ERA EXCHANGE

YOUR GUIDE TO ELECTRICAL REBUILDING

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BEWARE: STATOR ACTIVATED REGULATORS

THE GHOST STARTER

2013 F-150 VALEO ALTERNATOR

2016 ERA SHOW REGISTRATION!

PLAIN TALK | HAIL AND FAREWELL

A WORD FROM THE PRESIDENT
The Upcoming Trade Show



The ERA's trade show committee has been busy the past few months working hard on finalizing details for the 2016 Expo in Memphis, Tennessee, March 18-20. Having been involved in this process this year has really impressed me. So much effort goes into putting on an event of this scale. Our goal is to provide you with a bigger and better event than last year.

A tour of the WAI Global Distribution Center promises to provide some insight into one of our industry's largest parts distribution systems. Part of the tour will also focus on WAI's quality control department within the facility. They have also graciously offered to provide a BBQ lunch for everyone who registers for the tour.

The technical seminars always focus on providing us with information that we can use in our own shops on a day to day basis. Some of them are technical in nature while others may be more about making your business more profitable. You will find a complete schedule on page 17 of this issue. Seminar topics that are new this year include using a digital scope when testing alternators, permanent magnet charging systems, and battery charger service and repair.

Our trade show provides a setting where you can meet rebuilders and vendors from all over the country and discuss our industry trends, find new products, new sources, new tools and new ideas. Maybe you want to get more involved in the organization itself? Please stop by the ERA booth and we can show you how.

This show will not be all business. We have scheduled social events for Friday afternoon before the show opens and a Saturday buffet style lunch. We will also have a shuttle service providing transportation to downtown Memphis Saturday evening. You do not have to rent a car or take a taxi to get to Beale Street's historic district or Pro Bass Shops Pyramid on the Mississippi River.

After our annual breakfast and ERA meeting Sunday morning the weekend will finish up with a technical seminar from the highly knowledgeable and talented presenter Mohammad Samii of Sammy's Auto Electric Service.

I believe industries do not die, but they do change. I am still rebuilding and selling auto electrical products and services. The products, markets, suppliers and technology have made dramatic changes over the last thirty years that I have been in business. The ERA has played a major role in helping me keep up with these changes. Whether you are new to this business or have been around for a while, my advice to anyone that might ask, is to be an ERA member, attend the annual trade show, use the valuable resources on our website and participate on the website Forums. Mark your calendar now! March 18-20, 2016.

Mike Dietrich

NEW ERA MEMBERS

Sheaffer Brothers Machine Shop
Carlisle, Pennsylvania

Little One Alternator & Strarter Service
Ocala, Florida

Outback Supply
Sheridan, Michigan

Spring Creek Repairs
Forbes, North Dakota

Moore's Auto Electric
Owensboro, Kentucky

ABOUT THE COVER

Rewound solenoid coils and armature from Chrysler's iconic gear reduction starter used from 1965 to 1987.

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Rebuilding is Recycling!

PLAIN TALK— HAIL AND FAREWELL



BY ROB BUKSAR



Back sometime during 1978, I entered into an enterprise of my own design and I called it Hoosier Electric. I began this as a part-time venture as I was working full-time running someone else's parts store. It wasn't that I was unhappy with the parts store gig nor did I need the extra income at the time. You see, it was a family-owned business and they had three major stores, owned and controlled by good ole mom and dad who were way up in years. The heir-apparent was their one and only son who was a drunk, gambler and couldn't keep his hands off of the female help. This may have been good for a TV soap but in real life small business, it really stunk!

In the meantime, I began rewinding Chrysler gear reduction solenoids in my garage with equipment and tooling that I built myself. In those days, there was a huge need for this part. For those of you who forgot or weren't around, that starter failed most of the time for two reasons. The armature got hot and threw the solder out or the solenoid burnt up.

My parts store career had a foreseeable ending. I knew I wouldn't get fired for fighting with number-one son. Yet, locking horns and duking it out in the backroom just became too counterproductive. I started rewinding solenoids as a minor financial insurance policy for the day that I knew would happen and it did. I resigned from the parts store without another job and went home to my little part-time business. My wife, at that time, and I discussed our options and we decided to give Hoosier our full-time effort.

So, here's the short version. The market in those days was so large that we were able to support ourselves winding Chrysler solenoids and eventually repairing Chrysler armatures. One thing lead to another and we became a full-time rewinder and supplier. Growth forced us out of the garage and basement to our present location which we've been at what seems forever.

In our best days, we had between 25-28 people on the payroll. We ran two trucks. One was dedicated to Chicago-land business which in those days was a full-time endeavor. The larger truck was used for route sales through 7 Midwestern states. We were always busy and actually overwhelmed in those days. Keep in mind, all the big winders were still out there and going great guns. Looking back, it almost seems to be a delusion compared to the market these days. I guess you had to be there.

Anyway, today I am here to report that as of September 25, 2015, Hoosier Electric has joined the list of winders and suppliers that no longer exist. Yes, that's right, we're closed and are now out of business.

I'm beat-up, worn-out and broken- hearted. Closing is the last thing that I ever wanted to do. It's not that we were ever a money machine. Yes, we made a respectful living at times. It was always far more than a living. I have rubbed shoulders with and became friends with some of the most extraordinary people anyone could hope to meet and associate with. Vendor and customer alike, it became like one huge extended family! In its day, I couldn't imagine doing anything different or associating with a finer group of people. All of you that I had the good fortune to know and deal with were awesome business people! Yet, today I can tell you that there is a fundamental difference between you and many of our younger replacements. When it came to decision crunch-time, you not only asked yourself "could we, but you also asked, "should we"? You see, you all had blood-running through your veins. Sadly, in too many cases, today the blood has been replaced with fibre-optic digital impulses! So it goes.

I must tell you all that if I wouldn't have exercised every option already that I would probably still be here, destroying the little that remains. The problem is the market will no longer support a typical rewinder. It didn't support Ram, Ennis, Holcombe, Reliable, Able, Excellceor, Lund & Flynn, American, Standard, Marks 1, et cetera. It finally could no longer support me. The pressure from the majors distributing Chinese parts and complete units is far too great. Further, because of the above, most every rebuilder scraps and sells his cores to the first guy that comes along with cash. By the way, in light of what you're all dealing with trying to stay profitable, I can't blame you for doing it.

My customer base has never been bigger. Moreover, we were picking up 1-2 new customers a week. The sad aspect of this was we were only being called for whatever couldn't be found new from the majors. I was and still am thankful for the calls but we couldn't support our overhead on leftovers. I say this with no disrespect towards anyone. I daresay you wouldn't be able to keep your crew going on leftovers either. Many of you have down-sized and or returned back to the garage and that's OK.

Words cannot express the thanks for those of you who have supported us with your business and in many cases, your friendship. We are all better off as people for having known and dealt with you all. Thank you again and again. We had a good run.

I'm not ready to retire so hopefully I'll pop up somewhere in the industry to make a contribution. As far as Hoosier is concerned; thanks, good-bye and best wishes to all of you.

Again, a heartfelt thanks for those that supported us, and for those that didn't, thank you too!

God bless our little industry!

All parts that have already been shipped to Hoosier Electric will be worked on at International Winding, Inc. and shipped back to you. Any questions, please call IWI at 800-323-7521.

BEWARE: STATOR ACTIVATED REGULATORS In Postive Ground Alternators



BY BOB THOMAS

For many years I have stated that a digital ohm meter is worthless for qualifying reclaimed starter or alternator parts. Now I would like to take that back. I recently ran into an alternator problem that had me baffled for nearly a full afternoon. Once the problem was solved, a digital ohm meter proved that it could have disqualified the faulty component.

It all started after I assembled a 6-volt, positive ground CS121 alternator to replace a Model A Ford generator. I've been building and selling these alternators for about on five years. I fell into that market accidentally having grown weary of trying to help customers who were having problems with 6-volt 10SI alternators on their Model A's. I won't go into the specific shortfalls of the 10SI on this application, but the CS121 addressed them all and it helped me get a foot in the door of this niche market.

I typically use reclaimed stators and rotors in almost all of these units while the housings, regulators, rectifiers, bearings, brush holders, pulleys and hardware are all new. I try to keep a few of them in stock, ready to ship. This order happened to come in when the shelf was empty.

I hastily put one together to fill the order that was promised to ship the same day. Once assembled it charged perfectly but I noticed that the voltage regulator applied field current the moment battery power switch was switched on - before the alternator made a single turn. That was not good. I wish I could say that I quickly figured out what was causing the premature turn-on but previously used testing methods failed me that day – as well as my own usually open mind. Proximity to mail carrier pickup time did not help either.

First, I did all of the normal tests again, for the stator, rectifier and regulator. They all passed. The stator looked to be in good condition and passed several 1000 volt insulation breakdown tests. It was the only used component in question. The new rectifier showed no leakage whatsoever. I tested the regulator using a 10SI with external connections and it turned on and shut down exactly as it should have. While checking the regulator I measured the voltage required at the P terminal to turn this regulator on. It was a mere 3/100ths of a volt (see Figure 1). While that insures lightning quick excitation it can cause problems if any voltage gets into the stator coils.

The stator's phase output is alternating current. That means the regulator's P terminal receives both positive and negative voltage. In other words, the voltage at the P terminal is the same whether the meter is connected between P and B+ or P and B-. The only difference is polarity. But most AC activated regulators, including this one, are looking for positive voltage only – and a very small amount of voltage at that. Eventually, I got around to measuring for voltage on the stator with the 6-volt battery connected to the alternator, and it was there – way over the regulator's turn-on threshold (see Figure 2)! I noticed it was also positive voltage.



Figure 1 – Measuring phase voltage just prior to regulator turn-on at .030 volts



Figure 2 – Measuring 4.5 volts on the stator with 6.2 volts connected positive ground to the alternator – not yet turning.

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STATOR ACTIVATED REGULATORS

How could this stator be leaking that much positive voltage and still pass the high voltage leakage test? What I failed to consider was that **this was a positive ground unit so the leaking voltage was coming from ground.** In addition, I failed to remember that **the amperage required to turn on most AC activated regulators is minimal.** It is minimal enough to be undetectable by most ground fault testers. A very small amount of amperage was obviously getting through at 4.5 volts. How could I have better tested this stator?

I removed the stator and connected a positive 6-volt battery lead directly to the lamination stack and the battery's negative lead to the voltmeter. Then I used the positive meter lead to check for voltage on a stator lead wire (see Figure 3). The voltage reading was nearly identical to what I found on the assembled alternator and that test would have disqualified the stator had I used it. But was there an easier way to identify this fault? Would an ohm meter reveal it? I hoped it would, even if it proved I had been wrong in the past. In the end, a simple digital ohm meter confirmed that there was a high resistance path that was leaking voltage from the stator's laminations to the coils (see Fig 4), 133 kilo-ohms in this case.

Be aware of this potential problem whenever you built a positive ground AC activated alternator – no matter the voltage and use one of the two tests described in the previous paragraph to qualify the stator.

Any problem can be solved with persistence and an open mind. The persistence was there but the mind failed to open enough to see the consequences of a high-resistance conductive path in a positive ground circuit.

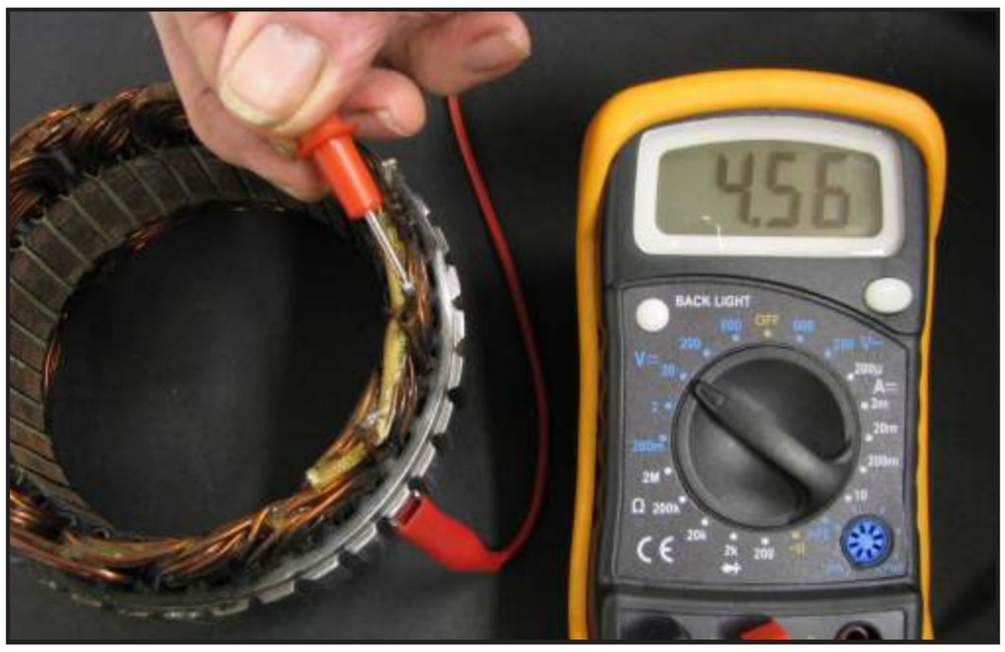

Figure 3 – Connecting 6.2 volts to the stator lamination stack and reading 4.5 volts on the coils.

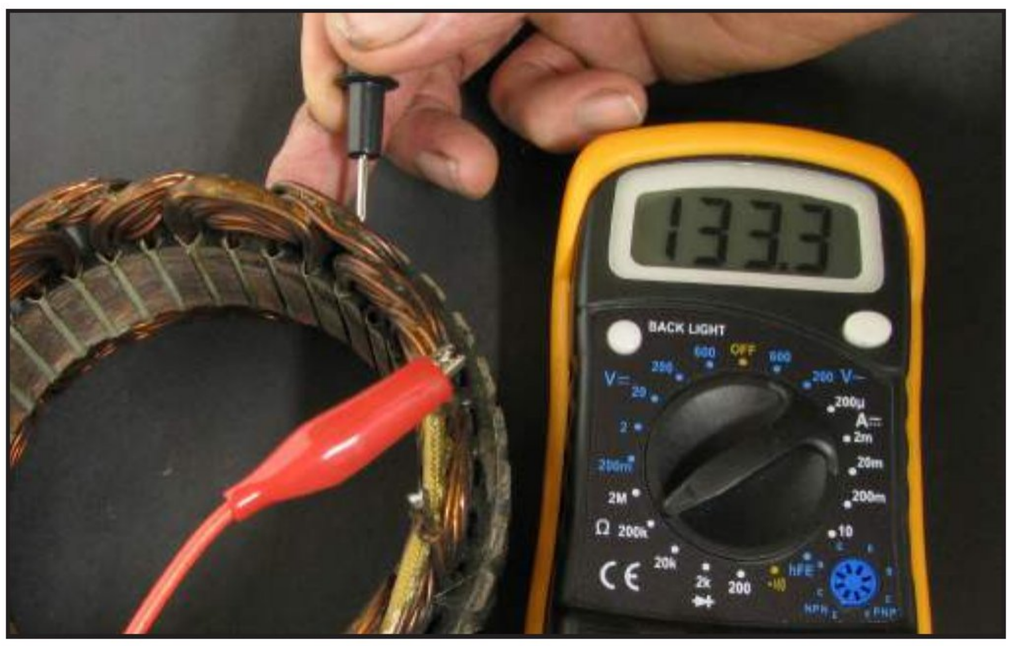

Figure 4 – Testing stator with an ohm meter and reading 133 kilo-ohms between steel and copper.

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2013 F-150 VALEO ALTERNATOR



BY KEN PLOURDE

We recently had a fleet customer bring in a 2013 Ford F-150 Lariat pickup truck to our shop with a low battery condition. The charge warning indicator lamp on the instrument panel was also illuminated.

To our surprise this vehicle had 91,000 miles on the odometer. Our first step was to confirm a charging system problem using a voltmeter. With the engine running, we found the battery to be at 12 volts. Then we proceeded to use an ODBII scan tool to check for diagnostic trouble codes. We found that code # P0625 had been set along with other codes pertaining to low voltage at various points in the system.

Code P0625 indicates that generator field terminal circuit is low. Since the alternator on this engine is easily accessible we removed it from vehicle. Once it was off, we tested it on our test bench and verified that the alternator was defective. Fortunately we had a new original equipment Valeo unit on the shelf that had been purchased from an ERA member vendor at last years show in Davenport (see Figures 1 and 2). Had I not been to the show, we would have never had an alternator for this late a model vehicle in stock.

Component parts for this unit, Valeo FG15S090, are very limited, to as few items as the bearings and voltage regulator with brush holder. With the new replacement unit installed on the vehicle and the trouble codes cleared, the charge system was back to normal. The warning lamp was off and battery voltage confirmed that the alternator was charging again. The truck was returned to service and a fleet customer was extremely pleased with the prompt attention we were able to provide.

With the core in hand, we took on the challenge to disassemble & check out what went wrong with this late model unit. As I mentioned before, very few component parts are available at this time. What we discovered was that the brushes were worn out. Everything else appeared and tested good.



Figure 1 – This 150A Valeo alternator used on 2013 and up Ford F series trucks uses the same regulator plug as 6G units.

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2013 F-150 VALEO ALTERNATOR

As you can see in the photos, this Valeo alternator is similar to some C.E. Neihoff alternators in that it uses two sets of stator coils wound into one lamination stack (see Figure 3). Notice that the slip ring end (SRE) frame has two sets of negative avalanche diodes to rectify the ground side while the positive rectifier has two sets of positive avalanche diodes. The drive end bearing is a common 6303 and the SRE bearing is a 6202. The SRE bearing can be replaced without removing the slip rings from the rotor. The Voltage Regulator (see Figure 4) has a normal Ford 6-G Style Connector - Plug Code 337 (LI-RC-AS). AS is alternator sense. RC is remote voltage control or the input signal from the PCM to control the voltage set point according to loads. LI is the return signal from the regulator to the PCM that is used to monitor the regulator's duty cycle, also referred to as GEN MON. Valeo's part numbers for this voltage regulator are 2607144 and 265071. With a new replacement voltage regulator/brush holder and bearings, we were able to rebuild the core and put back in stock for the next customer.



Figure 2 – Part number FG15S090 is the Valeo part number on the Ford tag.

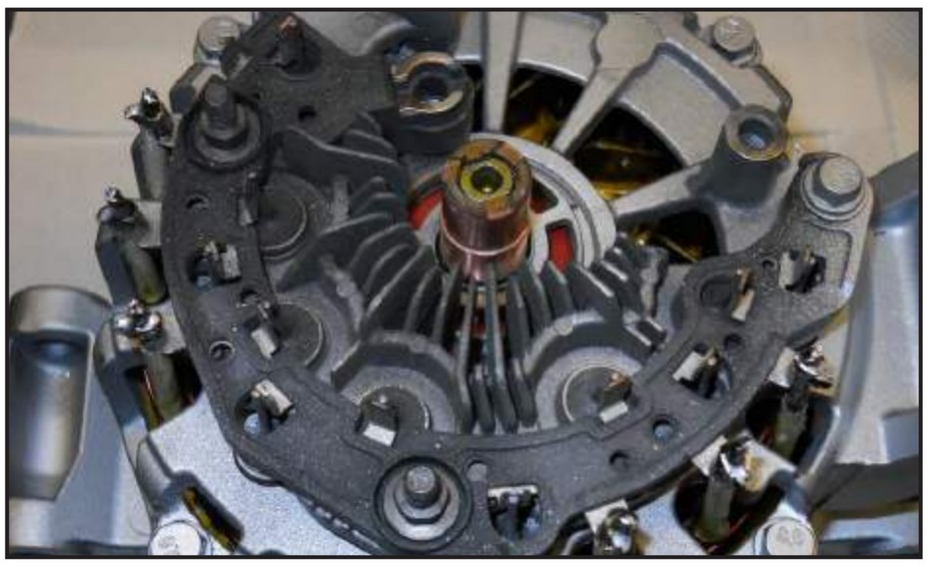

Figure 3 – Two separate sets of stator windings and six diodes in the positive heat sink are used.



Figure 4 – This Valeo voltage regulator with integrated brush holder uses a 6G plug with remote voltage control.



THE GHOST STARTER



BY NATHAN UNGER

As the sultry night air wafted through the open window, the farmer tossed and turned, asleep, and yet awake. Suddenly the sound of a cranking starter sent adrenaline pumping into his heart. *Someone was trying to steal his berry harvester!*

He yanked the covers off and, still in his pajamas, ran out there as fast as his bare feet would go. When he reached the machine parked beside the barn, the starter was still cranking but no one was there...

In the morning I got a call from the local machine dealership asking me to help unravel this mystery. This was already the third starter in a row (please, no puns) on this machine. And each time they had also replaced the auxiliary relay and the ignition switch, just in case the contacts were sticking.

For a long time already I had suspected an issue on these Littau Berry Harvesters (see Figure 1) with the 3.3L B series Cummins diesels, because whenever I would get one of these 228000-9010 or 428000-2650 Denso starters (see Figure 2) to rebuild, they were almost always exploded inside. Since I don't do service calls, I had little opportunity to investigate this.

This time, however, I asked the service technician to bring me not only the starter, but also the auxiliary relay, the ignition switch, and the safety interlock switch.

I took each component apart and did a full "autopsy". The starter had exploded due to excessive centrifugal force (see Figure 3), and also the solenoid coils had been overheated (see Figure 4), indicating that they had been powered up from an external source. There is a condition where the starter can stay engaged because its contacts are welded together, but then the solenoid coils will usually not have been burned up. This damage was not due to sticking contacts.

The auxiliary start relay (one of those Bosch cubes), is used to connect the starter solenoid "S" directly to 12 volts at the B+ when its coil is powered by the ignition switch. I took it apart; the coil and contacts were in good condition. Next I did some testing with a variable DC power supply. Although it draws 0.14 amps at 12 volts, it needs only 0.07 amps to close. I backed the voltage off slowly, and it wouldn't release until the current got below 0.04 amps! Also, it did not have a kickback diode. This means that there will be a spark inside the ignition switch whenever the key is released.



Figure 1 – The Littau Berry Harvester has a Cummins engine and Denso starter.



THE GHOST STARTER

Once I had pried apart the 4PDT safety interlock switch, I found all of the contacts in good condition, so that wasn't the culprit.

Then I got to the ignition switch. Corrosion, signs of electrolysis, and muddy watermarks were in evidence on all of the brass, copper, and aluminum components (see Figure 5).

So to unravel all the evidence, I inquired about anyone washing the machine. It seems this farmer likes to keep his tractors nice and clean. Every day after harvesting, the farmer would have one of his boys pressure-wash the machine. But the ignition switch was not protected nor sealed, and it was cheaply made besides. The muddy water that splashed into it would corrode the copper and aluminum inside, and would begin to become a conductive solution itself. That's why each newly replaced ignition switch would develop the same trouble.

Whenever they would start the machine, the ignition switch would activate the relay, and the relay would activate the starter. But once the muddy water and corrosion would build up inside the ignition switch, there would be enough conduction due to the dissolved minerals in the water to keep the relay closed even after the ignition switch was released. Remember, it only takes 0.04 amps to hold the relay closed. I was actually able to simulate this on the test bench, immersing the contacts in a plastic container of water and then stirring in a little soil from behind the shop.

If the ring gear to starter pinion ratio is, say, 15:1, then the starter could theoretically rev up to a whopping 27,000 RPM. That's why the commutators would always blow up, taking out the brush holder and field coils as well.

Now I have a theory as to what made the starter start cranking at night all by itself. Suppose he had a build-up of residue from the previous time he washed the machine. Maybe it didn't have quite enough electrolyte concentration to cause the run-on condition the next time he started it, but it began the corrosion process. When he turned the machine off at the end of the day, he washed it again, maybe splashing more mud and maybe a bit more berry juice onto the ignition switch. The 12 volts across the open switch contacts accelerated the corrosion problem during the night until the concentration of mineral, copper, brass and aluminum ions, plus a little acid from the berry juice allowed in excess of 0.07 amps to flow, closing the relay contacts and activating the starter.

When the farmer disconnected the battery during the night, he 'saved' the starter, and some of the water in the ignition switch may have gradually leaked out by morning, so that the problem lay dormant until after he started the engine. At that time, since there was still some sludge left in the ignition switch, it could still conduct the 0.04 amps to keep the relay and starter engaged after the engine was started.

Of course, an inexperienced operator might not even hear that sound over the roar of the machine, so the starter would keep trying to crank even though the engine was already running and the operator had released the key. The engine would thus be propelling the starter. With the large ring gear turning at (let's say) 1800 rpm, this would then be why the armature was exploded and the solenoid hold coil was cooked. By the way, the fact that the auxiliary relay coil had no kickback diode means that it would send a high-voltage spark into the leftover sludge, which would definitely not help the situation.

The service technician addressed the problem by installing a separate push button start switch. I hope it was a weather sealed type.
I was not required to cover the warranty on any of the rebuilt starters from that machine because they had burned solenoid hold coils, proving that they had been held engaged because of issues external to the starter.



Figure 2 – 2.2kW Denso starter number 228000-9010.



Figure 3 – Exploded commutator is convincing proof that this starter was engaged with engine running.



Figure 4 – The burned solenoid coil indicates the switch terminal was powered for an excessive amount of time.



Figure 5 - Corrosion and conductive sludge inside the ignition switch caused the intermittent self cranking.

TESTING A REGULATOR
Need Some Help?



BY BOB THOMAS

Did you know that you can find regulator testing information fast on the ERA website by selecting **Transpo VR Manual** on the left side menu on the homepage? That will take you to an introductory page with a red button at the bottom of your screen to open the interactive online manual (see Figure 1).

The manual will take a few seconds to load. Once it does, the manual cover will appear (see Figure 2). Below it you will see controls to **scroll** through pages or chapters, a **magnifier** and a **search** icon on the far right. On the left you will see two icons for **index** and **print.**

The quickest way to find a specific diagram is to use "search" if you have a Transpo regulator part number. Left clicking the search icon opens a search box (see figure 3). Entering the Transpo number and clicking search provides a list of diagrams that match. Left clicking any one will take you straight to that page. (see Figure 4).

If you do not know the Transpo part number, you can still browse through the diagrams by manufacturer to find what you need. Left click the index icon to open the table of contents (see figure 5). Left clicking on any manufacturer will open the manual to that section (see figure 6).

You can enlarge any part of a page by right clicking on the area you want to zoom in on. A second right click returns the page to normal view.

This 553-page manual is a source of hundreds of voltage regulator testing diagrams. Each one clearly shows that regulator's terminals and their function. Once you locate the diagram you need, you can use the print icon to make copy of the page.

Special thanks to WAI Global for making this resource so easily available to all ERA members.



Figure 1



Figure 2

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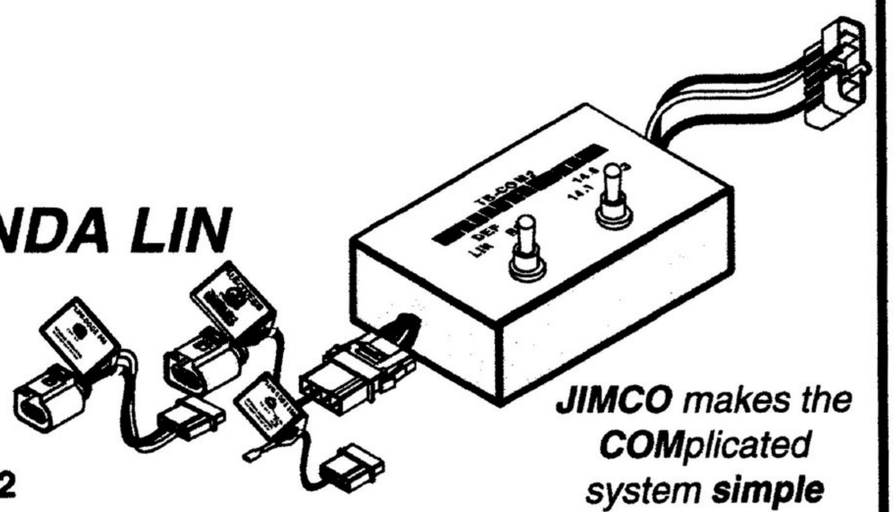
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TESTING A REGULATOR



Figure 3

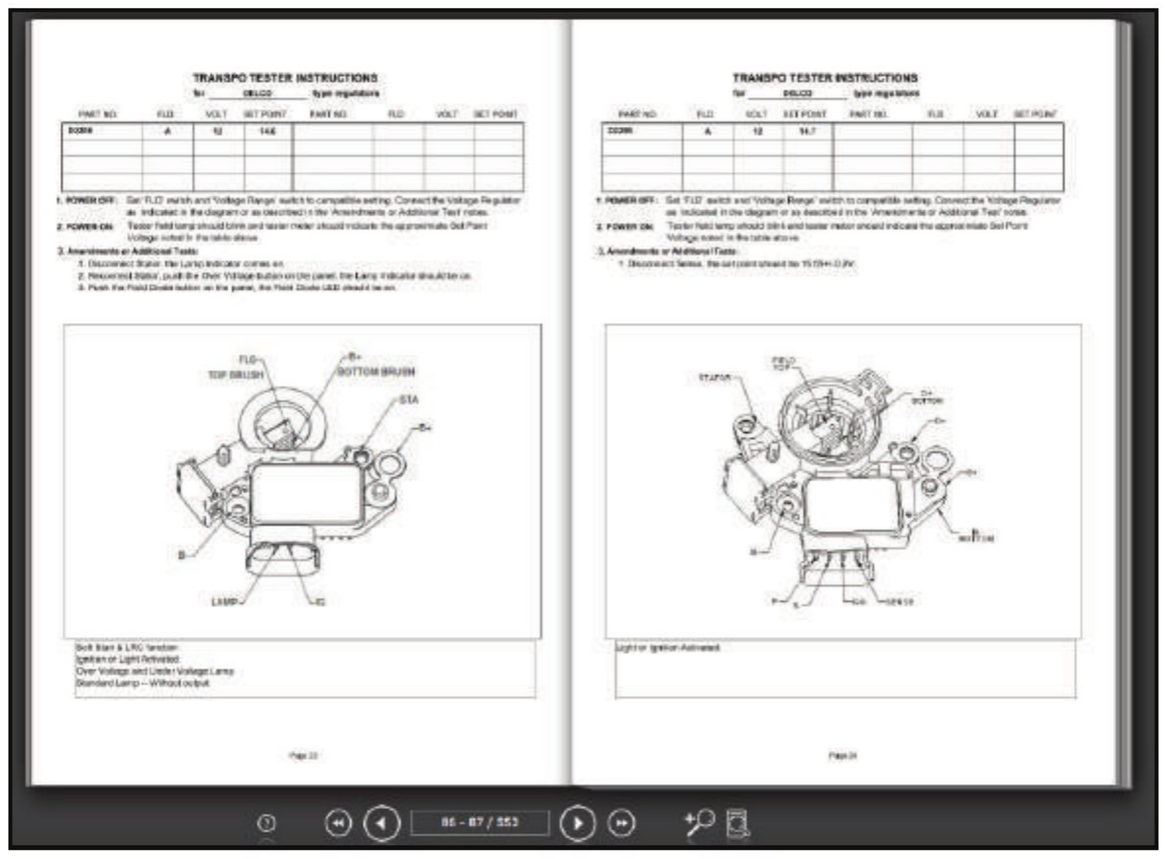

Figure 4

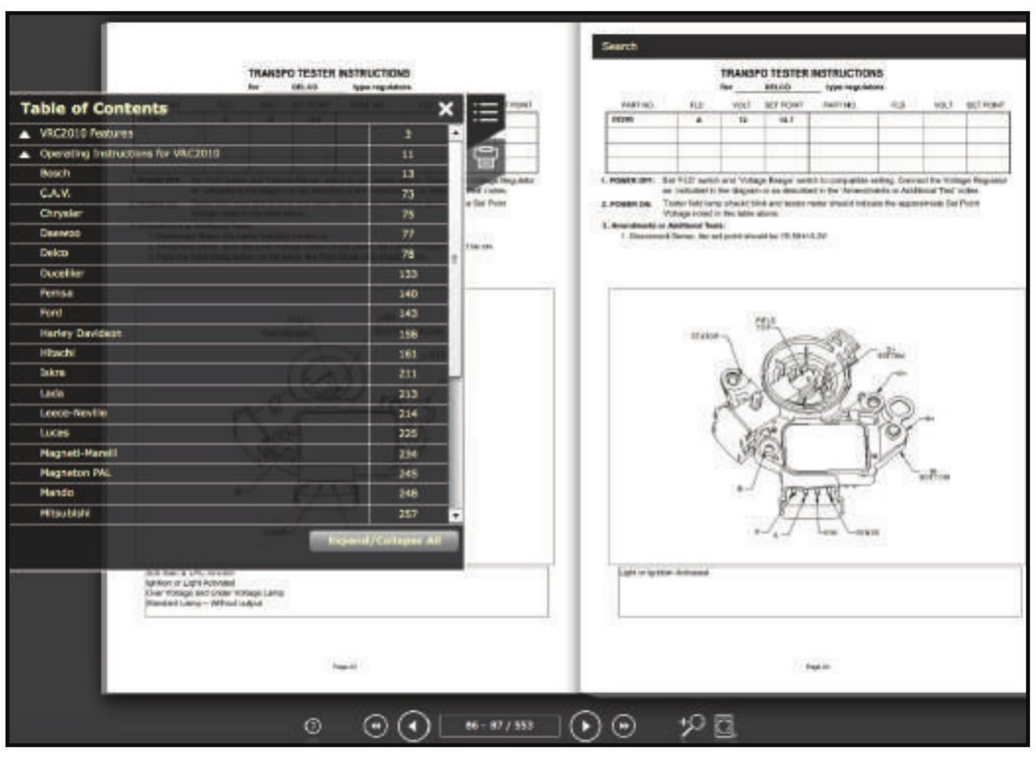

Figure 5

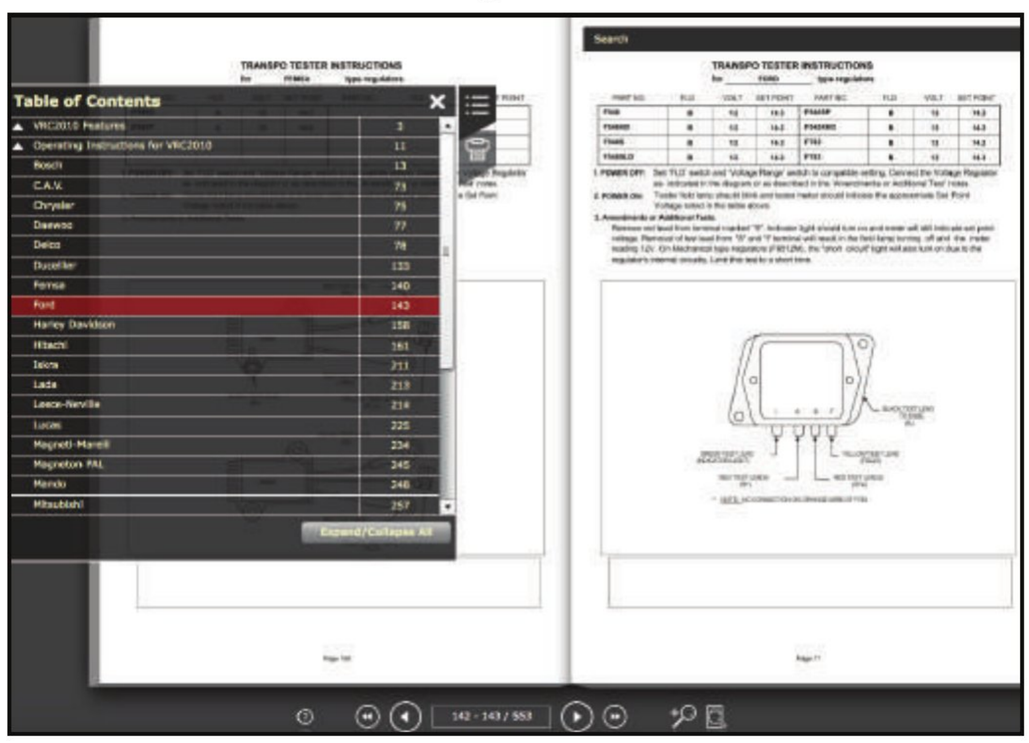

Figure 6

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START RELAYS SOLVE PROBLEMS
A Perfect Example



BY KEN PLOURDE

We provide rebuilding services for several local farm customers, including one that has half a dozen John Deere Gators in use around his farm. These small utility vehicles are sometimes started 50 to 60 times a day. This farmer recently returned one of our rebuilt Denso 128000-7050 direct drive starters with a complaint that the solenoid clicked but the starter would not crank the engine. He told us that this had been a continuing problem on his Gators and as you might expect, he was not happy about it. In his mind, our starter was at fault.

We bench tested the starter that he returned but were unable to find anything wrong with it. I suspected low voltage at the switch terminal was causing this problem but without having the Gator to test, it was impossible to be sure. John Deere chose not to incorporate a relay in the start circuit of this Gator. After all, it did not really need one when everything was new.

We were also aware of the fact that multiple safety switches were involved in the starter circuit and the switching current had to pass through numerous harness connections. The fact that the Gators are used in a rain or shine environment around fertilizers and farm chemicals contributes additional reasons to expect that multiple resistance points will develop over time. Narrowing down the exact location of a voltage drop would be difficult if not totally impossible.

I decided that a start relay attached directly to the starter was the best way to solve this customer's problems quickly and permanently. Being very familiar with power-sports starters, mostly on snowmobiles here in New England, I immediately thought of the solenoids used in those applications. On snowmobiles, jet skis and motorcycles, the solenoids are usually mounted right next to the starter. Additionally, the switch terminal on those solenoids are usually the same size spade terminal as the one used on the Gator's starter solenoid.

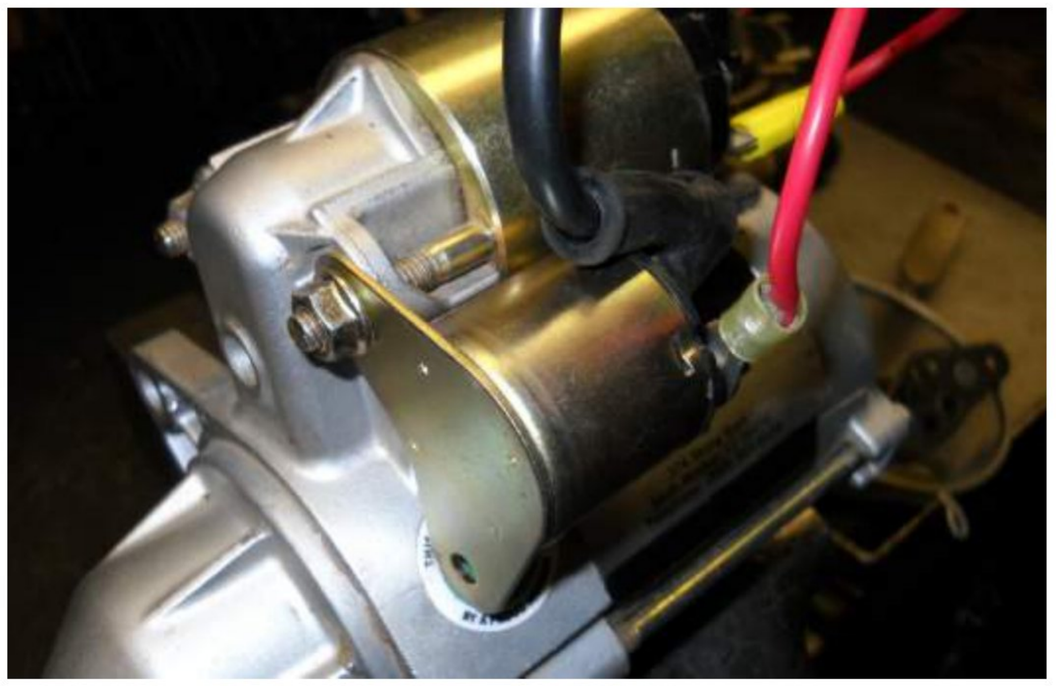

Figure 1 – Denso starter for John Deere Gator with start relay attached.



START RELAYS SOLVE PROBLEMS

One such relay, Denso number 182800-1570, is a common one that I happen to stock in an aftermarket version. While the OE relay is pricey the aftermarket version is a bargain. It is more robust than a Bosch cube and has a bracket that will fit the direct drive Denso starter very well (see Figure 1). This solution makes a nice neat package that does not require any extra work or wiring for the customer.

Since we sell many such starters for different brands and types of utility vehicles, we now attach this start relay to every one of those units. This relay is included as part of an added value upgrade package. The additional cost and time for us to make this upgrade is minimal. We increase the selling price accordingly, making the sale more profitable for us. It is easy to explain to a customer because they do not have to make any modifications to the wiring on the vehicle. I can assure them with confidence that if they have or later develop a voltage drop on their machine, our relay will prevent it from causing them any start problems.

We have found that this upgrade has reduced returns on these types of starters to near zero while complaints of clicking but not cranking have been eliminated entirely. One farm customer is now very happy to have his employees working again without having to worry about a Gator that might refuse to start for them.

Editor's Note:

Ken Plourde's story about how he solved his customer's specific problem is a perfect example of the future for today's electrical rebuilder. Ken utilized his experience and knowledge to provide the best possible solution to what could have been a negative situation. He turned a customer's complaint into a positive experience for his customer and his own business. That kind of success does not happen by accident.

It comes by way of making use of all possible resources and constantly searching for new ones. It comes from believing that "good enough" is never really good. It comes from understanding that excellent customer service brings in new customers. Quality personalized service is the only advantage that you have in today's marketplace. That applies to all businesses, but perhaps more to small retail and repair shops than anyone else. Forget about what worked in the past.

You can no longer guarantee a potential customer that even a repair is cheaper than new. The lure of using the Internet to compare pricing or shopping outright, any time, day or night, weekends, holidays, even while traveling on the road or sitting in a restaurant is intoxicating. Just look around as see how many people around you are using their phones to look at something online.

More often than not, the person who walks in your door today already knows what his part is selling for online. The usual local source is longer the first place people look unless that local source happens to be exceptional. To survive and thrive, your business must strive to be exceptional in every way. Sufficient is no longer good enough. Good enough to "get by" is no longer good enough earn a living. Every single person that walks in your door with a problem is an opportunity.



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2016 ERA SHOW — Personal Contact Is Important

A trade show can be many things to different people. For attendees, it is an opportunity to meet others who operate a business that is probably similar or possibly even nearly identical to your own. Making new friends and sharing information is but one example of the rewards that come from attending a trade show.

Seminars offer another chance to learn from others. The speakers are more experienced than you in their given area. They are there to share that experience with you. One tidbit of information picked up during a seminar quite often pays for the entire weekend. The speakers are generally there for the entire weekend too. Most of them are quite willing to talk with you personally and share information that may not have been in their seminar.

And of course, there is the exhibition itself. If there are any new suppliers, you can be sure they will be there to talk to you. But it is also a chance to speak with people in person that you have only conversed over the phone with previously. In many cases, it may be an opportunity to meet the owner of the company. Personal contacts made at trade shows can help you well into the future.

For exhibitors, most of the above applies as well, but customer contact is the real reason for being there. There was a time when finding new customers was the only goal of those exhibiting at a trade show. Success was measure by the number of new contacts. But times have changed. Some new customers will be there for sure, but there will not be as many as those seen in the past.

As the world market and our industry evolves, personal contact with existing, occasional or former customers becomes ever more important. No supplier today has a sales force calling on all customers personally. That makes the personal contact at a trade show much more important than it ever was in the past.

Direct mail, phone sales and print advertising may keep your name in front of your customers, but it is not the same as the personal contact, the hand shake and face-to-face greeting. The trade show is the least expensive way to make that connection to a large group of customers. It is the best opportunity for suppliers and attendees alike to get together, even if only for five minutes. It is all about making that connection, one-on-one, which is more important today than ever before.



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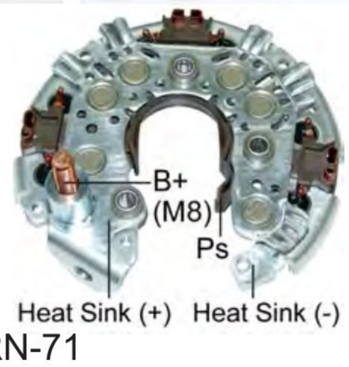

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Alternator Bench Testing Using a Digital Scope

10:30 – 1:30
Plant Tour – WAI Global Distribution Center – BBQ Lunch provided by WAI

2:00 – 3:30
Seminar: Juan Grube *with Jimco –*
Permanent Magnet Charging Systems

4:00 – 5:00
Reception with Cash Bar

5:00 – 8:00
Exposition Open

SATURDAY, MARCH 19

8:00 – 9:00
Seminar: Murl Reiman *with PLP Battery –*
Battery Charger Repair

9:30 - 10:30
Seminar: To be announced

10:30 – Noon
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Noon – 4:30
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SUNDAY, MARCH 20

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Seminar: Mohammad Samii *with Sammy's Auto Electic* – (Topic to be announced)



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Scott's first job was repairing equipment at a John Deere dealership. He later moved to a larger dealer where he eventually became the general manager. But the long hours it demanded were hard on his family, so Scott moved to JIMCO in 2001, where he's had the opportunity to learn charging systems inside out.

"I believe I'll be able to help the majority of callers." he explained. "But I will also rely on other ERA members who know more than I do about some subjects." The ERA's Tech Help Line always has been a team effort. That same group of industry veterans will assist Scott whenever a question falls outside of his area of expertise. Help is still just a phone call away.

Welcome Scott!



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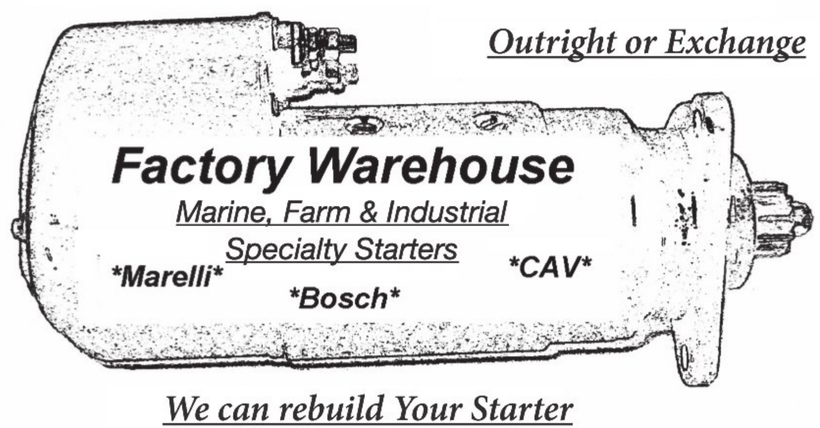

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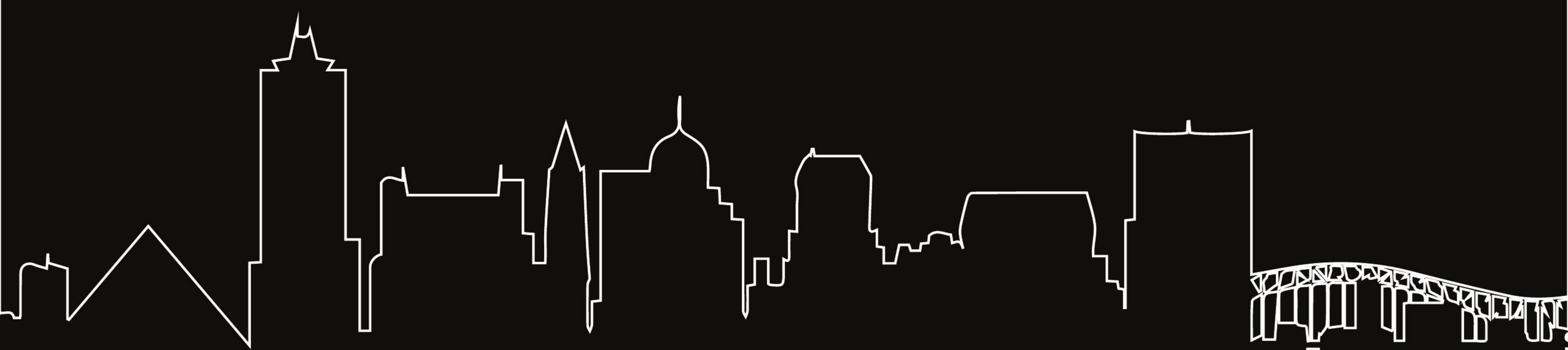

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