

# RANDOM MISFIRE

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## FORD 2.0 VCT REOCCURRING TIMING BELT FAILURES

Some Ford 2.0 liter engines with variable cam timing, such as Cougars or ZX2's, may have repetitive timing belt issues. These issues often occur after the first timing belt replacement. The problems is incorrect belt tension.

If the timing belt is not properly tensioned the belt can walk forward off of the pulleys and shred itself due to contact with other components. Ford has issued a technical service bulletin (99-25-4) regarding a revised tensioning procedure, however it appears to be incorrect. The TSB suggests setting the tensioner to the position indicated in the photo to the right.

Tensioning the belt according to the TSB often results

in over tension and the fore mentioned results.

Adjusting the belt tension on one of these vehicles while it is running (please be safe if you try it) can illustrate the effect of belt tension. The change in belt tracking on the cam shaft gears can actually be observed as the belt is tightened or loosened.



Our suggestion is to adjust the belt according to how it

tracks on the cam shaft pulleys. Multiple attempts at adjustment may be necessary before complete reassembly, but it is definitely



worth the extra effort. Correct tension allows the belt to stay centered on the pulleys and not destroy itself.

The photo above illustrates the different tensioner position required to achieve the desired result. Fixed.

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### Points of interest:

- Join our mailing list. Fill out the form on our contact page go to: [www.driveabilityguys.com](http://www.driveabilityguys.com)
- Watch for DRIVEABILITY GUYS training in Il, Wi, Mi and Mo in February and March.
- We are looking for feedback on our site, training, and software. Email us your honest opinion.

## CHICAGO AREA TECHS GET ON BOARD.

The Driveability Guys are getting the information out there, but we need your help. If you are receiving this via email we already know that you care about training. Let's get the word out to others. Training

is available in our area, so let us know how we can reach you. Sign up for our mailing

[www.driveabilityguys.com](http://www.driveabilityguys.com)

list and help make local classes happen.

Commit to your education. Commit to bettering yourself. Commit to bettering

the image of the automotive repair industry. Sign up now and see the benefits.

# DRIVEABILITY GUYS TRAINING IS COMING SOON...

Keep an eye out for courses taught by Bob and Scott at conventions coming in February and March of 2008.



Topics include:

Volumetric Efficiency and scan data analysis. Learn to gather data from an initial test drive that is valuable for quick diagnosis and repair verification of driveability issues.

Basic Oscilloscope Usage. Learn the ins and outs of digital storage oscilloscopes. Learn to understand basic electrical concepts and how they apply to DSO testing. And... learn how to interpret scope captures that could help with modern vehicle diagnostics.

Internet Usage. Maximize your shop's effectiveness using the internet. Learn about valuable resources that are available to help you diagnose, repair, service write and get trained.



Check your schedules and the following sites:



[www.asaillinois.org](http://www.asaillinois.org)

[www.visionkc.com](http://www.visionkc.com)

[www.avtechexpo.com](http://www.avtechexpo.com)

## THE OVERHEAD CONSOLE ON MY CHRYSLER READS ZERO DEGREES CELSIUS ALL THE TIME!

Fuel trim issues on some vehicles can be tricky. Various inputs and computer networks cloud the once simple idea of input-process-output.

With the advancements in technology, automotive systems have become quite complex. The simple idea stated above now looks more like: input-process-communicate-process-output. The addition of "communicate" and an additional "process" is the result of computer networking. Because of the complexity of multiple modules sharing information, diagnostics can be tedious. The key to successful diagnostics on today's vehicles lies in the understanding of how modern systems work.



Today's example is a Caravan with an overhead console the constantly dis-

plays 0C. The customer may be complaining about their temperature display, but could there be more at hand?

OC actually means Open Circuit. This is a pretty simple and straight forward way of telling the technician that the ambient temperature sensor has an open in its circuit. On this Caravan the sensor is located within the reach of those pesky parking blocks and curbs (mounted directly in front of the condenser low behind the grill). Get too close and the concrete bites the sensor clean off.

So why do I bring this up? The knowledge key. This application uses the ambient temperature sensor for fuel delivery calculations. Although the information eventually gets to the PCM, the PCM does not set codes for this issue, the EVIC does. In this particular case the ambient temperature sensor reports to the EVIC. The EVIC displays the temperature, and sends temperature info to the PCM over a network. To make

things worse, if the EVIC sees a temperature problem, the PCM substitutes a false temperature PID and goes on working.



So if you were chasing a fuel trim issue could you just concentrate on PID's in the PCM? No.

You know to check inputs during diagnosis, but do you know ALL of the inputs? Do you know where to find said inputs? Is a network involved?

As I said, knowledge is key. Open mindedness doesn't hurt either.

## WHAT DOES "D.O.T." STAND FOR?

So... THE DRIVEABILITY GUYS appreciate a little fun. Now that we have clarified our acceptance of fun, allow us to elaborate on something that has recently emerged from the DG camp. During the 2007 Linder conference the acronym D.O.T. evolved. Its original concept was thought of to compete with the DeCoursey crew for a free Linder class, as a result of group enrollment to said Linder conference. The idea got some chuckles and ended up producing a small batch of T-shirts. The shirts made a small appearance in an iATN forum and emails started rolling in. Apparently the joke was well received by others because we ran out of all the shirts that we never intended to sell! We had no idea that others would be interested in our homage to a single individual. But that is not my point. Let's explore!

Anyone can join a group and hope for a group reward. Or maybe "membership" in a group could mean more. It's not about

contests. It's not about numbers. It's about giving a crap about what you do. Find something you like. Learn what you need to accomplish what you like. Do your job and pay your bills. Learn what you can where you can. That brings us to our individual...

For those of you who don't know what D.O.T. stands for... here's the deal: **Disciples Of Thornton** is an homage to John Thornton. John has been a respected trainer for years. D.O.T. is a light hearted way of showing our respect for him. After having a few shirts printed, we distributed a few to select individuals. Dan Baumhardt wore the first D.O.T. shirt to one of John's classes in October. Since then, a few shirts have been worn to John's classes, and many requests for shirts have come in.

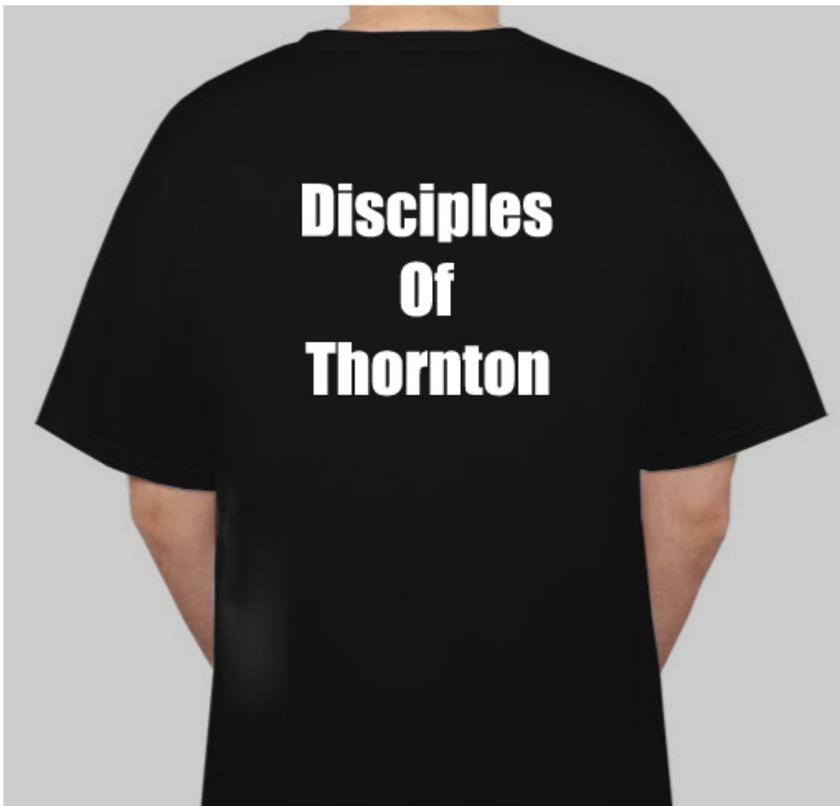


To make a long story short, the Driveability Guys are out of shirts. We plan to put in a new order for D.O.T. shirts to fill our personal connection needs. If anyone else would like a shirt please let us know. The shirts are \$20 each... delivered. Forget the shipping variables... we're simple... you want a shirt just let us know. Email [bob@driveabilityguys.com](mailto:bob@driveabilityguys.com) with quantities and sizes. We'll confirm your request prior to our next order and send an invoice only if the shirt order is completed.

Hey John... this conclusion is for you. We appreciate everything you have taught us. We also appreciate the time you spend with every day technicians. We both know that we have dealt with each other on many levels. We only hope that other technicians can come to respect the information that you have to offer the same way we have. Drive on... and you might have to accept D.O.T. shirts a bit more often.

All in good fun!

The Driveability Guys



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**WE ALL HAVE CUSTOMERS THAT ARE IDIOTS,  
WE JUST THOUGHT WE WOULD SHARE ONE.**



How can we expect to communicate with customers that can't follow simple instructions?



This is only scratching the surface...