

# The Analyzer



## Introducing New Feature: TECH Tips

Beginning with this issue, we'd like to share some of the repair information gleaned from our Diagnostic Technicians at the five Technical Assistance Centers (TAC). The diagnostic technicians provide assistance to diagnose those vehicles that struggle to reset readiness monitors, are unable to communicate with the testing analyzers or have elusive DTCs that are unable to be repaired to pass the inspection.

The first case study, found on page 2 was written by Darren O’Gorman, Diagnostic Technician at Auto Analyzers, the Milwaukee based TAC. This past November, over 40 repair technicians attended a free technical seminar in which Darren had shared similar case studies information to area technicians. Suggestions for future articles can always be sent to us at [Opusinspection@gmail.com](mailto:Opusinspection@gmail.com).



Continued on page 2

## Promote Your Business Through Effective Repairs

It is now easier for your facility to receive credit for repair activity of vehicles that failed their emissions inspection. Just follow these simple steps:

1. The first step is to register with the program so your facility can be given access to the convenient “Repair Book” section of the program website.
2. To register, simply complete an Emission Repair Facility Profile and send to the program.
3. Once registered, you can access the Repair Book reporting website and complete the registration process.
4. When you complete the repairs for a vehicle that recently failed an emission test, just enter the emission-related repairs into the Repair Book website

Your success rate in repairing vehicles will be posted on the [www.wisconsinvip.org](http://www.wisconsinvip.org) website and your facility will be listed in either the Recognized or Non-Recognized Repair Facility sections of the website. It is a great way to inform past, current and future customers about your success in performing emission-related repairs.

For more detailed information about the Repair Book, see pages 4-5 of this publication. For a Emission Repair Facility Profile, see page 6.

### Inside this issue:

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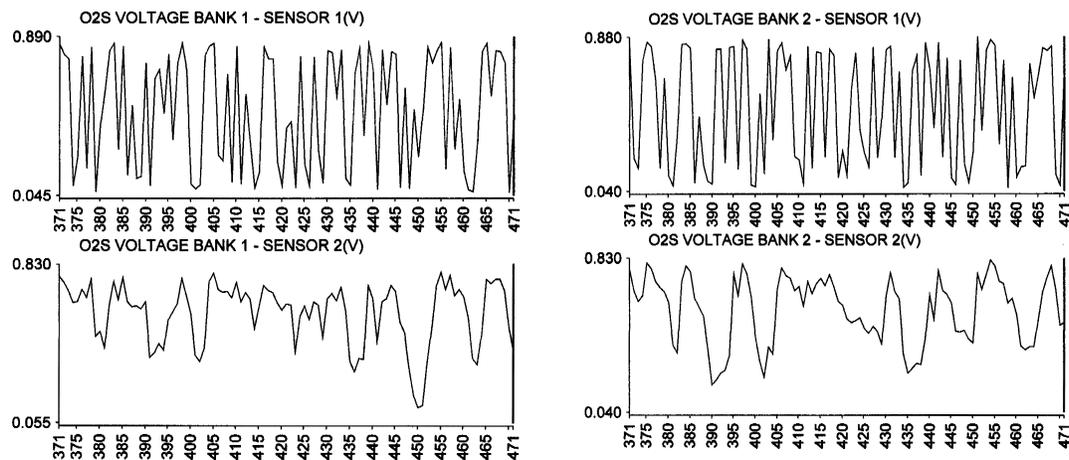


### Don't Dismiss "Mode 6"

By: Darren O'Gorman, Auto Analyzers

The printout in Figure 1 is from a 2002 Mazda Tribute with a 3.0l V6 engine. The customer needed to pass the state inspection. The catalyst and evaporative monitor would not complete. This vehicle was run on the dynamometer to attempt to complete the monitors. It quickly became apparent while watching the activity on the downstream O2 sensors, fully warm, that the oxygen storage capacity of both of these catalysts were below standard. It is not uncommon for the catalyst monitor to finish before the O2 monitor.

Figure 1: Waveforms for O2 Sensors Bank 1 and Bank 2



At that point I was interested in what Mode 6 had to say. As you can see in the Figure 2 data, according to Mode 6, the catalysts are ok. Because the test value is so close to the test limit, the monitor remains incomplete. Just because it passes on Mode 6, it is not an automatic monitor completion.

Figure 2: Mode 6 Data

TID	TLT	CID	Test	Component	Test Value	Results	Test Limit	Limit Type
\$10	0	\$11	Catalyst	B1 SWITCH-RATIO AND MAX LIMIT	49.00 (\$0031)	PASS	53.00 (\$0036)	MAXIMUM
\$10	0	\$21	Catalyst	B2 SWITCH-RATIO AND MAX LIMIT	49.00 (\$0031)	PASS	53.00 (\$0036)	MAXIMUM

Mode 6 may run several more times before it makes a decision on what to do. My recommendation is two O.E. catalysts. Mode 6 is quick and easy. It makes a gray area very clear when you can see the numbers. No dynamometer required.

MODE 6

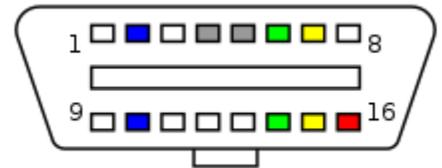
Mode 6 data can assist in the diagnostics of elusive problems.

## Common Reasons for Non-Communications

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The most common reasons that a vehicle does not communicate with the analyzer are the following:

- **Damaged Data Link Connector (DLC):** The data link connector (DLC) is damaged or has been tampered with and the connection to the on-board diagnostic (OBD) computer is not possible. For example, the DLC may be broken or melted, the DLC is used to power up an accessory, or something is plugged into the DLC. Bent or spread pins are also becoming more common with the proliferation of aftermarket monitoring devices, such as insurance monitors.
- **Blown Fuse:** If the vehicle fails to communicate, check the fuses for the cigarette lighter. On most vehicle makes and models, the system on the vehicle that communicates with the test equipment gets its power from the same circuit as the cigarette lighter. If the cigarette lighter fuse is burned out, the vehicle will not communicate with the test equipment during the OBD inspection. The fuse is faulty if it is dark inside like the inside of a blown light bulb or if the electrical wires within the fuse are burnt apart and not connected.
- **Improperly Installed Aftermarket Systems:** Some installers of aftermarket systems, such as radios, security systems, navigation systems, etc. are tapping into the wiring harness of the DLC, or OBD port to power the radio or other aftermarket devices. This is considered tampering and may cause the vehicle to be unable to establish communication with the test equipment during the OBD inspection.



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## Inspection Tips—Repair Data Entry

**At Time of Initial Fail:** After the first vehicle inspection failure, remind the motorist that they need to bring back the paperwork for repairs performed after test to the reinspection. This is the print out labeled “Repair Data Form”.

### Upon Retest:

- Ask the motorist for the completed Repair Data Form that indicates what the repairs were performed between tests.
- Prior to completing the inspection, complete the data entry for the emission related repairs.

### What’s Done With The Data?

Repair information is used to study what repairs are effective to address common emission related failures. If qualified, it is also used to determine a repair facility’s effectiveness that is published on the program website.

Don’t forget these important steps in the inspection process!



# 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



First Name     Middle Name     Last Name  
 Job Title     Email     Verify Email  
 User ID     Password     Re-enter Password

Password must be between 6 and 10 characters

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

Register

# 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**



5470 South Westridge Dr  
 New Berlin, WI 53151  
 262-641-5217 (voice)  
 262-641-5095 (fax)

**EMISSION REPAIR FACILITY  
 PROFILE**

(please circle one)

**UPDATE**    **NEWLY REGISTERED**

If you wish to register your repair facility with the vehicle inspection program or need to update your business record, please provide the following information for your repair facility. Mail the completed form with technician certifications to address above, or fax it to 262-641-5095, or scan to sue.krueger@opusinspection.com. A recognized repair facility is one that employs at least one technician with ASE L1 certification, WISETECH training, or other equivalent training. Please attach copies of documentation for each technician's training or certifications.

**FACILITY INFORMATION:**

Facility Name: \_\_\_\_\_  
 Street Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_  
 Main Business Phone #: (    ) \_\_\_\_\_ E-Mail: \_\_\_\_\_  
 Owner or Manager: \_\_\_\_\_ County: \_\_\_\_\_

**TECHNICIAN INFORMATION**

Name: \_\_\_\_\_ (First Name) \_\_\_\_\_ (Last Name)

**Certifications:**

Circle & Indicate Expiration Date	ASE	Expiration Date	ASE	Expiration Date	WISETECH	Date Graduated	School
L1		_____	L2	_____		_____	_____

Other: (Explain) \_\_\_\_\_

**DIESEL CERTIFICATIONS:** Please indicate if you have diesel certification for a specific make (Honda, Ford) of vehicle(s) you are certified to work on. List all that apply and attach diesel certification documentation to this application:

**TECHNICIAN INFORMATION**

Name: \_\_\_\_\_ (First Name) \_\_\_\_\_ (Last Name)

**Certifications:**

Circle & Indicate Expiration Date	ASE	Expiration Date	ASE	Expiration Date	WISETECH	Date Graduated	School
L1		_____	L2	_____		_____	_____

Other: (Explain) \_\_\_\_\_

**DIESEL CERTIFICATIONS:** Please indicate if you have diesel certification for a specific make (Honda, Ford) of vehicle(s) you are certified to work on. List all that apply and attach diesel certification documentation to this application:

**VERIFICATION**

As owner/manager of this repair facility, I verify that my facility is actively engaged in the automotive repair business and that information provided is accurate. I understand that it is my responsibility to notify the Wisconsin Vehicle Inspection Program if my profile information changes.

\_\_\_\_\_ Repair Facility Owner/Manager \_\_\_\_\_ Date

**OFFICIAL USE ONLY:**

Recognized:    YES    NO    Registration Number:    \_\_\_\_\_