ERA EXCHANGE

YOUR GUIDE TO ELECTRICAL REBUILDING

January 2019 $12.95

AUTO ELECTRIC CORNER
Unit Pricing and Testing a Niehoff

LET THERE BE LIGHT
Switching Your Shop to LED

2019 ERA TRADE SHOW
Tentative Schedule & Event Synopsis

See Pages 10 & 11

TRADESHOW REGISTRATION FORM

See Page 13

COMMON SENSE | IS QUALITY CONTROL REALLY DEAD?

A WORD FROM THE PRESIDENT
Your Website – Your Trade Show



Last month I promised you a few more tips on making your business website work better for you in your market. Your website is a selling tool. It must be customized to direct locals to you. In today's world, every business, no matter how small needs a good web presence to thrive. Without it, you are missing sales opportunities every day. Here's a list of the essentials that you need.

Links to and from the free listings - Set up and manage your own free business listings using Google Business, Facebook, Angie's List, the Yellow Pages and Yelp (where customers may complain or compliment). Ask your best customers for help in generating positive comments on all of them. Savvy consumers research before buying.

Customer testimonials – Encourage each and every customer to comment on the quality of your work and service. This can be done using a simple postcard. Then ask for permission to use it on your website. These can have a big impact on potential customers.

Photo Gallery – Use photos of some of the rare or strange vehicles that you have worked on. Include pictures of employees or yourself working or serving customers. Make sure that your business looks clean and tidy in every photo.

Tech Help Information – Provide some space to help customers diagnose some of their less complicated problems. For instance, using an inexpensive voltmeter to test a battery state of charge or watching voltage drop when cranking and coming back up once the alternator begins charging. That could be done with words and photos or in a 60 second video.

ERA Expo 2019 - Our upcoming trade show in Springfield is finally out of the planning stage and ready for prime time. If you visit our website regularly, you already knew that, as the show pages have been up for several weeks.

We have nine seminars scheduled, two exciting factory tours, a group round-table discussion, seven hours of floor show spread over two days, and a group tour of a national attraction followed by our first ever ERA Banquet with a very dynamic speaker. This issue includes the updated schedule and a registration form with pricing. You can also download a printable registration form on our website or even register online. A link on our home page will take you to all show information and forms..

Last year's show in Montgomery was a huge success thanks in large part to the support that we received from Regitar-USA. The crowd and enthusiasm at Montgomery impressed many who missed it and interest in the 2019 show has been impressive so far. I feel strongly that this event will have some new vendors and rebuilder attendees. If you are serious about your business, then this is **YOUR SHOW.**

Mike Dietrich

NEW ERA MEMBERS

Kona Rebuilders LLC
Kona, Hawaii

Jodrey Alternator & Starter Repair
Russelville, Ohio

Cowboy State Rebuilders LLC
Gillette, Wyoming

ABOUT THE COVER

Worn out brushes after three months of use.

ERA EXCHANGE

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Rebuilding is Recycling!

INDUSTRY NEWS

& ANNOUNCEMENTS

ERA Expo 2019 in Springfield, Missouri

There have been some exciting changes made to your ERA Expo schedule since the last edition was mailed out. If you use our website regularly, you have probably already noticed them. You will find a complete new schedule on page 10 of this issue

The host hotel is the Oasis Hotel & Convention Center, located just off I-44, a short distance from downtown Springfield. All of the seminars as well as the show will take place at the hotel. Book your room early. Our nightly room rate is $99 plus tax, and our room block code is "Tradeshow." The hotel's phone number is: 888-532-4338

"We had to make the scheduling changes to take advantage of a late developing offer from Jack Stack, the founder and CEO of SRC", stated ERA President Mike Dietrich. "I believe that you will agree that it was too good to pass up.

"The Wonders of Wildlife tour has been moved to Saturday afternoon, to be followed by a banquet dinner in the attraction's Great Barrier Reef Aquarium room, which provides a panoramic underwater view of the renowned reef's aquatic life as a backdrop.

"In addition, you will notice that some seminars have been shuffled to make room for an additional seminar on the topic of AGM batteries, provided by NorthStar Battery back at the hotel. NorthStar has also offered to provide lunch as part of their plant tour."

You do not want miss out on this action-packed three-day event featuring two impressive factory tours - SRC and NorthStar Battery. A total of nine seminars are scheduled over three days covering a wide variety of topics that have been requested by members. Speakers include some of our industries leading teachers - Mohammad Samii, Joe Davis, Gene Kaiser and Dan Smith. You can find a full listing of the seminars and speakers on page 11.

The Exposition itself will take place over two days, with the floor show open for four hours on Friday afternoon and three hours on Saturday morning. This should give every attendee plenty of time visit with their suppliers. Buffet lunches on Friday and Saturday are included as part of the registration fee. With the host hotel's free breakfast buffet, this show provides a lot of bang for the buck.



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AUTO ELECTRIC CORNER —
Unit Pricing and Testing a Niehoff



BY MOHAMMAD SAMII

Competing with Auto Parts Stores…!

It has been almost three decades since auto parts stores, both discount and otherwise, began pushing reman electrical into their lineup thanks to the healthy profit margins that they provided. The quality of these units may have not been an important factor for the sellers because their collective buying power allowed them to dictate very lenient return policies. Thus the terms "life-time warranty" or "replacing without question" came into the picture, something that a small independent rebuilder or the typical starter/alternator shop could not easily compete with.

The consequences of abundant units, easy availability and low pricing forced a lot of small rebuilders to basically get out rebuilding automotive/light truck rotating electrical. They decided that it was not profitable enough to compete with such low prices being sold over counters that were open from 8 AM to 9 PM including Saturday, Sunday and even some holidays.

By what I have seen and researched, I can say with some degree of confidence that the picture has changed a little and is further evolving. Unlimited and life-time warranties have changed into conditional ones, and super low prices that were once abundant in many discount stores are no longer there. These stores have tried and are trying hard to move into the professional market rather than the DYI buyer, and that requires having a quality product that a commercial auto repair shop needs and expects. If a unit does not work properly or does not last, then the issue becomes a lot more serious than can be solved by simply handing them another one.

It is no surprise that we now see brand names such as Bosch, Denso, Delco-Remy, or even Ford in their lineup, not to forget the units from specialty supply houses such as WorldPac and Beck/Arnley. Their pricing is no longer in the lower end at all and perhaps quite the opposite.

I believe the rate of price increases, aggravated by the current trade policies with more on the way have had a pronounced effect on the auto part store pricing and they can no longer offer the rock-bottom prices as they once did.

To prove that point, I chose five common units that were and some still are our best movers and I price checked them all at four of our local auto part stores. My initial effort was to get an average price between the highest and lowest price for each item but was rejected by our shop-foreman, Denny Tuttle. He suggested that the sales that we lose to such stores are from their lowest priced items and not a national brand name that a DIY buyer may not necessarily care to pay for. Good point! So I asked for the lowest price for each unit that I was price checking and you can see the results in the chart:

	8206	13873	6449	8302	6664
Store 1	$78	$152	$130	$140	$134
Store 2	$148	$135	$165	$143	$126
Store 3	$117	$126	$125	$147	$120
Store 4	$80	$156	$95	$142	$101
Avg. Price	$105	$142	$129	$143	$120

The point to remember is that the cheapest units and the most expensive ones are not necessarily on their shelves but can usually be ordered in overnight if their respective distribution center has it. And also remember that prices are not the same across the country and will vary by geographical area for demographic reasons beyond my area of expertise.

But as you see, not all of these prices are so low that one may not be able to compete with them. If you have a knowledge of the average price, then you can can adjust your price to a level that makes you a markup that you are comfortable with. This sounds better to me than just washing our hands of the passenger car/light truck

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YouTech Group LLC

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market and saying that we cannot compete with auto part stores in that sector.

As you see, I have concentrated on units that have been around 10 to 15 years and some perhaps a little longer. When you price out the much newer model units, you will see a huge jump in the price and that's where we can be a lot more competitive.

The passenger car/light truck market is huge and strong. We simply cannot dismiss it as being too competitive and forget about it.

CE Niehoff C527 Alternator

It is not often that the majority of rebuilders get involved in the sales and service of this complicated alternator that has a replacement cost in the $3k to $4K price range, but we do occasionally run into them. The main users of these massive units are our local municipality where they are used on a fire truck or an emergency/rescue vehicle, or a mass transit outfit that uses them on their buses.



Figure 1 – C527 Niehoff alternator



Figure 2 – Niehoff A2-348 regulator

Recently we received a fire truck alternator, Niehoff C527 360-amp (*see Figure 1*) that has an external but attached regulator (*see Figure 2*). After initial inspection we determined the alternator was beyond economical repair, thus a new replacement was suggested and accepted. This alternator utilizes a round military style cannon plug that connects it to the regulator's input side and another round connector that connects it to the truck's wiring.

For detailed testing and troubleshooting, Niehoff suggests using their $170 test lead, part number A-10-140 (*see Figure 3*). Incidentally, it was out of stock with most of our suppliers. We chose instead to make our own connector by using 5 male leads, salvaged from boxes of connectors of all sorts that we have saved for specials occasions such as this. Then we ran them through a discarded grommet to hold them all together (*see Figure 4*)!

The part of the regulator that connects to the vehicle's wiring loom has a 5-pin female connector marked A, B, C, D, and E. For testing we only needed 3 of them, mainly

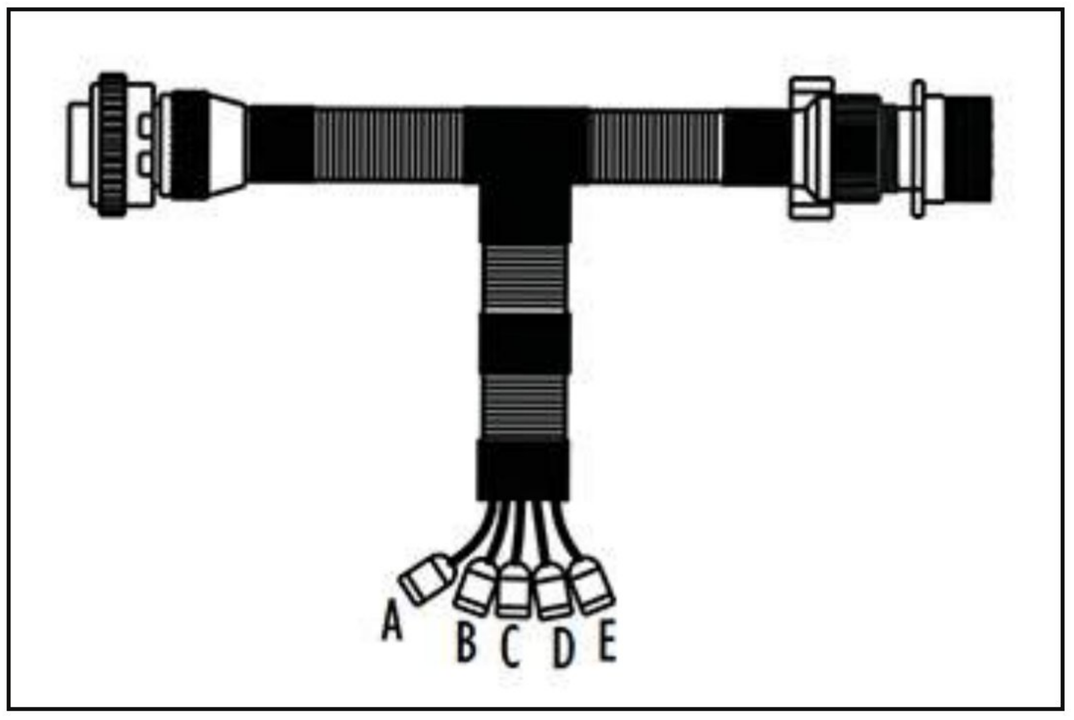


Figure 3 – Niehoff A10-140 test lead

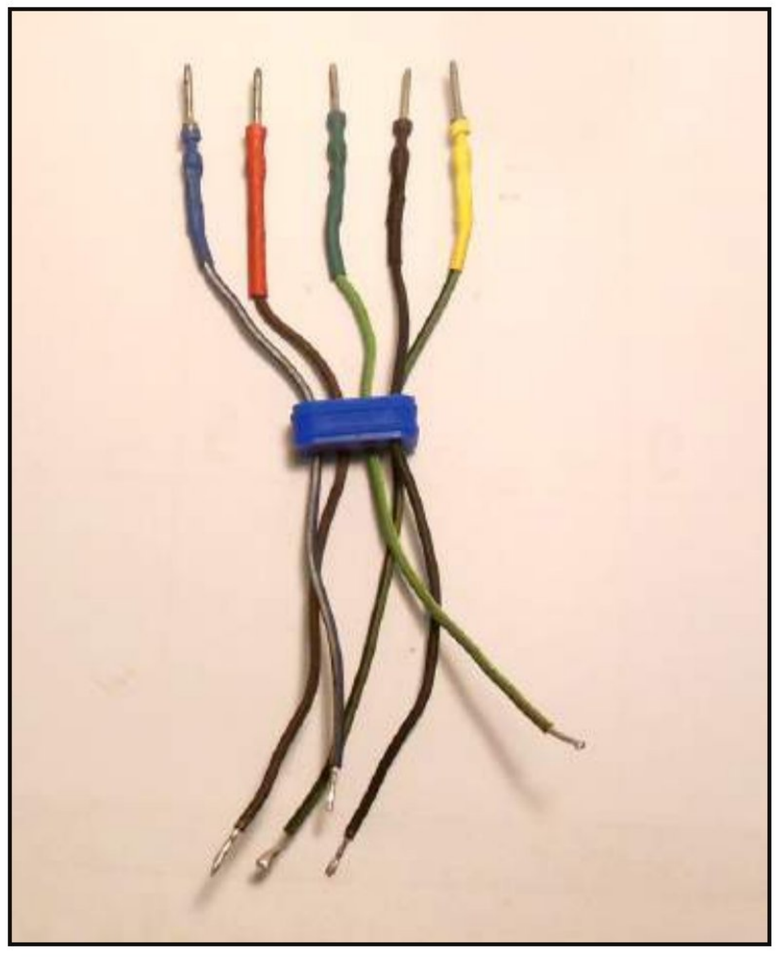


Figure 4 – Our homemade test lead

"A" for energize, "E" for voltage sense, and "D" for charge light. For the purpose of testing, we left the pins "B" and "C" alone, as they are connected to a resistor network for battery temperature sensing on such equipped vehicles (see Figure 5). Underneath the regulator there are solid provisions for screwed-on adjustment bars used for setting the voltage, including a 13.8V setting for AGM batteries if used.

The regulator is also equipped with a flashing light that depending on the color and its flashing sequence, conveys the status of a particular fault, being in the alternator or in the regulator.

The manufacturers of fire trucks may provide this alternator to their customers (the municipalities) at reduced prices, but we found that their best customer pricing still leaves a lot of room for mark-up of this alternator that lists between $3 to 4,000, with the caveat that prices and discounts may differ in different parts of the country and for different customers.

Due to the unit's heavy weight, J&N, who supplied our alternator, charges $75 for a refundable crating charge, but they also provided us with free ground shipping. The markup was well worth the time it took us for testing the old one, new unit set up, and delivering it to the customer for installation, not to mention it was a good learning experience.

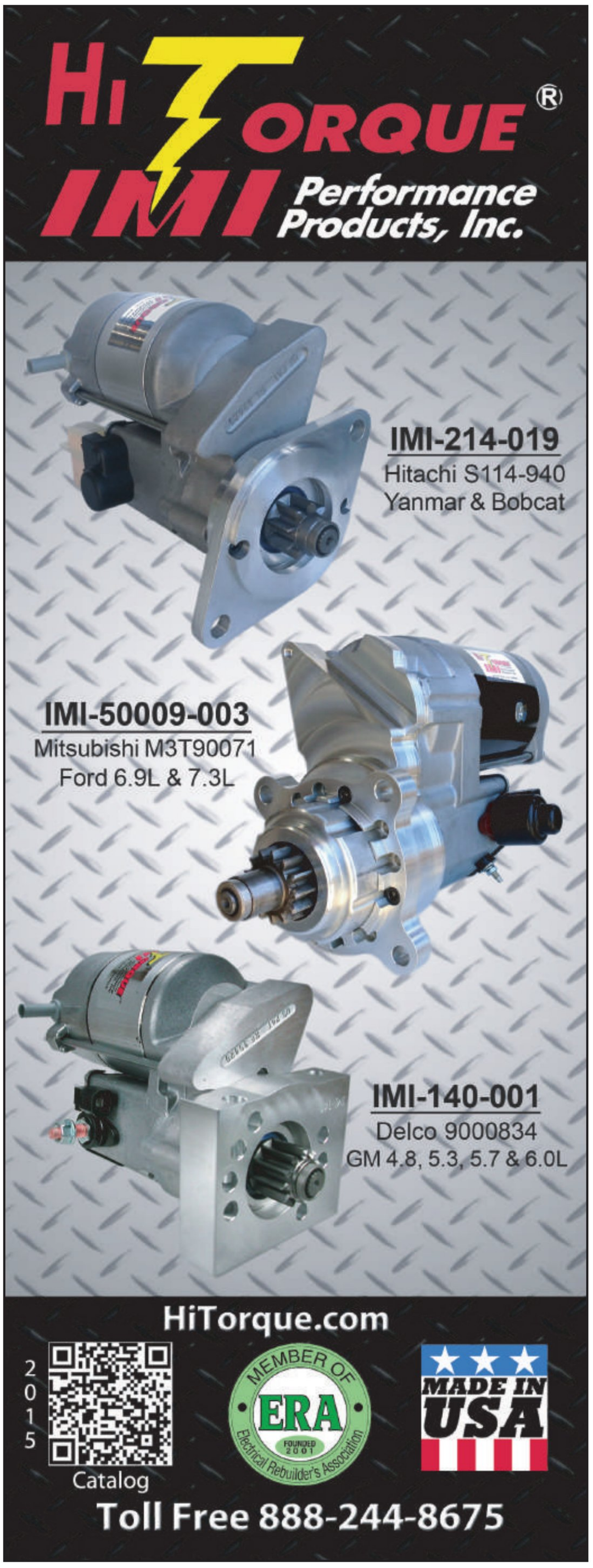
I hope that you all had a happy holiday season, and I wish you prosperity, happiness and health for all of 2019.

Until I see you again, keep up the good work.

sammyselectric@sbcglobal.net



Figure 5 – A2-348's five regulator pins (Female)



COMMON SENSE — Is Quality Control Really Dead?



BY BOB THOMAS

A few months ago I wrote about the alarming number of posts on our website's Quality Control Forum. Recently, I encountered a prime example first hand. A good friend, who happens to be the director of our county's animal shelter, asked me if I knew anything about ATV starters. I have been volunteering there for about eight months now, working adoption events and fixing things like their washing machine whenever I can help.

We are both about the same age, were in the Army around the same time and we have both worked a wide variety of jobs over our lives. His journey led him to boarding and training show dogs and mine led me to automotive electrical. He came out of retirement to take over this shelter, which had euthanized over 1,000 animals the year before he was hired. In the last two years under his leadership they've only euthanized two. Both had been hit by cars and suffered injuries too severe to save them.

So when he asked me about the starter on his daughter's ATV, I was eager to help him out. His daughter is in her 50's and both physically and mentally handicapped. She rides it "slowly" around their farm and to visit her grandfather, a WW2 vet who lives several hundred yards away over an unpaved road.

I was told that a "local ATV guy" had replaced the starter just two months back. I felt sure that either it was a battery problem, or she had burned up the new starter from over-cranking. What I found was that the battery was fully charged and in good condition. The starter was getting 12.6 volts, but made not a sound, like it was open circuit. Although I brought some tools with me, I forgot to bring an impact driver needed to remove a plastic body cover to get it out.

Assuming the probability of a burned armature, I looked for a starter online and discovered that he could buy one with free shipping for less than I could get one for him. I emailed him the bad news and gave him a link to the starter sold by Amazon for DB Electrical. I told him that if he bought it I would install it for him. It arrived in two days and I did the R&R on a Saturday afternoon. It was a 15-minute job with the right tools.

They returned home from a Veterans Day parade just as I was finishing. It cranked up and ran smoothly on the first try. I popped the through bolts out of bad starter just to see if the armature was burned. Unexpectedly it was literally like new. But the brushes were completely worn down and the housing was full of powdered carbon. I was prepared to see a stuck brush, but not worn out in two months of occasional use! This was living proof of the validity of that QC Forum thread with 34 posts.

Not surprisingly, the "ATV Guy" is no longer in business. So there is no way to know exactly who sold him this starter. While brushes are available for many of these units, there are so many different ones it would be difficult to be sure that any I bought would fit this aftermarket starter. However, I had some OE Denso starter brushes that were very close to the same size. They were the correct width, slightly taller and far too long. I cut down the length and sanded off the excess height, then soldered them into place. My good friend now has a spare that he **should never need** – assuming that the Amazon starter does not have the same brushes. I did not open up the new starter to look, but there was enough outside difference between the two that I could tell they were not from the same manufacturer.

What bothers me is not that my friend had to buy a new starter. He was amazed at how cheap the new starter was, compared to the $200 he had paid the "ATV Guy" for the same part. Plus he also saved the $100 labor that he had paid for having it diagnosed and replaced the first time. The prices that the "ATV Guy" charged do not bother me either. He obviously knew what the Kawasaki dealer would charge for the part and service. He only charged accordingly.

But what does bother me is the lack of quality control in our industry today. It is hit and miss at best, and pretty risky when it comes to brush life. We are in a "Buyer Beware" world.



Figure 1 – Notice the arcing marks on the face of this worn out positive brush.

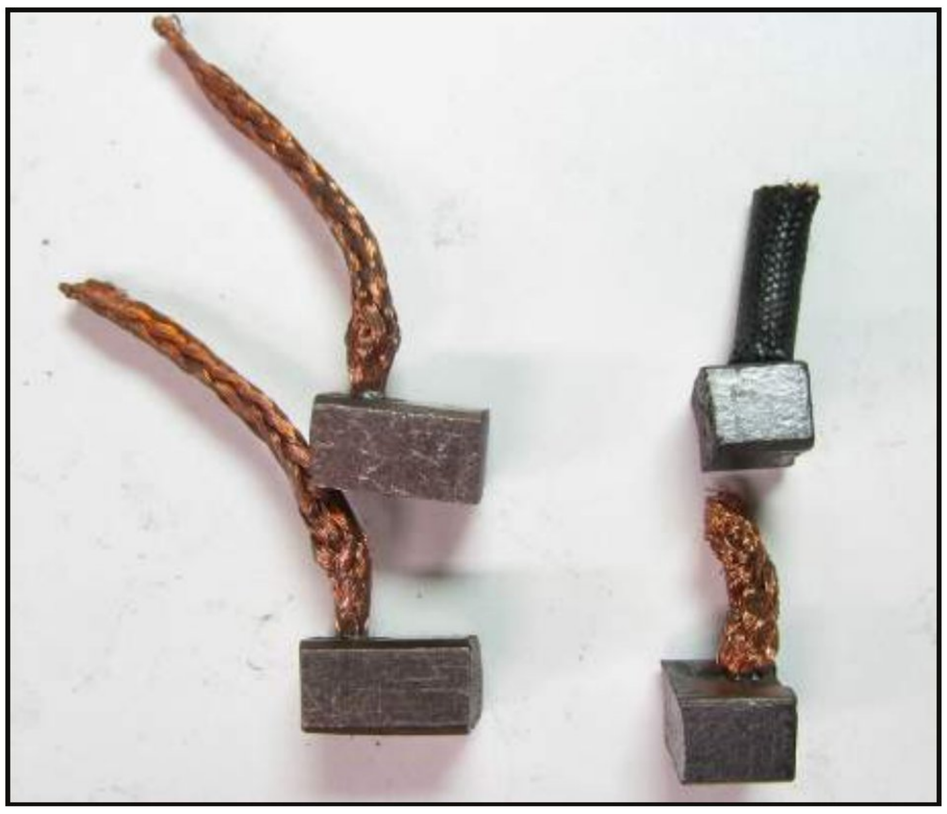


Figure 2 – The original worn out brushes are on the right and the new brushes are on the left.

LET THERE BE LIGHT
Switching Your Shop To LED



BY BOB THOMAS

In case you have not noticed, the price of LED lighting has come down considerably over the last few years. At the same time, the quality and durability of replacement LED lamps have improved too. If your shop is illuminated with florescent tubes, you can now greatly improve your lighting and recover the cost of the conversion in just a few years.

When I built a 3500 sq ft garage at our home four years ago, I had high efficiency T8 florescent lighting installed. The brightness was far better than I ever had when in business and I was pleased to finally be able to see well throughout the building. But after just a few years, some of the tubes were showing signs of age, slightly dimmer with a flicker that was just beginning to become more noticeable.

While researching for an article that I wrote on LED's a few years ago, I had run across T8 LED replacement tubes. Rather than re-lamping the entire garage with new T8 florescent lamps (20 would be needed), I decided to buy a four pack of 48" LED tubes to see for myself if they were any better than what I already had.

I learned that you can buy LED direct replacement bulbs that will run off of an electronic florescent ballast, but they also offer LED florescent-like tubes that will operate directly off 120v AC house current. To install those, you must bypass the ballast. I chose this version, knowing that they would consume less energy overall, produce less heat and eliminate the possibility of a ballast failure in the future. In the summer in Florida the heat from 10 ballasts is noticeable. The LED bulbs run cooler that florescent tubes too.

Unlike florescent tubes, LED lights come in a wide range of color balance or light temperature, represented by degrees Kelvin. The scale runs from candlelight yellow to bright sky blue, or 2,500K to 6,500K. The highest temperature available in the T8 LED tubes that I chose is 5,000K, so that is what I used. It is also worth mentioning that you want to get frosted tubes, not the clear ones. The frosted tubes help to diffuse the LED's bright light. The installation of the first four bulbs took nearly an hour, counting reading the instructions and bypassing two ballasts. I took the additional step of removing the disconnected ballasts as I had no plans of ever going back.

The lighting improvement exceeded all of my expectations (*see Figure 1*). The area where the LED's were installed was visibly brighter and whiter than the rest of the garage. It was easy to bite the bullet and buy 16 more tubes to convert the entire building. Now I can shoot photos in the garage without changing the light setting on the camera because I now have daylight inside. As we age, our eyes need more light to see well, especially when looking at small details. Good lighting makes all the difference in the world. You could not pay me to go back to florescent lighting.

If you are thinking about improving the lighting in your shop, here are a few tips:

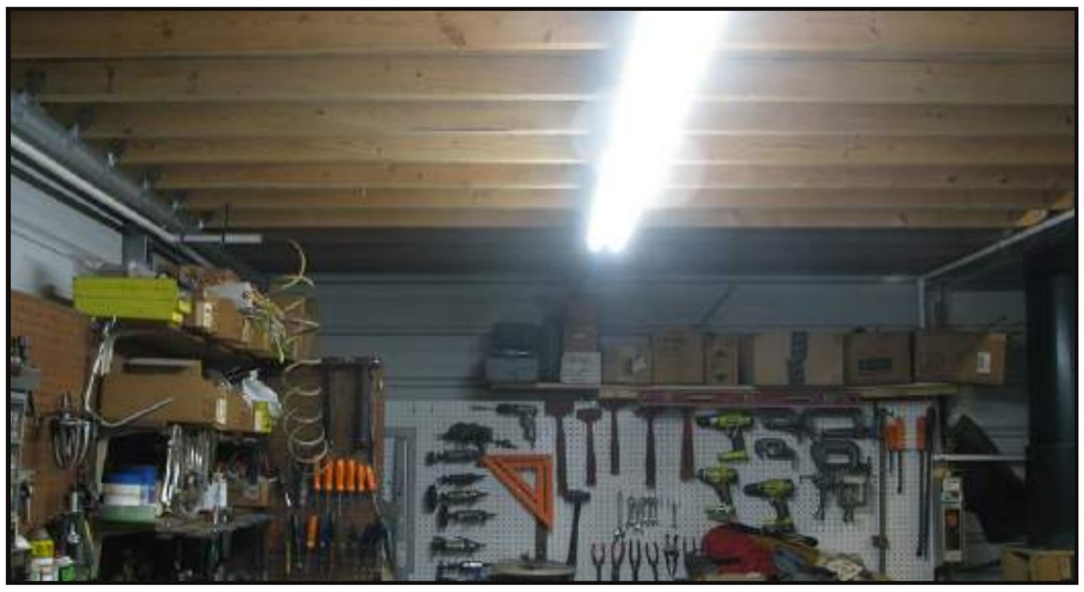


Figure 1 – The LED tubes were noticeably brighter than the florescent tubes.

Use the ballast bypass tubes because they are no more expensive. The extra time it takes to rewire the fixture is well worth the effort. I tested two direct replacement tubes that worked with my ballasts and they were brighter than the florescent tubes that I had removed. But they were not as bright as the ballast bypass tubes and they flickered almost as much as the florescent tubes. ERA member Art Glass, who used ballast compatible LED tubes, told me that he has had two ballast failures since he installed his, which entailed replacing expensive ballasts. If you bypass your ballasts, they are no longer there to fail.



LET THERE BE LIGHT

Wiring these lamps was simple. Just connect your line and neutral wires to the nearest tombstone, which is the nickname for a florescent receptacle (*see Figure 2*). No wiring is needed on the other end, so you can remove those wires altogether. These tubes will tell you which end must be powered (*see Figure 3*).

Choose a tube with a temperature in the 5,000 – 6,000K range. You'll have daylight inside! Install LED's in just one or two of your florescent fixtures first, so that you will be able to see the difference.

I purchased my lamps online from superbrightleds.com. They sell an LED for just about any application. But these ballast bypass tubes are available from many different vendors, both online and at hardware stores. No matter where you buy, be sure to test a few, before you buy them all. When you consider that a high quality LED will outlast five florescent bulbs while consuming a fraction of the energy, they will pay for themselves in just a few years.

Special thanks to Art Glass at Willard Battery in Bridgeville, PA, for suggesting this topic. He was re-lamping his building about the same time that I was doing mine. It was his idea to share our experience with ERA Exchange readers.

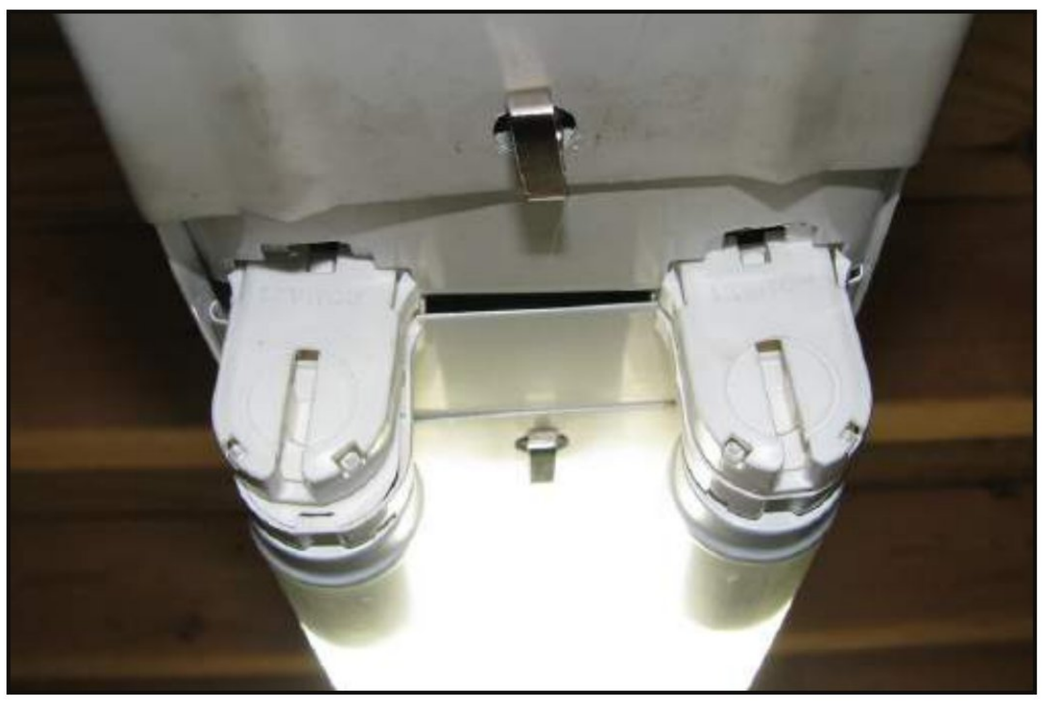


Figure 2 – The florescent tube receptacles are called tombstones.



Figure 3 – Ballast bypass LED tubes must be installed so that they receive 120v AC on the labeled end.



Drivin' on Route 66
Schedule of Events
2019 ERA Expo – Springfield, MO
Oasis Hotel & Convention Center

THURSDAY, APRIL 4

9:00
Load Buses to SRC Tour

9:30 – 11:00
SRC Electrical Tour

11:00
Load Buses to NorthStar Battery Tour

11:00 – 1:30
NorthStar Battery Tour & Complementary Lunch

1:30
Load Buses Back to Hotel

2:30 – 3:30
Seminar: AGM Battery
with NorthStar Battery

3:45 – 5:30
Seminar: New Units and Systems Update
with Mohammad Samii

5:30 – 7:00
Dinner Break

7:00 – 9:00
Roundtable Open Discussion
with Ken Plourde & Joe Davis

FRIDAY, APRIL 5

8:00 – 9:30
Seminar: Generator Testing & Adjusting Regulators
with Joe Davis

9:45 – 11:00
Seminar: Digital Charging System Communication
with Gene Kaiser

11:15 – 12:00
Seminar: PartRef & YouTech Group
with Dennis Jacinto

12:00 – 1:00
Luncheon Buffet

1:00 – 5:00
ERA EXPO

5:15 – 6:00
Seminar: Lathe Operation, Bit Selection & Sharpening
with Mike Dietrich

6:00 – 7:30
Dinner Break

7:30 – 9:00
Seminar: Starter Drives & Solenoids
with Dan Smith



REGISTER EARLY! THERE IS LIMITED SEATING AVAILABLE FOR THE DINNER BANQUET AT WONDERS OF WILDLIFE.

SATURDAY, APRIL 6

7:45 – 8:45
Seminar: Using Apptrak & Plug Codes
with Dan Bell

9:00 - 12:00
ERA EXPO

12:00 – 1:00
Luncheon Buffet

1:00 – 2:30
Seminar: Rebuilding Issues, Slip Rings & Case Studies
with Mohammad Samii

2:45
Load Buses to Wonders of Wildlife

3:00 – 7:00
Tour Wonders of Wildlife

7:15 – 9:00
Banquet at Wonders of Wildlife Great Barrier Reef Aquarium

9:00
Load Buses to Return to Hotel

SUNDAY, APRIL 7

8:00 – 9:00
Annual ERA Board of Directors Meeting
(All Members Welcome)

2019 Show Event Synopsis

Thursday, April 4, 2019

Springfield Remanufacturing Corp. Plant Tour
SRC is one of the premiere remanufacturing facilities in the US. They remanufacture everything from alternators and starters to transmissions and diesel engines. Their customers are OEM manufacturers who offer reman choices to their dealerships.

NorthStar Battery Plant Tour
NorthStar Battery manufactures and markets batteries world-wide. Their newest facility in Springfield houses the most advance AGM battery factory in the world.

New Units and Systems Updates
Mohammad Samii is the ERA Technical Advisor and owner of Sammy's Auto Electric in Champaign, IL. This seminar will cover some of the newer units that are showing up for rebuilding. He will also cover the testing procedures for newer units that, based on ERA Help-Line calls, are a source of confusion as well as an interest to rebuilders.

Group Meeting & Roundtable Discussion
Moderated by Ken Plourde & Joe Davis

Friday, April 5, 2019

Generator Testing & Mechanical Regulators
Joe Davis will explain the best methods to use when testing generators or mechanical regulators. He will also include some trouble-shooting tips and explain the proper method for adjusting mechanical regulators.

Latest Regulator Developments
Gene Kaiser is the Quality Control and Technical Manager for Regitar-USA in Montgomery, AL. He will explain computer-controlled regulators, including LIN and BSS, plus what you need to test them.

PartRef and YouTech Group
Dennis Jacinto is the founder of YouTech Group and PartRef, an online database free to ERA members. He will explain how to get the best use of PartRef, whether you are searching by application, part number or characteristic. He owned Lester Catalog for many years and has extensive knowledge of cataloging and databases for vehicle parts.

Sharpening and Adjusting Lathe Cutting Bits
Mike Dietrich, ERA President, rebuilder and originally a machinist by trade ,will explain the intricacies of sharpening and setting up lathe cutting bits. Everyone has their own ideas, but this is your chance to hear an expert tell you how to get the best results quickly.

Starter Drives & Solenoids
Dan Smith is one of our industries leading experts in starter drives and solenoids. His seminar will include everything you need to know about these two critical starter parts, including how you can rebuild or reclaim those that cannot be sourced economically. Dan works for both Arrowhead Engineered Products and J&N Electric.

Saturday, April 6, 2019

Apptrak & Plug Codes
Dan Bell is the owner of Whatcom Electric in Bellingham, WA. He will demonstrate how to efficiently use Apptrak, Whatcom Electric's own, in-house software database that is available online at a discount to ERA members. He will also explain how to use the plug code feature, a part of Apptrak that is available to all ERA members from the ERA's website homepage.

Rebuilding Issues, Slip Rings & Case Studies
Mohammad Samii will cover a number of common rebuilding issues, including the replacement of slip rings and case studies of particular problems that he has run into in his business, many of those on newer vehicles.

Wonders of the Wildlife National Museum and Aquarium
This non-profit educational and conservation-themed attraction is the only one of its kind in the US. It was created by Pro Bass Shops founder Johnny Morris to educate and promote the conservation of wildlife.

ERA Banquet -- REGISTER EARLY! THERE IS LIMITED SEATING AVAILABLE FOR DINNER!
This evening dinner event will be held at Wonders of Wildlife in the Great Barrier Reef Aquarium room. Following the dinner, SRC founder Jack Stack will share the business plan that he used to turn a closed International Harvester rebuilding shop in 1983 into a diversified business today with over $400 million in sales annually.

Just a few of the many sites to see at...

Johnny Morris's
WONDERS OF WILDLIFE
NATIONAL MUSEUM &
AQUARIUM











EXHIBITOR REGISTRATION FORM

COMPANY NAME _____

ADDRESS _____

CITY _____

STATE/PROVINCE _____ ZIP/POSTAL CODE _____

PHONE _____ FAX _____

EMAIL _____

PLEASE NOTE:
THE SRC ELECTRICAL TOUR AND NORTH STAR BATTERY TOUR IS ONLY AVAILABLE WITH THE ENTIRE SHOW BUNDLE



Springfield, MO
April 4-7, 2019

SEND THIS FORM WITH A CHECK OR CREDIT CARD INFO TO:

ELECTRICAL REBUILDER'S ASSOCIATION
PO BOX 906, UNION, MO 63084

OR FAX TO: 636-584-7401

OR EMAIL TO: office@electricalrebuilders.org

CALL: 636-584-7400

TO PAY BY CREDIT CARD: (circle one) MC VISA DISCOVER AMEX

CARD NUMBER _____

NAME ON CARD _____

EXPIRATION DATE _____

ATTENDEES NAMES (Please print clearly) **EVERYONE MUST REGISTER**	**REGISTRATION** INCLUDES: EXPO FLOOR ACCESS, FRIDAY AND SATURDAY LUNCHEONS, & WONDERS OF WILDLIFE ADMISSION WITH DINNER		**ENTIRE SHOW BUNDLE** INCLUDES: EXPO FLOOR ACCESS, FRIDAY & SATURDAY LUNCHEONS, ALL SEMINARS, SRC ELECTRICAL TOUR, NORTHSTAR BATTERY TOUR WITH LUNCH, & WONDERS OF WILDLIFE ADMISSION WITH DINNER		SUB TOTAL
	MEMBER BEFORE 3/6 **$150** AFTER 3/6 **$200**	**NON-MEMBER** BEFORE 3/6 **$250** AFTER 3/6 **$300**	**MEMBER** BEFORE 3/6 **$250** AFTER 3/6 **$300**	**NON-MEMBER** BEFORE 3/6 **$350** AFTER 3/6 **$400**	
1)					
2)					
3)					
4)					
5)					
6)					

Booths preferred: 1st Choice: Booth # _____
2nd Choice: Booth # _____
3rd Choice: Booth # _____

	BOOTH QTY	
5'x10' BOOTH X $625.00 (MEMBER) / $900.00 (NON-MEMBER)		
10'x10' BOOTH X $950.00 (MEMBER) / $1300.00 (NON-MEMBER)		
	TOTAL ➡	

Vendors you prefer not to exhibit beside or across from: _____

Cancellation Policy: Cancellations are subject to a 15% processing fee. NO REFUNDS will be made after March 6th.

FULL PAYMENT REQUIRED UPON REGISTRATION

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Tech Help from Mohammad Samii



Do you need help testing an alternator or getting it to work as it should on a vehicle? Call the ERA Tech Help Line and talk to an industry veteran that has over 40 years of rebuilding and on-car experience. Mohammad Samii can help you to find the answers that you need to solve any rebuilding problem. No question is too difficult. "Sammy" has a formidable list of resources at his disposal and is backed up by a line of regular ERA Forum contributors. The ERA is there to help when you need it.

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3500 AND 3599 CORES. Contact Larry at Hagemeister Enterprises. 800-944-0494

For Sale- Viking steel shot blaster, Little Scrubber vibratory tumbler, Crumbliss 1850 alternator/starter tester, KAR Industries digital alternator/starter tester, parts, ag & heavy equipment cores, special tools. Call 931-201-0224 or broken_mold@yahoo.com

For sale lots of cores heavy duty, industrial, agricultural and import. Call with OE or Lester numbers 314-664-2101

WANTED rebuildable Military electrical cores, any quantity, Prestolite 60 amp alts, Leece Neville 24V starters, CE Niehoff 24V alternators, Bendix 650 amp oil cooled alts, 300 amp Teledyne generators, any quantity, send your list or if not sure send pictures, and we can identify. 305-633-1524 or hy@cmearma.com

Have you had an experience or learned something new that you'd like to share with other members? Call Bob Thomas at: 904-673-7301

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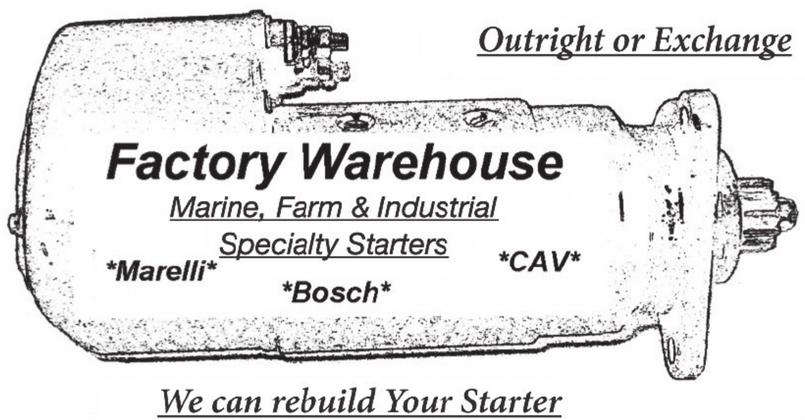

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