

## Technicians Introduced to Flash Reprogramming

On Wednesday, November 9th nearly 40 technicians attended a seminar and demonstration on Flash Reprogramming. The seminar was conducted by Glen Eaton, Product Manager of Drew Technologies.

The seminar discussed the quickly changing landscape of automotive repair. The days of diagnosing and repairing vehicles without the help of a laptop beside you are fading. Newer vehicles include a large number of onboard computers that are each dedicated to perform specific tasks.

Each onboard computer is programmed at the factory with software enabling it to perform certain tasks. Inside the ECM is software containing hundreds or even thousands of parameters to control spark, fuel, idle, cruising, emissions, economy, drivability and performance. Just like desktop computers, software updates are often necessary for the vehicle's computers. These updates can improve emissions, fuel economy, drivability, performance or address specific bugs in the original software that have caused warranty issues. Updating this software can be a proactive fix because it will resolve problems that a customer hasn't reported or noticed.



Glen Eaton gave a presentation on Flash Reprogramming to repair technicians at a WIVIP sponsored seminar.

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## What Vehicles Require Testing In 2017?

### Registration Renewal Testing Requirement

Every other year, 1996 and newer vehicles (newest 3 models years are exempt) must be inspected before their license plates can be renewed. Because this is a biennial test, the following model years will be tested to fulfill registration renewal testing requirements:

#### **Model Years Tested For Registration Renewals Expiring in 2017:**

1996, 1998, 2000, 2002, 2004, 2006, 2008, 2010, 2012, 2014

### Testing Requirements for Change of Ownership Testing

Vehicles more than five model years old are required to be inspected upon change of ownership. Motorists receive notice of the emission-testing requirement after they have titled and registered the vehicle. Failure to complete the emission requirement within the allotted 45-day time period will result in the suspension of the newly purchased vehicle's registration.

#### **Vehicles Purchased in 2016:**

Model years 1996-2012 must be tested at the time a buyer titles the vehicle.

## Inside this issue:

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# The Analyzer

## Introduction to Flash Reprogramming

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The practice of updating software in these modules is more commonly known as flash reprogramming. While new car dealerships get the updates for the vehicles supported by their manufacturer, independent repair shops have faced a more difficult challenge because most shops typically service more than one make of vehicle. In most cases, you would be directed to update the vehicle's software through OEM service information or through a Technical Service Bulletin (TSB).

### J2534 Provides Access to Updates

In 2000, the United States Environmental Protection Agency (USEPA) mandated automakers to support aftermarket repair shops with J2534-1 flash reprogramming for any emissions related computer modules on a vehicle that can be reprogrammed by a new car dealership. The mandate took effect for all 2004 and newer vehicles but many automakers have decided to offer J2534-1 support for vehicles older than 2004 and some vehicles as early as model year 1996.

J2534-1 is a system devised of two independent parts: subscription software and a J2534-1 compliant PassThru vehicle interface. The subscription software comes directly from the automaker and runs through your shop PC or laptop and can either be web-based or CD-based. The subscription fees are charged differently for each automaker.

The second part of the system is a J2534-1 compliant PassThru vehicle interface. This box or cable acts as a gateway between the vehicle's onboard computers and the

technician's personal computer. It translates messages for the PC into the protocols used by the vehicle and vice versa.

Common PassThru devices connect your PC to the vehicle using USB, serial, Ethernet or wireless. There are a number of PassThru tools for sale in the market, all at different prices with different features, performance and customer support. The primary function of a PassThru device is to support the automaker's subscription service for reprogramming. Many PassThru devices on the market also offer bonus features such as generic scan tool software, enhanced diagnostic software and analog scope inputs.

### Why is Flash Reprogramming Important?

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|---|--|
| <ul style="list-style-type: none"><li>• Correct Powertrain Symptoms<ul style="list-style-type: none"><li>○ Illuminated check engine light (MIL)</li><li>○ False trouble codes</li><li>○ Rough idle</li><li>○ Engine surge</li><li>○ Hard start</li><li>○ Engine knocking</li><li>○ Poor gas mileage</li><li>○ TSB's</li></ul></li><li>• Correct Body &amp; Chassis Symptoms<ul style="list-style-type: none"><li>○ ABS</li><li>○ Body Control Module</li><li>○ Instrument Panel Integration Module</li><li>○ Door Panel Module</li><li>○ HVAC</li><li>○ Suspension Module</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Because a TSB calls for it!<ul style="list-style-type: none"><li>○ To improve fuel economy</li><li>○ To correct emissions issues</li><li>○ To correct a "Drivability" problem</li><li>○ To prevent premature wear of a component</li></ul></li><li>• Because of Axle changes / tire size changes<ul style="list-style-type: none"><li>○ Speedometer</li><li>○ Shifting/timing</li><li>○ Fuel</li></ul></li></ul> |
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## Flash Reprogramming Continues to Grow

Reprogramming and J2534 is becoming an integral part of the diagnostic and repair process. The number of reprogrammable vehicles continues to expand. All 1996 and newer GM, Ford and Chrysler vehicles have reprogrammable ECUs. Beginning with MY 2001, many import vehicles started introducing reprogrammable ECUs. Finally, beginning with 2004 and newer, all vehicles must have reprogrammable ECUs. That adds up to a lot of “flash-able” vehicles on the road!

## Examples of Issues Addressed through Flash Reprogramming

Make	MY	Model	TSB	Problem	Solution
Acura	2006	TL / TSX		MIL On, DTC P0116.	Reprogram the PCM with updated software.
Acura	2005-2006	RL / RSX / MDX		MIL On, DTC P0116.	Reprogram the PCM with updated software.
CHRY	2003	Town & Country / Voyager	18-005-04	No start, stall, fluctuation, rough idle.	Replace the original PCM w/ upgraded unit. Same part number.
CHRY	2005	Ram Trucks		MIL On, DTC P0420 or P0430	Replace the downstream O2 sensor with new-design part, then Reprogram the PCM with updated software.
CHRY	2005	Grand Cherokee		MIL On, DTC P0420 or P0430	Reprogram the PCM with updated software.
CHRY	2003-2004	Ram Trucks		Fuel gauge fill-up delayed, A/C doesn't cool properly immediately, DTC P0341 & P1757.	Reprogram the PCM with updated software.
FORD	1999	F-Series Super Duty		Shifting difficulties with Cruise Control on.	Reprogram the PCM with updated software.
FORD	2005	Taurus / Sable	07-5-1	MIL On, DTC P035x	Reprogram the PCM with updated software.
FORD	2006	Fusion / Mustangs / Lincoln Zephyrs / Mercury Milan		DTC P1000. System Readiness Status Incomplete.	Reprogram the PCM with updated software.
FORD	2005-2006	Five Hundred / Freesytle / Mercury Montego		Illuminated MIL and store DTC P1207 and/or P2110. Extended crank time.	Reprogram the PCM with updated software.

Source: Introduction to J2534 and Flash Reprogramming, Drew Technologies, Copyright 2016



## Replacement Catalytic Converter “Break-In”

Did you know that a replacement catalytic converter needs to undergo a proper “break-in”? This “break-in” procedure must be followed to ensure that the converter will continue to work the way it is designed and deliver the required emissions reliability and long service life. If the converter is not warmed-up properly (broken-in), the substrate inside could be adversely affected and eventually cause the converter to fail down the road. The procedure may vary slightly between manufacturers so check with your converter’s manufacturer or distributor. What is important to remember is to allow the new converter time to gradually warm up so the matting material can expand properly and hold the substrate material in place so premature failure is prevented.

Source: “Tech Tip VE0067”, Utah County Technical Bulletin, December, 2015-1

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## Opus Service Technician Tips:

**Recording Device Not Detected error?** If you receive a message that a test has begun with an unresponsive camera, perform the following steps to address the problem. 1) Disconnect and reconnect the USB camera connections if they include extension cords. 2) Reboot the PC. 3) Verify that the LED on the front of the camera is on during the test. 4) Discontinue testing and place a service call to Opus if the problem remains during the next test.

**Barcode Scanner Issues?** Timing is everything—especially with barcode scanning. Make sure to scan the barcode BEFORE you connect to the vehicle. If you begin to have issues with the bar code scanner, verify the cable connections. The shrink wrap has a tendency to stretch. Push the connections together. Verify that the bar code trigger is not stuck in the on position. This results in a time out. Restart the computer. If the problem is not resolved, call Opus for a service call.

**Whom Should I Call?** If you have a *service issue or need supplies*, call the Opus Help Line number, 866.623.8378. If you have *registration renewal questions*, call the New Berlin Opus Office at 262.641.5217 (M-F: 8 a.m. – 5:00 p.m.) If your *customer has emission related questions*, refer them to the Opus Help Line at 866.623.8378 or the program website at [www.wisconsinvip.org](http://www.wisconsinvip.org).

# The Analyzer

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## Testing Tips

### Non-Communication Test Procedure

Occasionally a vehicle will come in for testing that does not communicate with the analyzer. After the first reject, perform a protocol check of the analyzer to ensure that it is operating properly. The result of the protocol check will determine what instructions you should give to the customer. If the protocol check **passes**, retest the vehicle to ensure that the vehicle is once again unable to communicate with the analyzer. If the protocol check **fails**, inform the customer to go to another testing facility for a test and [call Opus \(866.623.8378\)](tel:866.623.8378) to place a service call for OBD communication issues.

### Data Entry Accuracy

Whether you use the OBD download, bar code scanner or manual entry of the vehicle information, always double check the data entry information with the vehicle. Remember, the dashboard VIN should always be compared with the paperwork and test data associated with the vehicle. Additionally, always use the metal license plate assigned to the vehicle. If the vehicle has a temporary plate assigned to it, you should still use the metal plate for data entry. If the vehicle was newly purchased and the owner does not have the metal plate yet, call Opus for assistance (262.641.5217).

### Engine Status

The engine should always be off before the testing begins. This is an important step in the testing process and sometimes overlooked when motorists drive their vehicles into some testing bays. Once the MIL light checks are complete, the engine can be turned on. With the engine running, the DLC should then be connected to the vehicle's OBD port.

## How much air pollution does a car produce when it's idling?

When a car idles for more than 30 seconds, it has several negative effects, such as increasing air pollution unnecessarily, wasting fuel and money and causing excessive wear or even damaging a car's engine components, including cylinders, spark plugs, and the exhaust system. Contrary to the popular belief, idling isn't an effective way to warm up most car engines. Today's automobile manufacturers recommend driving off right away and urge that drivers wait no more than 30 seconds to begin driving, even on the coldest days. Some people worry that restarting the engine might harm the car, but frequent restarting does little damage. Modern engines require much less fuel at startup than most people think, idling for only 30 seconds uses up more fuel than restarting the engine.

For more information on the amount of pollution generated when a vehicle idles, check out the USEPA fact sheet: [Idling Vehicle Emissions for Passenger Cars, Light-duty Trucks, and Heavy-duty Trucks \(PDF\)](#) (6 pp, 163 K, EPA-420-F-08-025, October 2008)

Source: <https://www.epa.gov/air-pollution-transportation/frequent-questions-epas-office-transportation-and-air-quality>



# Introducing the Repair Book

*Fast, Easy and Good For Business*

*It is now easier for your facility to receive credit for repair activity of vehicles that failed their emissions inspection. Once registered, repair technicians can access the Repair Book reporting website and log emission-related repairs. Your success rate in repairing vehicles will be posted on the [www.wisconsinvip.org](http://www.wisconsinvip.org) website. It is a great way to inform past, current and future customers about your success in performing emission-related repairs.*

## STEP 1: IS YOUR BUSINESS ALREADY REGISTERED WITH THE WISCONSIN VEHICLE INSPECTION PROGRAM?

- a) Verify if your business is already registered with the program. The easiest way to check is to look at the Inspection Facility, Recognized Repair Facility or Non-Recognized Repair Facility listings on the program website at [www.wisconsinvip.org](http://www.wisconsinvip.org).
- b) If your facility is already registered, go to step 2.
- c) If your facility has not registered with the program, complete the profile form found on the program website in the "Recognized Repair Facilities" section.
- d) Once registered, your facility's repair activity can be reported on [www.wisconsinvip.org](http://www.wisconsinvip.org), which is the official program website. The more effective you are at repairing vehicles that had failed the emission test, the better your repair score!

**Repair Grade: 100%**

### Sample listing:

Facility Name	Address	City	Phone	Zip Code	REI	Web Site
YOUR GARAGE NAME	123 MAIN ST	ANYTOWN	(XXX) XXX-XXXX	53XXX	100.0	url hyperlink

## STEP 2: TECHNICIAN REGISTRATION FOR THE REPAIR BOOK?

- a) At the sign-in screen, select register.
- b) Choose the station you are currently employed and select continue.

**NOTE: If you change locations, please complete an updated Emission Repair Facility profile and submit it to Opus.**

- c) Complete the registration information.



Wisconsin Repair Book

Tuesday, Dec 30, 2014



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First Name

Job Title

User ID

Middle Name

Email

Password

Last Name

Verify Email

Re-enter Password

Do you own an ASE L1 (or Higher) or WISETECH certification?

Password must be between 6 and 10 characters

Password must be between 6 and 10 characters

# Introducing the Repair Book

## STEP 3: DATA ENTRY PROCESS FOR EMISSION RELATED REPAIRS

Certified Repair Info			
Owner Repair?	Yes <input type="radio"/> No <input type="radio"/>	Total Parts Cost	Total Labor Cost
For three dollars and thirty cents enter 3.30. For three hundred and thirty dollars enter 330			
The following should be completed only if NOT repaired by owner:			
Work Order #	Facility of Person Performing Repair	Apply to REI? <input type="checkbox"/>	
Phone#			
City	State	Zip	
Repair Date			

- Complete the information requested.
- Select whether it is an owner repair.
- Enter parts and labor cost. (Example: For three dollars and thirty cents, enter 3.30. For three hundred and thirty dollars, enter 330.)
- If not the owner, complete the section requesting more information on repairs.
- Indicate whether you want the repair record applied to your Repair Book (REI) Score.
- Select the repairs performed on the vehicle.

Vehicle Repair Data							
<b>For reinspection or waiver qualification, the person performing the repairs must complete this form. Please place one "X" per item in the box to indicate which component has been (A) repaired, (B) replaced, or (C) repairs were recommended but not performed.</b>							
1. Air Filter Element	A <input type="radio"/>	B <input type="radio"/>	C <input type="radio"/>	None <input type="radio"/>	15. Air Injection System	A <input type="radio"/>	B <input type="radio"/>
2. Thermostatic Air Cleaner System	A <input type="radio"/>	B <input type="radio"/>	C <input type="radio"/>	None <input type="radio"/>	16. Positive Crankcase Ventilation System	A <input type="radio"/>	B <input type="radio"/>
	C <input type="radio"/>	None <input type="radio"/>				C <input type="radio"/>	None <input type="radio"/>

- Once the data is entered, select continue.
- If you see the screen below, you have successfully entered the data.

<b>Success</b>
Congratulations! The repair data has been saved! This data may be used in the determination of your facilities REI. <span style="float: right; border: 1px solid black; padding: 2px;">Continue</span>

**QUESTIONS? 262-641-5217**

