

# The Analyzer

## Waiver Repair Cost Limit To Increase July 1st

The repair cost limit for all model year vehicles subject to emissions testing will increase from \$879 to \$896, effective July 1, 2018. This figure is adjusted annually by the DNR per NR 485.045.

Vehicles subject to emissions testing that continue to fail may be eligible for a cost waiver if actual costs of emission related repairs exceed the repair cost limit. Only repairs that are related to the vehicle's cause of failure can be used to apply for a cost waiver. Costs covered by any warranty or costs to repair/replace emission control equipment that has been removed, modified or disconnected are excluded.

The owner must have emission related repairs on the vehicle at a recognized repair facility to qualify for waiver consideration.

A list of [recognized repair facilities](http://www.wisconsinvip.org) can be found on the program website: [www.wisconsinvip.org](http://www.wisconsinvip.org). Trans 131.02(39) includes franchised NEW car dealerships as recognized repair facilities

### Inside this issue:

WAIVER RATE INCREASE JULY 1, 2018	1
HYBRIDS IN THE WIVIP	1
TECH TIPS: PRIUS HYBRID	2
PRIUS HYBRID (CONT)	3
REPAIR DATA INSTRUCTIONS	4
REPAIR FACILITY PROFILE	6

## Hybrid Vehicles In the Wisconsin Vehicle Inspection Program



Hybrid vehicles are designed to meet strict emission standards and to provide improved fuel economy over conventional vehicles. However, hybrid emission control systems experience the same causes of long-term deterioration affecting other vehicles. Emission control system malfunctions on hybrids can cause emissions to sharply increase. By ensuring that hybrid emission-related problems are identified and then properly repaired, emission levels will remain low over the life of the vehicle.

With the hybrid vehicle placed under load so the gasoline engine is engaged, the inspector connects to the vehicle's OBDII port. Once connected, information from the vehicle's PCM is downloaded. If there is a DTC stored and the vehicle's MIL is commanded on, the vehicle will fail the inspection. The readiness monitor criteria is also the same for hybrid vehicles, allowing 2 monitors unset for 1996-2000 model year vehicles and 1 monitor unset for 2001 and newer vehicles.

On April 4, 2018 the Wisconsin Vehicle Inspection Program sponsored a free seminar: Hybrid Repairs for the Non-Hybrid Technician. The seminar was developed and presented by Ken Dotzler, Gateway Technical College Automotive Instructor. On page 2 of this issue, some of the information covered in the seminar is shared. The full presentation can be found on the program website, [www.wisconsinvip.org](http://www.wisconsinvip.org). We are developing a repair technician section of the website that will contain program information, seminars and other information relevant to Wisconsin technicians. Just complete a Repair Facility Profile, found on page 6, and we will assign a user id and password for access. Questions? Just call 262.641.5217.



## TECH TIPS

### Hybrid Emission Repairs for the Non-Hybrid Technician

While it is true that a hybrid-electric vehicle emits less emissions overall than a similar sized gasoline-only powered vehicle when operating as designed, the potential for high emissions is still present. Hybrid-electric vehicles are equipped with all the standard emissions control devices as gasoline powered vehicles. If any of these emission control devices should deteriorate or fail during the life of the vehicle, the emissions could potentially exceed allowable limits during gasoline operating periods. The vehicle emissions test is designed to identify these potential emission control device problems before any significant emissions increases occur.

Recently, Ken Dotzler, Gateway Automotive Instructor, conducted a class for repair technician's hybrid emission repairs. For discussion purposes, the Toyota Prius was highlighted because of their popularity for hybrid vehicles.

The Toyota Prius has had three generations that are currently part of the testable emission fleet.

- Generation 1 covered model year 2001-2003. They had a 1.5 gas engine (70 hp), 44 HP electric motor and the battery was 40 modules, 6.0 amp hours and 288 volts.
- Generation 2 covered model year 2004 – 2009. They had a 1.5 gas engine (74 hp), 67 HP electric motor and the battery had 28 modules, 6.5 amp hour, 201.6 volts.
- Generation 3 covered mode years 2010-2015. This generation had a 1.8 gas engine, (98 HP,) 80 HP electric motor and the battery had 28 modules, 6.5 amp hour and 201.6 volts.

So what can go wrong, emission wise, with a hybrid Prius vehicle? The problems can be divided into two groups: Battery Related DTCs and Non-Battery Related DTCs.

#### Battery Related DTCs

In reviewing the Battery Related DTCs, they can be divided into “High Voltage” DTCs, Battery Pack DTCs and Cooling System DTCs. During his presentation, Ken reaffirmed that without special tools and special training, the non-hybrid technician should leave most of the battery DTC issues to the specialized technician. The following chart is the most common battery related DTCs:

Gen 1	
P3006	Battery SOC are Uneven (Battery Pack)
P3130	Inverter Cooling Pump (Cooling System)
P3000	HV Battery Malfunction (High Voltage)
P3125	Converter & Inverter Assembly Malfunction (High Voltage)
P3009	Leak Detected (High Voltage)
P3140	Interlock Malfunction (High Voltage)
Gen 2	
P3000	HV Battery Malfunction (Battery Pack)
POA80	Replace Hybrid Battery Pack (Battery Pack)
POA93	Inverter Cooling System Performance (Cooling System)
GEN 3	
POA80	Replace Hybrid Battery Pack (Cooling System)

Continued on Page 3

## Hybrid Repairs for the Non-Hybrid Technician

(continued from page 2)

### The Non-Battery Related DTCs

When reviewing the list of DTCs that can occur in hybrid vehicles such as the Prius, the issues do not look much different from issues found in non-hybrid vehicles. In fact, many of the most common DTCs in hybrids are also the most common in non-hybrid vehicles and can be diagnosed and repaired in similar ways. The chart below divides the most common non-battery related DTCs found in the Prius Hybrids:

Gen 1	
P0420	Catalyst Efficiency – Bank 1
P0440	Evaporative Emission System
P0300/01/02/03/04	Misfire
P0171	System Lean Bank 1
P1120	APP Sensor Circuit Malfunction
Gen 2	
P1121	Coolant Control Valve Position Sensor Stuck
P1116	Coolant Temp Sensor Stuck for Coolant Heat Storage
P0420	Catalyst Efficiency Bank 1
P0300/01/02/03/04	Misfire
P0138	Oxygen Sensor Circuit High Voltage
P0441	Evap Incorrect Purge Valve
Gen 3	
P0401	EGR Flow Insufficient
P0300/01/02/03/04	Misfire
P0441	Evap Incorrect Purge Flow
P0455	Evap Large Leak Detected
P0031	A/F Sensor Heater Control Circuit Low

### Emissions Warranty

Hybrid emissions warranties vary by vehicle manufacturer and model. Technicians should encourage vehicle owners to check their owners manual or contact the vehicle manufacturer directly for emission warranty information. This will help the consumer better understand the warranty coverage for their vehicle and whether any necessary repairs will be covered under warranty.



# 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

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**



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:    \_\_\_\_\_