

# REMAN

## CONNECTION

# Blast Abrade

*A True American Story  
of Resilience*

**ALSO INSIDE THIS ISSUE:**

**COOL Online Act**

**KIA Niro EV Pumps Heat**

**Why Millions Plan to Switch Jobs  
Post Pandemic**

**Neglected Nissan**

**Is Reman Good for Business?**



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# Kripli's Corner

## UNCERTAINTY CAN BE INSPIRATIONAL



Joe Kripli

I am fortunate with my position at APRA to be able to speak to a lot of people through the course of the year, and last year was a tough year, but it's getting better. I may talk to the President of a billion dollar company in the morning and the partner (wife) of a two person shop in the afternoon. So many changes are occurring these days, perhaps more than ever. The Electric vehicle pivot is coming. Maybe this is what it felt like when Henry Ford started building his cars and you were a horse stable owner with a carriage business. I thought to myself, has the electrical vehicle industry just devalued the Starter & Alternator businesses? Perhaps just by the mere talk of it taking over in 10 years. I spoke to a 2-person shop that will remain anonymous; they have been in the Starter & Alternator business for over 40 years. They are both at retirement age, and their children want nothing to do with the business. Sad, I thought, how could you let a family business go away. Maybe I am too much old school. But as I spoke to them, they were much calmer than me about the future. They simply said, when we are ready, we will simply close the doors and sell the building. They spoke about how good the industry has been to them, how many people they have met in town, how they have supported the local high school sports, and little league teams. They have

been able to save for retirement, so they had a plan, long before they knew what the plan might be. They were at peace with it. Truly inspirational!

I first thought they were the losers, but when I think again, perhaps it is small-town America that is the loser.

Another day, another call, this one comes from California. A gentleman that has been in the Reman Industry for over 50 years. Thoroughly enjoys what he is doing and loves helping people. We chat a little about the industry, talk about his customers, and the good weather he enjoys. He then says to me "does the APRA have a scholarship program?" He says, "we need to get these kids who don't go to college into technical schools and mentor them". I told him we may have had a program some years ago, but we currently do not. He then says to me "this industry has given me a lot for me and my family, I want to give back, if you start a program, please let me know, I want to contribute".

Wow was all I thought. Truly inspirational!

Please mark your calendars for our BigR Symposium for November 1, 2021, in Las Vegas at the Linq Hotel and register on our website. I promise it will be informative and I hope, truly inspirational.

I always welcome response or rebuttal to my comments at [kripli@apra.org](mailto:kripli@apra.org) and sometimes my editorials do not reflect the position of the APRA.

Respectfully,

Joe Kripli

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## INDUSTRY CALENDAR

### Automechanika

SEPTEMBER 14-18, 2021

Frankfurt, Germany

### ATRA Powertrain Expo

(co-hosted with APRA)

OCTOBER 13-16, 2021

BALLY'S HOTEL, Las Vegas, NV

### BigR Symposium

NOVEMBER 1, 2021

LINQ HOTEL, Las Vegas, NV

### INA/PAACE Automechanika

DECEMBER 1-3, 2021

San Luis Potosi, MX

### REMATEC AMSTERDAM

JUNE 14-16, 2022

Amsterdam, Netherlands

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### Office Contact:

Phone: (703) 968-2772

FAX: (703) 968-2772

Email: [info@apra.org](mailto:info@apra.org)

### APRA President:

Joe Kripli - [kripli@apra.org](mailto:kripli@apra.org)

### APRA Chairman:

Dean Conner - [delcodean@gmail.com](mailto:delcodean@gmail.com)

### REMAN Connection Editor:

The Promo Corp - [www.thepromocorp.com](http://www.thepromocorp.com)

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## COOL Online Act

WASHINGTON — The Coalition for a Prosperous America (CPA) and the Automotive Parts Remanufacturers Association (APRA) applauded the U.S. Senate Committee on Commerce, Science, and Transportation for passing with overwhelming bipartisan support Senator Tammy Baldwin's (D-WI) COOL Online Act, which was added as an amendment to the Endless Frontier Act (S. 1260). The bipartisan COOL Online Act would mandate that country-of-origin labeling (COOL) be clearly and conspicuously stated in any website description of a product. This would protect Americans' right to know where the products they buy are made and help promote goods that are made in America.

"Americans want to know where the products they buy are made," CPA Chair Zach Mottl said. "Today, the Senate Commerce Committee took an important step in making sure that U.S. consumers have that information when they are shopping online. On behalf of CPA and our members — hard-working men and women who are committed to producing things in America — I urge the full Senate to swiftly pass Senator Baldwin's COOL Online Act."

Under current U.S. law, a product's external packaging must state its country of origin. However, e-commerce has made distinguishing an item's place of origin more difficult. Websites often do not display the country-of-origin for a product since labeling laws were written before the advent of internet shopping. Last month, CPA highlighted how hundreds of millions of

dollars' worth of copycat goods and stolen IP are coming in from China as American consumers continue to shop online, with their orders going directly to Chinese manufacturers.

"CPA was proud to support Senator Baldwin and her colleagues for introducing this important legislation in the last Congress," said Michael Stumo, CEO of CPA. "Today, we applaud the Senate Commerce Committee for passing this important bill that will help consumers learn where the products they purchase on the Internet are made. For too long, countries like China have sold counterfeit, unsafe, and shoddy goods to unwitting Americans. By requiring online country-of-origin-labeling, U.S. consumers will have more information to find quality, American-made products."

CPA and APRA strongly support the COOL bill, particularly in light of growing consumer interest in buying domestically produced items. The new bill would mandate a prominent country-of-origin description for all products sold online as well as clear disclosure of the country in which the seller of the product is located.

MEDIA CONTACT:

Nick Iacovella  
Communications Director  
nick@prosperousamerica.org

# SALE!

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## IN MEMORIUM: Paul J. Weldon



**Paul J. Weldon**, 64, third generation owner of Van Bergen & Greener, Inc., died peacefully in his home from complications of multiple myeloma.

A native of River Forest, where he was born the fifth of six children to the late Bill and the late Patricia Weldon, he was married in 1985 to Bernadette (Treacy), and they raised their three children Matthew, Treacy (Dan) O'Keefe, and Marirose in River Forest before moving to Oak Brook. His wife passed in 2004 and remarried to Diane (Schikora Tentler) Weldon in 2015. In addition to his wife and three children, Weldon is survived by his wife's three children, Robert, David and Julie Tentler.

He is the beloved brother of Mary Pat (Ken) Woitas; Maureen Weldon; Bill (the late Madonna) Weldon; Madeleine (Mike) Weldon-Linne and Michele Weldon; and in-laws William (Deborah) Treacy, Barbara Treacy, Rosemary Treacy, Mary Pat (Jeff) Sutter and Sharon Carroll. He is the beloved uncle to 27 nieces and nephews.



# BigR Symposium

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The Linq Hotel

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## BigR returns to Las Vegas 2021!

APRA is returning to Las Vegas for 2 great events this fall. First, the BigR Symposium on November 1st at the Linq Hotel in Las Vegas and then APRA is co-hosting with ATRA for the Powertrain Expo October 13-16 at Bally's in Las Vegas.



# BLAST ABRADE

## Finding Silver Lining in Clouds Over Automotive Reman

by Niels V. Christiansen

**The US automotive remanufacturing industry is reeling from ever growing challenges. Blast Abrade of Grafton, Ohio, is joining a trend among industry suppliers by shifting some of its focus from selling to services as the industry and shot blasting transition to a future full of uncertainty.**

From his vantage point in the industrial heartland in Ohio, Tyler Cotton, owner and CEO of Blast Abrade, has seen the dark clouds gathering over automotive remanufacturing.

“We just don’t have a lot of automotive reman left in our territory, and I don’t know how to put it gently, but they’ve been run out of business, man,” he said. “We see it all around us. ‘Annihilation’ is one word that comes to mind.”

The ‘territory’ is the Ohio Valley, where his father, Wendell Cotton, left Wheelabrator Corporation in 1978 to set up an industrial sales agency in a spare bedroom in his Oberlin home, and later hired his son to lead the company into the next millennium.

Blast Abrade grew into a solid business selling GOFF shot blast and shot peening equipment as a master distributor for GOFF Corporation of Seminole, Oklahoma, to steel industry foundries and manufacturers in several industries. In the 1980s and 90s, automotive

remanufacturers accounted for half of the business, according to Tyler Cotton.

The first sign of trouble in Blast Abrade’s territory followed the establishment of the North American Free Trade Agreement, NAFTA, with much remanufacturing moving to Mexico.

More recently, cheap new replacement parts, flooding the markets from China, brought more pain.

Most recently, the COVID disruption has caused further disruption.

And as if these changes aren’t enough, Cotton says, the most radical blow is yet to come as the world moves to electric vehicles.

Some small companies have given up in the face of the adversity, and even big players like Cardone have been affected. At the same time, companies have cut back and lost maintenance personnel, as well, another trend exacerbated during the COVID crisis.”

“It’s been hard to watch, and for us, the COVID situation has also been miserable,” he continued. “The projects dried up, automotive supply lines froze, trade-shows were cancelled and we died with attempted zoom meetings to nowhere. Nobody travelled anywhere and we waited it out. Fortunately, the government gave us PPP loans and helped us pull through.” And yet, today Cotton sees better times ahead for his company, adding: “We are optimistic for the next phase of growth.”

Among the dark clouds, Cotton has found a silver lining for Blast Abrade. While the market for shot blast equipment has been shrinking, at least temporarily, the company has identified a new niche among the companies who continue to employ GOFF machines.

“Most of them no longer have the technicians to maintain or rebuild the machines as they wear themselves down,” Cotton explained. “Outside teams who know about this stuff are no longer available. So we decided to





Tyler Cotton, owner of Blast Abrade

offer a fast turnaround rebuild service for GOFF blasting and shot peening equipment. Instead of throwing away a machine, you can send it to us in Grafton, Ohio, for a complete rebuild and get it back in 12 to 15 days. We tear the machine down, build it back up with OEM parts and send the machine back with a one-year warranty.”

“We have found many companies receptive to the idea. It’s practically and economically feasible even over long distances, and it has become a good niche for us. We aim to expand the service to the entire US, Canadian and Mexican markets.”

To meet the growing and anticipated demand, Blast Abrade, which also buys, rebuilds and sells used GOFF machines, is looking to increase its current staff of six people in its 12,000 square foot facility in Grafton.

But, as many in the reman industry already have experienced, this too can be tricky in the covid and post covid economy.

“We need industrial electricians, but we have a hard time finding people, so we have to offer six figure salaries to even attract applicants,” said Cotton. “But out of 30 applicants interviewed, only two were licensed electricians. None had experience fixing shot blast, and we realized that we have to train people coming in. So, we hired my son, Connor. We are still looking to hire more people.”

Cotton expects significant growth over the next three years as this program reaches the wider market. He is dreaming new dreams about passing his company on to new generations, as shot blasting and peening gain new footholds when the government finally gets around to rebuilding the US infrastructure.

“When Congress passes the large infrastructure bill that we have been waiting for,” Cotton added, “we’ll be rocking.” ■

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# KIA NIRO EV PUMPS HEAT

## Electric Vehicles

By Craig Van Batenburg, Owner of ACDC



I started studying an EV when I bought a new 2011 Chevy Volt to add to the ACDC fleet. As the owner of the Automotive Career Development Center in central Massachusetts, we have many HEV, PHEV and EVs to use for technician training and that includes research. The Volt has a range of about 35 miles on a good day. If I drive back roads at 35 mph maybe 40 miles. During the winter less than 20. Then a used 2011 Leaf came our way a couple years later. About 80 miles in the summer, but 50 in the winter. ACDC leased a Chevy Bolt EV in 2017 and this EV had a range of 230 miles in the summer, but again the winters took it down to 160 miles. What did they all have in common? The cabin heat was the high voltage pack heating antifreeze for the heater core. How old school. Once the lease was up last year, I was in the market to

**“My company’s job is to provide training and tech support to the world’s independent EV technicians that will be asked to fix and maintain the systems as they age.”**

have an EV for training and longer distance driving. The Hyundai Kona EV was on the list but the Kia Niro EV won out. Why? A heat pump vs. hot water. The Nissan Leaf in

M/Y 2013 offered a heat pump in the two upper trim models, then the Kia Soul EV came out with a slight improvement and the Niro EV has taken it one step further. One last note, the Volt uses the ICE for heat in certain conditions, but not always.

### **Heating Coolant or using a Heat Pump**

Once affordable modern electric cars were offered world-wide in 2010, the heating of the cabin became a customer concern in cold weather.

To provide cabin heat, a 1-gallon (3.78 liter) container (my estimate) of coolant was heated using the high voltage battery for power, and that hot coolant was pumped

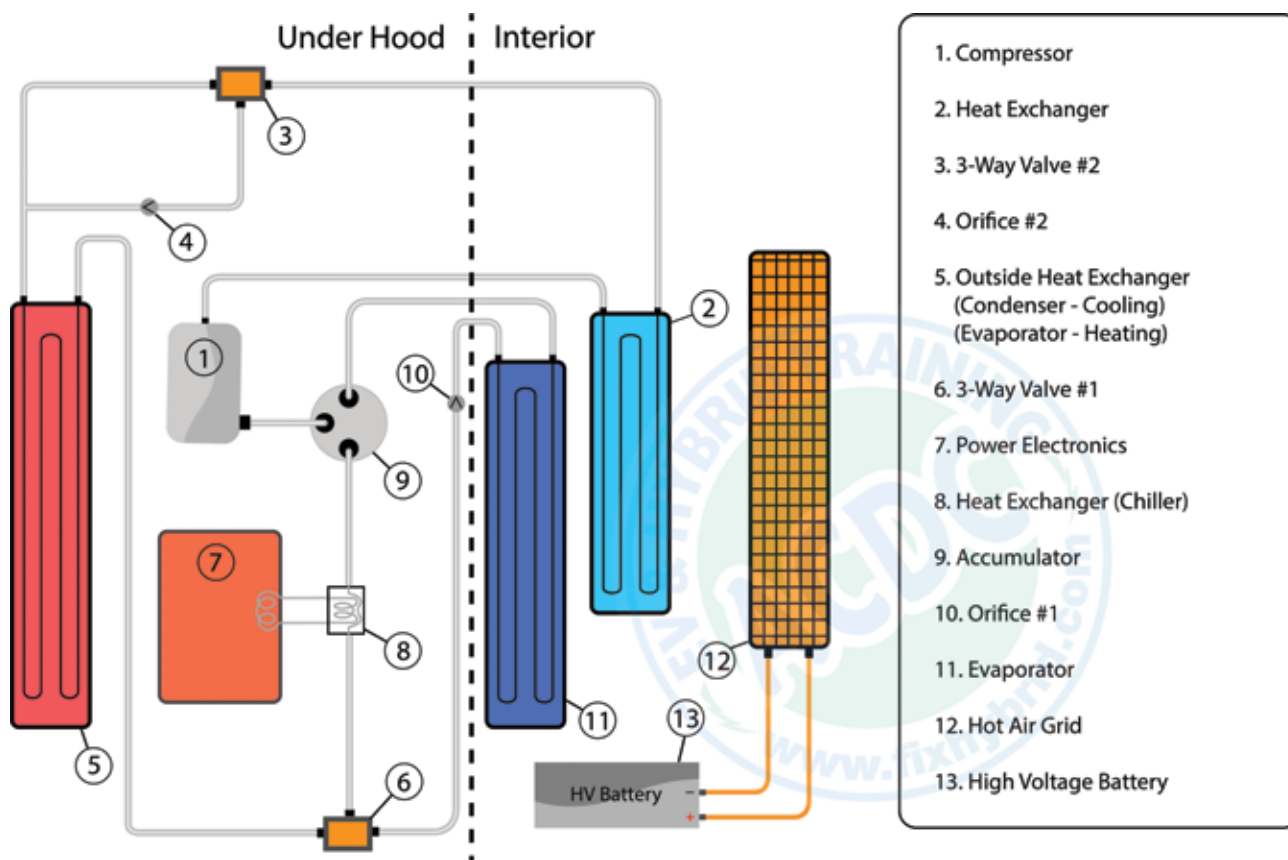
into the heater core. According to my internet research, Margaret A. Wilcox, born in 1838 in Chicago, invented the heater we use today. It was patented on November 28, 1893. Margaret Wilcox's patent directed air from over the engine for warming the passengers in the 19th century. This led to using the coolant not long afterwards. Using wasted energy is smart. Wasting energy is not. Margaret's idea was still in use in my 2011 M/Y Nissan Leaf but it decreased the driving range by 30% to 40% in cold weather, as the heat was using the only energy on-board, the HV battery pack. That old-fashioned technology (still in use) lasted only 2 model years before Nissan, in M/Y 2013, came out with a "heat pump". That reduced the load on the battery from approximately 7 kW to 2 kW, for the same amount of heat. This allowed the EV to go further on a charge while keeping the occupants comfortable. To stay warm is a human desire and in the beginning many early EV adopters used the heated seats and heated steering wheel, while wearing a jacket, hat and gloves, to stay warm with the heat off. That was not the solution most drivers wanted!

How does a "heat pump" work? In simple terms, the condenser and evaporator change places by adding another expansion valve before the condenser. Then more tubing was added to by-pass each expansion valve and the computer, depending on a request for heat or A/C, used one expansion

valve or the other. In this way the heat is then produced in the cabin as you try to cool the air outside the vehicle. Heat pumps have been used in building since the 1940's but the concept goes back to the mid 1850's.

When Nissan installed their version of a "heat pump" it was not used on the base model, the Leaf "S". The SL and SV were the higher end models and they had the new HVAC system. A couple years later, Kia added a "tweak" to make it more efficient. Toyota (Denso) then improved it again the next year. Why all the improvements so fast? Consumers wanted more range in cold weather.

We will examine the generic heat pump (see illustration) we use in the ACDC classroom to help repair technicians understand the concept. The system has what looks like two evaporators. The traditional one is (11) and the second one is used for heating the cabin (2). The condenser (5) has two jobs as we will explain. The compressor (1) is a typical high voltage scroll type and uses an accumulator (9). The accumulator (9) prevents any liquid from entering the compressor. Two 12-volt solenoid 3-way valves (3 and 6) are fitted before each expansion valve (4 and 10) with a bypass line to direct the refrigerant either to the expansion valve or around it. The "3-way valves", as they are referred to by the OEMs, have only two directions. The switching of the valves will allow the refrigerant to keep going straight





Craig Van Batenburg, owner of ACDC

through the same pipe, or be redirected to another pipe. It has only two choices and only one expansion valve is open at any one time.

There are also sub-systems that are needed to support a heat pump in damp and very cold weather, or a sub-system to make it perform better. Expect more improvements in the future.

### **Chiller**

If there was ever a poor choice of words, calling something that gets hot a “chiller” would be it (8). It cools the PE (7) (power electronics) but its purpose in the HVAC system is to warm the refrigerant on its way back to the compressor. That makes it easier for the HV compressor to do its job. Less effort equals less energy from the HV battery and more range. A lot more range? No, but every little bit helps. The PE coolant had not been used on the Nissan Leaf before, so now we are recycling energy (a Kia idea) we otherwise would lose as waste heat. Clever, those engineers. Reduce, Reuse and Recycle can be applied to transportation these days.

### **Condenser Icing**

When the “heat pump” is on and the outside climate is wet and above freezing (33F to 45F or 1C to 7C), the

outside of the condenser (5) may freeze as the air moving through the condenser lowers the air pressure and the temperature drops. If the condenser has iced up, the “heat pump” system stops working. What do we do? The HVAC computer will turn the A/C back on as this will now melt the ice as the condenser gets hot. Air flaps in the evaporator will move the “cold air” from the A/C outside as the HV air grid heater (12) is turned on to heat the cabin. At this point the main battery pack (13) will be asked to provide more energy than when the heat pump was the sole provider of cabin heat. As the outside (ambient) temperature drops below freezing and/or the air dries out, the front condenser will stop icing up. This is all done without the driver knowing what is going on. My company’s job is to provide training and tech support to the world’s independent EV technicians that will be asked to fix and maintain the systems as they age. This makes for an interesting job.

### **Rebuilders**

As you know R1234yf is highly regulated, so making sure you follow all the government policies in place. There will be parts that fail or were poorly designed. These systems also cool the high voltage battery so it not just people that need cooling. Add heat into the mix and it is essential. ■

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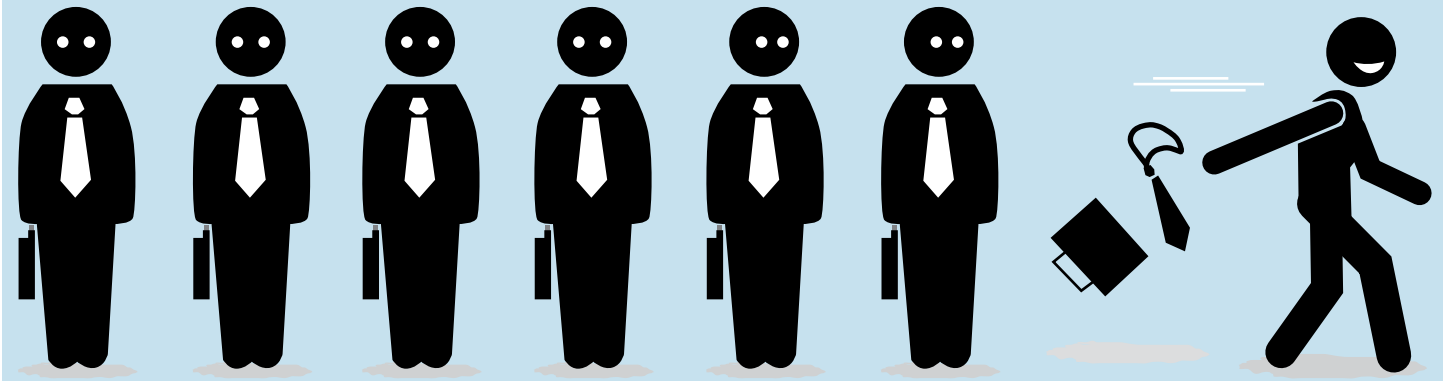
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# WHY MILLIONS OF EMPLOYEES PLAN TO SWITCH JOBS POST-PANDEMIC

By Caroline Castrillon, Contributor



**With widespread vaccinations, the reopening of more businesses, and a massive infusion of federal aid, the U.S. economy shows signs of recovering remarkably well. For 2021, experts predict that the economy will expand around 7% — the fastest calendar-year growth since 1984.**

So, it's not surprising that many employees plan to switch jobs in the near future. According to Prudential Financial's Pulse of the American Worker survey, 1 in 4 workers is preparing to look for opportunities with a new employer once the pandemic threat has subsided. And more than 40% of people who responded to Microsoft's Work Trend Index, a global survey of over 30,000 people in 31 countries, said they are considering leaving their employer this year.

But why do so many workers plan to jump ship? The pandemic has succeeded in highlighting the things workers value most—and they don't want to compromise.

## **Employees want career advancement**

Do you feel your career has stalled during the pandemic? Per the Prudential report, of the 26% of workers planning to switch jobs post-COVID, 80% are doing so because they're concerned about career advancement. And a recent Robert Half survey confirmed that 38% of workers say they feel stuck in their careers since the pandemic began. The pandemic has led to a "very real experience that employees have had around a lack of career progression, and a concern around skills development," says Rob Falzon, vice chair at Prudential. People feel that they have been working hard but have not been given opportunities to advance

professionally in their current company.

## **Employer-related benefits are critical**

With the pandemic exacerbating issues like high debt and reduced or exhausted emergency savings, American workers are increasingly looking to employers for solutions to alleviate financial stress. Nearly 8 in 10 workers want their company to focus on providing benefits central to their economic well-being, according to the Prudential survey. The study found that workers consider benefits—such as retirement plans, health, disability and life insurance, paid family medical leave and emergency savings programs—as critical to their financial resilience. And 40% of workers said they were more likely now than they were a year ago to consider accepting a job with a new company that offered better benefits.

## **Company culture is more highly valued**

Companies that cultivate cultures reflecting what is most important to employees will win the upcoming talent war. "Leaders must be focused on cultivating thriving cultures of internal mobility, prioritizing continuous learning, and delivering robust benefits to support their workers," suggests Falzon. Issues of communication and company culture were also top of mind among workers surveyed. In fact, 42% of workers with plans to leave their current employer graded them a "C" or below for their ability to maintain employee connectedness and culture during the pandemic. "The workplace of the future is here," says Falzon. "Leaders must approach each component of this new normal as an opportunity to maximize company culture and differentiate themselves as an employer of choice." ■



# ANYTHING, ANYTIME, ANYWHERE

## Updating A 40-Year-Old “Just In Time” Supply Chain Strategy

by Jordan Wren

**A**t the height of the global pandemic lockdowns, a major manufacturer of screws and fasteners was on the verge of disrupting an automotive company’s assembly line, potentially incurring major penalties, and suffering charge backs because of a failing supply chain.

The supplier was struggling to acquire sufficient space and equipment on one of the most common and congested multimodal routes in the world – Shanghai to Chicago. They wanted to route freight via rail to Chicago through Los Angeles – arguably the busiest and currently the most challenging intermodal route in the United States. Essentially, this manufacturer was trying to thread a needle and deliver incredibly high value time sensitive merchandise through one of the busiest and heavily congested destinations in the industry – middle America.

As mentioned before, lockdowns were in full effect while the manufacturer was trying to accomplish this high-volume shipping, but key ports were also dealing with the most significant COVID-19-related operational disruptions of the entire pandemic. At the time, it was more difficult than ever to secure space and equipment onboard Far East outbound vessels. Every supplier in the industry has been feeling the pressure to make delivery deadlines and avoid contractual late fees. Additionally, with reputation at stake, no supplier wants to be responsible for holding up a major assembly line of any automotive manufacturer. Delays can incur significant charge backs and fines established to ensure adherence to extremely sensitive “just in time” logistics processes. The screw and fastener supplier needed extensive help. They needed a logistics company with significant depth and buying power to step in, identify choke points in their supply chain, and provide solutions to obstacles in the current market. They called us.

OEC supply chain experts immediately set to work identifying every potential problem. The first set of roadblocks came with the initial seaborne transport. Due to congestion and late returning vessels, shippers vying for space on the Shanghai – LA route were looking at ten-day delays before any cargo could be loaded. After the cargo is

loaded onboard, ships typically make a 14-15-day trip to Los Angeles. There, vessels would instantly encounter some of the most substantial port congestion in our industry’s history. Even today, many vessels are waiting 10-14 days for a berth. A trip that would normally take 21 days from gate to gate now takes around 45.

To help the client combat maritime delays, OEC Group examined the latest market statistics and shipment data using in-house technology. Representatives pored over OEC’s extensive database of shipments and cross-referenced scheduled versus true transit times via all carriers and port pairs. They quickly found the most reliable carriers and the most reliable routes to ensure

on-time departure and arrival.

It was decided to use multiple ports of arrival on the West Coast to ensure redundancy. Additionally, by leveraging OEC’s extensive carrier relationships, representatives were able to guarantee equipment availability and effectively minimize delay on the trip’s first leg.

The next potential misstep came in the form of Customs & Brokerage. A mismanaged communication plan with disorganized paperwork can delay shipments significantly at any port of arrival. To eliminate potential lost time there, the

brokerage team referenced OEC’s in-house database to access shipment details and begin working as quickly as possible. Utilizing a fully automated inventory archive in conjunction with digitally consolidated commercial invoice data, brokerage experts were able to pre-file the Customs entry containing hundreds of SKU’s. With the same data, OEC brokerage also pre-filed DOT and EPA entry packages. Ultimately, this proactive approach fully cleared goods for release five days prior to arrival at the port of entry, further reducing the chance of customs delays. Still, the OEC team was not finished neutralizing delays. Once vessels berthed, any ship using a West Coast gateway would face congestion and delayed discharge from several overwhelmed terminals. These port structures continue to struggle with a record-breaking surge in imports. After being unloaded, intermodal freight is normally transferred to rail.

To reduce dependence on rail and potential delays from congestion, OEC singled out cargo deemed time critical by the customer and transloaded that freight from the West Coast for an expedited team drive to the final destination.

The intermodal system is hopelessly backlogged, as well, fighting with a shortage of flat cars and rail power. Finally, upon arrival in Chicago, cargo would be transferred to an over road solution for final mile delivery, again, even last-mile delivery is suffering from driver shortages and a lack of chassis.

To reduce dependence on rail and potential delays from congestion, OEC singled out cargo deemed time critical by the customer and transloaded that freight from the West Coast for an expedited team drive to the final destination. This strategy was so effective that the customer was able to completely neutralize rail delays and recover some time lost on the ocean leg of the shipment.

In our current market, supply chains around the world are fraught with obstacles preventing on time delivery and reliability. Despite all these contingencies, a few shipments are always delayed beyond any expedited ocean solution. In these dire circumstances, the air team at OEC was able to switch to air cargo. Those shipments were costly but strategic, and they ensured enough supply at the automotive production line. This environment is challenging traditional solutions and making supply chain professionals think outside the box to maintain the service integrity of the automotive industry's 40-year-old "just-in-time" logistical school of thought.

"It's a complete mess," explained Anthony Fullbrook, President of OEC Group's Northeast Region. "The Asia – USA shipping lanes have been extremely congested and difficult to deal with since factories in China reopened and global consumer demand exploded.

"If you're a lower volume outfit and lack leverage with carriers, or if you're lagging to employ the latest logistical solutions, you're going to have major difficulties in this market," added Fullbrook. "These complex situations require a lot of experience and creativity."

Unfortunately, space, equipment, and tight deadlines are just a few of many pain points along the auto parts supply chain. To avoid late fees and ensure a top-notch industry reputation, companies are facing significantly increased transportation cost. Costs are increasing across all phases of the transportation process – overseas shipping, intermodal rail, and domestic trucking. The "just-in-time" supply chain model does not leave any margin for error. To modernize the customer's just-in-time strategy and avoid further logistical spending on premium products like air freight and team trucking from the West Coast, it was decided to stock specific inventory in the US. It's beneficial to keep inventory of certain time sensitive and bulky items that are susceptible to delay on hand. This immediately added an extra dimension to the client's supply chain that will help settle any potential inventory shortages at the assembly line.

"Having access to the top-of-the-line EDI, 3PL software, and logistical technology that we used at the start of this case is only half the battle," explains Nick Klein, Vice President of Sales and Marketing in OEC Group's Chicago Office. "You need a partner with the experience to act decisively and optimize your operations using all data at your disposal. If you want to take advantage of the latest technology, you need a logistics partner that knows exactly how to take action in any given situation." ■



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# NEGLECTED NISSAN

## Transmissions

by John Arriaga, *Diagnostician* · R&R Tech

1

**Pre Scan Vehicle System Report**

2007 Nissan Altima 2.5L L4 MF1 (QR25DE)  
VIN 1N4AL21E07N429353  
Odometer 128,190  
License

October 15, 2020 10:46 AM

**CODE SCAN RESULTS**  
Systems Analyzed: 6

Systems w/ Codes

**Engine - Codes**  
P1177 Stepper Motor Circuit - No Voltage Change  
U1000 CAN Communication Circuit Fault  
P0740 TCC Solenoid Circuit Fault  
P0745 Line Pressure Solenoid Circuit Fault  
P0778 Pressure Control Solenoid "B" Circuit Fault  
U1001 CAN Communication Circuit Fault

**Body Control Module**  
U1000 CAN Communication - History Code  
U0415 Vehicle speed signal - History Code  
B2557 Vehicle Speed - Current Code  
B2604 PNP / Clutch Switch - Current Code  
C1729 Vehicle speed signal Error - Current Code

**Motor - Codes**  
U1000 CAN Communication Circuit  
B2205 Speed Meter

**Tire Pressure Monitor - Current Codes**  
U1000 CAN Communication Circuit  
U0415 Vehicle Speed Signal  
B2557 Vehicle Speed  
B2604 PNP Switch  
C1729 Vehicle Speed Signal Error

This is a tale of a neglected Nissan in need of some serious TLC. I came to care for this 2007 Nissan Altima that would go into limp mode with transmission codes. Upon initial inspection of the transmission, the fluid was new, but was leaking out of the bell housing area. There were multiple DTCs stored, including CAN communication and transmission codes. (See Figure 1).

Before visiting our shop, someone had installed a used transmission in this vehicle. It had all the classic tell-tale signs of being a used transmission; the neon paint on the bell housing, bolt holes, and yellow writing on it. The customer had stated the same suspicion but was unsure as he had only owned the vehicle for two weeks.

After test-driving the car, analyzing the DTCs, and noting that the transmission was leaking fluid out of the bell housing, I recommended replacing the transmission with our remanufactured CVT. The owner approved the replacement transmission, and we proceeded to install the new unit. It was just the start of an adventure to get this Nissan healthy again.

During the transmission installation, issues began to arise. Firstly, I found the TCM had silicone and zip ties holding it and the connector together. The lock tabs had been broken off. I recommended replacing the damaged connectors as well as the TCM. Due to the added cost of the TCM, the customer decided against replacing it at this time, but he agreed to the connector/pigtail replacement. We had the Altima for several days before the customer was going to pick it up. During this time, I was able to take two additional test drives, about ten miles each, with no issues.

The customer picked up the car and drove it problem-free for about a week before the transmission went into limp mode again and the check engine light illuminated. The customer dropped the vehicle off at our shop, and I checked for DTCs. There were only two DTCs, and both were in the Intelligent Power Distribution Module (IPDM). At the time, I was not sure if these codes were relevant to the transmission issue the customer experienced. The test drive revealed no issues. We requested that the customer come in for a test drive so we could see what the customer was experiencing. (See Figure 2).

During the test drive with the customer, the vehicle had no abnormal symptoms. The customer approved the installation of the TCM because of our previous recommendation and the previous damage. After the new TCM, the car drove with no issues, and the customer took it home.

Two weeks later, the customer brought the car back. The concern was the same as before: intermittent limp mode. This time the instrument cluster was not showing what gear the transmission was in (no PRNDL lights). The customer stated that after cycling the key a few times, the indicator would come back on. Upon scanning the systems, the same transmission codes from the initial visit were back, minus the IPDM codes. After pulling the codes, I took it for a drive

2

**Pre Scan Vehicle System Report**

2007 Nissan Altima 2.5L L4 MF1 (QR25DE)  
VIN 1N4AL21E07N429353  
Odometer 128,190  
License

October 20, 2020 11:27 AM

**CODE SCAN RESULTS**  
Systems Analyzed: 7

Systems w/ Codes

**Intelligent Power Distribution Module - Codes**  
U1000 CAN Abnormal  
B210A Steering Lock Condition Switch Failure

Systems w/o Codes

Engine  
Transmission  
Airbag  
Body Control Module  
Wiper  
Tire Pressure Monitor  
OBDII Permanent Codes (B0A)

**READINESS MONITORS**

Complete

Not Complete



around the block to see how the vehicle performed. To my frustration, everything worked fine, so back to the shop to hook up to the scope.

I opened the hood and hooked up my lead to the stepper motor circuit. The pattern looked good while it was running, but then it suddenly spiked and lost communication with the IPDM. The cluster would not show the gear range, and the car was in limp mode, which described the customer's concern exactly. The entire event lasted only for a fraction of a second. Limp mode always prevailed until I cycled the key. The DTCs would also clear after the key cycle. At that point, I started checking the wiring to the IPDM, which all looked good with no issues – looking for wires pulled out or corrosion. (See Figure 3).

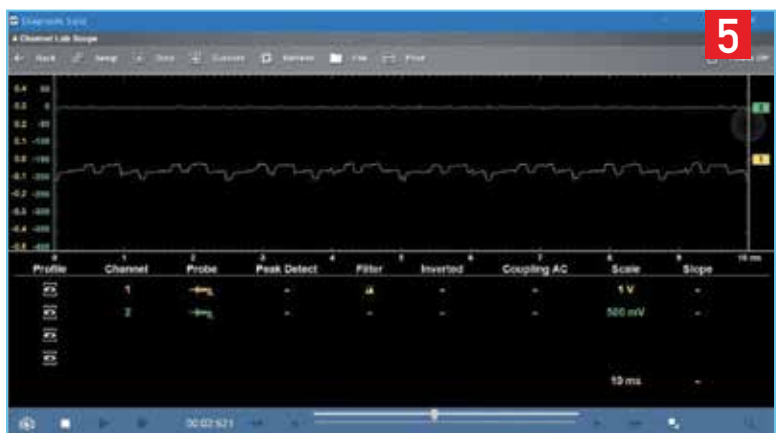
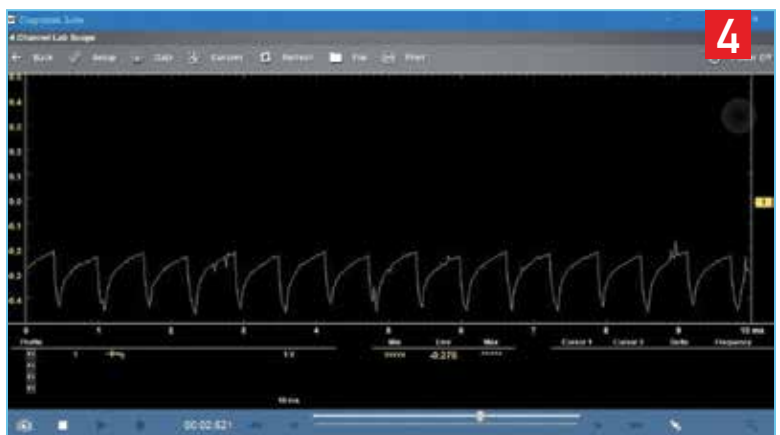
I now know there is a fault, but I am not sure of the root cause. It was time to run back through the basic checks. I performed a battery/charging system analysis. The battery and the generator passed with minimal ripple from the generator. The next step was to perform a voltage drop test on the ground circuits. I started with a break-out-box (BOB) at the OBD2 connector and tested the sensor ground. This did not look like a proper ground voltage drop. It was picking up some sort of signal from somewhere through another component's ground. I then went to the TCM and voltage-drop tested there. The pattern looked the same. This was when I finally got down to the root of the Nissan's problem. (See Figure 4).

I unbolted the IPDM and lifted it out of the way. My wave signal went away all at once, relays started to cycle in the IPDM, and the instrument cluster stopped working. I was getting close. I pulled the wiring harness out of its hold-down clamps and pulled it away from the body that led into the interior, looking for a damaged harness. Buried under the harness, I found a ground cluster next to the brake master cylinder that was faulty, loose, and dirty. (See Figure 5).

I cleaned and repaired the ground cluster and retested the ground, and the pattern was looking good. (See Figure 6).

I then drove the vehicle several more times, and everything worked well. No codes, no limp mode.

Now the Nissan had all the TLC it needed and was ready for the customer. Using the correct equipment to diagnose, remembering the fundamental laws of electricity, and applying diligence to discovering the root cause, got this one out the door. In our business, it's all about doing what it takes to make the customer happy. And we succeeded at that. ■





# IS REMAN GOOD FOR BUSINESS?

YOU GET IT. You want to make good purchasing decisions. You know that Reman is good for the environment, uses less energy, emits less pollution, reduced landfill waste, but you still have questions.

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Water usage	>85% less
Energy consumption	>85% less
Materials consumed	>95% less
Landfill reduction	>95%

Is Reman good for business?  
 Will sales of new parts be hurt?  
 Do we have to accept lower margins?

I reviewed an amazingly comprehensive report on re-manufacturing, published by the U.S. International Trade Commission. \* It was published in 2012, while the graphs and charts may need to be updated, the insights are timeless!

While one report, even one of this scope, is too short to fully answer all these questions for every industry, it does provide strong assurance that Reman makes all-around good sense, including good “business sense.” Why else would there be such a large, diverse, and growing part of our world-wide economy dedicated to producing and selling remanufactured goods. For companies planning to start or expand Remanufacturing activities, there’s much to be learned from the industry giants covered in this report.

Worldwide, remanufacturing was a USD \$180 Billion industry back in 2011; it is undoubtedly much larger now! That number doesn’t include military Reman activities, which is probably the largest sector). In the US, over 180,000 sustainable jobs are created by remanufacturing.

### Reman is for all!

Dr. Nabil Nasr, a leading authority on remanufacturing and the Director of the Golisano Institute for Sustainability at Rochester Institute of Technology (RIT), offers this insight into the broad reach of Reman;

“... the automotive sector is the largest remanufacturer in the commercial sector... other principal remanufacturing sectors in the United States, aerospace, consumer products, electrical apparatus, furniture, heavy-duty and construction equipment, imaging products, information technology equipment, locomotive systems, machinery, medical equipment, restaurant equipment, and tires. -- DR. NASR.

Automotive	IT Equipment
Aerospace	Locomotive
Consumer	Machinery
Electrical	Medical
Furniture	Restaurant
HD/Construction	Tires
Imaging	

Did you count the sectors involved in reman? Whether you know it or not, Reman is everywhere!

There is plenty of outstanding research available covering the benefits of Reman, core salvage techniques, additive manufacturing, IoT data measurement, accounting reman, growing new and Reman sales together to increase customer satisfaction, etc. I won’t site research here, but I will conclude by stating:

*“Remanufacturing activities are practiced by thousands of companies, in multiple countries, creating thousands of jobs (if not millions world-wide), across multiple industries, resulting in increased customer satisfaction, lower total-cost of ownership, significant environmental benefits, all while returning incremental profits. Why else would companies do it?” -- VAUGHN HENSON*

The next time you’re given a choice... ask for Reman! And, if not, ask why not!

Good wishes to all,  
Vaughn Henson

Director of Business Development, CNH Industrial Reman  
Chairperson, Remanufacturing Industries Council

### DOWNLOAD THE REPORT:

United States International Trade Commission -  
Remanufactured Goods: An Overview of the U.S. and  
Global Industries, Markets, and Trade.

[www.usitc.gov/publications/332/pub4356.pdf](http://www.usitc.gov/publications/332/pub4356.pdf)



# COLLEAGUES AND CUSTOMERS

## An Update On T-Force Shipping

---



**S**ince the beginning of the year, we have all experienced significant delays with our truckload, less-than-truckload (LTL) and even our small parcel shipments.

Pick-ups and deliveries have been significantly delayed and carrier communications have not necessarily been adequate.

I have kept in close contact with our shipping and logistics partners and have had in-depth discussions with carriers and even a few drivers who have advised me of number significant factors that are currently impacting the transportation industry.

For starters, recent shutdowns, slowdowns, and carrier embargoes have added fuel to the fire with an already-existing driver shortage. Carrier capacity has tightened to an historic new level with increased pressure on home deliveries (due to the pandemic) and because of these factors carriers have taken record rate increases - many within double-digits.

Just one year ago 85% of all activity was business to business activity but with increased pressure on residential deliveries that ratio has been reduced to just 65%. The industry is still digging out of a series of winter storms cells and just two weeks ago 73% of our nation was being impacted by storms, with much of that impact directly affecting the southern states.

Drivers typically average 5 pick-ups and/or deliveries per

hour but due to the pandemic, the driver shortage and the increased pressure on residential deliveries drivers are only doing an average of only 2 pickups and/or deliveries per hour at this particular point in time.

We are experiencing an unprecedented amount of carrier embargoes, and unprecedented amount of BNIT's (shipments booked not in transit), and that there has been a dramatic increase in the amount of accessorial charges that are now being assessed by carriers across the board. We cannot change the carrier climate, but we can do a few things that will help us deal with these current conditions and provide our highest quality of service.

### **1. Enter Accurate Weight**

For starters, accuracy is the key – use a certified scale to get an accurate weight and avoid carrier reweigh penalties. If you are already working with a certified scale keep a copy of the scale certificate because it will come in handy if and when you want to dispute a reweigh.

### **2. Enter Accurate Freight Class**

Accuracy is also important when it comes to freight class and the days of “cheating the class” are long gone. Remember to use the on-board commodities catalogue that we provide you and have your team members use the appropriate freight class and NMFC codes when quoting and tendering shipments.



### 3. Be Proactive and Take Photos If/When You Can

These days, it is wise to be proactive and use your phone to take a photo of your commodity while it is on the scale. This will capture an image and documentation of the commodity, the packaging, the condition, and the weight of your product before it gets pickup by the carrier.

Whether you contest the carrier by yourself or we contest on your behalf, a picture is worth a thousand words and will be a valuable piece of documentation if and when the carrier assesses unforeseen upcharges.

### 4. Use the Notes Field, but be Careful with Your Notes

Most all TMS platforms (transportation management systems) provide the ability to enter notes that are then reflected on the bill of lading. Liftgates for instance, have always been at the discretion of the driver so many shippers use their notes field to advise carriers not to use the liftgate and not to assess any unauthorized charges.

This may have been somewhat useful five years ago but if you do that these days the carriers software will “flag” the word liftgate and assess a charge for a liftgate weather it’s needed or not so, in your efforts to avoid a liftgate charge you are oftentimes inviting one.

### 5. Always Consider the “Additional Insurance” Option

All carriers have insurance coverages, but they are not at all equal.

Although they may in some circumstances honor your claim, they will usually add insult to injury when you submit a claim for a used or a remanufactured commodity. Most logistics companies (or 3PL’s) offer an optional insurance which you should always consider when shipping high-value commodities and/or items that are highly susceptible to damage.

### 6. Do Your Best to Manage Expectations

Carrier capacity is at an all-time high and their transit times are only *estimated* transit times. It is a good idea to add a day or two when communicating estimated delivery dates to your customers to help manage their expectations and even more when the weather turns.

If your shipment has to get there within a pre-defined delivery date, you may also want to consider guaranteed service.

### 7. Utilize Your On-board Tracking Utility

All TMS platforms have an on-board tracking utility...

Use that tracking utility to keep your customers advised and aware of their shipments in transit. An ounce of prevention in this area is worth a pound of cure when it comes to managing your customers’ expectations—especially during harsh weather conditions.

### 8. File All Claims in a Timely & Accurate Manner

If and when you may have a claim it is imperative that you file that claim in a timely and accurate manner. Attach all pertinent photos and documentation that will help us process your claim and if you encounter “concealed damage” after you sign for a shipment that must be reported within 48 business hours.

### 9. Communicate with Your Account Rep Before You Short Pay Invoices

If and when you feel that you need to “short pay” invoices it is best that you discuss that with your account rep *prior to doing* so. If you have a legitimate issue, they will most often agree with your request, but if you do not communicate with them prior to doing so you will run the risk of having your account closed – especially if you are a repeat offender.

### 10. When in Doubt Contact Your T-Force Operations Team

And finally, when in doubt, contact our operations team...

Carrier capacity issues are currently affecting all 3pls, carriers, drivers and customers. Our supply chains will eventually correct themselves, but for the time being we must deal with these current conditions.

We will do our best to keep you advised of the current carrier climate and any forthcoming changes, but please do your best to communicate these conditions to your employees and customers to help manage their expectations.

NOTE: Steven P. Haas handles Association Partnerships for TForce Worldwide and administers the APRA freight program. If you are not currently utilizing this program but would like to take advantage of the discounted freight rates (and carrier concessions) that are available to APRA members, you make contact him at 612-296-1806 or online at [steven.haas@tfwwi.com](mailto:steven.haas@tfwwi.com). There is no cost for set-up and there are no monthly minimums, and he can have you equipped to ship the very same day that you contact him. ■



# AUTO ELECTRIC CORNER

## 13343 Alternator for Nissan

by Mohammad Samii



Mohammad Samii

When a call comes for an alternator or starter that I do not stock, my initial reaction is to check and find out if one can be had at a reasonable price. When I miss the second call on the same unit, then I seriously look into procuring a unit or a core to have one on the shelf.

So when we missed a sale for an 11343 alternator (Mitsubishi A2TJ0281SZ)

that fits a 2007-2009 Nissan Versa, I decided to look at my usual sources to buy one. Since the price, even for the aftermarket version was beyond my comfort level, I looked into a used one or a rebuildable core.

My local salvage yard called back and said they had one but since it was locked up they would sell it to me at a reduced price as a core, not as a used one. I agreed and got the unit.

After a thorough clean up and inspection, it seemed the corrosion was the reason it had locked up and not a bearing failure, which could have caused stator damage. There was plenty of brush length left and the unit seemed to be relatively low mileage. Once cleaned out, prepared, and assembled, it spun freely and there were no signs of mechanical rubbing.

Then came the problem of testing it correctly. The tag on the alternator showed the position of the S and L terminals. If you orient the alternator with the plug's clip up and name the pins from left to right as 1, 2, and 3, to the ID tag, pins 1 and 2 are respectively "S" and "L". As I learned later on, my interpretation was not correct! (Figure 1)

The alternator was tested according to the pin configuration I thought to be correct. Since it did not charge and the warning light did not come on at all, I



Figure 1 - Mitsubishi 11343 Alternator Tag and Regulator Pins

dismantled the alternator and checked the regulator with the regulator tester, which obviously showed it was defective.

While ordering a new regulator, the three major regulator supplier catalogs that I checked with, showed the pin configuration of the regulator to be different than what was on the unit, and the way I was testing it was incorrect. That is to say they all showed the middle one (Pin 2) to be the "S", and pin 3 to be the "L" terminal, not pins 1 and 2 as I thought.

When the new regulator arrived, it threw another curve ball at the problem. After inspecting it, I could clearly see the words "Caution...D and P terminals" were stamped on

the new regulator. Going by the wiring schematic regarding the charging system of a 2007 Nissan Versa, and based on the information I saw on suppliers' websites, I was sure this alternator a P-D regulator. So I decided to go back to the drawing board, check the original regulator with pins 2 and 3 as "S" and 'L' and see if it checks out. The regulator tested fine this way, and when installed back into the alternator and run properly, it checked fine.

### Alternator Killers

A contaminated brush holder, either by oil, coolant, power steering fluid...etc., can be one of the worse enemies of the alternator, which contributes to its early demise, and I mean very quickly, if the leak is severe.

I was surprised when a customer's 2009 Kia Sedona arrived at the shop, got tested, and it was determined that the alternator was the problem. These Denso Poon Sung alternators, just like the original Denso's have great longevity and last a long time, certainly more than 90K miles that this clean van had.

I was thinking maybe the regulator had failed and that's why this alternator is not working. But upon teardown, it was obvious that a small oil leak caused the alternator to ingest enough of it (albeit very little) to mix with brush dust, smear it all over the slip ring, and finally render the alternator useless.

This may not be bad for the business as Lesson learned was to be a little more skeptical of the OE Mitsubishi alternator markings in the future, as they may not necessarily correlate with what we consider as a correct combination. And also I must be a little more diligent about the new aftermarket regulators right out of the box. ■

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