

April 2011



Technicians Service Training

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Upcoming Seminars:

Driveability Case Studies

Dave Crippen

May 2nd to 5th, 2011

Make Diesel Diagnosis Profitable

Tony Martin

June 6th to 9th, 2011

Editor

Jerry "G" Truglia

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2003 Nissan Altima CAN Problem

I recently had a 2003 Nissan Altima 3.5 that woke me up to the importance of understanding CAN networks and lab scope diagnosis.



Ever since the mid 90s I have been using a lab scope to analyze engine management, transmission controls, ABS systems and the like, but never in my wildest dreams did I think I would need it to diagnose a headlamp problem...but that is just what was needed to get to the bottom of this troublesome Nissan.

The customer called me with the complaint of his headlamps not working on cold mornings. He coupled this with an odd observation: his rear defroster would act funny at the same time. The symptoms would last for about 10 minutes, after which time everything would return to normal.

So, because he had an upcoming business trip, we made arrangements for him to leave the car for the week. So on the first frigid morning I went out, turned the key on, turned the headlamp switch and rear defrost switch on, and sure enough, no lights! The rear defrost lamp would flicker, and I could hear the defrost relay clicking on and off at the same time.

(Con't on page 3)

Technicians Service Training

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

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Technicians Service Training



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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.

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Bernie Thompson of ATS www.ATSnrm.com

John Thornton of Autotrain Inc.

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.meatraining.com

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

2003 Nissan Altima CAN Problem (con't from p. 1)

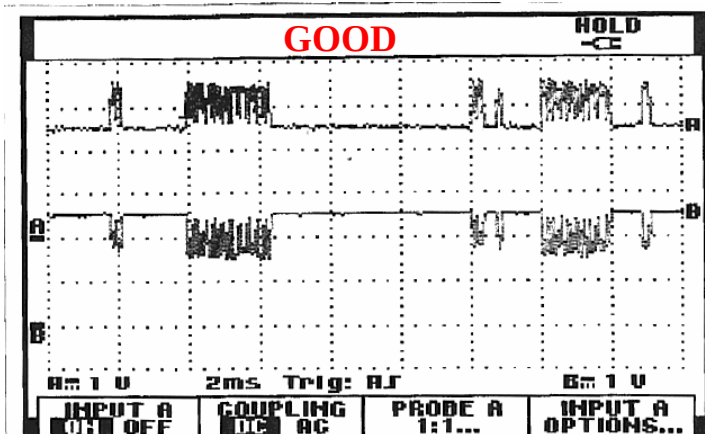
By that time I got a sense of what was going on, so I opened the hood and looked for any obvious things (battery connections, harnesses, etc.). The headlamps and rear defrost came on in what was probably less than two minutes. I am not going to dispute his claim of 10 minutes, but on a dark December morning, when you get in your car, turn the lights on and start your commute to work I guess two minutes could feel like ten. Nevertheless, the fault was confirmed.

Everything worked normally for the remainder of the day, until the next cold morning. Since this was an unusual problem, the first step of my diagnosis was to check my resources (TSB's, identifix, iatn), but none of them helped. So, I decided to look for the link between the headlamps and rear defroster, and spend some time to study and understand the circuit. I am a firm believer in "If you know how it is supposed to work, you can fix it."

What I found was that both the headlamp switch, and rear defrost switch are inputs into the BCM (Body Control Module). The BCM then sends its message via the CAN network to the IPDM (Integrated Power Distribution Module), which in turn controls the primary circuits of the headlamp and defroster relays, amongst others. Whew! That's a lot of things involved for headlights!

Where do I start? I checked all the modules on the network for any trouble codes, but none were present. The IPDM is a receive-only module, and is not capable of self diagnosis, nor can it transmit information. It only responds to messages on the CAN network that are meant for it. The BCM has bi-directional controls, so I tried commanding the headlamps and rear defroster on via my scan tool functional test on the next cold morning, but this yielded me the same no lights/no defroster results. So, I knew my problem did not concern any BCM inputs.

The possibilities were starting to narrow. Was the message bad from the BCM? Was the IPDM getting the message and not responding correctly? Was there some other module or network problem corrupting the message? It was time to hook my labscope to the CAN network and see what's going on.



That's where I hit paydirt. I don't pretend to be able to interpret CAN messages, but I have seen enough to know what's good and what's not. I first recorded a good CAN message while switching headlamps and defroster on when everything was functioning normally (Channel A is CAN High and Channel B is CAN Low).

(Con't on page 7)



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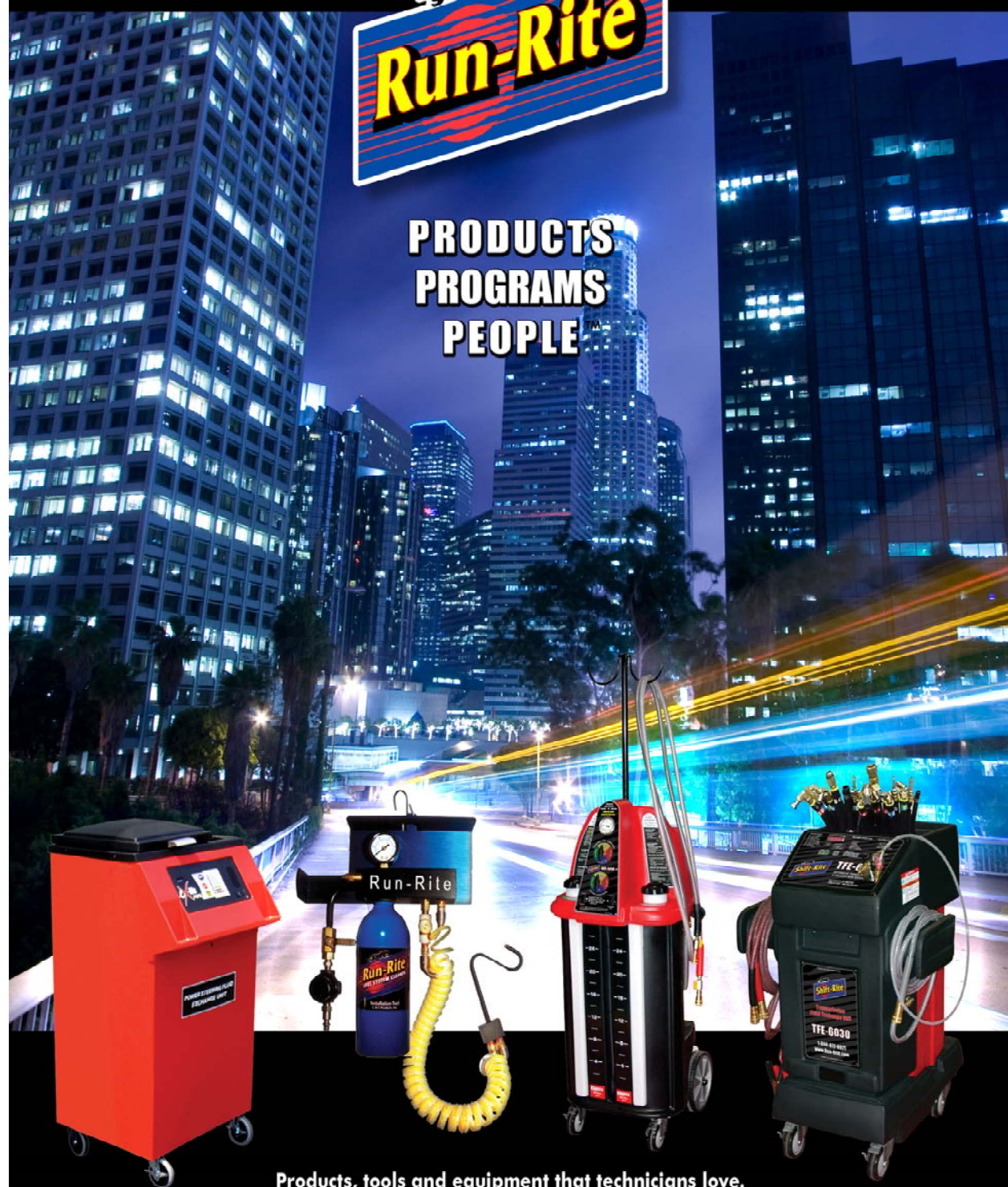
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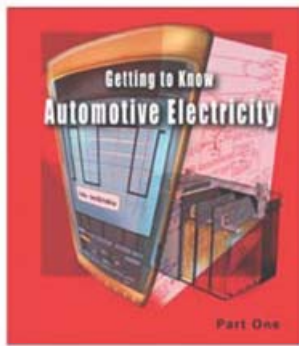
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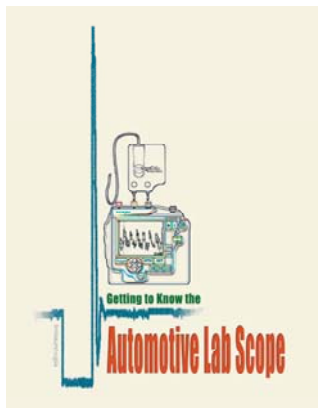
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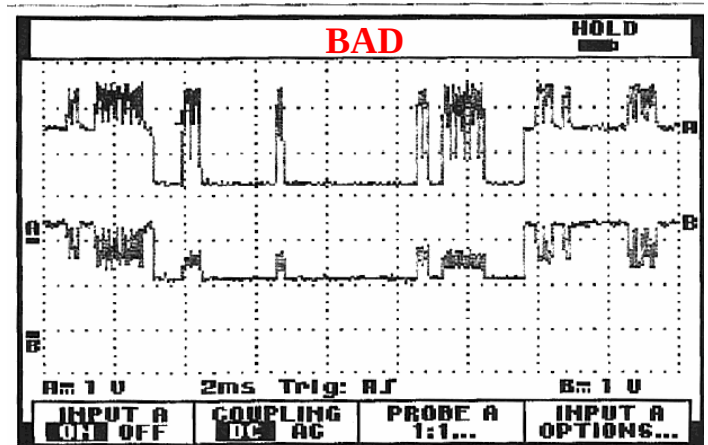
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2003 Nissan Altima CAN Problem (con't from p. 3)

Now I had a baseline and a good clean CAN "A" and CAN "B" waveforms. I then prepared for the next morning by accessing the BCM and IPDM modules and their respective CAN terminals. I could hardly sleep that night, anxious to see what I might find. Powering up my labscope and turning the key on yielded the adjacent CAN message. Definitely not like the first snapshot I took. The waveform was definitely corrupt!

That good clean CAN waveform had lost all it's uniformity! I then started by disconnecting the CAN Terminals at the BCM, but the waveforms did not change. Then I went to the IPDM and disconnected it and voila, the CAN waveform cleaned up instantaneously!



I ordered and replaced the IPDM. The headlamps and defroster now work flawlessly even on the coldest of mornings.

Interestingly enough, I found when the CAN message is interrupted to the IPDM by disconnecting either the BCM or the IPDM, the IPDM defaults to headlamps ON. When I started my disconnect procedure, I started at the BCM. If I had not been looking at the CAN waveform to see that CAN was still corrupt, or If I didn't have a lab scope, I may have been fooled into thinking that the IPDM was capable of turning the lights on with the BCM disconnected, and that the BCM was at fault. It pays to dot your I's, cross your T's, and keep your lab scope at the ready!

Brian Todd from CT

Ford Frustration (A Reflashing Nightmare)

Out of every 100 drivability problems we get in our shop, maybe one out of that hundred is fixed by a module reflash. So, we rarely need to reflash anything.

(Con't on page 9)

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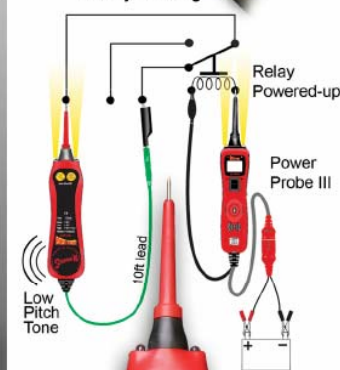
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Ford Frustration (A Reflashing Nightmare) (con't from page 7)

Most shops send the car to the dealer, but we find it more cost effective to pay a mobile tech or reflash on our own. We use an Autologic on European vehicles (and that's so easy, you can do it without any training), the Toyota Techstream on Toyotas, and a Drewtech Cardaq-Plus on Chryslers (which is also easy.)

So, is reflashing as easy as it sounds? No! But why?

First, there are a lot of precautions one has to take when reflashing, including maintaining proper battery voltage, making sure not to kick any DLC or USB wires, and having one's computer settings set so nothing pops-up in the middle of a reflash that can reset the computer and smoke the module.

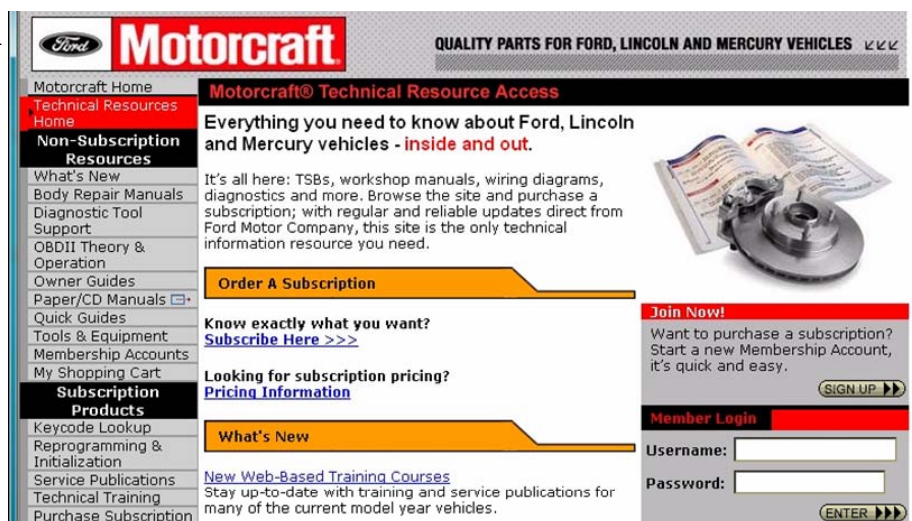
Second, if all you had to do was reflash one vehicle it would be easy to remember. However, most of us work on multiple car lines and we do so few reflashes that it becomes mentally impossible to reflash in a timely and profitable way.

This is where our story begins...

We get a call from a local TST member who has a family car that needs a reflash on a 2005 Ford 500. We never reflashed a Ford using a J-Box, so anticipating a good learning experience (and not a profit) we took on the job.

It took 25 hours from the time we started and the time we were able to get it all to work—there are a lot of nuances that go into learning how to reflash a Ford using a J-Tool. I went through the pain so you do not have to.

1. Go to MotorcraftService.com and log in.



(Con't on p.12)

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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

Ford Frustration (A Reflashing Nightmare) (Con't from page 9)

2. Click on "Reprogramming" and scroll down on the bottom of the page that pops up and click on "Purchase." After you purchase the software (covered in steps 3 and 4), you will return to this menu and then click on "Ford Module Reprogramming Application" by scrolling on the bottom.

3. Everything is pretty self-explanatory until you hit the

Ford Module Programming Start Up

Before starting the application, always make sure that:

- The SAE J2534 pass-thru device is attached to the PC and powered up
- The software that you received with the SAE J2534 pass-thru device is installed on the PC

1. Double click the Ford Module Programming
2. If this is the first time that the application is installed on the PC, the SAE J2534 pass-thru device has not been installed, or you are using a different device that you are using from the lists provided, click on "Install the SAE J2534 pass-thru device"

NOTE: If there are no J2534 pass-thru devices listed in the "Install the SAE J2534 pass-thru device" window, click on "Install the SAE J2534 pass-thru device" and then click on "Install the SAE J2534 pass-thru device" again at Step (1).

3. Select "Save Device"
4. Select "Exit Application"
5. Restart the application using the icon on the desktop

Scheduled Ford Module Reprogramming

FMP65	27-Jan-10
FMP66	31-Mar-10
FMP67	26-May-10
FMP68	28-Jul-10
FMP69	22-Sep-10
FMP70	24-Nov-10

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point where you choose to buy temporary access to Ford reflashing software.

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Module Reprogramming & Initialization

Download software necessary to program electronic modules to the latest calibration level, perform module initialization (PATs), and set Programmable Parameters on Ford, Lincoln and Mercury vehicles.

Note: An SAE J2534 pass-thru device is required and is **not** included with the subscription.

Term: **Short Term** # of Terms: 1

Item	Price
Web Flash Product (using J2534 tool) (short term)	26.95

Stock # FCS-WEBFLASH-V1-D

Add to Cart Checkout

The following will be added to your Shopping Cart...

Item #	Description	Start Date	Expire Date	QTY	Term	Unit Price	Total Price
FCS-WEBFLASH-V1-D	Web Flash Product (using J2534 tool) (short term)	3/2/2011 3:05:54 PM	3/5/2011 3:05:54 PM	1	Short Term	\$26.95	\$26.95

OK Cancel

Be sure to click on the dropdown menu next to term and choose "short term." Chances are you will not be doing the quantity of reflashes to justify paying for a longer period.

4. Disable your pop-up blocker, or you will not be able to pay for the reflash subscription. (Con't on page 15)

Address: http://www.motorcraftservice.com/vdms/retail/default.asp?pageid=view_cart&catid=billing

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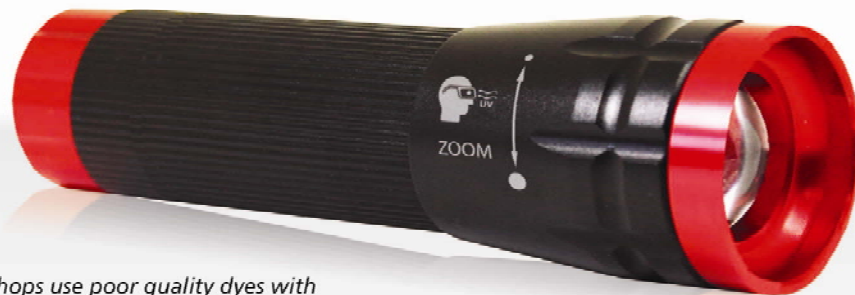
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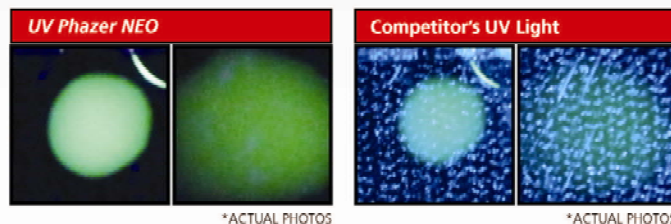
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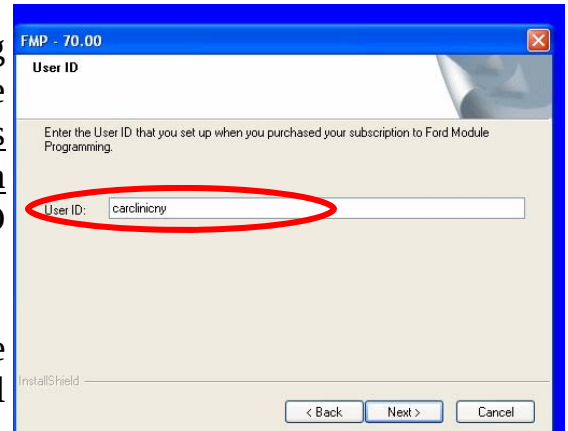
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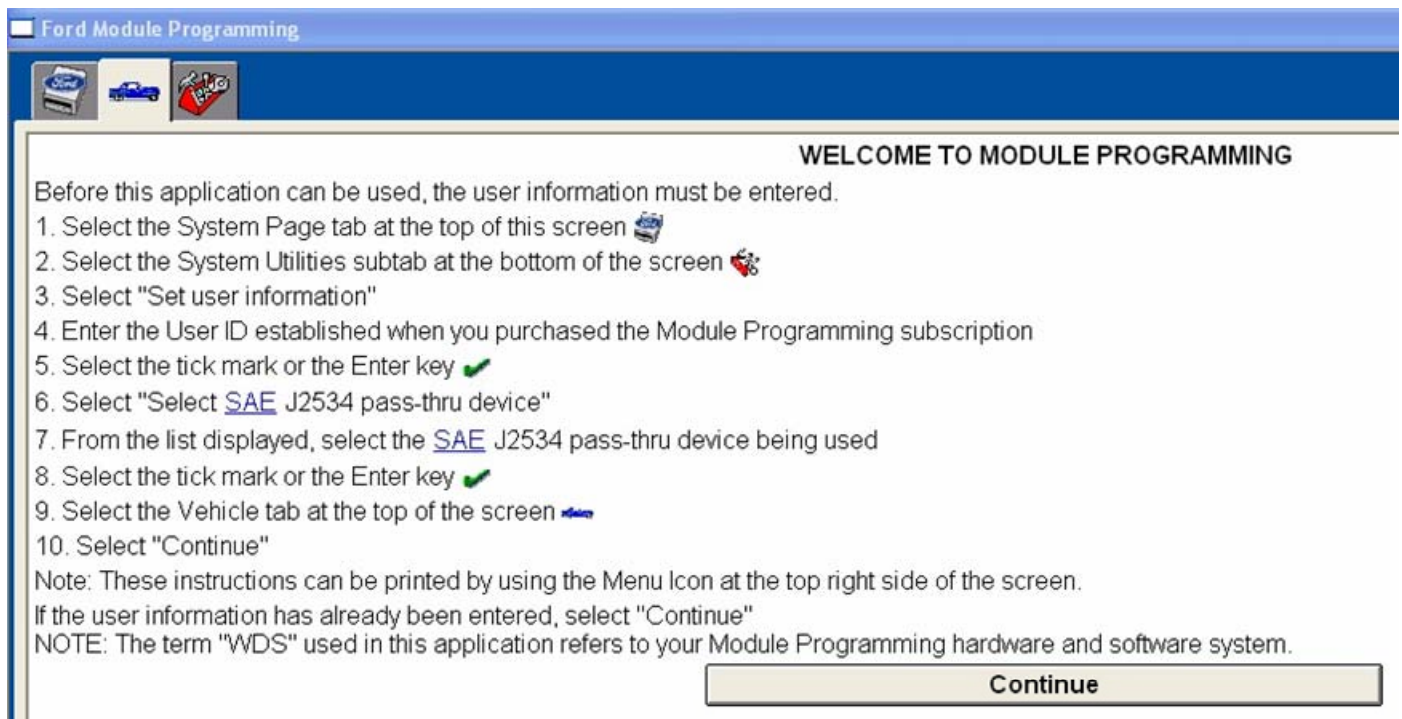
Ford Frustration (A Reflashing Nightmare) (con't from p. 12)

5. When you install the Ford software, there is nothing confusing about it besides the part in which you are prompted to enter your "User ID." It is the same as the User ID you made to log into the website to begin with. Note: You will be required to enter this User ID again when you actually use the Ford reflash software.



6. After downloading the Ford reflash software, make sure all the drivers and software updates for your tool are up-to-date. This can take frustratingly long to do, and the more you are familiar with your J-Box the easier this is.

7. Start up "Ford Module Programming" and carefully read the following screen. If you do not, you will be subjecting yourself to additional frustration.

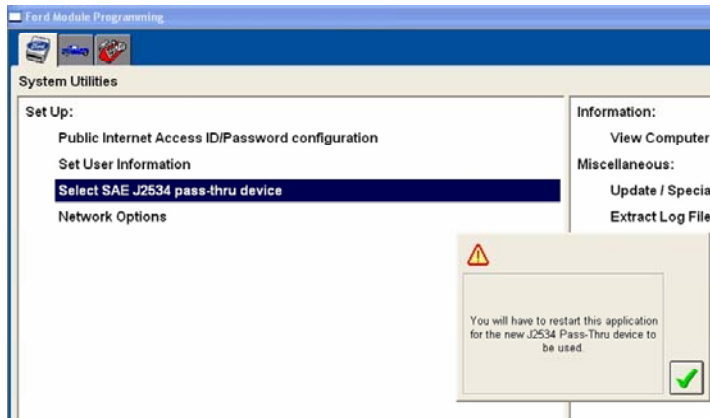


8. Follow steps **one through five** and then enter in your "User ID" into the Ford software. Do not forget to click on the check box to the bottom right to progress to further screens. When you are asked to enter your User ID CLICK TAB!!! It will be the only way you can type in your User ID. This really stumped me for a while.

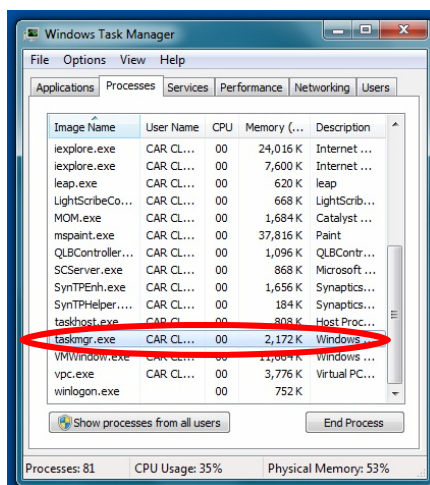
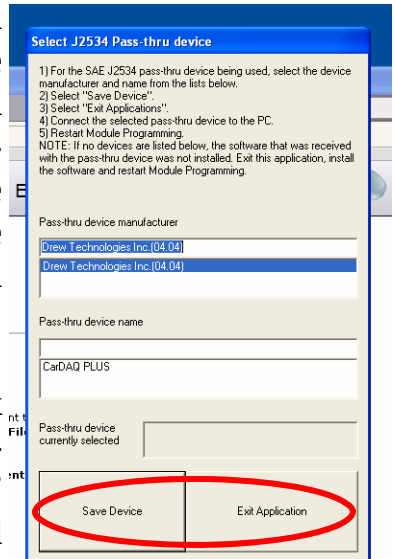
9. Afterward, select your J-Box from the menu by following steps **six through eight** that Ford asks you to do in the above picture.

(Con't on page 16)

Ford Frustration (A Reflashing Nightmare) (con't from p. 15)

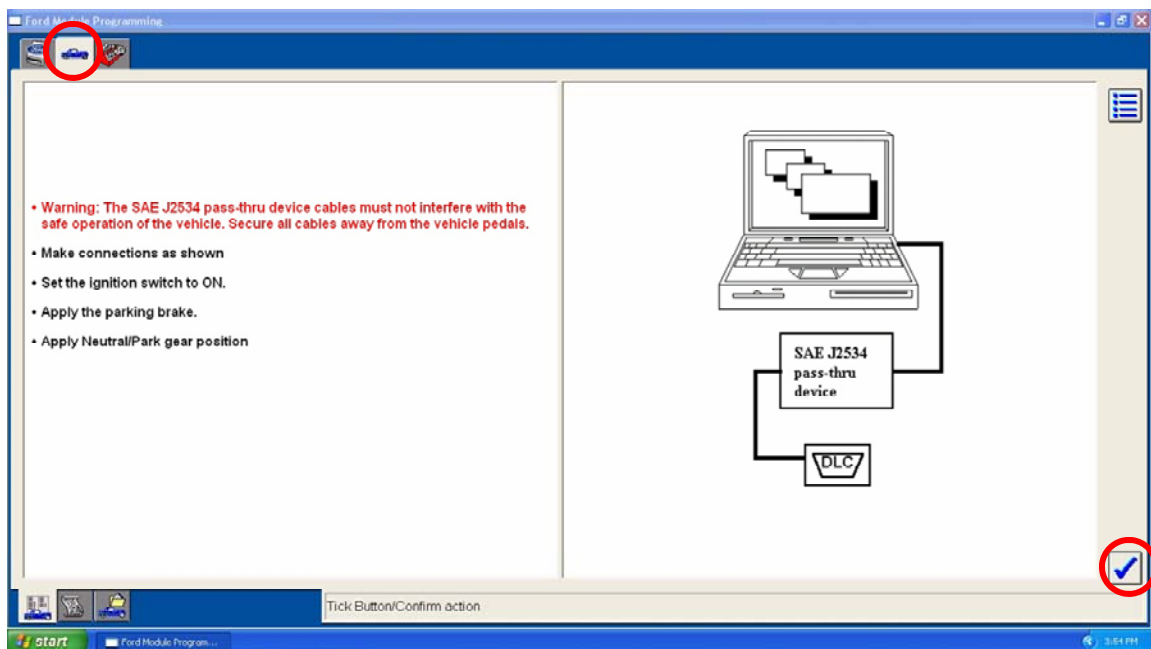


After choosing your J-Box (below) from your dropdown menu, click “Save Device” and then “Exit Application.” You will be asked to leave the program and then restart it.



10. Before restarting, first click **Control-Alt-Delete**, enter Task Manager, and then click on “Processes.” Find “Taskman” or “Taskmgr” and click “End Process.” Unless you do this, you will not be able to reenter the program. If you don’t do this, you will get this an annoying message that says “LCTOAPC is already running.”

11. After restarting the program, click “Continue” and then the blue car in the middle of the two top buttons. Follow the instructions and click on the check mark on the bottom right.



12. Click on “Start New Session” up top and then click the check mark.

(Con't on page 18)

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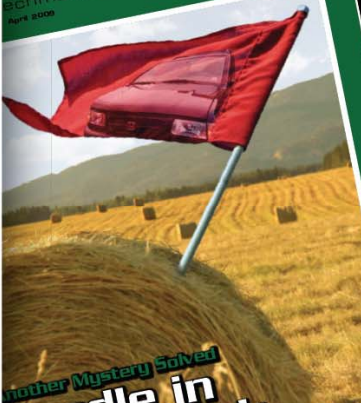


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Another Mystery Solved
Needle in a Haystack

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Five Ways to Limit Liability
By stepping out into the business world, every shop has exposure. While you cannot stop people from suing you, you can limit your business' personal assets and wallet from your liability if you take some steps to protect yourself.
(Turn to page 1)

Human Potential
The mind is a strange and powerful tool. Psychologists tell us some very interesting things about its functions. First, 90% of its activity is subconscious.
(Turn to page 1)

In Times Like These
Small business is the lifeblood of our economy. Businesses like ours.
(Turn to page 3)

Sole Proprietorship
If you are getting started in a new business or a twenty-year business veteran, this question comes up on a regular basis. My answer to this dilemma has always been the same. It depends.
(Turn to page 8)

MT Business Insider Pricing Matrix
Prices are based on percentages, but consumers look at prices. How do you recent profit margin on parts with your customers' need to pay this price?
(Turn to page 8)

E Certification: The Competitive Advantage
Of the most powerful influences on a shop's success is a world of recognition. From finally, recognized a business based on competitive just awarded.

Five Ways to Limit Liability for Business Owners
By stepping out into the exposure. While you can limit liability if you take some steps.
First, incorporate or form a limited liability company (LLC), articles of incorporation, and state or federal filings in your state. Once you incorporate, hold your business out to the public as a corporation.

Human Potential Using What You've Got
The mind is a strange and powerful tool. Some very interesting things about its activity is subconscious. Let's define things within or without oneself. 90%! Think a bit you are capable of achieving is still only 10%.
It's generally agreed that a human's learning ability is physical. Remember that a scrap of brain tissue no larger than a grain of rice contains more information than a computer the size of a room. Now consider that an average person's brain weighs about three pounds. How many ounces of yours do you actually use?

Ford Frustration (A Reflashing Nightmare) (con't from p. 17)

13. Click on the vehicle, even though it does not look “clickable.”

• Five Hundred

• Five Hundred (MY05) / Montego (MY05)

14. Choose the toolbox on the top right and click on “programming.” Then, choose the module you want to reflash.

• Montego



15. That’s it. The software will either tell you the vehicle’s software is up-to-date, or it will start the reflash.

This process might look easy to you, but it is not because of the several speed bumps you will run into. What immediately comes to mind is the following:

- Navigating and having to disable the pop-up blocker on the Ford Motorcraft website.
- The difficulty of updating drivers for your J-Box.
- Clicking tab to enter your User ID for the third time.
- Restarting the Ford software with so many additional steps such as closing out the “taskman” that is running in the background of your PC.
- Choosing vehicles in the program from a list that do not look like you can actually choose them.

Once you get used to all of these things, reflashing is legitimately a 45 minute process on Fords. The question is, will you do enough reflashes to get used to it? I charge a customer \$200 to \$250 for a reflash for this reason.

That didn’t stop us, however. We knew a good article would result from our efforts...and maybe a fixed car. Well, forget that. After all that trouble, we found out the reflash did not even fix the vehicle. It needed a new throttle body anyway.

Article by Craig Truglia

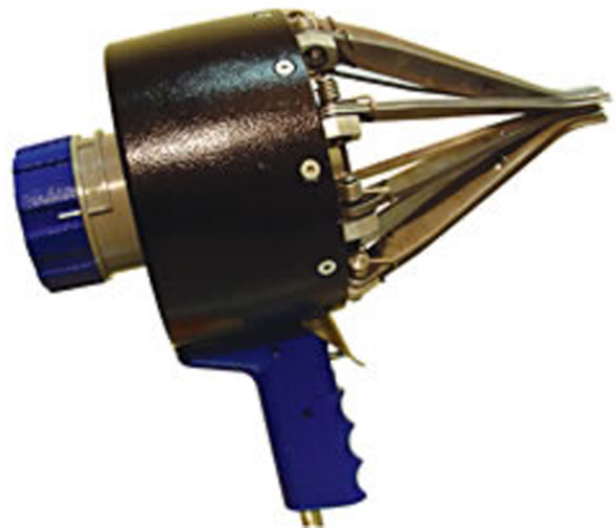
Featured Products

Astoria 2000 CV Axle Replacement Kit--

"Make Money On Your First Job!"

RECEIPIENT OF TOP TEN NEAT TOOLS OF 2009 FROM TST.

CV Axle Boots tear far before the cv axle has had it and replacement axles (Remanufactured and Chinese) result in comebacks. With the Astoria 2000, you can replace the CV axle boots with better-than-new boots without even removing the axle from the vehicle. Use it to repair newly ripped CV axle boots or as a maintenance item that will save your customers money in the long run and make you money too. At \$259.99 for the tools and \$25.98 for a pair of boots, you'll pay for your tool on your first CV axle maintenance.



CV Boot comes with clamps and CV Joint lubricant.

Price: \$12.99 for Mini-ATV CV Boot

\$12.99 an Universal Car CV Boot

\$16.99 for Universal Truck-SUV CV Boot

\$16.99 for Universal Rack & Pinion CV Boot

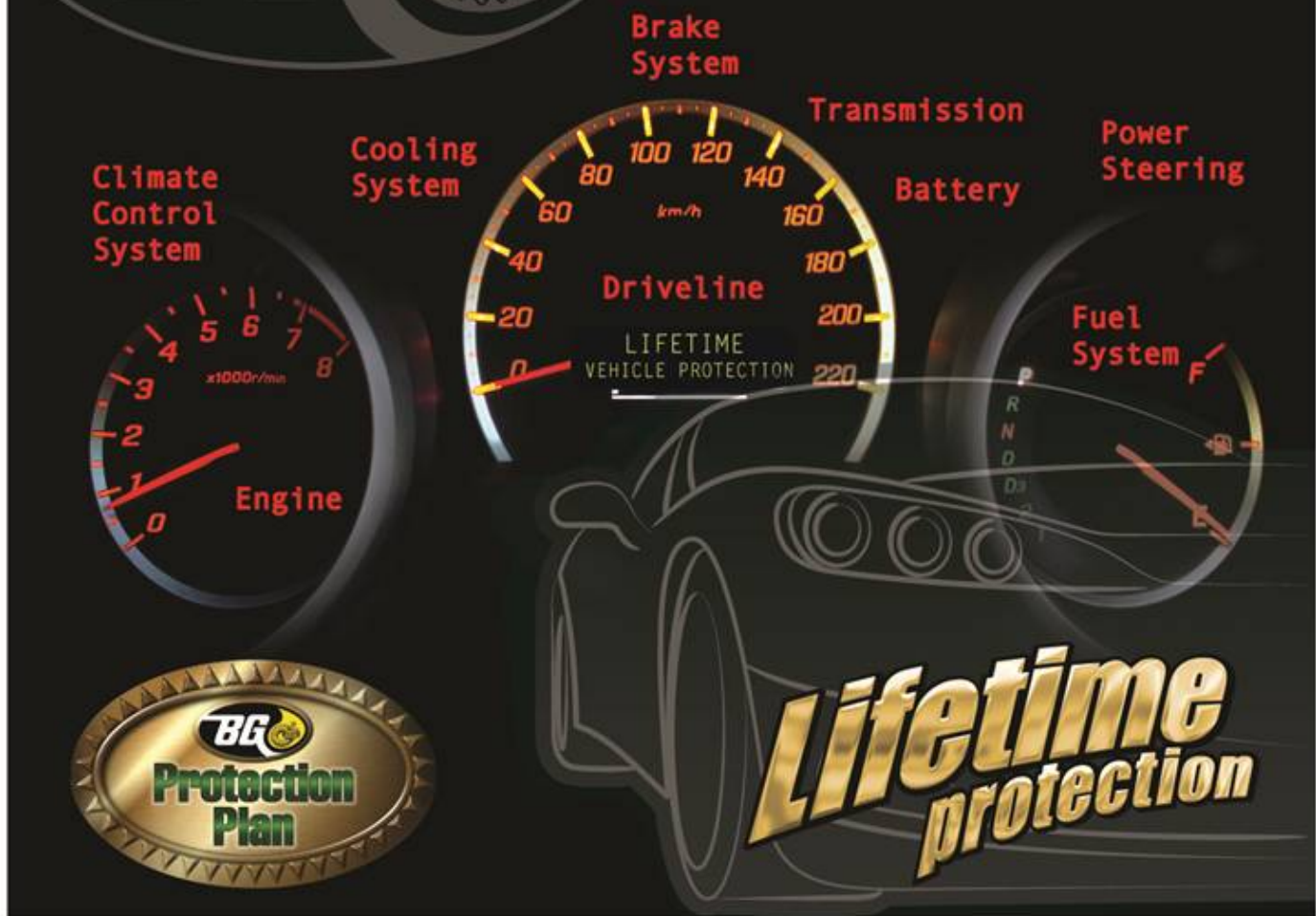
\$39.99 for Box of Universal Gomex Clamps

\$175.95 for Rebuilt CV Boot Installer Claw including Gomex Clamp Tool (ONLY 2 LEFT!)

\$259.99 for New CV Boot Installer Claw including Gomex Clamp Tool



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