



**Ohio Program Fail Rates:  
January - October 2007**

ASM	OBD II
ASM fail rate: 20.12% <i>(of 234,798 total ASM tests)</i>	OBD II fail rate: 6.33% <i>(of 485,987 total OBD II tests)</i>
ASM fail rate: 6.29% <i>(of 750,880 total tests)</i>	OBD II fail rate: 4.1% <i>(of 750,880 total tests)</i>
<b>Total Tests:</b>	<b>750,880</b>
<b>Total Fail Tests:</b>	<b>80,342</b>
<b>Overall Fail Rate:</b>	<b>10.7%</b>

OH Program Top Ten OBD Diagnostic Trouble Codes January - October 2007		
DTC	Total #	Description
P0420	3686	Catalyst system efficiency below threshold (Bank 1)
P0401	3605	Exhaust gas recirculation flow insufficient detected
P0300	3204	Random/multiple cylinder misfire detected
P0171	2920	System too lean (Bank 1)
P0442	2746	Evaporative emission control system leak detected (small leak)
P0325	2296	Knock sensor 1 circuit malfunction (Bank 1 or single sensor)
P0141	1737	O <sub>2</sub> Sensor heater circuit malfunction (Bank 1, Sensor 2)
P0440	1736	Evaporative emission control system malfunction
P0301	1445	Cylinder 1 misfire detected
P0174	1400	System too lean (Bank 2)



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## Transmission Codes

By Michael Hills, Engineer, Technical Services; Division of Mobile Source Programs, Illinois EPA

If the Malfunction Indicator Light (MIL) is commanded on for a transmission code, it is emissions related. OBD II is required to monitor all power train components that effect emissions, provide diagnostic input, or receive commands from the PCM.

The transmission controls the amount of power going from the engine to the wheels. If the transmission is not working properly, the efficiency of the power transfer will be degraded. Simply stated, the engine of a vehicle with a malfunctioning transmission will have to

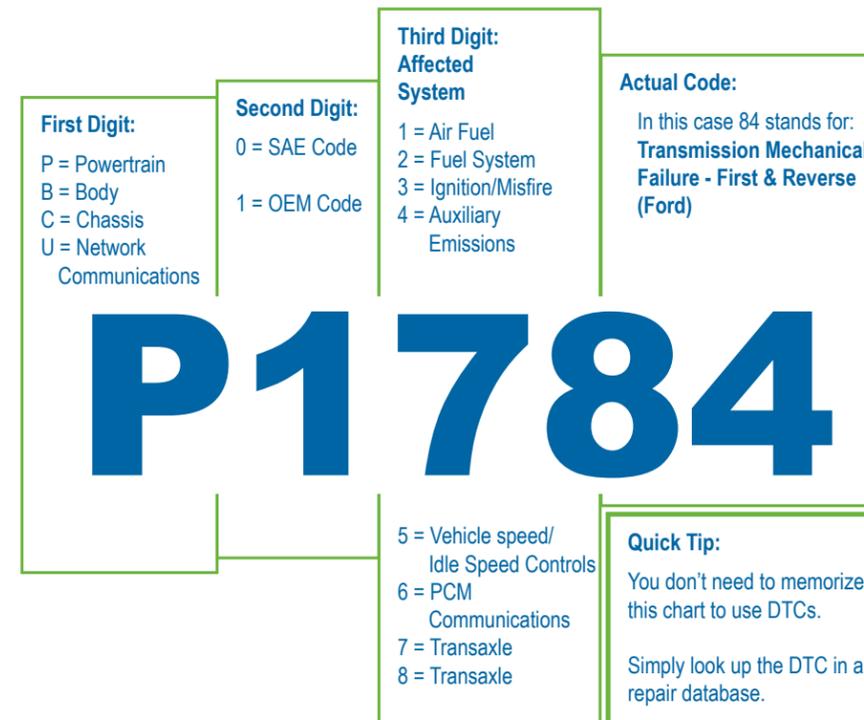
work harder to provide the same amount of vehicle speed. A harder working engine will require more fuel which will result in higher emissions.

If the sensors that monitor the transmission are not functioning properly, the Power Control Module (PCM) cannot determine if the transmission is working properly, resulting in a "Command On" status, illuminating the MIL. The decision to include these sensors is made by the manufacturers.

Transmission codes also can indicate problems with engine misfire. Most vehicles detect misfire using a crankshaft position sensor to detect even a minute fluctuation in crankshaft acceleration and rotation. Shifting on rough roads can cause false readings. Therefore, some manufacturers unlock the torque converter clutch when strong road vibration is detected. If the transmission is not functioning properly, the unlocking of the torque-converter might be triggered prematurely, resulting in an engine misfire that could go undetected.



## Deciphering the Diagnostic Trouble Code



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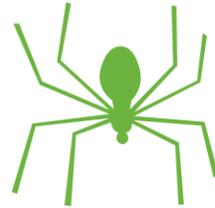
## Spiders Attracted to HC?

Vic Yenc, Automotive Instructor, Ohio Technical College

The way I learned that spiders are attracted to HC is actually a comical story and one that occurred at another tech's expense. Back in 1997 when I was still working as a dealership automotive technician, another tech shared that he was having trouble correcting a fault code for an EVAP concern. He contacted the dealership technical support department, who instructed him to check for spider webs in the gas vent lines (the kind that look like cotton balls).

A short time later, I observed this tech backing quickly away from the vehicle looking upset. I wandered over to his bay to see what the problem was. He told me about the tech support

information he received and that he was spider-phobic. Well, sure enough, the first line he removed for inspection was plugged with a web, but it was the angry spider-in-residence crawling quickly out of the line that caused him the most concern!



Once he settled down and I stopped laughing like a fool, he successfully cleaned the web out of the line and completed the repair. In the midst of the commotion, we lost track of the spider

and hence failed to determine its breed. We were, however, able to return the vehicle back to the customer. Since then, the manufacturer has taken measures to spider-proof their vehicles!

So don't be surprised that if you come across something in a vehicle that resembles what you think is a spider web, because it most likely is. If you have a fear of spiders, then be wary when coworkers ask you to take a closer look at a blockage in a vehicle for your opinion. They just may be trying to pull a fast one on you! We have since learned that our arachnid friends also can be attracted to build their nests in gas grills, due to the HC emissions present there. Technician beware!



**NEXT GENERATION...**In October, Ohio Technical College instructor Vic Yenc took his automotive repair and master technician program students on a field trip to the Puritas E-Check station to see firsthand how vehicle emissions are tested. While at the station, the students learned about air quality, current E-Check program rules and the importance of effective vehicle maintenance and repair.



Dave Alsbaugh, interim Ohio E-Check program manager, explains details of the vehicle emissions testing program to Bureau of Motor Vehicle registrars at the annual E-Check/BMV Information Exchange meeting on October 30 in Twinsburg. The meetings are held each year to coordinate program updates from both organizations in an effort to serve Ohio motorists effectively.

# INDUSTRY

QUESTIONS & ANSWERS

**Q: Is there any way to "recondition" a catalytic converter?**

A: No, there is no way to recondition a catalytic converter. However, you can check that the catalytic converter is working properly using the following technique. Disconnect the fuel and spark plugs and allow for a wide-open throttle to run oxygen through the catalytic converter. When running oxygen through the cat, look at a gas analyzer to assist you in determining whether or not a catalytic converter is operating properly. This process is only to assist you and should not be considered a repair technique. The process should not include running fuel through the catalytic converter, as this will damage the cat.

**Q: I'm interested in becoming a certified E-Check repair technician. What classes must I take to get certified?**

A: Technicians need to pass the Ohio – 1 Technician's Advantage class to obtain certification. If you are interested in taking the course, please visit <http://www.ohiocheck.org> and click on Training Opportunities to submit your name as an interested party. When enough people have indicated interest in the class, the trainer will finalize class dates. After completing the course, you will need to submit a copy of your ASE certificate showing you are up-to-date with Engine Performance (A8) and Electrical and Electronic Systems (A6). If you have any questions, please call Ohio EPA at (614) 644-3059.

**Q: Is Ohio EPA going to offer any more classes?**

A: Yes! Ohio EPA is interested in offering repair technicians up-to-date classes looking at the problems you face during repairs. Please take time to fill out and send in the survey

enclosed with this issue of *TechTalk*. You also can register your repair class preferences electronically at [www.ohiocheck.org](http://www.ohiocheck.org) by clicking on the link located in the repair industry section at the bottom of the page. Your input will assist Ohio EPA in determining the best types of classes to offer. If you need an additional copy of the survey, just call us at (614) 644-3059.

**Q: How can the gas cap fail on an OBD II vehicle when the MIL light was not illuminated and no EVAP code was set?**

A: The last step in an E-Check test is the gas cap test where the cap is pressurized with air and checked for leaks. In the test, an initial pressure of between 27 to 29 inches of water is applied. If the gas cap releases more than six inches of water from the initial pressure, the gas cap fails. While not common, it is possible for an OBD vehicle's gas cap to fail the E-Check test before the OBD system picks up on the malfunction due to two reasons. One, the specific vehicle's manufacturer specifications are slightly less stringent than that of the E-Check test and two, the cap's seal is marginal and the evolving weakness would have been detected by the OBD systems in a month or so. U.S. EPA recommends the additional gas cap test for OBD vehicles because even very small leaks in a cap can result in significant gasoline vapor emissions which contribute to ozone formation. In addition, the vehicle doesn't leak only while it is being driven. As the gas tank heats during the day, the gasoline vapor pressure increases and it will vent through even a small gas cap leak into the air. Then as the tank cools during the night, it will draw in cool air and the cycle will repeat the next day. Even a small nick in the gas cap seal or a worn seal can allow vapors to leak to the environment.

## New Training Courses Under Construction

Ohio EPA and TRIAG members are in the process of developing new emissions repair courses for local technicians in 2008. The OBD II and NOx courses are being discontinued and in their place will be classes that will assist participants in understanding the elements of the various emissions tests (OBD II, ASM, 2-speed idle, and opacity) and applying that knowledge in their repair approach for even the most difficult vehicles.

We would love to hear from you. You can provide feedback in two ways. A survey has been inserted with this issue of *TechTalk*. Please take a few minutes to complete it and

mail it back to the address provided. Or, you can take the survey online at [www.ohiocheck.org](http://www.ohiocheck.org). Go to the link located in the repair industry section at the bottom of the page to register your repair class preferences electronically. Be sure to include the topical areas you wish to have covered, the timing of courses (day/time of day/total hours), fees you are willing to pay, location, etc.

Thank you in advance for your participation as we seek to provide effective vehicle emissions repairs to Ohio motorists.