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**JULY 2016**

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JULY 2016

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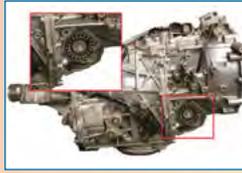
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by Dennis Madden  
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# THE OPPORTUNITIES AROUND US.

**T**he solution to a problem as well as new opportunities are all around us but too often they don't fit the *image* we expect or we're so focused on what we deem as the *right* solution that we miss them altogether. Here's a story most everyone has heard but it's a great example for this topic. There are a lot of variations to the story so I'll just offer a brief example. Its call: God Will Save Me.

A news alert goes out warning people of a flood warning and that the people in town should evacuate. A man is at his home watching the rain pour down when his neighbor drives up. The neighbor says "It's time to evacuate, friend. I've got room in my car. Jump in." The man says "No, I have faith in God and he will save me."

As the storm continues the water has now flooded the first floor of the man's house. Along comes another neighbor in a canoe. "I've got room for you in my canoe. Jump in." The man says "No, God will save me."

As the water continues to rise the man retreats to the second floor. Along comes a police officer in a motor boat. "Get in, now! The water is rising fast!" The man says "I have faith that God will

save me. Go help someone else."

Now the man's on the roof. Everyone else in town has evacuated. Along comes a helicopter searching for anyone stranded by the flood. They spot the man on the roof and go in for the rescue. They say to the man "It's a good thing we found you. Get in!" Once again the man says "No! God will save me. Thank you but I don't need any help."

Right about then, the house collapses and the man is washed away and drowns. Now in heaven, the man is standing before God and asks "I had faith that you would save me. Why did you let me drown?"

God replies "I gave you fair warning, sent a car, then canoe and then a motor boat. After that I sent you a helicopter. What more did you expect?"

You see, the man expected God to intercede and for the water to recede. That was the only solution he would accept for his problem.

Think about some of the *problems* we've seen over the years in this industry: we can start with the introduction of front-wheel-drive cars. Then we saw the consolidation of parts companies, the introduction of remans, 0% financing for new cars, transmissions that last

200,000 miles, the 100,000 mile dealer warranty and internet shoppers, to name a few. With each of these there were shop owners that "retreated to the roof" while others found a way to overcome these problems.

Today, the greatest challenge we face as an industry is finding technicians to do the work: Rebuilder, R&R techs, diagnosticians, they're all in demand and it seems that they're nowhere to be found.

The interesting thing though, is that as we've opened ourselves up to solutions for this, it seems like they're just appearing from nowhere. Contacts with schools, an understanding of the next generation of techs, creating a program and syllabus, online training and now... a virtual-training platform that promises a modern way of training the next generation of technicians.

Just like every hurdle we've faced in this industry the solutions come easier when we're open to new ideas. Here at ATRA we're not waiting for the water to recede, and neither should you. We have some great ideas that we'll share in the months ahead and reveal at this year's Powertrain Expo. See you there!



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## THE WORD ON THE STREET

# A SERVICE ISN'T JUST A SERVICE ANYMORE



by Mike Souza  
[members.atra.com](http://members.atra.com)

Back when the first quick lube facility started showing up, my first thought was that this is going to affect our business. Customers will go these shops to save money for not only engine oil changes, but also transmission services.

It can also open a can of worms for the transmission industry. One of these service centers opened up just down the street from our shop and within a month they came to us with a problem. We were friendly with all the shops in the area and didn't refuse anyone who needed help, even if they were our competition. If another shop needed a part we would lend it to them and they would replace it right away.

Well, this quick lube shop had just serviced a Mazda with an F4A-EL (single pan) and now it wouldn't move, so they asked if we could take a look at it. They towed the vehicle to us and we dropped the pan to discover they'd installed the wrong filter. It was a shallow pan 2WD and they installed a deep pan AWD filter (figure 1).

Of course there was no way for the pump to get oil with the pan pressed against the filter inlet. At first we told them it was going to cost \$1200 dollars to fix it. After they freaked out for a few seconds we told them it was only the wrong filter. How they got the pan on with that filter is beyond me.

There are other issues, such as flushing machines being used to service vehicles with internal filters, such as Acura, Honda, and the CD4E

transmissions to name just a few. After servicing one of these units, especially with high mileage, the new fluid may loosen some of the caked-on debris inside the transmission and restrict the internal filter. It doesn't take too long either. Then the customer has to have the vehicle towed to a local transmission shop.

Not that there's anything wrong with using a flushing machine to perform normal maintenance on a transmission of this type, as long as

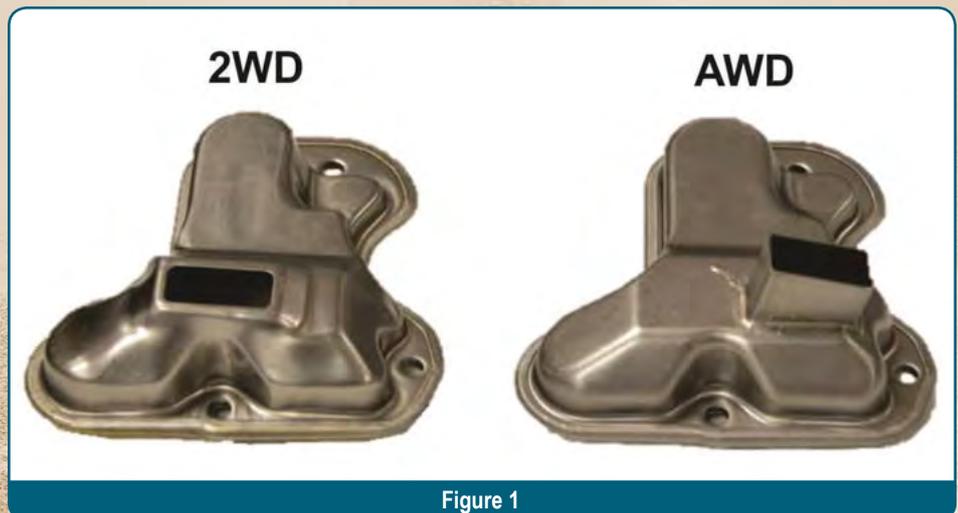


Figure 1



Figure 2

it was performed right from the beginning at low mileage; not when it's never been serviced and it has 130,000 miles and burnt fluid.

Not too long ago, several new Subaru Lineartronic CVTs had differential failure after a visit to one of these quick lube facilities (figure 2). When they had the cars on the lift, they removed and replaced every drain plug they could find.

The problem was they only refilled the transmission section of the unit; they didn't see the fill plug for the differential because it's partially hidden by the axle (figure 3). Otherwise we don't hear about too many failures on this transmission.

Another issue has to do with some offshore aftermarket filters showing up in shops everywhere. Some of these poorly made filters have the filter media getting sucked up into the pump inlet and blocking off pump flow (figure 4).

This has become a common call to the HotLine, so beware of filters with no brand name markings on the filter body. The symptoms are usually similar to a restricted filter. The complaint is the vehicle stops moving when it gets hot; then, if they turn the engine off for a few minutes and then restart it, the vehicle moves again for a short distance and stops.

There have been some odd symptoms, like no reverse when hot on some Toyotas, such as the U140E, when the original screen type filter is replaced with an aftermarket, cloth

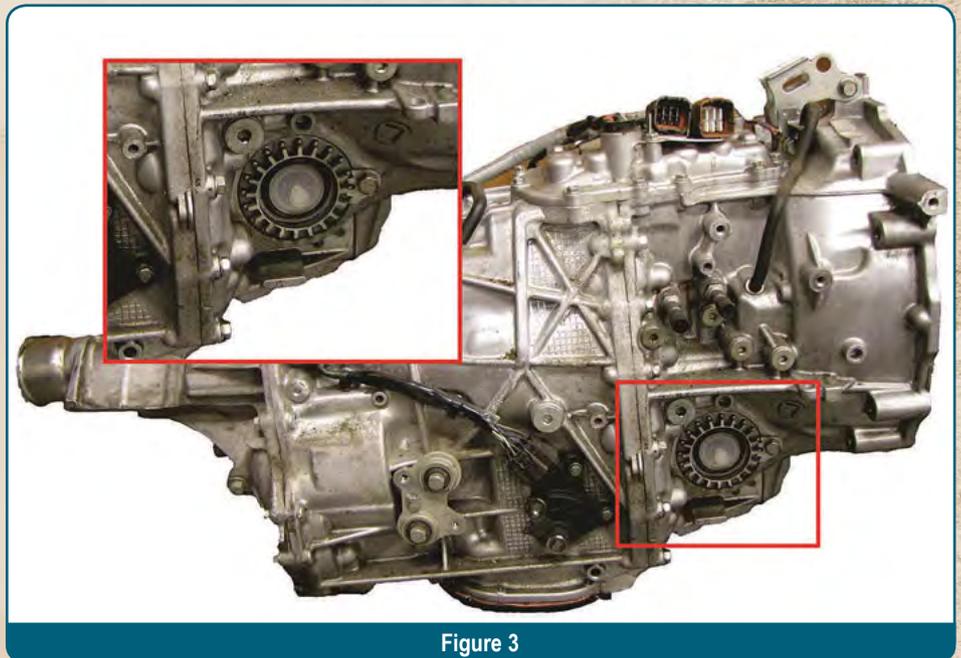


Figure 3

media filter. You may not see the media pulled up into the pump inlet when you remove the pan and inspect the filter.

The most recent problem found on the ATRA HotLine has been with GM 6T40/70 and Ford 6F35/50 transmissions. On the GM transmissions, code P0218 (Transmission Fluid Over Temperature) may set shortly after a transmission service. This may occur whether it was serviced in a transmission shop or quick lube.

With the GM models the only issue beside the code may be fluid leaking out the vent. On the Ford 6F35/50 models it's a bit more



Figure 4

catastrophic: Along with code P0218 the transmission may have already melted down, and I do mean melted down: Here are some photos from a 6F35 that we received from a transmission rebuild facility that was

**A Service Isn't Just a Service Anymore**

only serviced a few days before the problem occurred (figures 5a-5d).

As you can see, some of the plastic components actually became so hot that they liquefied. Plastic was found inside the valve body springs and thrust bearings. On both the GM and Ford units, this is caused by the transmission being overfilled.

The reason? The expansion rate on the synthetic fluid in these units is very sensitive to heat, and can easily be mistaken for being only slightly overfull, when just a 1/4" over the full mark may actually be 3 to 4 quarts too much.

Ford has a TSB for the 6F35 for an updated dipstick (fluid level lines; figure 9) and revised filler tube venting to prevent overfilling. The complaint on these units was fluid leaking out the filler tube. This information, along with the new dipstick and filler tube part number, was covered in ATRA bulletin ATB1563, which applies to some 2009 Escapes and Mariners built on or before 10/29/2008.

Maybe the most important consideration when it comes to performing a transmission service is that most of the lube technicians at the nearby quick lube don't know what they're looking at. To them, it's just one more oil to drain; one more filter to replace.

But as we all know, that transmission service can tell you a lot about the condition of the transmission. And it takes an experience transmission technician to examine the oil and the sediment in the pan, and know whether it's okay to go ahead with a service... or to refuse it, because there's just too much damage evident.

Even though we weren't talking about it in this article, don't forget how important it is to use the correct fluid. That could be an entire article itself. So remember: Be careful, because, in today's market, a transmission fluid service is no longer just a service.

Special thanks to Bill Anthony from TDE for the photos of the 6F35 parts.



Figure 5a



Figure 5b



Figure 5c



Figure 5d

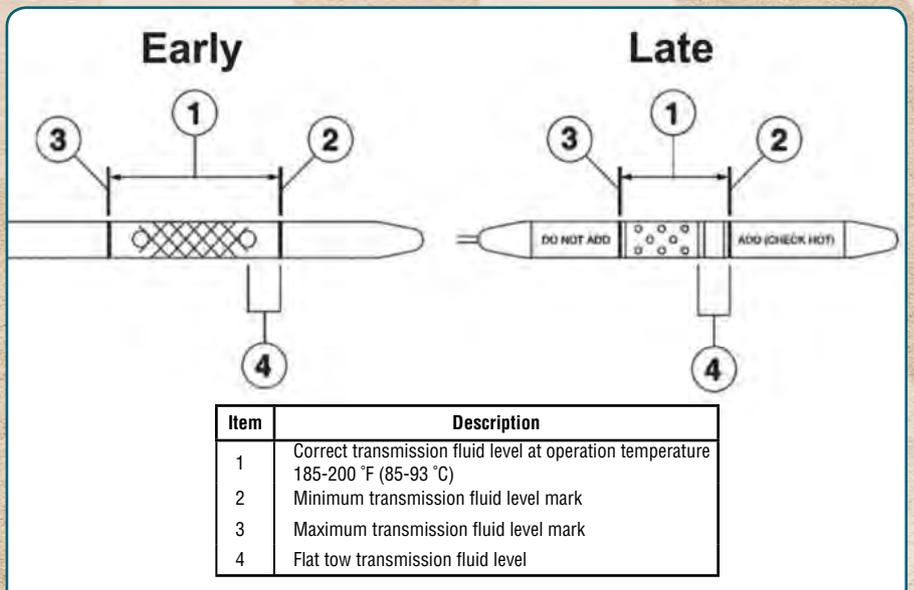


Figure 6

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# Computer Communication Troubles, PART I



by **Scott Shotton**  
THE DRIVEABILITY GUYS

**M**any of you have probably run into speed sensor issues on a Chrysler product that set gear ratio error codes, input shaft speed sensor codes, or output shaft speed sensor codes. These codes confuse the transmission control module (TCM), putting the system into failsafe. But there are many issues that can cause this. Lately, network communication issues have become a common problem.

Today's vehicles have several modules that are responsible for multiple functions. These modules have to be able to communicate with one another to operate properly. Think of it like an auto repair shop: The customer communicates with the service writer, the service writer communicates with the technician, and the technician performs the repairs. This chain of communication may change direction multiple times during a single visit to the shop.

How is this different from a PCM, TCM, or another module involved in engine or transmission operation? For this fictitious shop to function effectively, we need two things: the individuals involved need to be awake and they have to be able to communicate with each other. Vehicle modules are no different.

Module communication problems are usually a surprise. The customer's complaint is never "My car's computers aren't talking to each other." Your first clue that there's a communications issue comes after you plug in a scan tool. At that point your diagnostic path changes drastically.



*A quick check of the service information shows that pin 11 in the RCM connector C310a is the ISO 9141 network.*

5	-	not used
6	-	not used
7	-	not used
8	-	not used
9	-	not used
10	-	not used
11	70 (LB/WH)	ISO 9141 link
12	937 (RD/WH)	Voltage supplied in Start and Run (overload protected)
13	-	not used
14	-	not used
15	608 (BK/YE)	Air bag indicator, control
16	1203 (BK/LB)	Electronic module logic ground

Figure 1

## Reason #191

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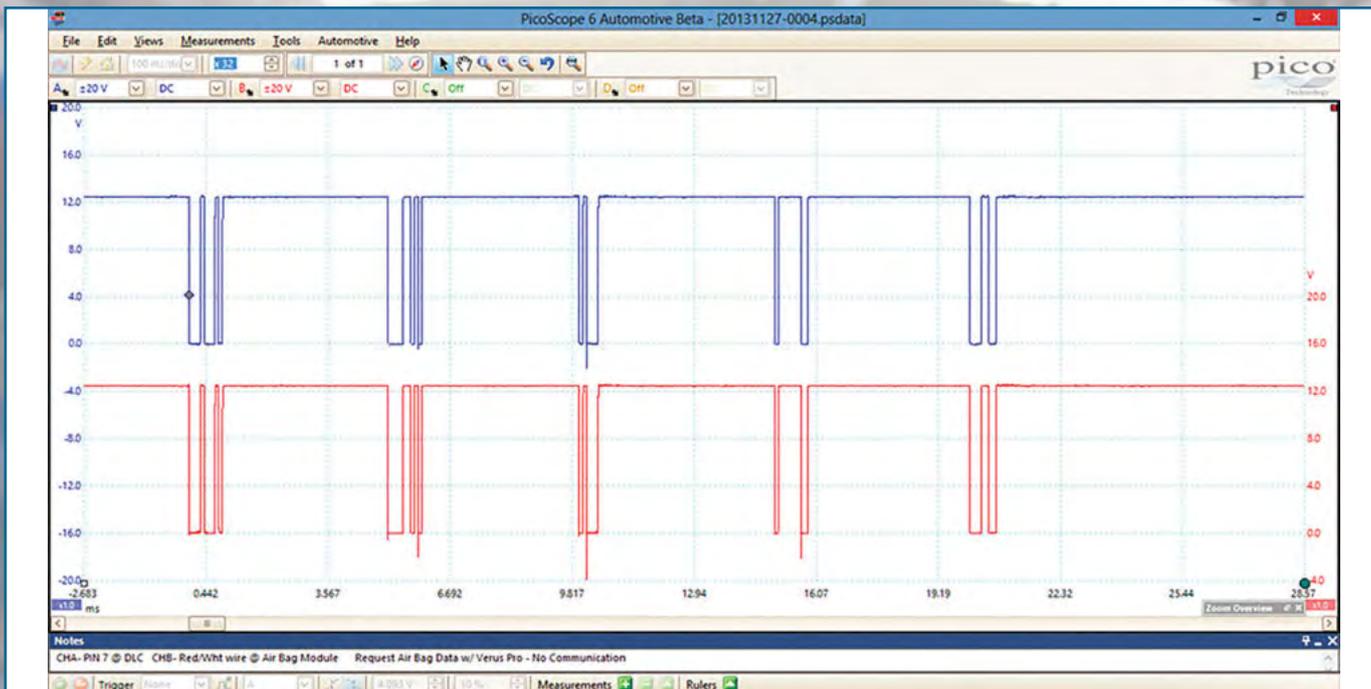


Figure 2: The scope capture shows channel A (blue) connected to the DLC and channel B (red) connected to pin 11 at the RCM.

Network issues can instill fear in some technicians. That could be because they don't understand the system or have a clear path to proceed. But communication issues are relatively easy to solve... if you understand what's going on.

Returning to the shop analogy, employees in the chain needed to be awake and be able to talk. For a module, this equates to three simple things: The first two are a good source of power and ground, so the module's awake and functioning. The third piece is the ability to communicate. You can test all three of these requirements.

There are also three common forms of network communication problems to keep in mind:

1. A single module is off line.
2. Multiple modules are off line.
3. All modules are off line or the whole network is down.

All three of these situations are usually accompanied by "Uxxxx" codes that may or may not be useful for diagnosis. Let's start with the first issue from our list: One module is off line. In this case we'll look at a 2006 Ford E350 van with a 5.4 liter engine.

The van came in with the airbag light on. The technician connected the shop's Snap-on Verus Pro; the restraint control module (RCM) wouldn't communicate with it. At this point



the technician was overwhelmed and started throwing parts at the van. First he replaced the RCM. That did nothing to correct the problem.

Now let's approach the problem logically and test the three pieces necessary for the module to function: power, ground, and communication.

One of the first steps in diagnosing a network issue is to try to communicate with the module or modules. In this case, communicating with the air bag module isn't possible with generic OBD-II tools. But the shop's Verus Pro should be capable of communicating

with it.

The technician tried to communicate with the module using the Verus and the Ford IDS tools. Neither made contact. Checking communication with the remaining modules on the vehicle is just as important. In this case, all of the other modules in the vehicle would communicate with both tools. That means we're dealing with a "one module is off line" issue.

The next step is to test the three things the RCM needs to function. The module sits under the driver's seat and was already removed for replacement.

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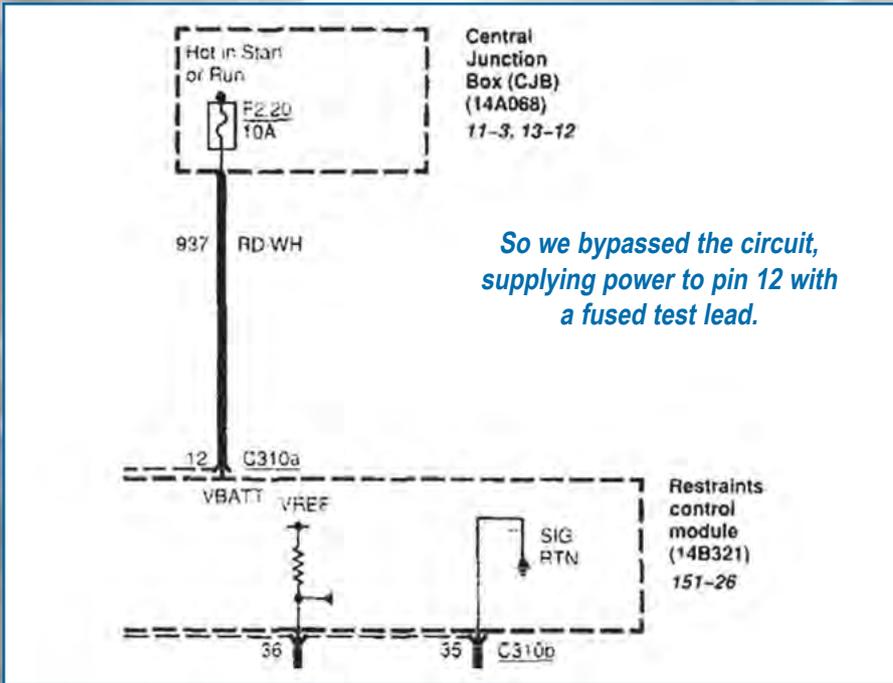


Figure 3

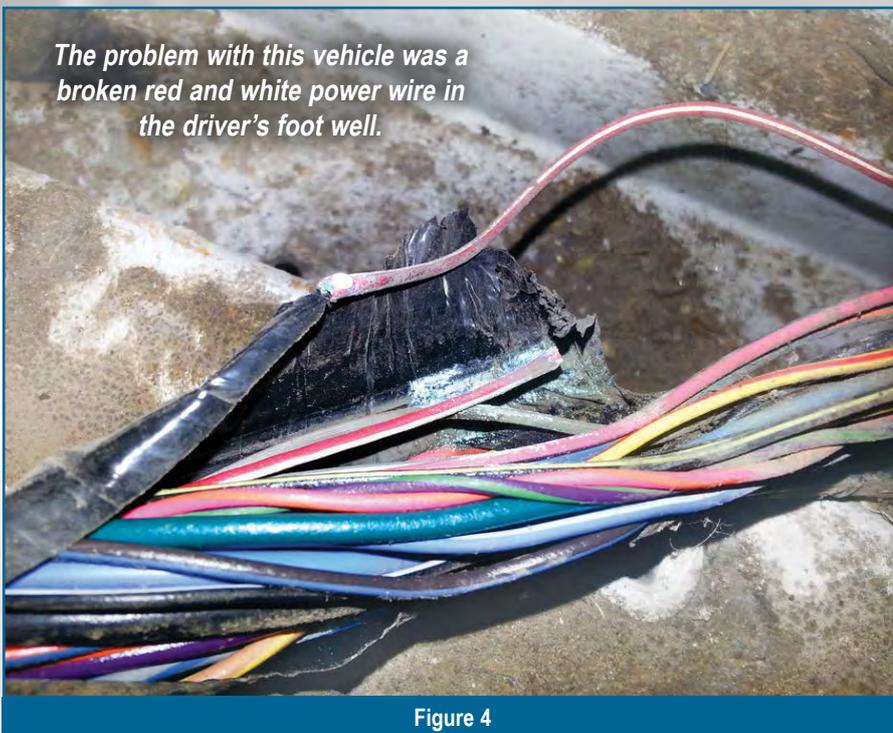


Figure 4

A quick check of the service information shows that pin 11 in the RCM connector C310a is the ISO 9141 network (figure 1). This light blue and white wire connects to pin 7 in the DLC to allow it to communicate.

A useful technique to check for communication is to connect a scope to the network wire at the DLC and the module's communication pin. The scope capture (figure 2) shows channel A (blue) connected to the DLC and

channel B (red) connected to pin 11 at the RCM. We're using the scan tool to activate code retrieval from the RCM.

The scope display shows communication signals at both ends of the network wire. We can't tell what the module's saying, but we can see that it's trying to say something. As long as we continue to see good digital signals that achieve the proper high and low levels, we have network integrity.

In this case the communication is the scan tool attempting to talk to the module. The voltages are correct and the RCM isn't responding.

Next, we'll check for power to the RCM. The wiring diagram shows a single red and white power wire that feeds pin 12 in connector C310a. Since the module is currently accessible, we can check here for power.

We used a headlamp to check the circuit, but it doesn't light. Connecting a headlamp loads the circuit; if the circuit has too much resistance or a voltage drop, the bulb won't light. A voltmeter confirms there's no voltage at the RCM.

The next step would normally be to check the fuse. But the fuse box is tucked high up under the dash and Ford likes to number their fuses rather than label them, which makes fuse identification a little harder. So we bypassed the circuit, supplying power to pin 12 with a fused test lead (figure 3). That restored communication.

So now we need to find and test the fuse. The fuse is good and has power through it. Another check of the wiring diagram shows the power wire has a short run from the left side of the dash to beneath the driver's seat. Time to dig in and find the bad spot in the wire.

Before we dig in, do we need to check the third piece of the puzzle: the ground? No, because if the ground were faulty, jumping power to the module wouldn't have restored communication.

The problem with this vehicle was a broken red and white power wire in the driver's foot well (figure 4). After removing the trim and a little bit of tape, you can see the severed wire, complete with the usual green science project.

The diagnosis on this van was relatively quick and easy because we followed a structured approach:

1. Determine that only one module won't communicate.
2. Check the communication wire.
3. Check for power.
4. Check ground (not necessary in this case).

In part II, we'll examine a technique for diagnosing a vehicle where multiple modules are off line.





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## KEEP THOSE TRANNYS ROLLING

# THE FUTURE OF AUTOMATIC TRANSMISSIONS

In this issue, we're going to look at what the future holds for the automatic transmission industry.

### FUEL ECONOMY DRIVES THE INDUSTRY

Since the introduction of the Corporate Average Fuel Economy (CAFE) standards in 1975, automakers have been at odds with the U.S. Department of Transportation (DOT) and the Environmental Protection Agency (EPA) to improve the gas mileage in cars and light trucks (trucks, vans and sport utility vehicles) produced for sale in the United States.

Mandatory fuel economy regulations were first introduced in 1978 for passenger vehicles and in 1979 for light duty trucks. The average CAFE standard for 1978 passenger cars was 18.0 MPG; for light trucks in 1979 was 17.0 MPG. CAFE standards increased over the years to a point where the average passenger vehicle had to deliver 27.5 MPG and an across the board average of 23.5 MPG (including the average light duty trucks) by the year 2010.

On July 29, 2011, the federal government announced an agreement with thirteen large automakers to increase fuel economy to 54.5 MPG (depending on the vehicle footprint) for cars and light-duty trucks by model

year 2025. These CAFE fuel economy standards are driving the automakers to produce more fuel efficient vehicles.

### PRODUCING FUEL EFFICIENT VEHICLES

With the tightening of the CAFE standards in 2011, automakers had to break new ground while designing today's vehicles.

They installed computer systems to control engine operation, fuel injection systems to control the fuel delivery, and computer controlled transmissions to control shifting, all to meet the stricter CAFE standards of 2011.

By controlling the engine and fuel injection systems, automakers have been able to get the most out of their engines, but that wasn't enough to keep up with CAFE standards. Automakers had to come up with something else to meet the new, stricter standards. That's when they decided to look at increasing transmission gear ratios.

### INCREASING GEAR RATIOS

In the early '70s, it was fairly common for a vehicle to have a three-speed automatic transmission. In the '80s, the four-speed automatic transmission was common in most vehicles. As the '90s rolled through, we saw a



by Pete Huscher

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few five-speed automatics, but the four-speed automatic transmission was still in most vehicles.

By the early 2000s, most automotive manufacturers started installing six-speed automatic transmissions into their vehicles in an attempt to meet the 2011 CAFE standards. As time moved on and the CAFE standards have become even stricter, automakers continue to make advances in automatic transmission design. The four-, five-, and six-speed automatic transmissions of the past won't cut the mustard for today's CAFE standards.

Today's automakers had to scramble to design new automatic transmissions to meet and exceed the 2016 CAFE standards... and beyond. Most automakers are looking into adding even more gears. Seven-, eight-, nine-, and ten-speed automatic transmissions are on the road or in the works.

Let's take a moment to look at some of the new design automatic transmissions that are on the road today or will be in the near future.

## NEW DESIGN AUTOMATIC TRANSMISSIONS

**Seven Speeds** — The first new design automatic transmission we're going to discuss is from Mercedes Benz. In 2003, Mercedes Benz introduced the 7G-TRONIC seven-speed automatic transmission (figure 1).

The 7G-TRONIC has seven forward gears and a reverse gear, and an efficiency rating of 85%. As impressive as that is, the 7G-TRONIC automatic transmission is already being replaced by the nine-speed 9G-TRONIC automatic transmission which we'll discuss a little later.

**Eight Speeds** — Next we'll look at the eight-speed automatic transmission. These aren't new to the automotive world: Toyota has been using eight-speed automatic transmissions in their Lexus lines for a couple years now, and ZF is producing eight-speed automatic transmissions to take the place of the ZF6HP automatic transmission.

The ZF8HP eight-speed automatic transmission (figure 2) is 11% more efficient than the ZF6HP series transmission. It's available in the BMW 760Li and 5 series GT models, the Audi A8, the Bentley, and the Rolls Royce Ghost.

Meanwhile, General Motors has its own eight speed automatic transmission (figure 3), known as an 8L80 or 8L90, depending on application. The 8L90 eight-speed transmission made its debut in the 2015 Chevrolet Corvette Z06 and the 2015 Cadillac Escalade. The 8L90 replaced its predecessor, the 6L90, in the 2015-up Chevrolet Silverado and GMC Sierra and Yukon.

**Nine Speeds** — Daimler broke the mold and designed the first nine-speed automatic transmission for Mercedes Benz. The 9G-TRONIC (figure 4) debuted in the 2016 Mercedes Benz E350 Bluetec. It was designed to replace its predecessor, the 7G-TRONIC, and has an

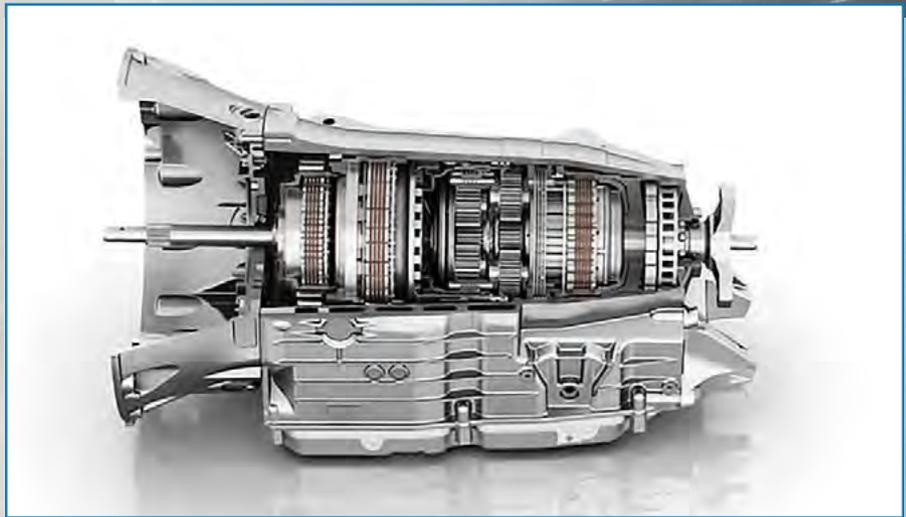


Figure 1: 7 G-Tronic Transmission

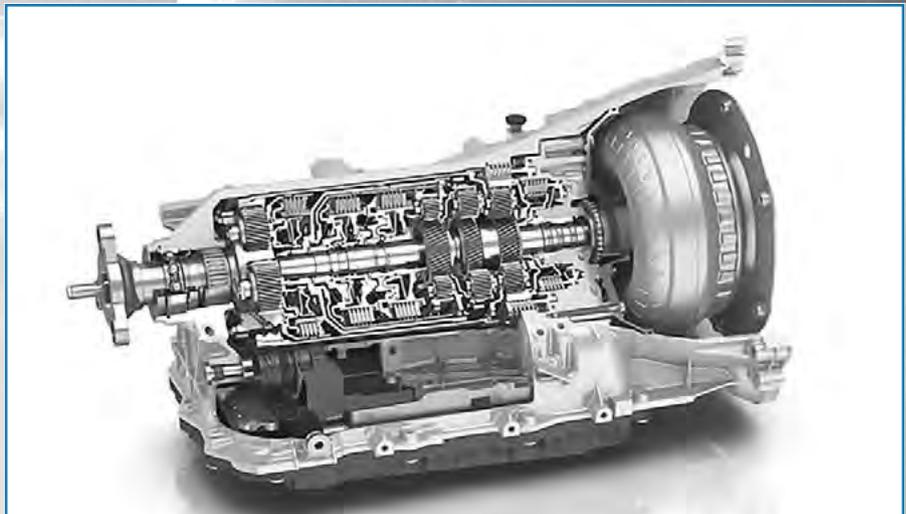


Figure 2: ZF8HP Transmission

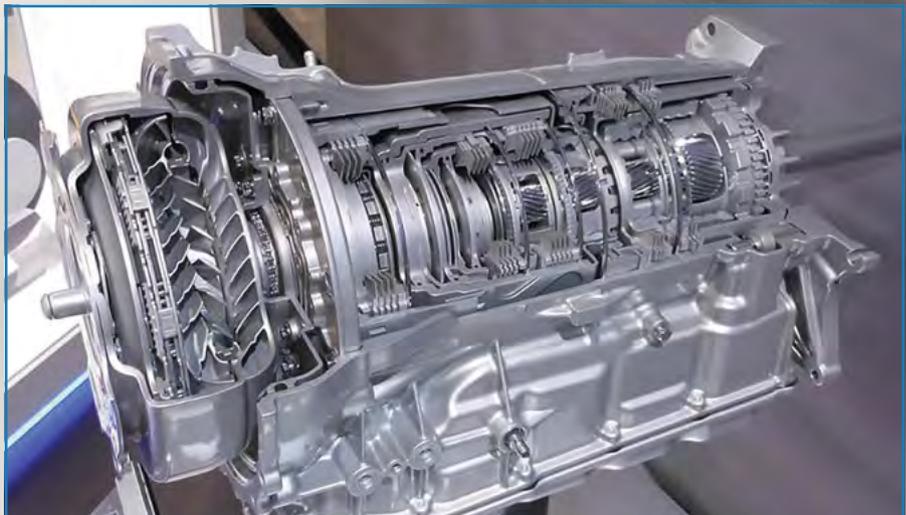


Figure 3: 8L80/90 Transmission

efficiency rating of almost 92%, which makes it 7% more efficient than the 7G-TRONIC.

**Ten Speeds** — In an effort to meet 2016 CAFE standards, Ford

Motor Company and General Motors co-developed a ten-speed automatic transmission for their next generation rear wheel drive trucks and passenger car lines. This is the third time in the

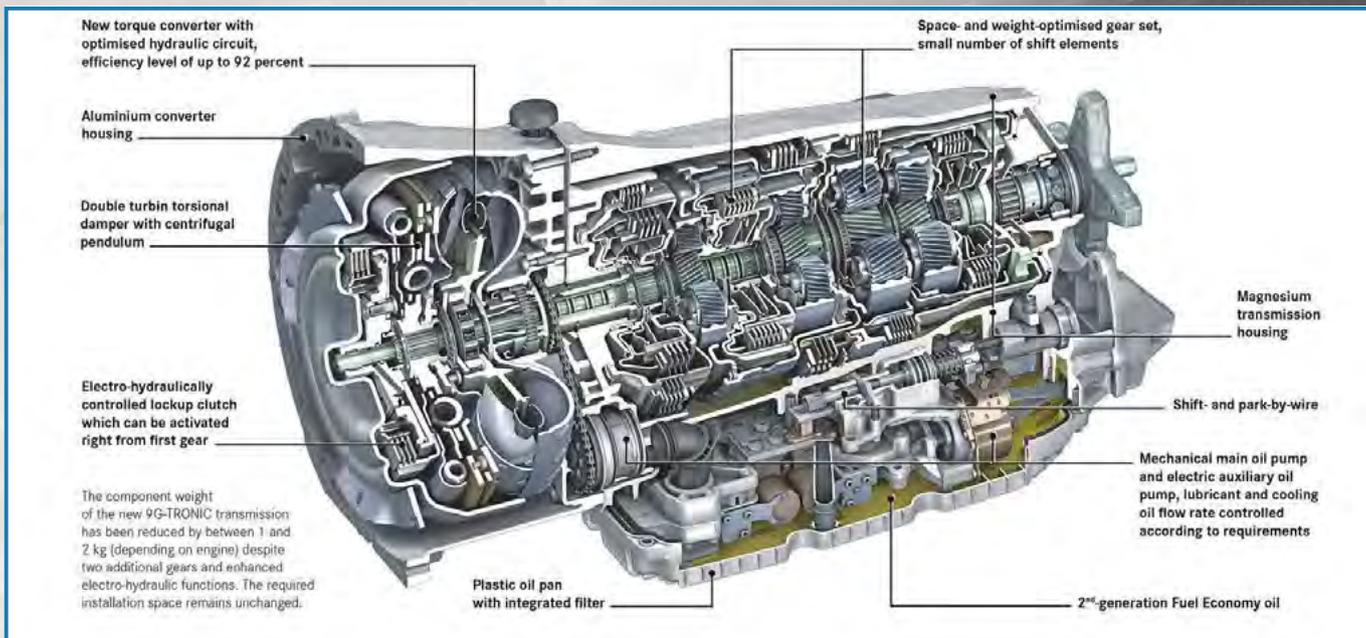


Figure 4: 9 G-Tronic Transmission

last decade that Ford and GM teamed up to build a transmission.

Each company manufactures their own transmissions in their own plants, but the transmissions have similar components. Ford released the ten-speed automatic transmission (figure 5) in the 2016 F150 Raptor. General Motors released its ten-speed automatic transmission for production in the 2016 Silverado and Sierra truck lines.

### WHAT'S NEXT?

With Ford and GM producing ten-speed automatic transmissions, you might be wondering, what's next? Well, just to give you a little insight, Ford has requested a design patent on a new, rear-wheel drive, eleven-speed automatic transmission (figure 6). Just think: eleven forward speeds!

Well, there you have it: a quick look at what the future of automatic transmissions may hold for you. With the development of new design nine-, ten- and eleven-speed automatic transmissions, the automakers are on their way to meeting and even exceeding the latest CAFE standards.

With a better understanding of what's coming down the road, you should have no problem keeping those trannys rolling.

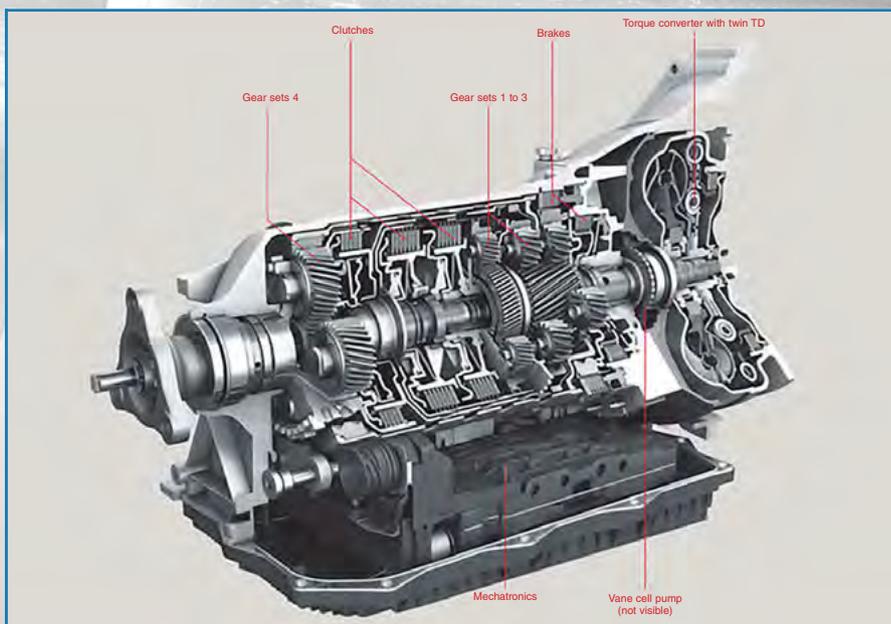


Figure 5: 10L/10R Transmission



Figure 6: 11 Speed Transmission



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# DON'T BE DUPED BY FACTORY DIAGNOSIS...

by Michael Gutierrez

**W**e have a shop in Michigan where we work on just about anything. We keep up with training and try to learn as much as possible about newer vehicles and testing. Sometimes it doesn't matter what you do; sometimes the factory dupes you without trying.

Here's what happened: A shop we work with brought us a 2007 Dodge Charger. It came in "not shifting right." There were no transmission codes in memory, but there was a code for a wheel speed sensor in the ABS computer.

I test drove the vehicle with the scan tool connected and proved the commands from TCM were inconsistent and erratic. Still no codes except for an ABS code — something about no signal from the rear wheel speed sensor.

We inspected the rear speed sensor and found it disconnected. We connected the sensor, cleared the code, and drove it again. Almost immediately the transmission computer set code P0731 — incorrect gear ratio. Because Dodge doesn't use an output speed sensor on the transmission, the transmission computer calculates output speed from the wheel

speed sensor signal, and uses that and the N2 and N3 sensor signals to determine ratio. Since the ABS is the primary module for the wheel speed sensor, that code needed to be fixed first.

We decided to check the PIDs using the scan tool: The PIDs Dynamic Engine Intervention and Reduction Request Engine Intervene were being activated during a shift attempt, followed by failsafe.

The fluid was full and clean and there were no bulletins pointing to this condition. We decided to



send the vehicle back to the original shop and have them reprogram the TCM or other modules and reset the parameters.

Unfortunately there were no reflashes available and all seemed right with the modules. Here is where the true story begins. We have a code P0731; all diagnostic routes say its one of four possibilities:

1. Pinion factor isn't set properly
2. Low transmission fluid
3. Other transmission DTCs present
4. Internal transmission failure

I called the other shop and asked if they had reset or confirmed the Pinion Factor; they did. I already checked the fluid level and it was clean. There were no other DTCs, so that only left an internal transmission failure.

We've all seen these ratio codes caused by internal parts; a torque converter is the most common. I found it interesting that it only set it in first gear and after moving just a couple feet.

I cleared the code and used the paddle shifter to see if the code would come back. Not only did it come back, but it tripped a ratio code in all five gears! Knowing the code now happens in all gears gave me an edge in this problem. It had to be a gearing problem in the transmission or a problem in the rear end: either tires or differential.

I thought I knew what the pinion factor term was, I mean it goes back to the late 1980's. But it wasn't until I dug deeper to find out how it's used with the 722.6.

Originally the TCM would calculate vehicle speed by using the output speed sensor and then calculating in "pinion factor" which was the final drive ratio and tire size to simulate the old speed sensor signal.

With the early CCD and PCI bus systems, we still needed a hardwired speed sensor signal to the PCM in order to accurately maintain the speed control. The Speedometer in the cluster could rely on a slower bussed message. Later models when CAN bus was introduced, this was fast enough to rely on a bus message for both speed control and speedometer operation (along with any other modules that needed to know MPH).

Once we had a fast enough bus circuit, we could eliminate the hard wire circuit and that was

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about the time that ABS became standard equipment so we could convert everything over to using the ABS wheel speed sensors for all vehicle speed signals. The ABS module bussed the message to the other controllers over CAN C. ABS module only needs to know tire size to calculate MPH.

Where a new twist was added was with the Mercedes 722 where this transmission has no output speed sensor signal, so it now works in the other direction where if we know axle ratio and tire size, we can calculate output shaft speed which the TCM needs.

So for a ratio error, the TCM knows input speed from N1 & N2 speed sensors and is bussed the MPH reading and calculates output speed comparing this to a known parameter. When the value exceeds that parameter, then the TCM will set a gear ratio error. Assuming it's getting a correct MPH reading, this would typically indicate something is slipping in the transmission.

So with most CAN bus vehicles, the gear ratio is based on build configuration and sales codes programmed into the gateway module (usually the TIPM or BCM). Tire size is still programmable with a scan tool on many vehicles, but to change gear ratio would require a sales code change.

As long as it's a factory available tire size or axle ratio that we certified and sold the vehicle with, then you can program a different tire size via our scan tool. Changing sales codes for axle ratios is more difficult and typically not recommended.

Pro-Cal and some of the aftermarket companies do make modules or software to do this, but they usually get around the legal side with a disclaimer that this is for off road use only.

Now that I had an understanding of how the Pinion Factor worked I looked into how the code sets. It uses five modules to make this transmission shift correctly and all five must match inputs and outputs. The TCM (Transmission Control Module), ECM

(Engine Control Module), ABS (Anti-Lock Brake System), FCM (Front Control Module) and ESM (Electronic Shifter Module) are all directly relative to transmission operation.

The Transmission Control Module (TCM) constantly calculates the transmission ratio based on the input speed sensor 1 and 2 (N2-N3) signals and the calculated output shaft speed. This lets the TCM determine whether the transmission is slipping or an invalid gear ratio is present.

The TCM monitors all ratio codes when the engine is above 450 RPM, there are no N2 or N3 input speed sensor errors, no gear selector lever errors, no ABS system errors, and vehicle speed is above 10 km/h (6 MPH).

Here are the conditions that will set this code:

- No shifts and actual gear isn't the target gear.
- No shifts; actual (calculated) gear is less than target (expected) gear, no plausible gear is calculated, actual (calculated) turbine speed is greater than 300 RPM, or calculated transmission ratio is above threshold.
- During an upshift, actual (calculated) gear is less than target (expected) gear.
- During a downshift, actual (calculated) gear is greater than target (expected) gear.

This just didn't seem right. Something was wrong but I couldn't put my figure on it until the test drive with the paddle shifter. If this were only a 1st gear problem, it should only have set one code.

I located the Pinion Factor reset with my scan tool. Tire size and pinion factor programming is done through the TIPM/FCM (Totally Integrated Power Module/Forward Control Module). There's a setting on the factory scan tool under Miscellaneous.

If you're changing axle ratio it gets more complicated. It may require a sales code change if the axle ratio isn't listed on the scan tool, and then restore vehicle configuration with the scan tool. As long as you maintained

the stock axle ratio, you should be fine with the new differential; you'll just need to verify the tire size.

The 722.6 transmission uses vehicle speed for output speed, so if tire size or axle ratio is incorrect, the computer may set P0731. I called my buddy's shop and they called the customer: Turns out the car had been in a rear-end collision. When I heard that I decided to run the VIN though the dealer to see exactly what it was supposed to have.

The dealer information came back for a 2007 Dodge Challenger, 3.5L, W5A580 (NAG1/722.6), 2.64 differential and P215/65R17 tires. First thing I did was check the motor and transmission. Then I checked the tire size and the differential. Found it!

The differential was a 3.64 ratio, which belongs with the 5.7L; not the 3.5L. We had the differential changed out and the problem was solved.

There would have been no way of knowing about the differential problem if I hadn't learned that the vehicle was in an accident. Think about it: If this vehicle came into your shop with this code and you reset the pinion factor for the proper tire size, and reflashed the TCM to the right VIN, and still had the ratio code, you'd probably have gone into the transmission. From there it would have been a wild goose chase.

I hope this helps someone else who runs into a similar problem: Make sure you have the correct parts on the vehicle. You better believe I'll be doing that from now on!



#### About the author

*Michael Gutierrez started his career in 1994 as a mechanic at Tuffy. He then moved to a Chevrolet dealership, which started his path to specializing in transmissions. From there he was hired at Pine & 17th Transmissions in Holland Michigan and has been diagnosing and rebuilding there for the last 22 years.*

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## RE4R01A Shift Correction Package



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**Sent:** Thursday, June 16, 2016 12:14 PM  
**To:** Transmission Builders  
**Subject:** STL-RE5 Benefits  
**Importance:** High

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What does it take to successfully repair an RE5 now?

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# More than a Scan Tool to Diagnose an Acura



by Rob Faucett  
[members.atra.com](http://members.atra.com)



Figure 1

Any one that knows me will tell you, I love tools. Every time the trucks pull up to the shop, it feels like Christmas. The best thing about them, they make life easier on me, and having the right tool can make the difference between getting a job out the door today, or fighting with it for a week.

The fact that the best tools are very expensive, especially electronic diagnostic equipment, makes most people reluctant to purchase them. As for me, I know I will be in debt to Snap-on for the rest of my life, and will gladly pay the fifty dollars a week for all the new toys, oops, I mean tools.

Recently I got a call about a 2000 Acura Integra with erratic shifts and code P0730 (improper gear ratio). The technician had been working on it for over a week, using the most common and extremely expensive scan tool on the market. But the scan tool could only retrieve codes and had no option for data stream at all.

Having no data stream is a huge problem. It leaves you with only one option for diagnosis: backprobing sensors and solenoids, one at a time, in the hopes of finding the source of the problem. This can be a very tedious and time-consuming task.

After checking clutch pressures, manually checking solenoid commands, checking wires, and so on, he called me and asked if he could bring the vehicle over for me to check it out.

Though I have the same scan tool he had, I also have the Maximus 2.0 from Matco with the Launch software (figure 1), which I've found useful for import and European vehicles; second only to the OE scan tools and software.

It's always a good idea to have more than one scan tool available. And they don't all have to be expensive: I've seen times when a simple code reader was able to retrieve codes when the high-priced scan tools said there were no codes present.

We had several PIDs to look for in the transmission computer (figures 2 and 3). We took the vehicle for a test drive, watching everything in graph mode, and recording data. Within five minutes we noticed the countershaft speed sensor didn't have a stable signal and would intermittently drop to zero. Honda sensors rarely fail, so my first thought was the erratic signal was probably a wiring harness issue.

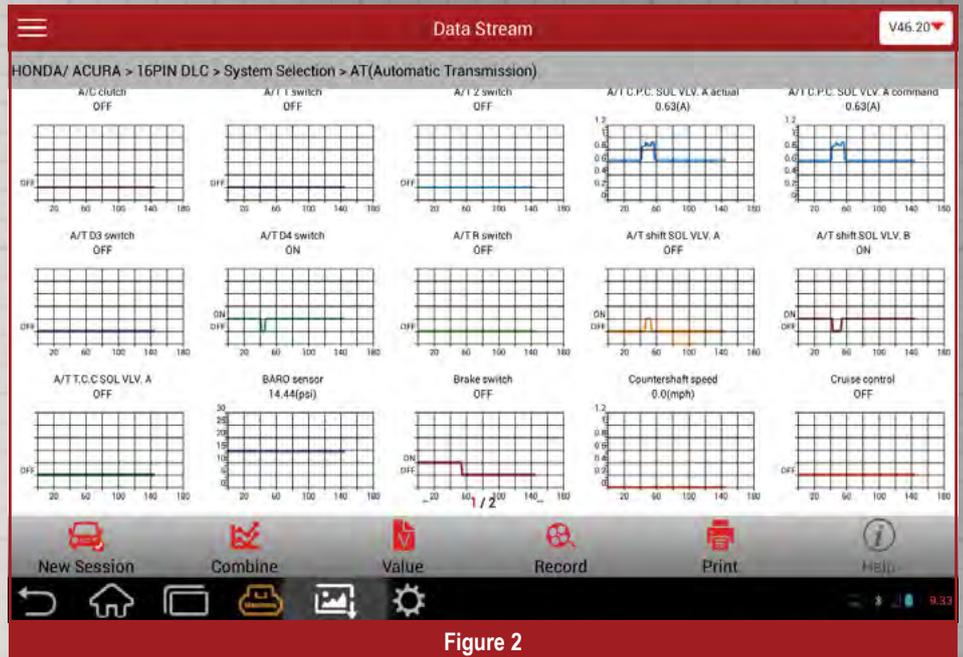


Figure 2

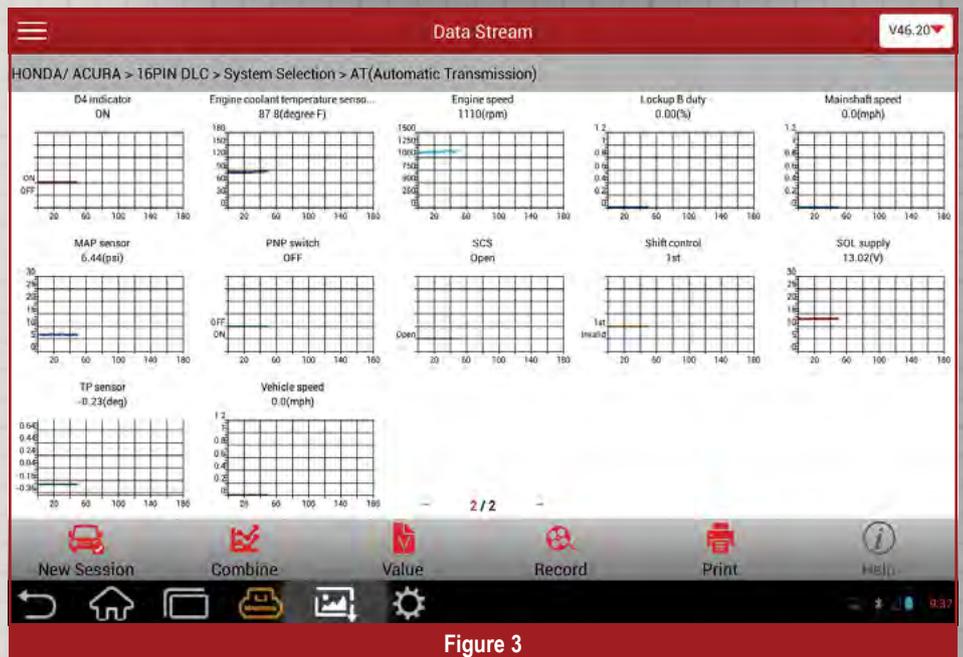


Figure 3

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Figure 4

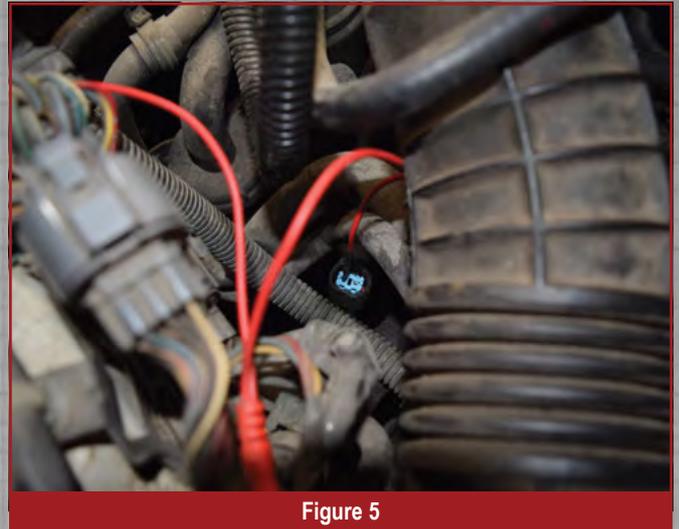


Figure 5

After returning to the shop, we got out a sensor signal simulator (figure 4). This tool simulates predefined or user drawn signals. And it's easy to use:

- Probe the sensor signal wire (figure 5).
- Connect the sensor simulator to the sensor signal wire.
- Key on, engine off.

Now you can monitor the signal on your scan tool.

With everything connected, we could see a steady signal coming to the computer. Next step, wiggle test. Check that out (figure 6)... a dropout in the signal. This confirmed my suspicion of a damaged wire, and even narrowed down the location.

Turns out someone else had been working on the vehicle and damaged the wire harness under the intake manifold. We repaired the wire and took the car for a test drive to confirm the fix. That did it; total time spent? Thirty minutes. The time he'd have wasted — and money lost — diagnosing this one the hard way would have made a pretty good down payment for the right tools.

A sensor simulator can help you diagnose sensor problems in a wide range of vehicles, including Chrysler governor sensors, VLP sensors, and more. Some also have a multimeter function to check voltage, resistance, and frequency. It can save a lot of time and burnt fingers trying to backprobe connectors and sensors, and by feeding the signal straight into the connector

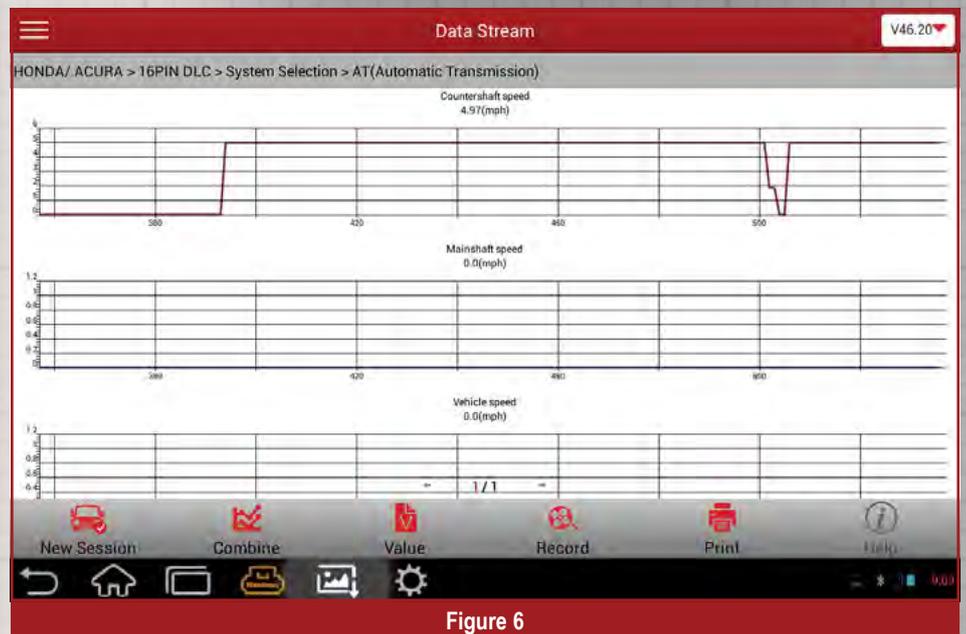
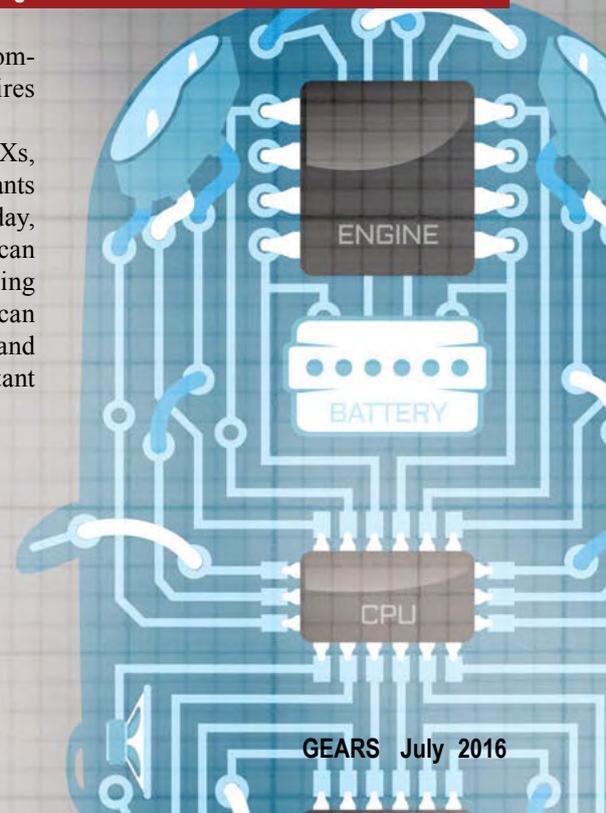


Figure 6

at the computer, you can verify computer operation, bypassing wires and sensors.

The days of the FMXs, Powerglides, and seat-of-the-pants diagnostics are long gone. Today, having the right diagnostic tools can be the difference between making money and spinning your wheels. Scan tools, shift boxes, oscilloscopes, and signal generators are just as important as sockets and wrenches these days.



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# **PAYOFFS: EVERYBODY WANTS ONE**

**U**p Your Business is an exclusive *GEARS Magazine* feature in which I share stories, insights, and reflections about real business and life challenges.

At this year's Powertrain Expo, I'm presenting a workshop entitled *Pea Soup: The Cure for Entrepreneurial Split Personality Disorder*. I've compiled some practical tools to conquer the two-hat challenge that I wrote about in the May 2016 issue. These tools will help you take your company exactly where you want it to go. You'll learn the secrets for managing things and leading people.

This month's article discusses another P-word: Payoffs. Payoff is a key ingredient in the "Pea Soup" recipe for entrepreneurial leadership. While the term payoff can have negative connotations and conjures up feelings of underworld connections or bribes, its meaning for this article is broader and more honorable.

## **DOES EVERYONE REALLY WANT A PAYOFF?**

Yes, everyone really wants a payoff. And I'd go as far as saying everyone *needs* a payoff. But payoff means different things to different people and under different circumstances. Let's look at some examples.

The word payoff immediately elicits thoughts of money, and yes, money is the most common form of payoff. Paychecks, bonuses, prizes, profits, etc., are all types of financial payoffs. But there are many other forms of payoffs. Let's look at just three examples.

1. Psychic income is the good feeling you get when you do an outstanding job. It's generally accompanied by some form of external acknowledgement or praise, but it can simply be the internal satisfaction that comes from a job well done... self praise, so to speak.



by Thom Tschetter

2. Positive strokes are another form of payoff. Similar to psychic income, these are the praises, awards (not rewards), and public appreciation you get. Positive strokes can come from your employer, your customers, your employees, your peers, your industry, your community, and so on. It's not unusual for someone to work harder and perform better in pursuit of positive strokes than for a bonus

or bigger paycheck. Be generous with showing appreciation and giving praise.

3. Another form of payoff comes when we celebrate the achievement of a goal. This is hopefully a shared celebration with all the participants involved in reaching the goal. It's important to include everyone involved whenever it's appropriate.

For example, if you're celebrating the completion of the construction and grand opening of a new facility, it's appropriate to include stakeholders, team members, suppliers, customers, contractor(s), lender(s), community, etc.

But if you're celebrating the accomplishment of a sales, production, or profit goal, it wouldn't necessarily be appropriate to include customers or others who aren't intimately involved in, or directly benefiting from, the internal financial affairs of the business itself.

## RADIO STATION WIIFM

WIIFM is an acronym for the question, "What's in it for me?" Whether you're willing to admit it or not, you're motivated by the answer to this question. It doesn't matter what fuels your passion and lights your fire; even the most noble of pursuits has a payoff. Benevolence provides a psychic payoff. Even martyrdom has a payoff or there'd be no martyrs. Everyone does whatever they do for a payoff of some kind.

In my previous article, *Let's Go Fishing*, I suggested that your passion

influences your vision for the future and ultimately shapes your purpose. I also proposed that you can enroll members of your team in sharing your passion by directly or indirectly aligning their passions with yours. If you missed that article, go back and read it in connection with this one.

It's ideal to achieve alignment of passion, vision, and purpose, but, in the real world, there are going to be times and circumstances in which you'll need to enlist others to accomplish objectives that aren't related in any way to their personal passions. In those instances, you need to answer their WIIFM question. And to do that, you'll need to figure out which form of payoff is important to them.

Similar to finding their passions, it requires the investment of time to build relationships with them. The amount of time can vary, but if you just pause and reflect on things you already know about them, you'll often figure it out.

Sometimes it's difficult to start a conversation about feelings and values. So, in no particular order, here are some conversation starters to help guide you to the answer to WIIFM for them. For legal reasons, unless they bring it up, don't discuss religious or political interests.

- I just wanted to sit down and talk to you about a couple of things. Don't worry, nothing's wrong; I just want to get a better idea about how we might make your job more satisfying for you.

- What do you like best about working here?
- What's one thing that would make your job more (satisfying, fulfilling, fun...)?
- This might sound like a crazy question, but besides getting a paycheck, is there any other reason you choose to work with our company?
- What types of things do you like to do outside of work... you know: evenings, weekends, and holidays? Which of these is your favorite?
- What types of family activities do you like to do?
- Are you involved in any groups, clubs, or \_\_\_\_\_?
- Is there anything we could do that would have a positive impact on your life outside of work?

By the way, you can use this same process to find the hot buttons with suppliers, bankers, customers, community agencies, wholesale accounts, shops that refer or sublet jobs to you, and anyone else you want to enlist to help achieve your goal. They all want and need payoffs, too.

Once you've determined the type of payoff that'll most likely fit the bill, take some time to think it through and put together a clear proposal that details expectations, objectives, and, specifically, what the payoff is for them.

Now put on your leadership hat and sell the plan to them. It's normally best to start off with what's in it for them and work your way back to what you want to accomplish and why



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it's important to you to accomplish it. Remember, unlike in *Let's Go Fishing*, this is for people who don't or aren't likely to share your passion. In this case, the payoff replaces shared passion, and, in essence, the payoff becomes your mutually shared passion.

### SOME REAL WORLD EXAMPLES

A general repair shop owner recently shared this unique situation with me: He had a friend who retired from a successful career as an airline pilot. Prior to becoming a pilot, he graduated with a degree in automotive engineering and had been a motorhead since he was a teenager.

The fellow asked if he could work at the shop as a diagnostic specialist. But he didn't want to get paid. In fact, he told the shop owner that if he paid him, he wouldn't cash the paychecks. He just wanted to do what he loved: diagnosing car problems.

They ultimately agreed to an arrangement that provided free car service and repairs for life in lieu of pay. I don't know all the other details, so don't ask me how they worked around the regulatory issues. The point is, for the retired pilot, his payoff was simply being able to pursue his passion.

Another example is with older adults who've retired or been forced to retire early and want to supplement their incomes by doing something that doesn't include the phrase "welcome to Walmart."

Currently, an individual drawing Social Security earlier than full retirement age can only earn \$15,720 per year without being penalized. This is just \$7.56 an hour over a 40-hour week. But you can juggle hours and hourly pay to come up with an arrangement that keeps them under the \$15,720 annual cap.

Others in similar circumstances might be interested in having access to health insurance benefits, because they don't get Medicare until they're 65.

We found that these types of individuals worked well in positions not directly related to production functions. For instance, at one point,

we had a bookkeeper, a porter, and an outside salesperson on our payroll for the then-prevailing Social Security maximum. They were thrilled to have their respective positions, and they were actually more reliable than others who'd held the jobs before them. They were also great team players and terrific sources of wisdom and suggestions from their experiences.

Obviously I'm not suggesting you staff your entire shop with this strategy. My point is that each of these folks needed a payoff other than a big paycheck, and mutually rewarding employment arrangements were achieved.

### YOUR BUSINESS NEEDS A PAYOFF, TOO.

What's in it for the business? Can a business be successful if payoff is what drives it? In light of my openly customer-centric business philosophy, my answer may surprise you: Yes; absolutely!

Just like people, businesses need a payoff. But remember, just like individuals, the payoff for your company comes in different forms. And while a company can't stay in business without paying its bills and making a profit, there are other forms of payoff that are only possible as a result of operating profitably: supporting causes, giving scholarships, providing security for your team members, and more.

Without profit, psychic income isn't possible to sustain. But profit isn't a dirty word. It doesn't mean the company isn't customer centric. It's been proven time and again that customer-centric companies are more profitable. That's because profit is the natural consequence of putting people first. Hmmm — people — another P word for our Pea Soup recipe... imagine that! When you think about it, without people, we can't make the soup and there'd be nobody to enjoy it.

In conclusion, I believe it's always best to build a team that shares your passion, vision, and purpose by aligning their passions with the needs of the business. But, when that isn't a good fit for one or more of your team members, don't give up on them: Just

tap into what's important to them and give it to them as their payoff. Seems like it's good to pay off people, doesn't it?

### YOUR PAYOFF

Would you like to learn more ways to use passion and payoff to influence and lead people to accomplish your goals? You can learn that and a whole lot more by attending this year's Powertrain Expo over the last weekend in October. Your payoff is waiting for you to claim, plus you get to spend Halloween in Las Vegas... does it get any better than that?

I hope to see you there.



#### Share Your Stories

*If you've personally experienced a weird or unusual customer dispute and wouldn't mind sharing it to help your industry, please contact me. You just tell me the story and I'll do all the heavy lifting to write it.*

*We can make it an article about you, or you may remain anonymous. The main thing is we want to share stories that will help others avoid similar problems. Call me at 480-773-3131 or email me at coachthom@gmail.com.*

#### About the Author

*Thom Tschetter has served our industry for nearly four decades as a management and sales educator. He owned a chain of award-winning transmission centers in Washington State for over 25 years.*

*He calls on over 20 years of experience as a certified arbitrator for topics for this feature column.*

*Thom is always eager to help members of our industry and continues to be proactive in pursuing ways to improve your business and your life.*



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# MINOR PARTS



by Jim Cathcart



**I**t was just a flow control valve. Not really a major part. I'd put the car in gear to back out of my garage and it would slip — a delay — not every day, but often enough to make me worry about my newly rebuilt transmission.

I took it back to the shop twice to identify the problem, but none of the usual-suspect solutions seemed to make a lasting difference. After a week or two, there was the delay once again.

Sue didn't always show up late for work, but she was late often enough that we knew she couldn't be relied upon to be our "rock" who was always there. It was a minor issue. Her work was fine and everyone liked her, but still, she was often the last one to show up.

So the car wasn't ready when you said it would be... twice. This isn't rocket science and you can't always accurately estimate the time or costs. Isn't that just a minor issue?

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# THE REVENUE GROWTH HABIT

# HOW TO CREATE CHANGE IN YOUR COMPANY



by Alex Goldfayn  
CEO, Evangelist Marketing Institute

**M**y work with clients creates dramatic revenue growth by making some basic organizational changes. But change can also be implementing new marketing, using a new customer relationship management (CRM) system, altering your hiring process, or simply introducing new product lines.

In all of these changes, we want managers and staff to do something new. The problem is most people don't like doing new things. Change is uncomfortable. As a rule, people are wired to resist change.

In fact, you might hear the following resistance:

- *"This is just another flavor of the month." (Or, "this too shall pass!")*
- *"We don't need to do this."*
- *"This won't work for us."*
- *"We're good without this new stuff. Everything's good."*

In each case, the main issue is fear. Fear of the unknown. Fear of having to learn something new. Fear of working harder. Fear of working *more*. Fear of the implication that the status quo hasn't been enough. Fear of the discomfort this new work might cause.

But the good news is we can overcome this resistance and implement organizational change effectively. Here's how:

**1. Change must come from the top.**

If it isn't important to the owner or the CEO, it isn't going to be important to the managers or the frontline people. Change which



starts in the middle levels of your company is nearly impossible to implement because it doesn't have the energy of top leadership, or the commitment of the staff. Staff must know that the change is important to leadership.

**2. Accountability is required.** In fact, there must be *systems* for accountability. Tools for planning and measuring the new behaviors should be created and used. Further, managers' feedback should be systematic and consistent. The new effort must be communicated and discussed actively, in meetings, on the phone, and by e-mail. In fact, a regular flow of communication about the new initiative is one of the keys to implementing it successfully.

**3. Long-term change must be focused on long term.** If you only concentrate on it for two months, your people will look away as soon as you do. Think of yourself as the personal trainer for this initiative.

Corporate change is like a new exercise program: Many times, when people miss the first workout, the entire program ends. They simply don't return. Diets are the same way: One bad meal or weekend often kills a diet. Don't let

one bad meal kill your company's new initiative. Keep it in front of the staff, regularly and consistently, for a long time.

**4. Recognize the successes — publicly.** Studies find that recognition among peers is a far more effective motivator than financial compensation. That is, one proactive company-wide compliment is more powerful encouragement than a \$1000 bonus, or even a \$10,000 bonus. Why? Because it's public, and it makes the recipient proud.

It also allows peers to witness, and learn from, the person's successes. Those same peers will now aspire to be recognized *next*. So we benefit from the psychology of people not wanting to miss out on the next opportunity for recognition. *By publicly recognizing one person's success, you benefit from improved action throughout much of your organization.*

Finally, a steady stream of positivity flies around your company when you recognize success regularly. This is tremendously useful for behavioral change. It makes people *want* to participate, which is far more effective than change which is demanded.

**5. Recognize those lagging behind — publicly.** That's right, along with complimenting proactively, don't be afraid to call people out who are simply choosing not to participate. Of course, speak to them privately first, but if that doesn't help, do it in a meeting or by email.

The key is that this occurs in the same communication where you address the successful implementers. Usually being mentioned like this once is enough. People will do everything they can to never be in the "lagging" group again.

Rolling out a new, company-wide effort needs to come from the top; it must be accompanied by a *system of accountability*; it must be discussed long term; and public recognition should be used to identify overachievers and underachievers.



Alex Goldfayn runs The Revenue Growth Consultancy, a seven-figure consulting practice which regularly creates company-wide change for client organizations. Email Alex directly at [alex@evangelistmktg.com](mailto:alex@evangelistmktg.com) or visit [www.alexgoldfayn.com](http://www.alexgoldfayn.com) for more information.

His latest book, *The Revenue Growth Habit*, was named the 2015 Sales Book of The Year by 800-CEO-Read. Buy it at Amazon.com.

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## THE OTHER SIDE OF THE PUMP



# PART- NERS

by Martin Brooks  
President, TCRA

**W**hen you think about it, building a modern automatic transmission is a partnership between you, the rebuilder, and several other people. You rely on your parts supplier to have the right quality parts at the right price, available at the right time. You may rely on your tech service for information or workshop manuals to help with diagnostic or rebuild procedures.

But what about the item that probably comes packed in a box: the torque converter? The partnership with your converter rebuilder is possibly the most important one you have. This may seem a strong statement, but, when you think about it, you rely on your torque converter partner to build a converter that will perform correctly with your transmission.

Back in the days of the GM TH350s, Ford C4s, and Chrysler Torqueflites, as long as you received a converter that was clean, straight, leak free, and had the correct internal clearance, there wasn't a lot else that mattered.

But things have changed, and today, torque converters are an integral part of the transmission. You rely on

your converter rebuilder to build a converter with the correct lining in the lockup clutch assembly, the correct clutch release clearance, and, of course, is correct for your application. When you think about it, a lot can go wrong to affect your carefully rebuilt transmission.

The modern torque converter, like the modern transmission, has changed a lot over the last few years. Rebuilding a modern torque converter is no longer just a matter of having a lathe and a welder.

The converter rebuilder is now faced with issues such as captive clutches, often manufactured without thought of aftermarket repair. This may mean that the converter shop must have sophisticated equipment to carry out the rebuild process.

It's also likely that, just like you, the converter supplier is a member of an association that provides technical articles and support to help them cope with these modern units.

The partnership between you and your converter rebuilder becomes important when things don't go as expected. It's easy just to blame the converter for a shift issue or a code,

but there could easily be other causes for your problem.

Building a relationship with your converter supplier, whether it's Joe in the back room or a large rebuilding company, will pay dividends in the long run. After all, halving a problem means you're likely to solve it in half the time. And looking at things from both sides of the pump may well resolve those problems quickly and to everyone's benefit.

So take the time to talk to your converter supplier and remember that building a strong relationship will benefit you in the long run. In fact, your converter rebuilder may just have the information you need to correct a no-go or comeback that you've been fighting with!





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The Torque Converter Rebuilders Association is a professional non-profit organization formed for the betterment of the converter rebuilding industry from industry leaders in the fields of Converter Rebuilding, Parts Supplier, Parts Distributor, and Transmission Shop Technicians.

DAVE WILKES  
TRANSMISSIONS. 2005

## With ATRA from the Beginning

Over the years we've met dozens of transmission shop owners who've been ATRA Members for years; some who can trace their relationship with the Association nearly to its inception back in 1954.

While several have been ATRA Members longer than Dave Wilkes, owner of Dave Wilkes Transmissions in Ventura, California, none have ever had a tighter relationship with it since the very beginning. In fact, you might remember Dave from our look back at ATRA on its 60<sup>th</sup> anniversary; he was a valuable asset in helping us delve into ATRA's past.

But Dave opened his shop in 1993, so how can he have such a storied history with ATRA? That's because he got his start in the transmission business in 1980, when he went to work as a shop manager for Mike King, owner of Trans-King Transmissions.

"At that time Mike had just opened his fourth store," explains Dave. "Mike was active with ATRA since about 1965. He was a Chapter president and was instrumental in developing the Golden Rule Warranty program."

But that's only part of the story: "At that time, Mike's partner was Gene Lewis." Yes, *that* Gene Lewis — ATRA's executive director until he retired in 1992. In fact, when Dave came to run Trans-King's Ventura shop, ATRA's business office was on the second floor.

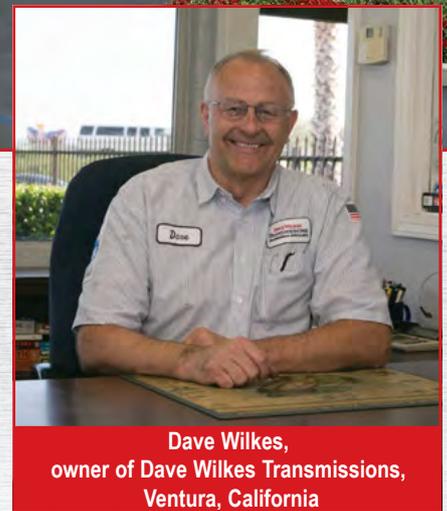
Other luminaries who were part of the Trans-King family included Mike Lee and Steve Gray, and even *GEARS* Managing Editor Rodger Bland was a shop manager from this group of ATRA employees.

And earlier this year, Dave began serving on ATRA's international board of directors, representing the Southern California region.

No doubt about it: Maybe others have been Members longer, but no one's had a career that's been more closely intertwined with ATRA.

### A Familiar Beginning

Dave got his start in auto repair when he was still a boy, working on neighbors' cars with his dad and some older friends in the neighborhood. He began working at a gas station when



Dave Wilkes,  
owner of Dave Wilkes Transmissions,  
Ventura, California

he was about 15 "for a dollar an hour," pumping gas and doing lube jobs after school and on weekends.

"I moved to Santa Barbara from Solvang in 1971 and took a job at another gas station, working as a tow truck driver and mechanic. Then I took a job at a tire store, changing tires and learning how to do brakes and alignments." It wasn't long before he became their lead front end and brake technician. "At the same time I drove a tow truck nights and weekends."

From there he moved to a general repair shop where he honed his craft for several years. "Then I came back to the tire store as an assistant manager. That's when I met Mike King.

Fun Fact: ATRA home office used to be on the 2nd floor of Dave Wilkes Transmissions.



“Mike was building another store, and he bugged me for about six months to come to work for him. Finally I took him up on it.

“I started as an installer, but I was on a fast track to something bigger. After a while as an installer, I spent some time rebuilding transmissions, and then moved up to shop foreman. Then, in about ’82, one of the managers quit, so suddenly I became the store manager.”

Mike began selling off some of his stores in the ’90s, and Dave bought the Ventura shop in 1993, changing its name from Trans-King to Dave Wilkes Transmissions.



Dave Wilkes Transmissions outstanding team of professionals.

## Adapting to Change

When asked how he handled the changes the industry has faced over the years, Dave laughed: “I’m still changing. The one thing that never changes is that nothing stays the same.

“Whenever I was faced with something new, the first thing I did was concentrate on the fundamentals. I wanted to learn the basics: How it

worked... the principles of operation down to the laws of physics that made it work. I read the Hydramatic books from cover to cover. I figured, if someone else could learn it, I could too.

“Once I understood a transmission, every time a new one came along, I’d see what was the same and what had changed. So even today, with the very complex transmissions we’re facing, I

can relate their operation to the ones I studied back in the beginning.”

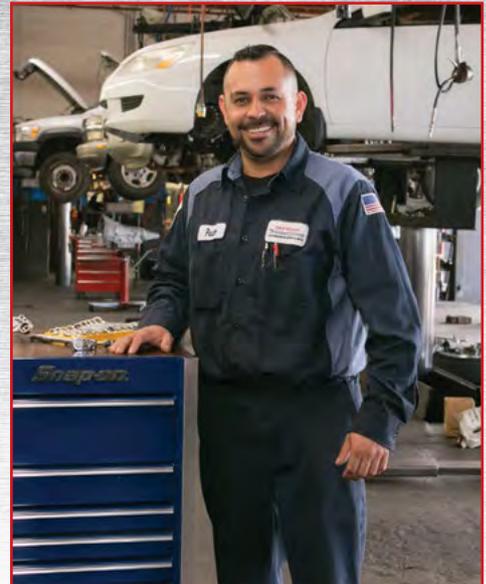
That’s not to suggest that learning the basics makes today’s transmissions easy. “It’s still overwhelming at times; today’s transmissions are very complex devices. But you’re much better off if you know the history of the transmission and apply that knowledge to today’s cars.”



Dan Mendez, Lead Technician, Rebuilder, Diagnostician, Foreman, & Shop Manager



Cliff McCormick, Rebuilder and Diagnostician



Pedro Cerda, Installer

## Transmission Detective

Today it's virtually impossible to run a business without some form of online presence. Dave Wilkes Transmissions has a beautiful web site at [www.DaveWilkesTransmissions.com](http://www.DaveWilkesTransmissions.com). But that's only one part of his advertising strategy.

"Mike began advertising Trans-King on the radio," says Dave. "But over time, radio marketing became diluted from neighboring stations from the L.A. market so he added TV advertising. He found that to be more effective, so when I bought the shop, I went with TV and Yellow Pages advertising."

TV advertising worked out well for Dave, but, to catch people's attention, he came up with an idea for a new character:

"One day I was looking at four or five cars, thinking about new ads while I was looking for leaks and performing visual inspections. I had my mirror and a flashlight, looking here and there and the word that came to mind was 'investigation.' Each car was an investigation and I was the detective.

"I presented that to my marketing agency. They found me the hat and coat (the familiar herringbone deerstalker and overcoat), and I dressed up like Sherlock Holmes and became 'the transmission detective.' I close each ad with my tag line: 'Customer satisfaction is elementary.'

"I've been the Transmission Detective for over 15 years. I try to make my ads visually interesting so people remember them. Some spots are about services and how important they are to get the most out of your transmission.

"I market us as specialists. There are a lot of general repair shops and dealerships, but today there are fewer and fewer specialists. We're transmissions only; I don't market as a general repair shop at all.

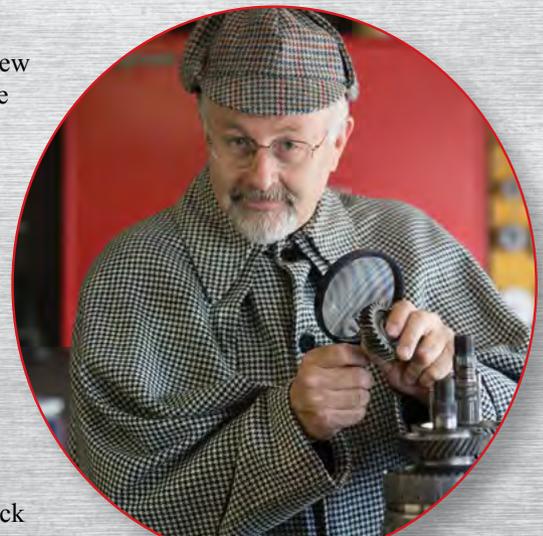
"There are a lot of shops that sell transmissions the way they'd sell a starter or an alternator: It's bad, just replace it. But many times what seems to be a major problem turns out to be a minor repair.

"A lot of shops just sell a new transmission when it could be repaired. But if you aren't a specialist who actually repairs transmissions, your only choice is to replace them. We get a lot of cars where another shop tried to sell a new transmission and we fix it. Not patched; it's repaired properly. It just didn't need a new transmission. And because we're specialists, we can offer those repairs.

"Of course, no matter how you advertise, you have to be able to back it up. The most important thing is you have to fix the car. That's where ATRA has been helpful."



Henry Villanueva, Installer



The Transmission Detective

## Honoring Promises

One thing Dave's adamant about is that agreements need to be hashed out up front, before the job begins. "That way it's possible for either party to say no," he explains. Once the job has begun, it's important to honor your agreement. That's how he does business, and it's been working well for him and his customers.

And most rebuilds that go through Dave Wilkes Transmissions receive a 3-year, 100,000-mile warranty. "Because, if you rebuilt it right, it should last three years without any problem. If it doesn't last three years, you should be disappointed.

"The bottom line is you have to fix the car. Nothing works if you don't fix the car. That's why customers bring their cars to us."

## Continued Ties

Dave was thrust into the Association through his business path with Trans-King, but why did he remain so closely tied to ATRA afterward?

"Well, the technical support, naturally, but that's just a small part of it. There's also the camaraderie with other ATRA Members... other shop owners... people I've interacted with over the years at Expo and seminars. And of course there's the technical and management information that's only available to ATRA Members."

If you haven't taken part in ATRA's events, the point about camaraderie between the shop owners and technicians is probably a difficult concept to grasp. But it's something that Dave and so many other ATRA Members would never want to live without.

"One of the difficulties with the transmission business is that you generally don't have a lot of peers to talk to or run things by," says Dave. "I have friends all across the country who I met through my connections with ATRA.

"It gives us a chance to learn from people we'd never have



The crew at Dave Wilkes Transmissions L to R: Natalie Wald, Cliff McCormick, Pedro Cerda, Dave Wilkes, Henry Villanueva, Dan Mendez and Barbie Wolf



The Peg Board: This is where the clip boards for each job are organized



Waiting Room and Office



Dan Mendez and Dave Wilkes at Customer Service Desks



Barbie Wolf, Bookkeeper and Administrative Manager

met without ATRA. People who are there to help you and provide a real smorgasbord of ideas and a chance to see them in action. Expo's the best time to do that.

"It's not just about the seminars. There's so much more to be learned, just bouncing ideas off each other. If you're trying to do it yourself, you're missing out on a lot."

This year, Dave took another step in his long-standing relationship with ATRA when he was elected to the board of directors, representing Area 1, California, Nevada and Hawaii. "It's a chance for me to give back to the industry and share some of what I've learned over the years," he said.

One thing he'd like to accomplish as a board member is to help create a program where experienced and retired shop owners can provide assistance and guidance to help new shop owners get their footing and become successful. "I'd like to see us pass the torch from the old timers to the new guys coming up in the industry."

It's a tall order, but one that has the potential to pay off in a big way.

## Where Credit Is Due

One thing Dave is adamant about: His success wouldn't be possible without his outstanding team of professionals, two of whom have been with him since the shop was still part of Trans-King.

Dan Mendez wears many hats, as lead technician, rebuilder, diagnostician, foreman, and shop manager. He's been with Dave since 1987, after graduating from Arizona Tech Institute. "Dan really cares and takes pride in his trade."

Henry Villanueva is another Trans-King alumnus. He came back to work for Dave in 1998 as an installer. "Henry's work is detailed and meticulous; you usually can't tell the transmission was ever removed."

Cliff McCormick is no stranger to *GEARS* readers, having been a longtime ATRA tech advisor, seminar presenter, author, and instructor at a local college. Cliff came to work for Dave in 2006 as a rebuilder and diagnostician. "Cliff's in-depth knowledge of transmissions is amazing."

Pedro Cerda joined Dave in 2015 as an installer. He had several years experience in general repairs and worked as a transmission installer; today he's working hard learning diagnostics.

Barbie Wolf is the bookkeeper and administrative manager. She joined the company in 2006. "Barbie is a full-charge bookkeeper and I'd be lost without her."

Natalie Wald is Barbara's assistant. "She frees up Barbie's time by keeping things organized in the office, and she's learning bookkeeping." Natalie has been with the company since 2013.

Together these people make Dave Wilkes Transmissions a viable, profitable business... a place where consumers are happy to bring their cars when they have transmission problems and are likely to recommend to their friends.

Like many of us, Dave is getting older and he's begun to think about what comes next. He's currently looking for someone to join his team with an eye toward taking the reins and steering the company into the future. For some



Natalie Wald, Administrative Assistant

special individual, this could be a great opportunity.

## What the Future Holds

When asked about the future of our industry, Dave spoke of the value of continuing education, "To survive and flourish in the transmission business will depend on the ability to satisfy our customers and fix their cars. The difficulty to do this is continuing to get harder with the many new high tech transmissions and increasing cost of repairs.

"The way to keep up with that change is through sharing experiences and continuing education or the 'school of hard knocks'. The Automatic Transmission Rebuilders Association provides education. Expo and seminars introduce you to the many great people in the transmission industry to share experiences with. Then there's the 'school of hard knocks'. This is where you're always learning, but it's one school no one ever graduates from. I hope I get the chance to hang out with you at EXPO and tell war stories."





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## SAP Introduces New RE0F06A Kits



Seal Aftermarket Products is pleased to announce the immediate availability of overhaul, banner, and master kits for the 2000-on RE0F06A transmission.

SAP #	Catalog#	Description
TF213002A	203002H	Overhaul Kit
TF213004A	203004H	Banner Kit
TF213006A	203006H	Master Kit

Look for these transmissions in the following 2000-on Nissans:

Primera, Almera, Avenir, Bluebird, Sylphy, Cube Cubic, Prairie, Rnessa, Serena, Sunny, Tino, Wingroad

For more information, visit Sealed Aftermarket Products at [sealsap.com](http://sealsap.com).

## Sonnax ZF8 Oversized Converter Clutch Apply Regulator Valve Kit



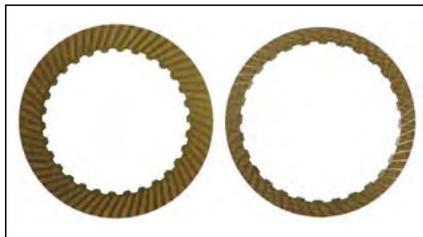
Vehicles equipped with ZF8HP45, ZF8HP55, and ZF8HP70 transmissions are known to exhibit numerous TCC apply issues due to bore wear at the TC regulated apply valve.

Reconditioning the bore and installing Sonnax oversized converter clutch apply regulator valve kit 35740-13K recovers hydraulic control and

renews TCC operation. The kit features advanced design and materials to ensure lasting results.

Visit [www.sonnax.com](http://www.sonnax.com) for more details.

## Raybestos Powertrain Offers New Solutions for VW/Audi 0B5



Raybestos Powertrain now offers premium frictions and a new clutch-pack module for VW/Audi 0B5.

The company's proprietary blend of high-energy fibers delivers smooth engagements and high temperature durability. And precision engineering provides drop-in replacement for optimum clutch pack clearance.

Current VW/Audi 0B5 solutions from Raybestos Powertrain include:

- K1 (1-3-5-7) Dual Clutch, 2008-on
- K2 (2-4-6-Reverse) Dual Clutch, 2008-on
- For complete unit coverage: Clutch-Pack Module, 2008-on

For more information on these and other Raybestos Powertrain aftermarket products, visit them on line at [www.RaybestosPowertrain.com](http://www.RaybestosPowertrain.com).

## Rostra Introduces JF506E/09A Solenoid Kit with Internal Harness



Rostra now offers the Volkswagen JF506E/09A solenoid kit with harness for years 2000–2010, Rostra P/N 52-9043.

The kit includes:

- Shift A solenoid (17 ohm)
- 2-4 Brake Timing solenoid (17 ohm)
- Shift C solenoid (17 ohm)
- Reduction Timing solenoid (17 ohm)
- Low Timing/Low Clutch solenoid (17 ohm)
- Shift B solenoid (16 ohm)
- EPC Pressure Control solenoid
- 2-4 Brake Duty (Oil Pressure) solenoid
- TCC solenoid
- A color coded internal wire harness (10-prong connector with nine, one-blade connectors and ground).

All solenoids are date coded, serialized, and new (never remanufactured). Each kit is 100% factory tested and offers a 12,000-mile/12-month warranty.

For more information, contact Tal Eidson at (910) 291-2575 or email at [teidson@rostra.com](mailto:teidson@rostra.com).

## TransTec Introduces Two New Kits for the TF-80SD Step Trans



TF-80SD 11-Up 6 speed step transmission

TransTec has just introduced two new overhaul kits for the TF-80SD, 6-speed, step transmission for years 2010-on.

DP2687 comes without bonded pistons

DP2688 comes with bonded pistons

This kits fit a variety of vehicles, including the Citroen, Luxgen, Opel/Vauxhall, Peugeot, Ssangyong, and Volvo, for years 2010-on.

Both kits are in stock and available for immediate delivery.

Visit [www.TransTec.com](http://www.TransTec.com) For more information.

## Larson Electronics Releases 25' Explosion Proof Extension Cord



Larson Electronics, an industrial lighting leader, has announced the release of a heavy duty extension cord, designed to provide secure connection of explosion-proof equipment in hazardous locations.

The EPEXC-P20A-GFCI-25 explosion proof extension cord is designed to extend the reach of equipment in hazardous locations where power receptacles are not in close proximity to the workspace.

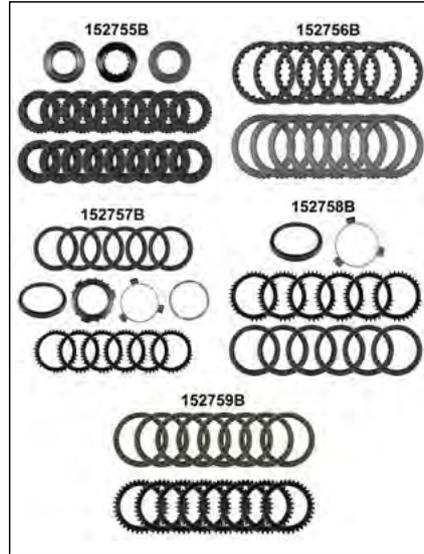
This cord is fitted with a single, 20-amp, explosion-proof, twist-lock receptacle, constructed of non-sparking aluminum and finished with an epoxy powder coat. An LED pilot light is attached to the top wiring hub of the receptacle to indicate current flowing through the receptacle. This unit also includes an inline GFCI reset and test switch to ensure proper operation.

The 25-foot extension cord is terminated in an explosion-proof, straight-blade plug, to ensure safe connection throughout the hazardous work area. This unit is designed to withstand wet and corrosive conditions and incorporates a spring-loaded receptacle door to prevent of water and contaminants from entering when the unit isn't in use.

The extension cord is Class 1, Division 1, Groups C and D, and Class 2, Division 1, Groups E, F, and G rated, making it ideal for use in hazardous locations where flammable gases and vapors are present.

To view the entire Larson Electronics line of industrial grade lighting solutions, visit [Larsonelectronics.com](http://Larsonelectronics.com), or call 1 (800) 369-6671; 1 (214) 616-6180 for international inquiries.

## Alto Introduces Hi-Performance G3 Powerpacks



Alto Products Corp now offers five new Hi-Performance G3 PowerPacks for the Allison 1000, 2000, and 2400 transmissions.

Alto part numbers 152755B, 152756B, 152757B, 152758B, and 152759B are manufactured with their new G3 performance friction material and Kolene® steels.

All five are in stock and available for immediate delivery.

Visit [ww.altousa.com](http://ww.altousa.com) for more information on these PowerPacks and other Alto products.

## GFX Inc. Puts Engineering Interns to Work for Summer



**Matthew Sosa, Senior'17, has earned his SolidWorks CSWP certification and is using his knowledge to aid in product development and quality control. While an intern at GFX Inc., Matt has been exposed to new product development in a global environment.**

Mechanical engineering students are required to participate in internship programs to obtain resume-worthy, real-world experience and to satisfy

degree criteria. Internships are considered 'prime' or 'desirable' when the position combines use of state-of-the-art technology, a preferred industry, and is paid.

The competition for the summer intern positions was rigorous as more than fifty students from the University of Miami, Florida International University, The University of Florida, and others applied for the opportunity to work at GFX Inc.

The GFX team uses its vast network to identify and acquire popular hard parts, OEM-complete transmissions, and surplus hard parts. The company is focused on accelerated design-to-market product development processes.

Interns hone mechanical design skills and practice hands-on quality control through the use of the company's SolidWorks, 3D scanning system and 3-D printer.

For more, visit GFX on line at [www.gfxcorp.com](http://www.gfxcorp.com).

## DCM Tech Introduces New Rotary Grinder Model IG 380 SD



Rotary grinding never looked so good: DCM Tech has a fully enclosed grinding envelope on the IG 380 SD. Integral mist collection and coolant filtration are standard features that provide clean, consistent grinding operations.

The IG 380 removes stock fast and can create finishes that reduce or eliminate the need for subsequent lapping operations. The 36" diameter electromagnetic chuck also delivers through spindle vacuum for fixturing non-magnetic parts.

DCM rotary grinders can increase productivity by as much as 10 times.

DCM Tech will be at the

International Manufacturing Technology Show (IMTS), in Chicago, IL, September 12-17, Booth N7272.

For more, visit DCM Tech on line at [www.dcm-tech.com](http://www.dcm-tech.com).

### Next Generation of AMi Launches



The Automotive Management Institute (AMi) is proud to announce the launch of the "next generation" of AMi. This includes six new front office and management certificates and professional designations, access to more than 100 relevant online courses, career paths, a new web site, and a world-class online learning management system.

The new online course offerings include content from highly-respected industry professionals, such as Mike Anderson, Mark Claypool, Michael Graham, Frank LaViola, Jeremy O'Neal, Frank Terlep, and others.

"The new AMi represents more than a year of soliciting, organizing, and prioritizing industry feedback to ensure we offer the most relevant professional designations, career paths, and overall management educational support possible," said Jeff Peavy, AMi president. "For example, we heard clearly from business owners and managers the need to offer career paths for their front office staff."

The industry-serving nonprofit now offers Customer Service certificates and Professional designations for office manager, general manager and master general manager, specifically for collision repair and mechanical service. Each level is a step toward the next, building a clear development path to improve operational performance.

To help provide for this learning support, AMi has developed the AMi Learning Foundation program

to encourage tax-deductible donations from industry businesses and individuals. Through these contributions, AMi will continue to provide educational support at minimal cost to repair professionals.

For more information about the Institute, its curriculum, or donation methods, contact AMi at (817) 514-2929, or visit the AMi web site a [www.AMionline.org](http://www.AMionline.org).

### Schaeffler's REPERT Voted Top 10 Tool for 2016



Schaeffler's online service portal, REPERT, was recently voted one of the industry's top 10 tools by users. In October 2015, Undercar Digest encouraged its 35,000 monthly readers to vote for the Top 10 Tools and Top 10 Shop Products through a ballot provided in its magazine.

Only manufacturers and distributors were eligible. Each retail shop subscriber submitted one vote for as many as 10 nominations in each of the two categories. The winners were presented at AutoTECH Expo in Covington, KY in early April.

As REPERT's features continue to evolve, automotive service professionals and facilities continue to benefit from Schaeffler's product know-how. Users have access to a product catalog that updates in real-time, diagnostics and installation guides showcasing videos and illustrations, plus customizable technical training available in person or on line.

The web site is setting a new standard for training and technical information for the auto care industry. With just a few clicks, users can find everything they need to get the job done quickly, efficiently, and correctly, the first time, every time.

Follow Schaeffler on Twitter @ [schaefflerpress](https://twitter.com/schaefflerpress) to receive the latest press releases and news.

### ATRA Says Farewell to the Riviera: A Mainstay for Expo



Tuesday, June 14, 2016 heralded the end of an era for Las Vegas and for ATRA. The Riviera — a mainstay of ATRA's annual Expo and one of the last vestiges of the Mob era in Las Vegas — was imploded by its new owners: the Las Vegas Convention and Visitors Authority.

The 24-story Monaco Tower was taken down at 2am Tuesday; the Monte Carlo Tower will be imploded in August. The tourism agency bought the 26-acre property last year with plans to expand its Las Vegas Convention Center.

"Ironically, the Riviera is as famous for its imaginary self as much as its actual self," said Geoff Schumacher of the National Museum of Organized Crime and Law Enforcement, also known as the Mob Museum in Las Vegas.

But to ATRA, the Riviera will always be a part of the history of Expo, having been the host hotel for three of our annual events: 1992, 2002, and 2009.

"Expo is an important part of our educational model, and each Expo location has become a part of who we are as an association," says ATRA CEO Dennis Madden. "Seeing the Riviera go is like saying goodbye to a part of our history."

While the Riviera may be gone, Expo is alive and well... and getting bigger every year. This year's Expo will be hosted at the Paris Hotel in Las Vegas, October 27-30. Make your plans to attend today, and we'll see you at Expo!



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