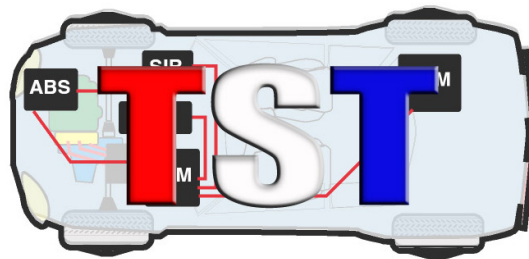


February 2009



Technicians Service Training

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Webcast seminars (see p. 10)

G Truglia

March 28th

*Big Event with John Anello,
John Thornton, and Pierre
Respaut*

April 13th - 16th

*Cam and Crankshaft Diag-
nostics*

John Thompson

Editor

Jerry "G" Truglia

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2003 Nissan Pathfinder with Drivability Issues

I was called to a local independent shop to diagnose a 2003 Nissan Pathfinder (3.5L, V-6 engine) with 51,000 miles.

This model has a dual overhead-cam engine with VVT on the intake camshafts .



The customer complained that there was a lack of power while driving. This vehicle was quite troublesome, as the shop had been looking for the cause of the problem for quite a while, but to no avail.

When I got my hands on the vehicle, it had a smooth idle and the scan tool data (PIDs) did not show any inputs/outputs that were out of the normal operating ranges. However, the vehicle had a P0011 DTC stored for "Intake Timing control fault on Bank #1" and a related MIL.

The first thing I did as part of my diagnosis process was install a pressure transducer in the place of a spark plug so I can check the correlation between the cam and crank shafts. The Pathfinder only had a single camshaft, so only one spark plug needed to be removed. An engine with separate camshafts for each cylinder head would require one spark plug to be removed from each side of the engine.

(Con't on page 3)

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Information contained in this newsletter is intended for use by professional auto repair technicians familiar with approved vehicle repair procedures. The authors are not responsible for physical injury or property damage resulting from the incorrect application of information or procedures outlined in this volume.

Currently there are **TST chapters in Connecticut, Massachusetts, New Jersey, New York** and membership continues to grow. For more information you can call

TST headquarters at:

(845) 628-6928



Technicians Service Training



www.TSTseminars.org

What is TST?

TST is a group of dedicated technicians and instructors committed to the continuing education of our fellow technicians. We provide once a month training seminars to technicians at a reasonable price. TST brings our members nationally known instructors and state of the art training.

Our Goal & Mission Statement

- ***Keep our fellow technicians up to date with the latest technology.***
- ***Provide training seminars for a reasonable price.***
- ***Deliver information that the technician can use now.***
- ***Keep technicians informed of information affecting our industry.***
- ***Increase consumer awareness of what a good technician is.***

Why join TST?

TST membership includes special pricing on once a month week-day night seminars and the occasional full Saturday seminar. With a \$75.00 yearly membership, the monthly seminars are only \$65.00. TST classes are NOT sales or product seminars. The instructors that TST brings in are all “hands-on” industry experts with up to date, cutting edge knowledge that you can use in your shop the next day. That’s 65 dollars for a seminar in which you are able to learn something useful, for fixing those tough jobs that we all see on a regular basis. Our instructors are masters at making the complex understandable. Membership also includes a Monthly Newsletter full of real world technical articles, diagnostic case studies, and solutions to the kinds of problems you see in your bays each week.

The following are some of TST’s regular instructors:

Bernie Thompson of ATS www.ATSnm.com

Doc Nall formerly of Target Training Systems

Wayne Colonna of ATSG www.ATSGmiami.com

Jorge Menchu the “Labscope Guru,” owner of AES

www.aeswave.com/aboutaes.htm

John Anello Auto Tech On Wheels www.autotechonwheels.com

Luis Ruiz Mechanic’s Education Association

www.meatrainng.com

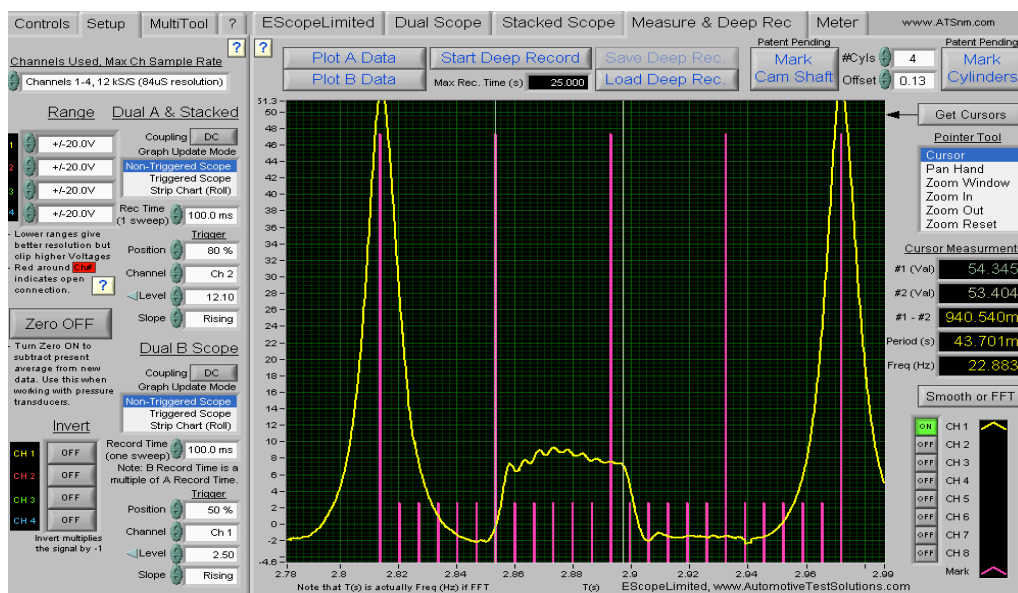
Jerry “G” Truglia National Instructor & owner of A.T.T.S. Inc.

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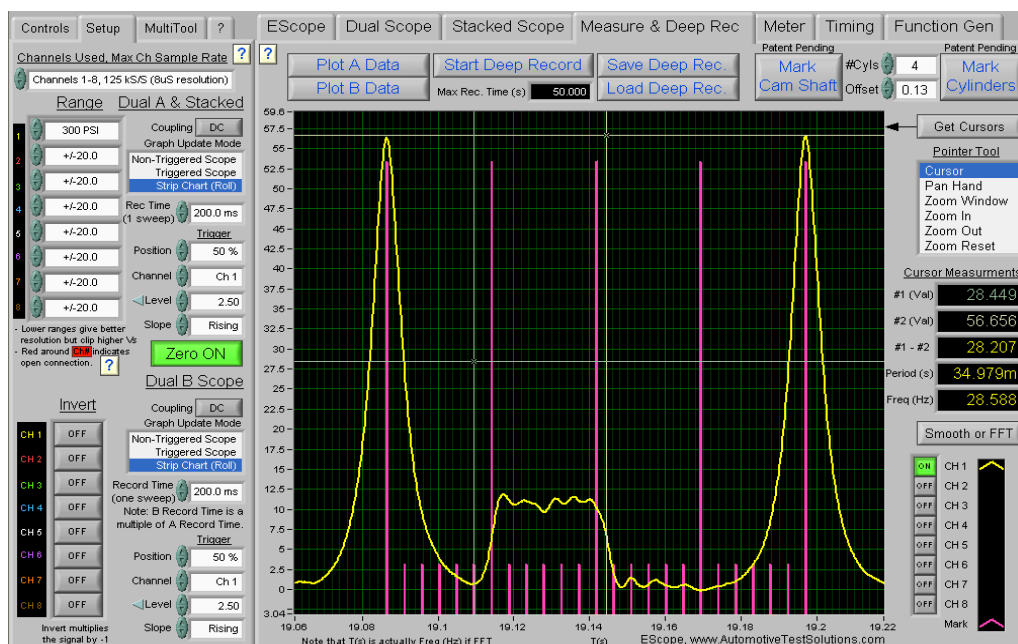
2003 Nissan Pathfinder with Drivability Issues (con't from p. 1)

This is a simple test that only takes a few minutes to perform and gives you a great deal of information that helps with your diagnostic direction. The test revealed that the intake and exhaust valve timing were retarded for both cylinder heads in relation to the crankshaft.

Below is the pressure transducer waveform showing the retarded valve timing (by 15 degrees) of the exhaust and intake camshafts.



Below is an example of an engine with correct valve timing:



(Con't on page 6)

Sign Up for the Sixth Annual TST Big Event!

Featuring:

- 1. John Anello's "Everything You Ever Wanted to Know About a Scan Tool"*
- 2. John Thorton's "MAF Diagnostics"*
- 3. Pierre Respaut's "Divide and Conquer--Diagnostic Strategies"*

1. "Everything You Ever Wanted to Know About a Scan Tool"

John Anello, returning from the most highly attended seminar in TST's history, comes back at you with *Everything You Ever Wanted to Know About a Scan Tool*. This class will cover the evolution of the scan tool and where it is today and where it is going tomorrow. It will cover the proper use of a scan tool, understanding codes and data, and the differences between using OBD II information versus factory enhanced information. This class will also cover the use of many functional procedures found in a scan tool such as recoding, recalibrating, reconfiguring, reinitializing and relearning onboard controllers. This isn't a push button class but a class that will enhance what you know, and help you to decide what you need to do to keep yourself current.

2. "MAF Diagnostics"

This class will explain proven and straightforward techniques used to diagnose faulty MAF sensors. GM, Ford, Nissan, Toyota and VW MAF failures will be analyzed and discussed in a case study format with a detailed handout. The following tools and techniques used to diagnose faulty MAF sensors will be covered:

- Gas analyzers
- Fuel trim graphing
- MAF voltage/frequency values
- VE calculator
- Engine load PID

3. "Divide and Conquer—Diagnostic Strategies"

Who has the time to take a stab in the dark when confronting problem vehicles where there is no easy fix or silver bullet for? Pierre informs you what to look for first, what to do next, and what we should expect to find in certain classes of vehicles; especially European ones. You will learn methods for dividing problems for efficient diagnostics, and see how these methods were used in several case studies for the sake of illustrating the process.

Snacks, refreshments, and meals provided!

DATE: Saturday, March 28th, 2009 at 8 AM to 5 PM

PLACE: Crowne Plaza SOUTHBURY Hotel (I-84 Exit 16, take right, at end of the ramp, will be on right past the Mobil station)

1284 Strongtown Road, Southbury, CT 06488

COST: Before March 21st- \$175.00 for member \$240.00 non-members

After March 21st- \$210.00 for member \$275.00 non-members

Sign up online, give us a call, or make checks out and send to TST: 11 Lupi Plaza, Mahopac, NY 10541

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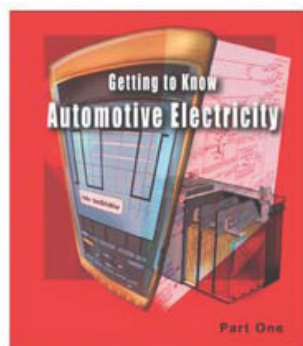
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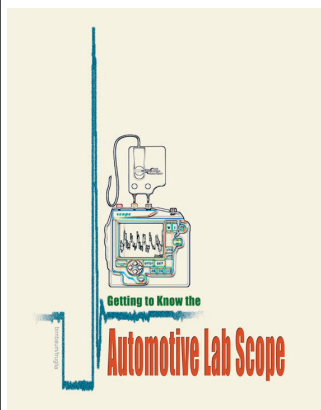
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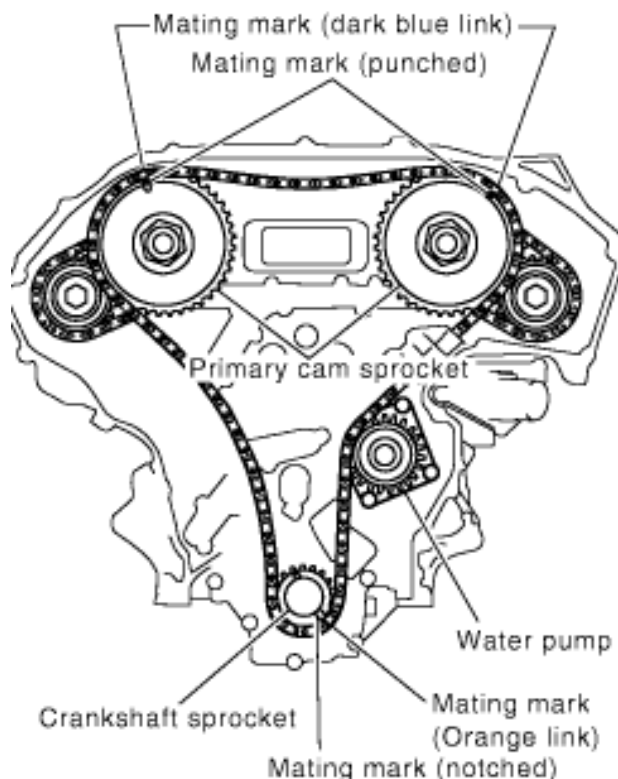
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2003 Nissan Pathfinder with Drivability Issues (con't from p. 3)

The 2003 Pathfinder's engine uses one primary chain to correctly time the relationship between the crankshaft and both intake camshafts. The engine also uses two smaller chains to correctly time the relationship between the intake and exhaust camshafts for each cylinder head.

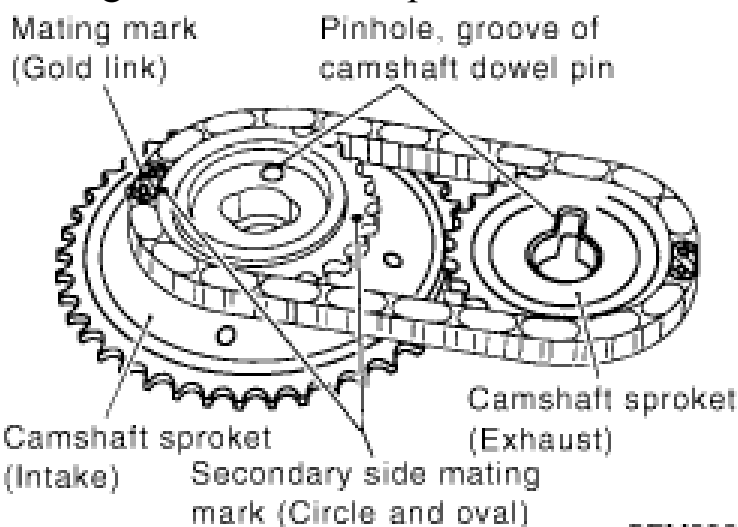
The root cause of the customer's complaint is a mechanical fault with the primary chain assembly that affected the valve timing of the entire engine.



While the pressure transducer was installed (bank 1), I used it to quickly check the timing of the intake camshaft while I operated the VVT solenoid. The simple test re-

vealed that there was no movement of the intake camshaft during VVT solenoid operation. **Therefore, the cause of the**

MIL lamp illumination was specifically a mechanical fault with the intake camshaft VVT actuator assembly (bank 1).



SEM938G

(Con't on page 7)

2003 Nissan Pathfinder with Drivability Issues (con't from page 6)

In a matter of 10-15 minutes this quick and simple test procedure revealed the root cause of the customer's complaint as well as the cause for the MIL lamp illumination. Obviously, using pressure transducers with your diagnosis can save you time and money.

The next step was to disassemble the front of the engine and inspect the primary chain assembly as well as intake camshaft VVT actuator assembly (bank1).

The inspection revealed a damaged Crankshaft woodruff key and an elongated crankshaft gear key slot.



Below is a close up of the elongated crank gear key slot and the damaged crankshaft woodruff key.

I asked the technician to show me the harmonic balancer. When I flipped it over, I discovered the key slot was severely damaged as well (see top of page 8).



(Con't on page 8)

Questions:

1. Do you want seminars to continue in your area?

2. Do you find the seminars useful?

Please ask a fellow technician to come and check-out our seminars so we can continue to bring you the best available information each month.

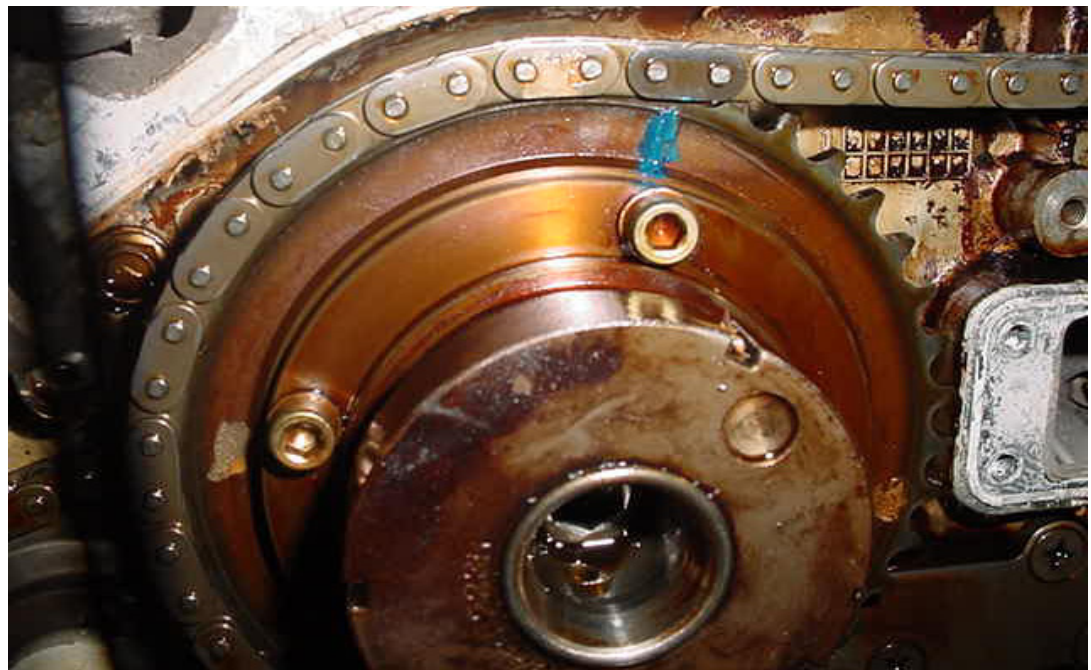
We need your support:

**Thank you,
G Truglia**

2003 Nissan Pathfinder with Drivability Issues (con't from page 7)

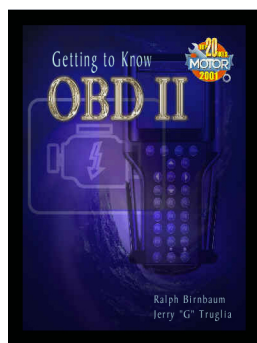


The inspection also revealed the intake camshaft VVT actuator (bank1) was seized.



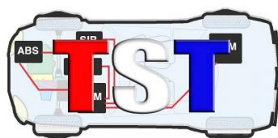
Pressure transducers can quickly help diagnose engine mechanical failures, or to the contrary be used to rule out engine mechanical failures we assume are causing the customer's complaint.

(Con't on page 9)



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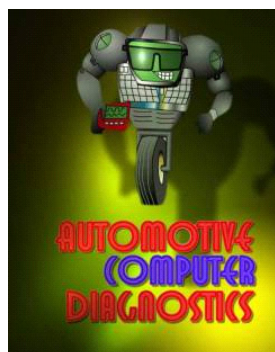


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2003 Nissan Pathfinder with Drivability Issues (con't from page 8)

Quite simply, pressure transducers can help us with engine misfire(s). Once you learn how to properly view the labscope waveform during such tests, you can check for mechanical failures that will help you detect:

- Cam and Crank timing failures
- VVT cam timing operation
- Valves not opening
- Valves not sealing
- Loose valves
- And more!

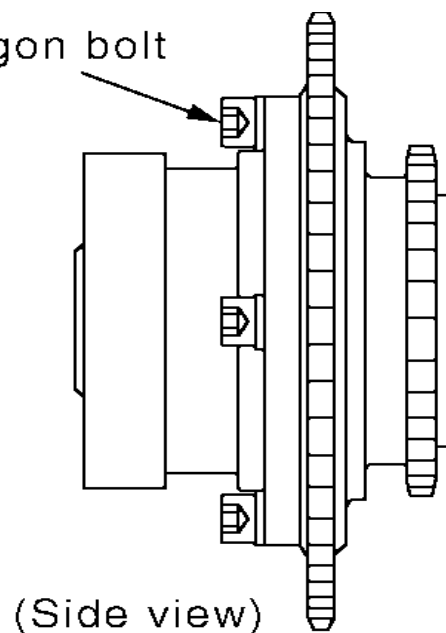
Editor's Note: Bernie Thompson will be teaching an online class on diagnosing with pressure transducers on February 28th.

Webcast description:

Bernie Thompson of ATSnM.com using live demonstrations and working on a live vehicle gives you all the tips and tricks on diagnosing vehicles with pressure transducers. Bring your pressure transducer kit for the EScope, and work hands on the vehicle being used during the webcast over the internet.

See page 10 for more information on our webcasts.

Article courtesy of David Decourcey (Mobile Technician, Instructor, and ASE Master Certified L1)



Upcoming Webcasts Presented By TST

Through out mutual sponsors, Automotive Technician Training Services and Professional Tool and Equipment News, TST is expanding nationally by providing quality low-cost training online on the “webcast” format. Our first webcast on January 7th on *Mode 6 with Your Scan Tool* had attendees from 15 different states!

Upcoming Webcasts:

Feb 18th *Getting to Know Your Labscope* with Jerry “G” Truglia—Live at 7PM

Feb 28th *Diagnosing with Pressure Transducers* with Bernie Thompson—Live at 1PM

March 11th *BMW Tips and Tricks* with Pierre Respaut—Live at 7PM*

***This seminar focuses on 2000 and on BMWs and covers new material.**

What is a 'Webcast'? A webcast is just like a seminar with an instructor, powerpoint, and a live instructor (via webcam); but you can attend using your computer. However, there are many advantages to the webcast format. In a webcast, the instructor can make available to you all the information on his computer, scan tool, or anything else; and display it directly on your computer. As a bonus, if you have a computer-based scan tool the instructor can step-by-step walk through how to use it by temporarily taking control of your computer's desktop. So, what we have is a much more innovative and effective educational format, all from the comfort of your own home!

How long do the Webcasts last? A total of two hours. Instruction will last 1.5 hours and 30 minutes is devoted to questions and answers. You may ask any questions that pertain to the subject matter being taught. Be sure to bring you PC-based scan tool! During Q and A, the instructor can take control of it and teach you "hands on" via the computer.

Is it easy to do? YES! You don't have to download any programs or learn anything new. If you can surf the internet, you can attend our webcasts! To attend, simply pay at the door by clicking **TSTseminars.webex.com** at the time of the seminar. Try to leave yourself ten minutes to enter your credit card information in order to sign in.

What do the webcasts look like? Presently, we have no videos up of any TST webcasts, which will be uploaded soon onto youtube. However, you can see an example of an one hour webinar that G Truglia did with **PTEN.com** by checking out their “Webcasts” section.

Price: \$39.95 for general admission, \$29.95 TST members.*

Where do I sign up? You can sign up by going to **TSTseminars.webex.com**.

*Because of the nature of e-commerce, we cannot charge two different prices using the web-software, so if your membership is current you may email or fax us a copy of you receipt, and a ten dollar credit will be applied to your account as a discount on anything TST provides aside from webinars. We apologize for these preconditions, but the e-commerce software cannot be adapted to work differently.

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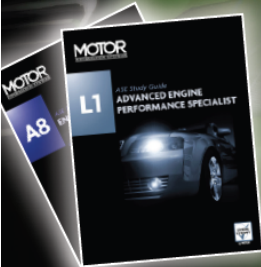
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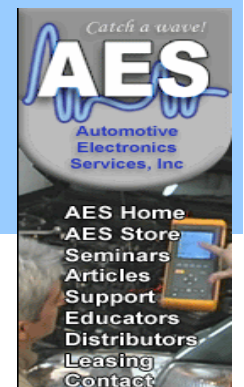
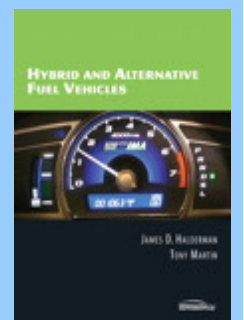
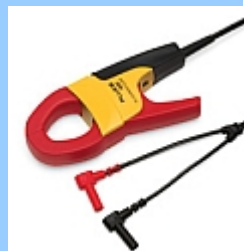
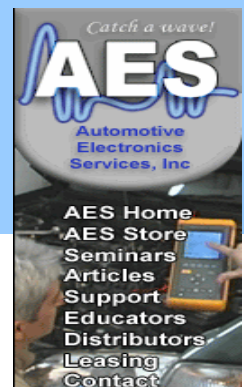
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