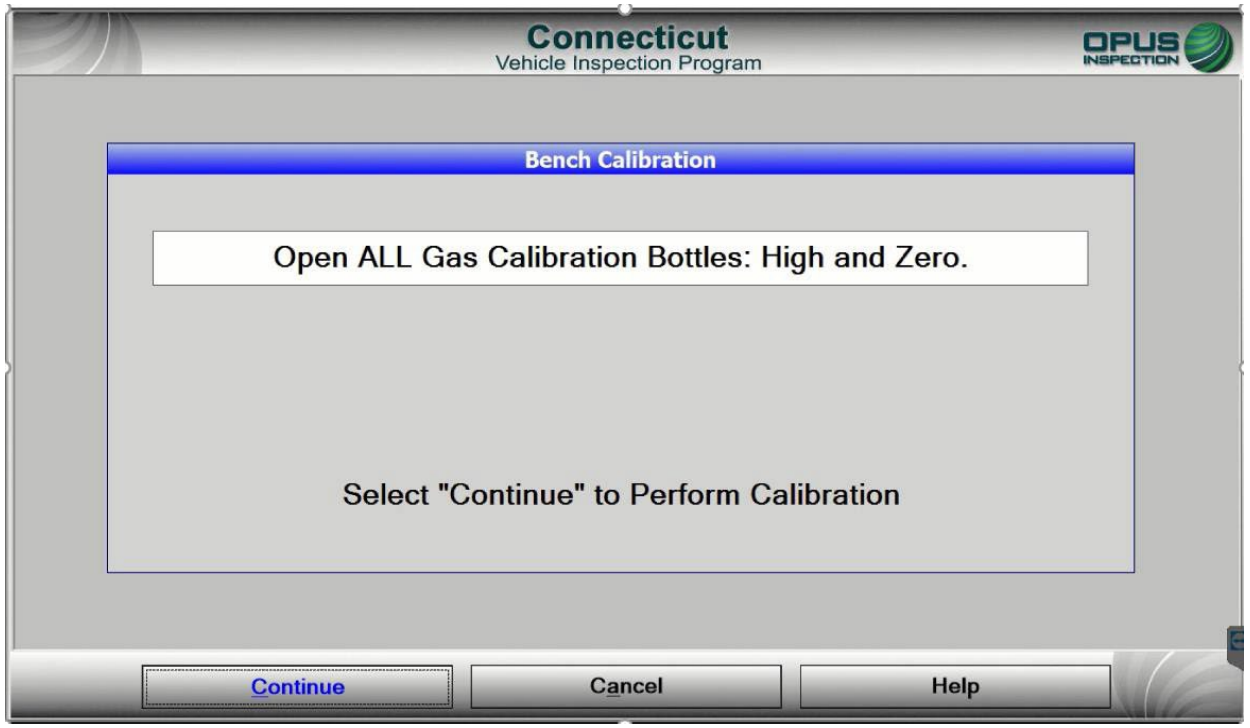
To perform calibrations from the Main Menu, click >Vehicle Inspection>Analyzer Maintenance, then select Periodic Calibrations. This will take you through complete calibrations. The option to perform individual calibrations is available as well.

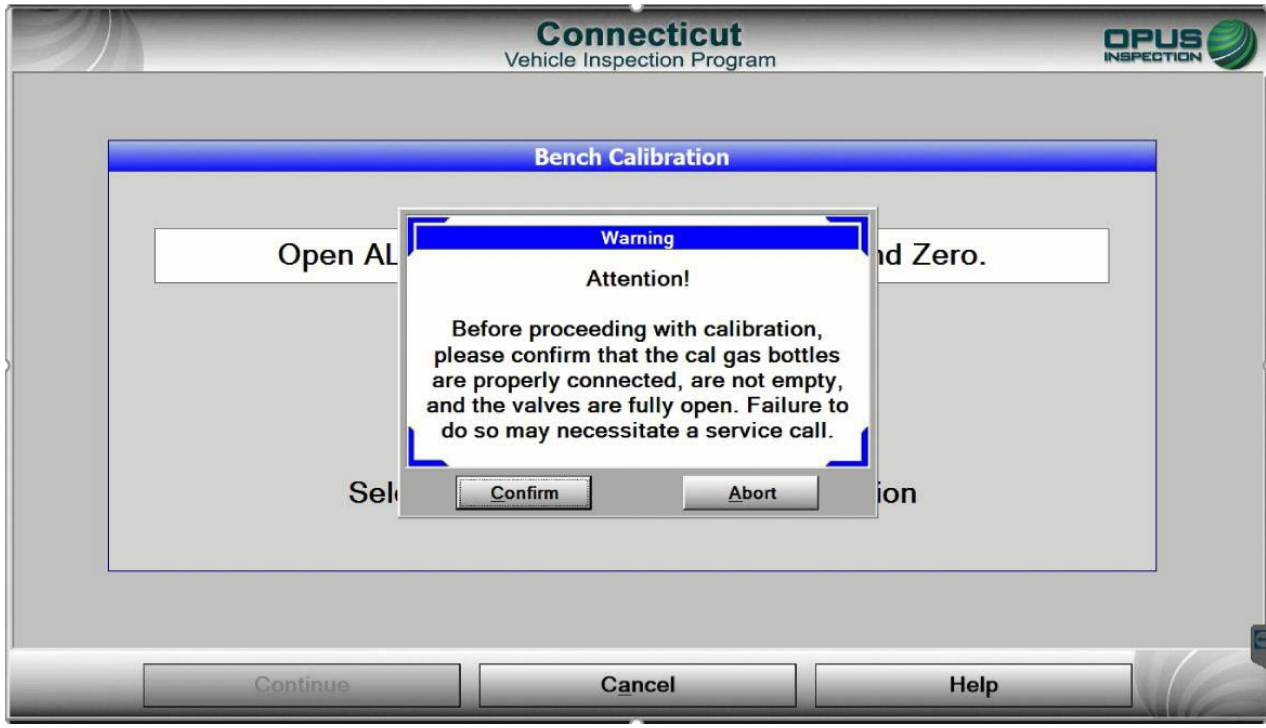
Gas Calibrations – Every 2 Weeks



Selecting Periodic Calibration will take you immediately to Gas Calibration, which should be completed every two weeks. Scan in the barcodes from the gas bottle label. Each bottle has three barcode labels, each representing specific information; values will appear in the appropriate box when scanned and when all fields are complete, the values will be saved. If the values are already populated from a previous scan, verify the values match and continue by clicking Save.

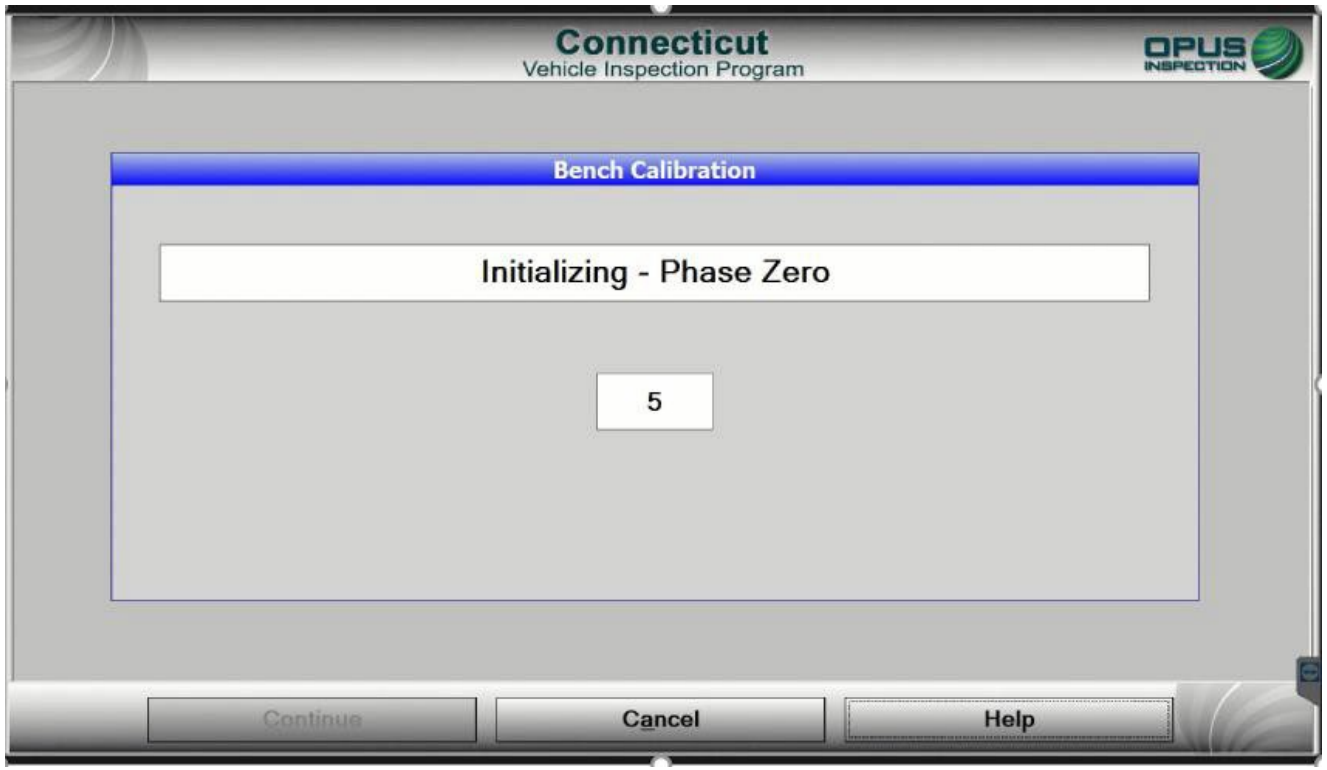
Gas Calibrations, *continued*





Open both High and Zero gas bottles. A warning will appear, prompting you to verify the gas bottles are properly connected, are not empty, and that the valves are fully open to ensure there are no issues with the calibration.

Gas Calibrations, *continued*



Initializing - Phase One

Initializing - Phase Two

Initializing - Phase Three

Auto Zero...

Flowing Low Gas

Flowing High Gas

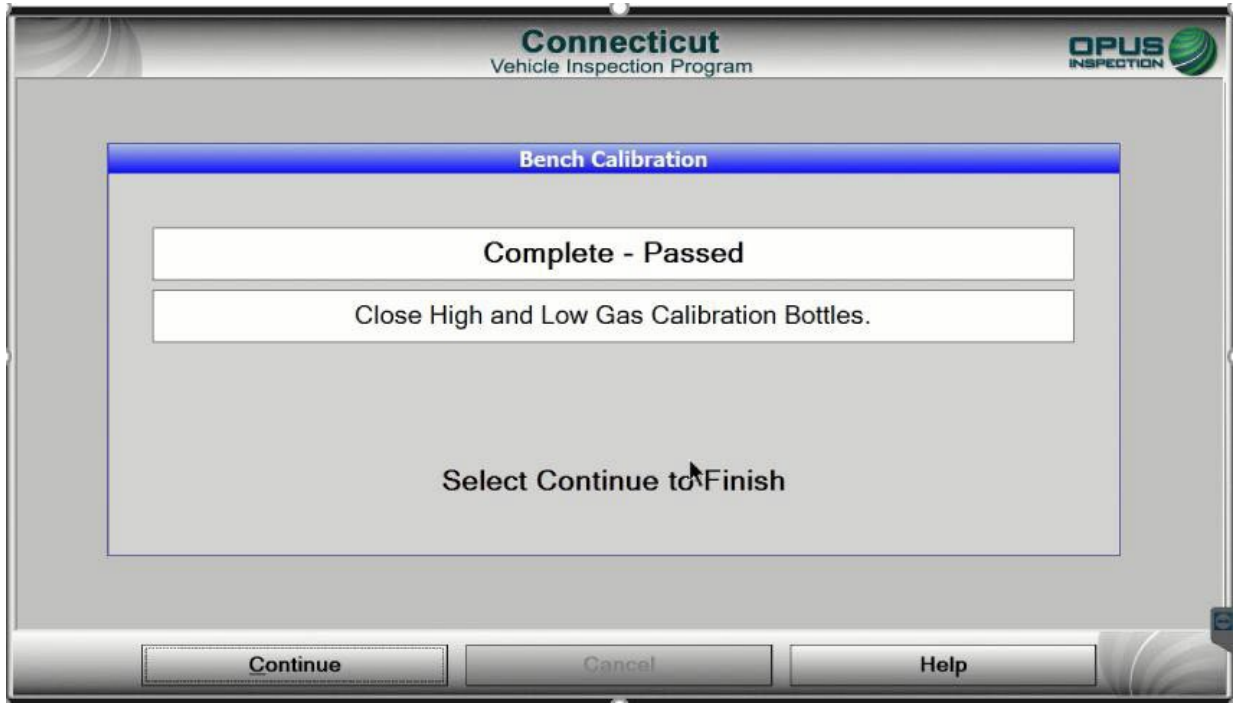
Flushing Manifold

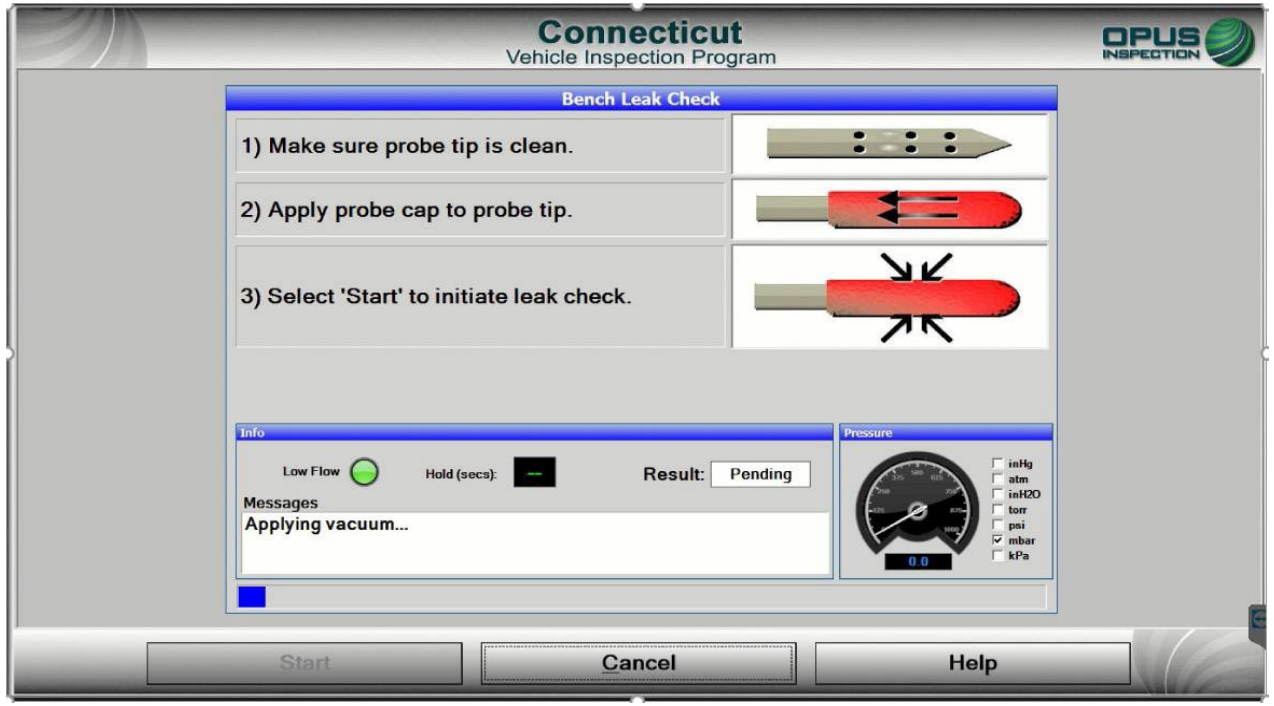
Post Calibration In Progress...

Flushing Manifold

Calibration will begin. As the Analyzer performs the calibration, the above messages will appear. Note that “Timer Pausing” is expected during the calibration.

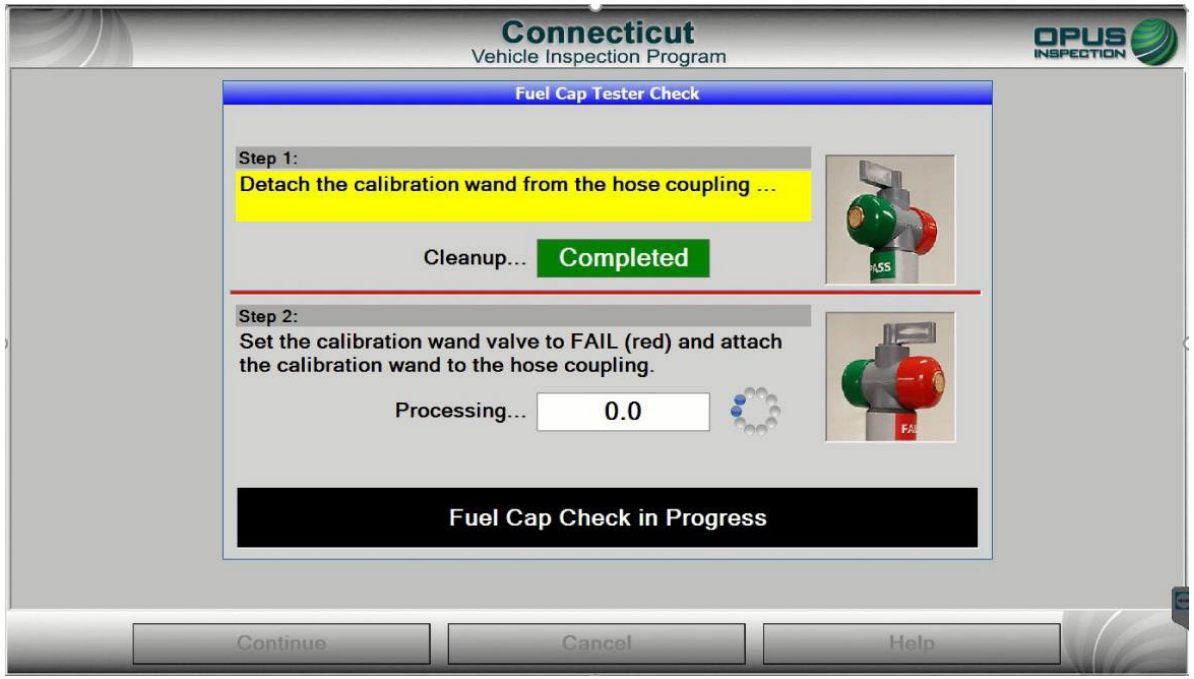
Gas Calibrations, *continued*



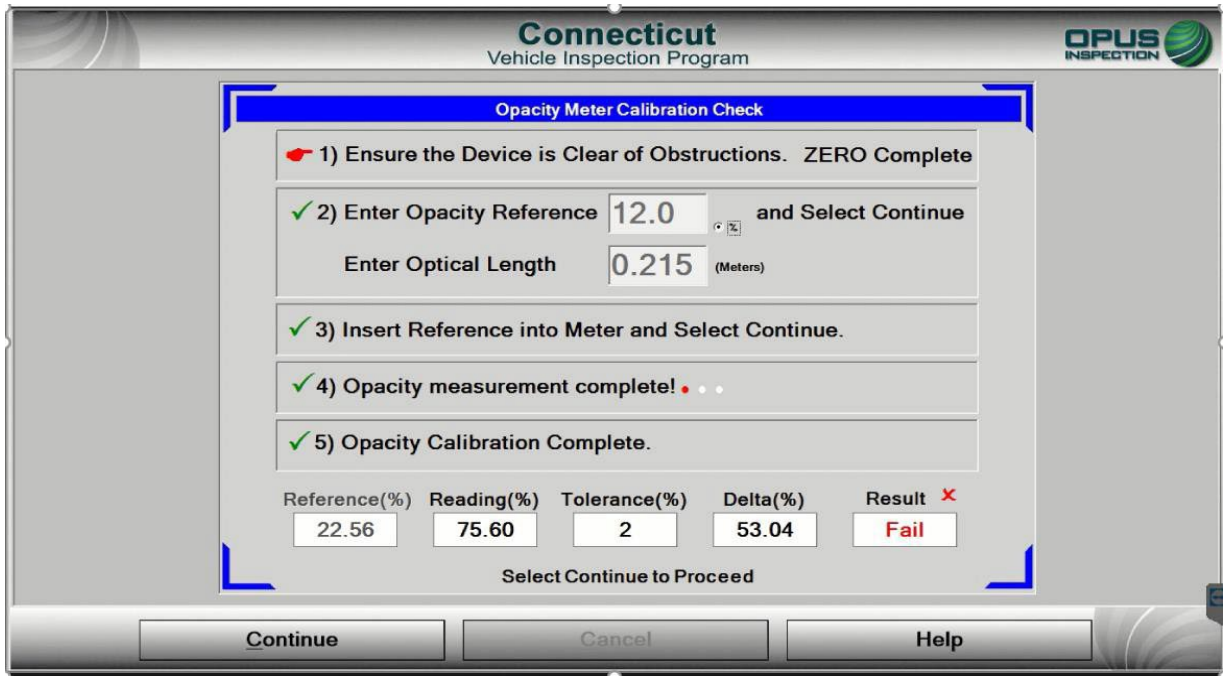


Once the calibration is complete**, be sure to close the gas bottles**. The leak check will be performed next; this calibration requires that only the primary hose be tested. An inspection involving a dual exhaust vehicle will prompt for a leak check of both the primary and dual hoses.

Periodic Calibrations

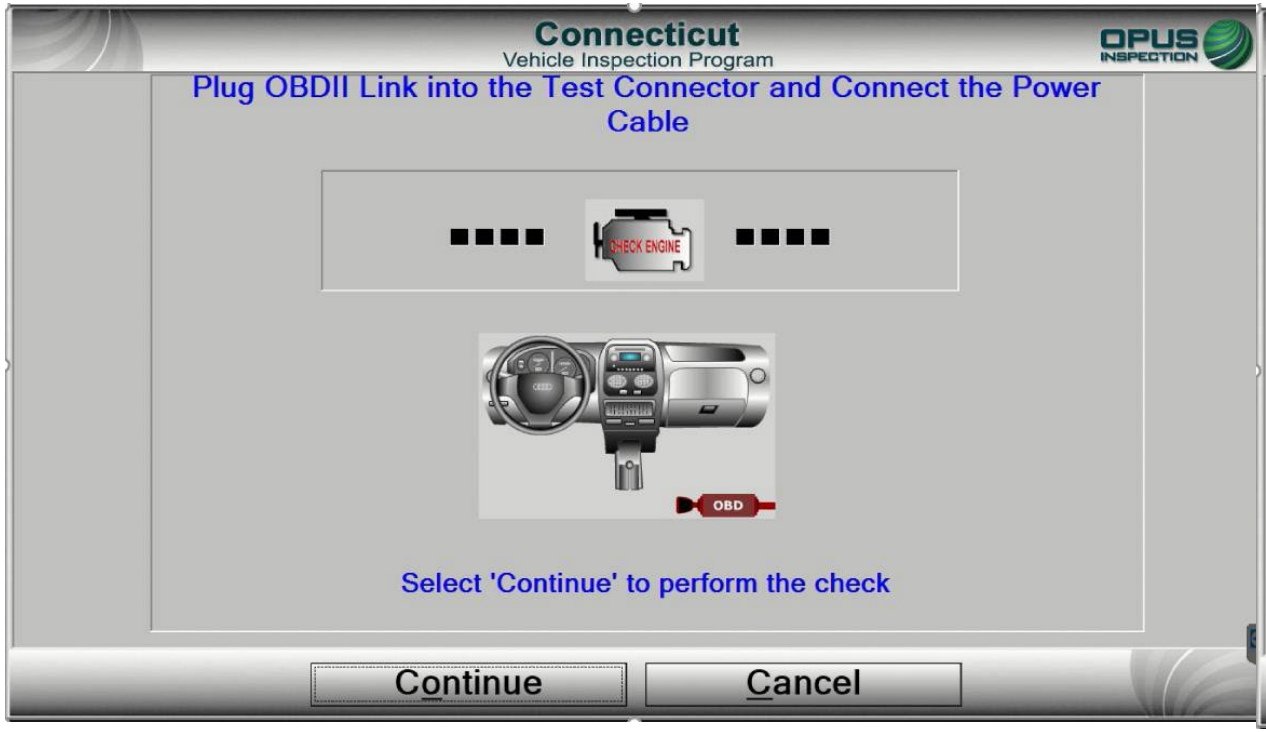


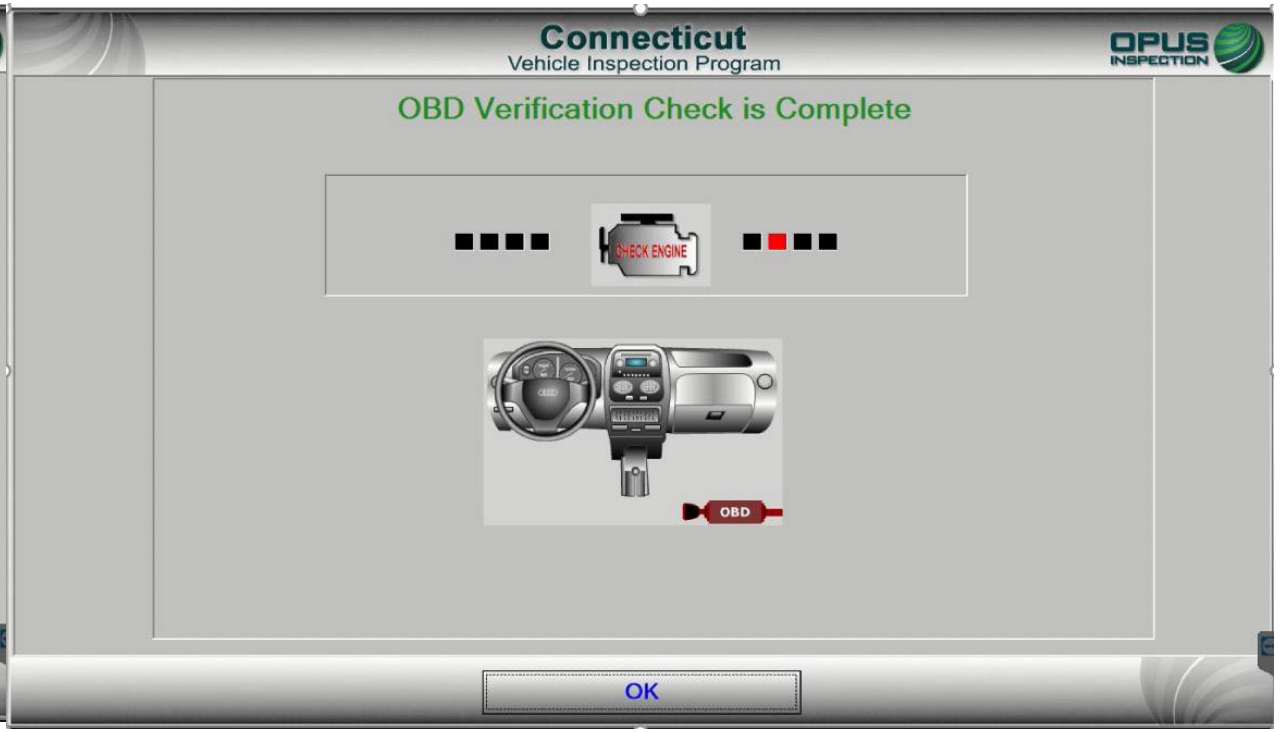
The Fuel Cap Tester Calibration has been enhanced with the Waekon calibration wand; the gas cap leak check hose connects to the bottom of the wand and the lever at the top of the wand toggles for “pass” and “fail” calibrations.



The Opacity Meter Calibration is similar to the current method, using a calibration glass to insert into the meter for readings.

Periodic Calibrations





To perform the OBD Data Acquisition Device (DAD) module self check, connect the OBD cable into the DAD module and continue. The OBD calibration completes periodic calibrations.

Preventative Maintenance

Performing preventative maintenance on the CDAS is required. If you fail to perform these maintenance tasks, the CDAS will automatically initiate a lockout until each task is complete. DO NOT acknowledge the maintenance items when prompted without performing the required action. The preventative maintenance is required to ensure the equipment continues to function as intended.

Preventative maintenance includes but is not limited to:

- Inspection of primary & secondary filter （*Replacement of the primary filter should occur every month. Replacement of the secondary filter should occur every two months. Filters may need more frequent replacement based on the volume of the PC TSI tests at your facility)*
- Inspection of the primary filter bowl for accumulation of water and draining the bowl if water is present
- Inspection of the CDAS air supply for water contamination
- Cleaning and inspection of CDAS/Analyzer and system accessories, cabinet, monitor, printer, etc.
- Inspection of RPM Leads
- Inspection of exhaust probe hose assemblies
- Inspection of OBD cables
- Inspection of gas cap adapters

Chapter 10: Safety

Safety

- Beware of danger/use caution when operating the emissions analyzer
- Safety is everyone's responsibility. For your safety, and the safety of your coworkers, please read and understand all warnings before conducting any emissions testing.
- If you or someone at your Test Center has difficulty understanding the following warnings, please ask your Test Center Manager for assistance or contact the technical support hotline: 877-469-2884
- For your protection, Opus recommends the use of safety glasses whenever you are performing emissions testing.

Safety

- For any automotive business, safety is a major concern. A company's workers are its most valuable asset; it's critical to maintain a working environment that prioritizes health and safety.

- Your organization will have its own unique system, reflecting your way of doing business, the hazards of your work, and how you manage the safety and health of your employees.

- Remember the underlying reason for having a strong safety culture is that a zero-incident culture assures an employee that their company is committed to their safety and health. Therefore, the goal is to identify potential safety hazards before they become an accident. There is always room for improvement with current workplace safety policies.

Safety

- **Tripping/Entanglement Hazard**
  - Prevent tripping hazards by making sure the power cords for the analyzer and opacity meter (if equipped), exhaust probe hose, and all cables and leads are off the shop floor. All power cords, cables, leads, and probe hose(s) should be neatly looped and hanging from the hooks on either side of the analyzer
  - When attaching RPM leads, please make sure to keep limbs, hair, jewelry, and clothing away from the moving parts, belts, fans, etc. DO NOT let power cords, cables, leads, and probe hose(s) come in contact with hot exhaust manifolds or moving fan blades.

- **Electrical Shock Hazard**
  - DO NOT get the analyzer or opacity meter (if equipped) wet or exposed to the rain. To reduce the risk of electric shock, do not use the analyzer on wet surfaces.
  - DO NOT operate the analyzer or opacity meter (if equipped) with a damaged or frayed power cord.
  - Do NOT use extension cords to provide power to the analyzer or opacity meter (if equipped); they may overheat and cause a fire.

Safety

- **Toxic Emissions Fumes**
  - Please be warned that adequate ventilation is required in the test bay. Your Test Center's ventilation system should be able to exchange the air in the test bay several times each hour. Exhaust hoses should be used on every vehicle to vent exhaust outside or into Test Center's ventilation system.

- **Crush Hazard**
  - Please be warned that if the ignition system is not correctly shut-off, some hybrid-electric vehicles may accelerate with a simple touch of the accelerator pedal. This function is expected from hybrid-electric vehicles for stopping at a stoplight or stop sign or in stop and go traffic. To avoid unintended vehicle movement or acceleration, make sure the gear selector for each vehicle is placed correctly in Park, or the Park indicator is illuminated. The parking brake should be engaged in all standard-shift vehicles.

Safety – Vehicle Fitness Check

- You may encounter issues with a vehicle that could be hazardous if the emissions test proceeds. It is essential to identify safety issues or vehicle deficiencies before the beginning of an emissions test. In some instances, some deficiencies may pose a safety risk. Be sure to follow these steps before driving the vehicle into the test bay:

- **Fluid Leaks (all tests)**
  - Check for any signs of brake fluid leaking or any leaking fluids that would prevent the drive wheels from stopping or causing premature locking of the drive wheels
  - Check for substantial fluid leaks (oil, transmission fluid, antifreeze) that could create a slippery condition

- **Gauges/Dashboard Warning Lights**
  - Before starting the vehicle look at the gauges and lights on the vehicle and look for anything out of the ordinary. Start the vehicle and before moving it, look for signs of any warning lights remaining illuminated, such as the brake or coolant lights; if equipped, check the coolant gauge for signs of overheating
  - Please note that this does not apply to MIL or check engine lights.
  - * If the MIL is illuminated the vehicle must be tested as is, in the current and present condition*

Chapter 11: Program Updates

Holiday Hours

We are now allowing stations to offer emissions testing on holidays!

This is an **OPTIONAL** program enhancement. Stations may continue to remain open normal business hours of 8 a.m. to 5 p.m. Monday through Friday and 8 a.m. to 1 p.m. on Saturday.

Opus will remain closed on the following holidays and WILL NOT PROVIDE TECHNICAL OR HELP DESK SUPPORT:

New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Indigenous People's Day
Thanksgiving Day
Day After Thanksgiving
Christmas

IT IS YOUR RESPONSIBILITY TO UPDATE YOUR TESTING HOURS ON THE PROGRAM WEBSITE AT CTEMISSIONS.COM IF YOU ARE INTERESTED IN TESTING ON HOLIDAYS. You may access your facility info by signing into your account.

*****Please note: technical support and the Opus Help Desk will NOT be offered during holiday hours.*****

Closures

Test Centers are STILL REQUIRED to notify Opus of any closures, but now may do so manually on ctemissions.com. **You are required to notify Opus IN ADVANCE of any closures and include your anticipated reopening date and time.** You may access your facility info to make any changes to your hours by signing into your account. It is the Test Center's responsibility to keep this information accurate and up to date, regardless of temporary/partial or long-term closures.

Extended Hours

We are now allowing stations to offer extended hours at their discretion!

This is an **OPTIONAL** program enhancement. Stations may continue to remain open normal business hours of 8 a.m. to 5 p.m. Monday through Friday and 8 a.m. to 1 p.m. on Saturday.

If interested in offering extended testing hours, stations may open for testing at 7:30 a.m. and/or extend testing until as late as 8 p.m. Monday through Friday and 6 p.m. on Saturday.

IT IS YOUR RESPONSIBILITY TO UPDATE YOUR STATION HOURS AND ANY CLOSURES ON THE PROGRAM WEBSITE AT CTEMISSIONS.COM. You may access your facility info by signing into your account.

*****Please note: technical support and the Opus Help Desk will NOT be offered during extended hours.*****

Information

Connecticut Emissions Program

OPUS

Help Desk: (877)469-2884

Website: www.ctemissions.com