THE EXCHANGE

AN ELECTRICAL REBUILDER'S ASSOCIATION PUBLICATION

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ERA Expo 2015 schedule and registration Page 8

The 32nd Annual
Buyer's Guide

SOURCES 2015

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The Who's Who of Electrical Rebuilding since 1984

Time To Decide

BY ERA STAFF

Another new year is here, and it is time for you to decide to attend ERA Expo 2015 in Davenport, Iowa, March 13 to 15. There is a John Deere plant tour to kick off the weekend on Friday morning. Five seminars are scheduled over three days, covering: rebuilding generators, rebuilding magnetos, tips on late model units, battery drain testing and Internet marketing. The ever popular Rebuilder's Round Table Forum is scheduled Saturday afternoon.

The exposition itself will open early Friday evening from 5 p.m. to 8 p.m. and again on Saturday from 11 a.m. to 4 p.m. A free vendor-sponsored pizza buffet with cash bar is scheduled for Friday afternoon between 4 p.m. and 5 a.m., prior to the show floor opening. See the full schedule on page 8. It is time for you to decide.

If you are thinking about flying, right now is actually the best time to buy your tickets. According to Rick Seaney of the website www.farecompare.com, the best time to find and book flights for US domestic flights is between three months and one month from the departure date.

He says that the best day of the week to check prices and purchase tickets is on Tuesday afternoon, the day most airlines adjust their pricing and introduce sale prices. "Competitors try to match sale prices, and by 3 p.m. Eastern time, that matching is essentially complete. But be careful that you don't wait too long. A big mistake many people make is to delay shopping for airline tickets until the last minute, which is when the steeper prices that business travelers pay, kick in," Seaney explains. "Procrastination doesn't pay." It is time for you to decide.

Seaney also says, "Airlines can and do come out of left field with good prices from time to time (and sometimes these are mistake fares). As I wrote in a recent column for USA Today, In theory, every search request helps recalculate airlines' cheapest inventory—for each and every itinerary—based on how

(See TIME, pg. 9)

Electrical Rebuilder's ERA 27th Annual EXPO 2015

DAVENPORT, IOWA
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1938 Buick—Delco Voltage Regulator

Think outside the box

BY BOB THOMAS



Figure 1—1938 Buick generator - Delco Remy 1101052.



Figure 2—A close look at the generator's original identification tag.

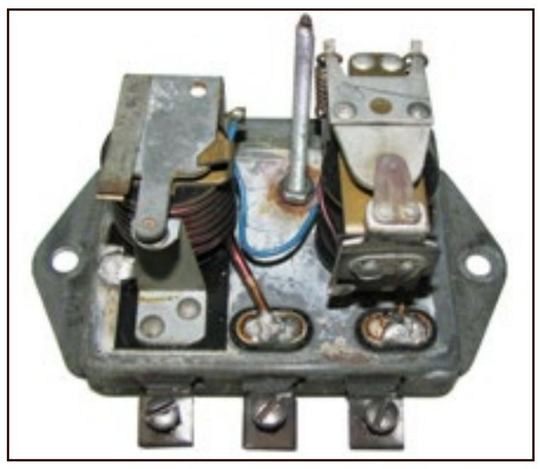

Figure 3—The cutout relay is on the left, the control relay is on the right.

When a customer called to inquire about rebuilding the generator on a 1938 Buick, I instructed him to bring in both the generator and the voltage regulator. "They operate as a team," I told him. "I insist that we test them that way."

According to the number on the generator's original tag (*see Figures 1 and 2*), this was probably the original generator that came on the Buick from the factory, although it obviously had been rebuilt an unknown number of times. It failed a motor test and did not produce voltage on its own when spun. It had new brushes, but the commutator had already been turned one too many times. The armature failed a short-to-ground test and had slung solder to boot. I sent it out to be rewound and have a new commutator installed.

The regulator was the two-unit type and was mostly original. I tested it using a known-to-be functional 6-volt Bosch VW generator that I often use to check 6-volt A-circuit regulators. The regulator failed to let the generator charge, and adjusting spring tension proved futile (*see Figure 3*). A close inspection of the control relay contacts revealed the reason why. They were melted together, and the upper contact was detached from the stationary arm. After bending the stationary arm out of the way, it was easier to view what had happened (*see Figure 4*). I considered the options: repair this regulator or find something to replace it. My customer (who was not the owner of the vehicle) told me that the "old man" who owned

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THE EXCHANGE

AN ELECTRICAL REBUILDER'S ASSOCIATION PUBLICATION

Serving the automotive electrical aftermarket

SINCE • 1983

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Entrepreneur Or Capitalist
What's the difference?

BY BOB THOMAS

When I opened B&H Electric in 1980, I purchased my first parts from a regional supplier in Hollywood, Florida named Mike Winters. Under the business name of CARPRO, he personally delivered orders for drives, solenoids, rotors, stators and armatures once every month all around the state. I got to know him while I was helping to manage another shop, and he was the very first supplier I contacted once I was ready to buy parts. I even drove down to Hollywood to have lunch with him and pick up my initial order. I have always considered him a friend and a mentor.



When he visited my little storefront business for the first time, he told me something that seemed very strange back then. He said, "You are an entrepreneur now. You'll know that you have made it when you become a capitalist." I remember wondering to myself, what in the devil did he mean? I thought an entrepreneur was a capitalist. His statement seemed to be redundant. But at the same time, I had this feeling that I was missing his point. I just did not know at the time what it was, and I was too young and introverted to ask him.

The word "entrepreneur" is derived from the French word "entreprendre", which means to begin something, or to undertake. An entrepreneur is basically a person who begins a new business. An entrepreneur undertakes the challenge of entering into a new enterprise in spite of the risk that it may not be successful. For sure, I was an entrepreneur. Most of you were entrepreneurs, too.

A "capitalist" on the other hand is defined as a person who has capital, especially invested in business. "Capital" here means assets or wealth or in simpler terms, money. The end goal of any business, new or old, is to make money. I used to tell people that you have to have money to make money. I have never met anyone who went into business to break even or lose money, although many have. In my mind, the day I opened for business, I was both an entrepreneur and a capitalist.

I was regularly reminded by my first wife that half of new start-up businesses failed within three years. Today, I think it is more like five years. At any rate, the odds seemed to be against me. Successful entrepreneurs are confident in their business plans and their abilities. They are willing to make the sacrifices necessary to survive those first years. More than anything else, they believe in themselves. All of that was certainly true in my case. Failing to succeed never entered my mind ... and succeeding in this business in the 80s, even during a mild recession, was about as easy as it ever got.

By the time you read this, B&H Electric will be closed—not because there is not enough business to continue, but because I have over-extended myself, juggling the tech help line, this newspaper and a rebuilding business. I had to give up something and decided it would be the one that was the most physically demanding on my body. As I approach the age of 66, that has become a major consideration. I actually made the decision many months ago and immediately began to tell customers, against the advice of many friends. I was expecting and looking forward to business "dropping off" slowly, but it never did. If anything, it increased.

Over the years, Mike Winter's comment made that day, in a sparsely stocked but neatly organized little rebuilding shop, continued to haunt me. I knew that I was missing something, and every now and again his comment would pop up in my mind. I cannot tell you exactly when it happened, but surely it was within the last 10 years. I now know what Mike was trying to tell me then, and I am thankful that I never became the capitalist that Mike was referring to.

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What Happened Here?

Answer to last month's column

BY ERA STAFF

The photos below show the pinion gear and solenoid contacts from a 24-volt 5.5kW Denso starter, part number 128000-2561. We were told that it had quit working completely on the machine, a Case loader. They had been tapping on the motor case back cover to get it to operate. The photo of the solenoid contacts (*see Figure 1*) reveals why this starter finally failed in the field. The other photo of the pinion gear (*see Figure 2*) reveals evidence of exactly what was happening. The marks on this pinion were caused by arcing. The starter had been getting a ground through the pinion starter gear to the ring gear on the flywheel. The drive bearings also became part of the ground path, and both of them had a noticeably rough feel.

The last photo (*see Figure 3*), not included before, shows why it was getting a poor ground. One mounting bolt was missing, and the other two had backed out. That is why tapping on the back cover of the motor case worked for a while. The tapping with a hammer was simply moving the starter closer to the engine to get enough ground for the solenoid to work. Once the contacts closed, and the pinion engaged the ring gear, the pinion and flywheel provided sufficient ground to turn the engine slowly.

Now, this customer has to have a concern about damage done to the bearings in the engine as well.

This "backdoor" ground path resulted in a large drop of voltage to the starter. When voltage drops, amperage draw has to increase. This starter requires **watts** to operate, about 5000 to spin the engine efficiently. Amperage x Voltage = Watts. As the voltage drops lower, the amperage must go up.

The first rebuilder to contact us with the correct answer was Patrick Rester at Irwin Auto Electric in Pine Bluff, Ark. As of press time, other correct callers were Meggs Magneto and Speedometer, Henry Henke of United Starter and Alternator and Henry Krise of Henry's Alternator Exchange. Thanks to all who responded to the challenge. We will have another challenge in next month's paper.

ERA



Figure 1—Plunger and contacts



Figure 2—Pinion gear



Figure 3—Missing and loose mounting bolts which caused poor ground were the reason this starter failed.

COMING IN A FUTURE ISSUE!

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Plain Talk
Staying on the road requires paying attention

BY ROB BUKSAR



As business people, we learn to adapt and make changes. We have to. The commercial environment has always been in a state of change.

These days, the changes occur so rapidly that most have not yet adapted to the previous change, and now it's time to change again. "It is what it is." Wow! Where have we heard that before?

The question that I have to ask myself is, who's benefiting from these changes? Guess what? It may not be you or I!

Unless you're doing something very special or unique, there's a really good chance that your market is being gobbled up by corporate America.

Franklin Roosevelt put controls on our economy, attempting to protect the public from the big bankers and industrialists. These controls were accused of being socialistic in nature, and maybe they were. Yet, what they did accomplish, was keeping a bridle on capitalism. Capitalism without regulation turns into the law of the jungle, kill or be killed; eat or be eaten.

Ronald Reagan inherited a bad economy. In order to get things going again, his administration removed, set aside, or discontinued enforcing the previous regulations. They used this approach as a medical person would use a defibrillator to shock a stalled heart and start it beating again.

Now, if you're not familiar with defibrillation, ask your doctor or the pharmacist at Walgreens to explain it. What they will tell you is that it's an emergency treatment used for restarting a heart in critical circumstances. The concept is to use the defibrillator to get the heart going—then put the defibrillator away. To continue using it would damage or destroy the patient's heart! By continued or prolonged use, it would end up destroying the thing it was designed to save.

Was President Reagan wrong to "defibrillate" the economy by dropping the regulations? Probably not. Was it a mistake to "keep the defibrillator on" by not reactivating the regulations—or at least some of them? Yes. No president or Congress since Reagan has acted to "shut the defibrillator off!"

The bottom line is simply this. The electric shock is still being shot into the heart of our economy, doing, what may prove to be, irreparable damage. Our good paying jobs, tax base, industrial infrastructure, agriculture, information jobs, etc. are vanishing. Small independently-owned businesses, if not being squashed, are scrambling, looking for different avenues of revenue, because what was once theirs is currently being devoured by the big corporations.

Let me tell you what's really crazy about this entire situation. We are all so distracted by the misdirection that's occurring, that we fail to realize that we are all being devoured one bite at a time! The middle class and small independently-owned businesses are not disappearing due to immigration, Ferguson, Mo., Ebola or the Middle East. You and I and the American public are being eaten by uncontrolled, unregulated capitalism—which when energized, turns into the "law of the jungle." The big gets bigger by crushing, or absorbing the smaller. Pretty soon, there's only one big fish left in the tank, because he ate all of the smaller ones!

The maddening aspect of it all is simply this. The voting public is so unenlightened that they are blind to the fact that they're being devoured. We are being devoured as well.

Can this be construed as a pretty big subject for a little trade paper? Oh, I suppose. Yet, maybe not. I think the key to surviving a hostile environment is to gain intimate understanding of it and try to plan accordingly. There is no longer a level playing field, and seeing one anytime soon is unlikely.

So, am I suggesting that we all throw in the towel and take a long walk off a short pier? Of course not. Yet, I do think that we all have to pay closer attention to what's going on nationally and globally, because these days it sure does impact all of us. The only way to stay ahead of the curve is to keep our eyes on the road. By the way, that road is bigger and more complex than it's ever been. Lastly, and most importantly, there are now a lot of big guys who are going to try to run you off it. So please pay attention and keep your eyes on the road.

May God help strengthen and preserve our little industry.

Rob Buksar in the owner of Hoosier Electric Co., Gary, Indiana

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SOURCES 2015
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Parts/Products: Full line of parts and units, foreign, domestic, passenger, agriculture, heavy duty. Specializing in replacement units.
Services: Extremely fast shipping. Nearly all orders shipped same day.

BAYCO INDUSTRIES DBA KDOW, INC
4790 Caughlin Pky #445
Reno, NV 89509
775-746-1359
Website: kdowinc.com
Equipment: Burnoff, thermal stripping and heat cleaning ovens.
Parts/Products: Parts, technical support and service of stripping ovens.
Services: Technical support and field service available to repair, rebuild, update or service.

BEARINGS & MOTIVE SPECIALTIES CO, INC
90 Westmoreland Ave
White Plains, NY 10606



800-431-2518
Website: bmsbearing.com
Parts/Products: Ball and roller bearings.

ERA Member

BPS CORES, INC
1122 Milledge St
East Point, GA 30344
404-559-8571 • 800-241-7370
Website: bpsparts.com
Parts/Products: Full line core supplier. Sorted cores, domestic, import and heavy duty. Rewound and refurbished electrical components.

ERA Member

BPS CORES INC, REMAN DIVISION
1020 Milledge St
East Point, GA 30344
404-696-7773 • 800-241-7370
Website: bpsparts.com
Parts/Products: New, rewound, refurbished, domestic, import and HD armatures, stators, rotors and more
Services: 5-day turnaround on most R&R

ERA Member

C.C. BATTERY CO., INC
3513 Agnes St
Corpus Christi, TX 78405
361-882-5561 • 800-531-1038
Website: ccbattery.com
Parts/Products: Rewound and new armatures, rotors, stators, drives, solenoids. R&R service. Rebuilt and new starters, alternators, generators and DC motors. Hard to find and obsolete drive end housings and complete units. Eagleline starter and alternator conversions from gasoline to electric-start. Inverters—DC to AC. Warehouse for Cole-Hersee, Iskra, Niehoff, Powerline, QuickCable, Lester, Transpo, Cooper-Bussman, Loadhandler, Leece-Neville, Prestolite, CPC, Johnson Electric (formerly U.T.), Lucas, CAV, RCP, Mitsubishi, Nikko. Air starters and components, battery chargers, AGM, gel and wet cell batteries, NOCO.

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C. E. NIEHOFF & COMPANY
2021 Lee Street
Evanston, IL 60202
847-866-6030 • 800-643-4633
Website: ceniehoff.com
Parts/Products: HD alternators for high output at idle/extreme operating conditions.

CHAPMAN ELECTRIC CO, INC
3131 S Haskell Ave
Dallas, TX 75223
214-824-8095 • 800-647-2812
Website: forkliftmotors.com
Parts/Products: Brushes, brush holders, armatures, brush springs, field coils, any parts related to forklift motors.
Services: AC/DC electric motors. New and remanufactured armature rewinding. Forklift and Servo motor specialists.

ERA Member

COSMOS INTERNATIONAL, INC
501 Industrial Dr Suite 101
Richardson, TX 75081
972-699-1683 • 800-627-5600
Website: cosmosus.com
Parts/Products: Auto parts.
Services: Major distributor of starter, alternator and generator components and complete units to manufacturers.

COYOTE ENTERPRISES, INC
27301 East 121st Street
Coweta, OK 74429
918-486-8411 • 877-659-8040
Website: coyoteparts.com
Equipment: Airless and air abrasive shot blast equipment and replacement parts.

CROZIER MACHINE TOOL, LLC
2607 Hwy 69 South
Gardena, CA 90249
800-528-4371 • 608-426-6566
Website: croziermachinetool.com
Equipment: Crozier speed lathes, armature lathes. Full line equipment for the rebuilding industry, new, rebuilt and used.

CRUMBLISS TEST EQUIPMENT
P O Box 3201
Collegedale, TN 37315-3201
239-693-8588
Website: crumbliss.com
Equipment: HD Alternator testers, 5hp–20hp. 20hp tests alternators up to 300 amps at 24 volts. HD starter-load tester tests starters up to 50MT. Solenoid tester

CSD DIV OF CANADIAN STARTER DRIVES, INC
176 Milvan Drive
North York, ON, M9L 1Z9, Canada
416-748-1458 • 800-268-0531
Website: 4csd.net
Parts/Products: Drives, solenoids, wiper motors, and window lift motors.
Services: Remanufacture automotive parts.

ERA Member

CUSTOM REWINDING
3037 Quarry St
Brook Park, MN 55007
320-679-4739
Website: www.custom-rewinding.com
Parts/Products: Starter and generator armatures, both new and rewound, custom rewinding of any starter or generator armature, new and rewound stators and custom rewinding of stators

D & V ELECTRONICS, LTD
130 Zenway Boulevard
Woodbridge, ON, L4H 2Y7, Canada
905-264-7646 • 888-979-1919
Website: dvelectronics.com
Equipment: Alternator and starter testers.

DAN MARINUCCI TECHNICAL TRAINING
Communiqué
3109 Stanley Road
Fairlawn, OH 44333-3252
330-869-5472
Services: Dan specializes in electrical diagnosis and evaporative emission system testing as well as Japanese vehicle driveability. He has presented tech seminars since 1993. Dan has traveled to 38 states and many cities across Canada to teach his classes.

DANE RECYCLING & CORE, LLC
2607 Hwy 69 South
Monroe, WI 53566
608-426-6556
Website: www.eliteautosurplus.com
Equipment: Used equipment of all types available.
Parts/Products: Cores (starter, alternator, and generator). High-performance alternators, starters, and unique high-output generator replacements.
Services: We purchase shop assets, cores, parts, and scrap.

ERA Mem

DAVID SALES, INC
1354 S Claudina St
Anaheim, CA 92805
714-635-8411 • 800-321-7253
Website: www.dsi1998.com
Parts/Products: Alternators, starters, and parts for the repair of both.

DAYER, INC
115 St-Remi Boul.
St. Remi, QC, J0L 2L0, Canada
450-454-4750 • 800-561-2832
Website: dayerinc.com
Parts/Products: Stators, rotors, armatures, alternators, starters, regulators, rectifiers, frames.

ERA Member

DIXIE ELECTRIC, INC
17100 Medina Road, Suite 100
Minneapolis, MN 55447
800-478-0608
Website: dixie-electric.com
Parts/Products: New and remanufactured starters, alternators and major components for automotive, ag/industrial, truck and bus applications. This includes 50DNs and a new range of high amperage alternators suitable for fire, ambulance, school bus, military and other unique applications.

ERA Member

DS USA, LTD
222 J Admiral Byrd Drive
Winchester, VA 22602
540-665-6425
Website: dsusaltd.com
Parts/Products: Starters, alternators, rotors, stators, covers, turbochargers and component parts.

ERA Member

DUBOIS MARKETING, INC
11670 46th Ave
Allendale, MI 49401
616-895-6650 • 800-253-5654
Website: duboismarketing.com
Parts/Products: Quality components and units for many North American applications. 7000 SKUs, Including 2500 complete units of starters and alternators

EAST PENN MANUFACTURING CO INC
Deka Road
Lyon Station, PA 19536
610-682-6361



Website: dekabatteries.com
Parts/Products: DEKA brand car, truck marine and small engine batteries.

ELECTRIC MOTOR SERVICE (EMS)
70 River Road
Logan, WV 25601
304-752-6070 • 800-697-6070
Websites: electricmotorsvc.com / stockers.com
Parts/Products: New OE and aftermarket units and repair parts. Small engine starters and parts.

ELPAR INDUSTRIES, INC
1580 NW 27th Ave #5
Pompano Beach, FL 33069
954-974-1111 • 877-885-8854
Website: elpar.com
Parts/Products: Industrial/diesel/marine starters, alternators and component parts. OE Iskra, Leece-Neville. Large coverage of complete units in stock for immediate shipping.
Supplies: Full range of shop supplies from sand to field coil wrapping tape.
Services: Supply/match/replace/R & R many difficult and expensive OE units with Denso-style replacements. More than fifty different Denso-style replacements in stock.

ELREG DISTRIBUTORS LTD
1175 Corporate Dr Unit 3
Burlington, ON, L7L 5V5, Canada
905-336-8830 • 800-387-4078
Website: elreg.com
Parts/Products: Warehouse distributor for starters, alternators, DC motors, component parts and customized repair kits. Supply OEM, Delco, Leece-Neville, Prestolite, Bosch, Niehoff, Iskra and Nikko as well as aftermarket products.

ENNIS PRODUCTS
649A Hardy Ave
Corsicana, TX 75110
903-872-2118 • 877-872-2118
Website: ennisproducts.com
Equipment: Alternators, starters, stators, rotors, armatures, etc. Cleaning and manufacturing equipment.
Parts/Products: Alternators, starters, A/C compressors,
stators, rotors, armatures, rectifiers, regulators, field coils, frames, brushes, brush holders, screws, bolts, nuts, fans, etc.
Supplies: Copper wire, insulation, etc.
Services: Engineer high amp alternators and stators to meet specific specification.

ERA Member
ESICO-TRITON INTERNATIONAL
2 Esico Lane
Deep River, CT 06417
860-526-5361 • 800-526-8661
Website: esicotriton.com
Equipment: Soldering equipment.
Supplies: Soldering tools, solder pots, resistance tools, soldering irons.

EURTON ELECTRIC
9920 Painter Ave.
Santa Fe, CA 90670
800-423-4789
Website: www.eurtonelectric.com
Parts/Products: Electric motor repair and rewinding, armature rewinding and field coil rewinding.

EXIDE TECHNOLOGIES
13000 Deerfield Parkway, Bldg 200
Milton, GA 30004
602-363-2009 • 800-523-4622
Website: exide.com
Parts/Products: Transportation, motive and network power battery manufacturer and recycler. Product lines include AGM (flat plate and spiral), conventional flooded and gel types. Transportation products include auto, heavy duty, commercial, lawn and garden, marine, golf cart and powersport.

FACET
4900 Hopyard Road Suite 100
Pleasanton, CA 94588
925-216-3127
Website: positork.com
Parts/Products: Full line manufacturer of brand new, field proven Reactiv™ clutch and decoupler alternator pulleys. Over 50 clutch pulley SKUs featuring applications incorporating Facet's proprietary self-sealed one-way clutch. Also available are the top seven decoupler pulley SKUs featuring frequency tuned, patent pending designs to endure high torque lugging conditions and controlled overrun to silence belt chirp during rapid engine speed change events.

FACTORY WAREHOUSE
38 Pacific Place
Longview, WA 98632
360-636-5950 • 800-282-6992
Equipment: Industrial Bosch starters, CAV starters, Marelli starters.

FIFTH AVENUE ANTIQUE AUTO PARTS
415 Court St
Clay Center, KS 67432
785-632-3450
Website: fifthaveinternetgarage.com
Parts/Products: Specializing in upgrading 6-volt electrical systems to 12-volt. Alternator brackets available for Chevrolet applications from 1937 to 1962. Ford and Mercury applications from 1932 to 1964 and most everything else. Six and 12-volt electric radiator cooling fans, and 6 and 12-volt gear driven electric fuel pumps for most any vintage application. Also a complete line of electrical parts for the Borg-Warner overdrive transmissions manufactured between 1940 and 1973. Wholesale to qualified accounts.

ERA Mem
FONDY AUTO ELECTRIC, INC
765 Sullivan Drive
Fond du Lac, WI 54935
920-922-9130 • 800-236-2701
Website: fondyautoelectric.com
Parts/Products: Buzzanator alternators for equipment in demanding conditions.

GOFF, INC
12216 NS 3520
Seminole, OK 74868
405-382-6900 • 800-654-4633
Website: goff-inc.com
Equipment: Abrasive shot blast cleaning and aqueous degreasing equipment, replacement parts and service.

GUYSON CORPORATION
13 Grande Blvd
Saratoga Springs, NY 12866
518-587-7894 • 800-633-6677
Website: guyson.com
Equipment: Blast cabinets, auto blasting systems.

BOSCH LLC (HC/CARGO, INC)
6555 Fulton Industrial Blvd Suite 200
Atlanta, GA 30336
770-236-0033 • 800-303-3170
Website: hcdk.com
Equipment: Test equipment for alternators, starters and components.
Parts/Products: Alternators, generators, starters and components, diesel pump parts, a/c compressors and parts switches, sensors, relays, ignition modules.
Supplies: Workshop supplies, connectors, fuses and terminals.

ERA Mem
HI-TORQUE IMI PERFORMANCE PRODUCTS
13432 Lambert Road
Whittier, CA 90605
888-244-8675
Website: hitorque.com
Parts/Products: Custom designed starters.

HOOSIER ELECTRIC CO
7041 W. 21st Ave
Gary, IN 46406
219-844-8389 • 800-543-5292
Parts/Products: Rewound armatures, rotors, stators, coils.
Services: R&R special, odd or antique armatures, rotors, stators, high amp upgrades on stators.

INTERNATIONAL AUTOMOTIVE TRADING INC
61-12 32nd Avenue
Woodside, NY 11377
718-956-4248 • 800-872-8890
Website: iat-usa.com
Products: Comprehensive line of OEM and high quality aftermarket alternators, starters, and component parts for automotive, industrial, agricultural, and marine applications. OEM brands such as Bosch, Lucas, Marelli, Magneton and Mitsubishi. We are a Master Distributor for Valeo of North America, Europe, North America, Korea. Large inventory of INA clutch pulleys (OAP) and Litens decoupler pulleys (IDP).
Services: Same day shipping is available through our knowledgeable, friendly sales staff.

INTERNATIONAL WINDING
729 N. Harvard Ave
Villa Park, IL 60181
630-823-8264
Website: www.iwico.com
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(See GUIDE, pg. 10)

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ERA 2015 Trade Show • March 13–15 • Davenport, Iowa

Tentative

Schedule of Events

Friday, March 13

Plant tour—8 a.m. to 12:30 p.m., John Deere Plant and Pavilion

Seminar—12:30 to 2:30 p.m., Dan Marinucci—*"Battery Drain Test Tips You Should Know"*

Seminar—3 to 4 p.m., Chris Walters, Lester Catalog—*"Internet Marketing 101"*

Reception*—4 to 5 p.m., Pizza Buffet and Cash Bar

EXHIBITION—5 to 8 p.m.

Saturday , March 14

Seminar—7:30 to 9:30 a.m., Joe Davis—*"Understanding Generator Charging Systems"*

Seminar—9:30 to 11a.m., Rich Malin, Standard Magneto—*"Introduction to Rebuilding Magnetos"*

EXHIBITION—11a.m. to 4 p.m.

Rebuilder's Roundtable—4 to 6 p.m.—An open discussion about rebuilding topics, moderated by a panel of industry veterans.

Sunday , March 15

ERA Annual Meeting/Breakfast —7 to 8:45 a.m.

Seminar—9 to 11 a.m., Mohammad Samii, Sammy's Auto Electric Service, Inc.—*"Pictorial Presentation of Rebuilding Newer Starters and Alternators, and Some Related Case-Studies"*

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email ere.wesg@gmail.com

Watch for updated details in upcoming issues of The Exchange and online at: www.electricalrebuilders.org

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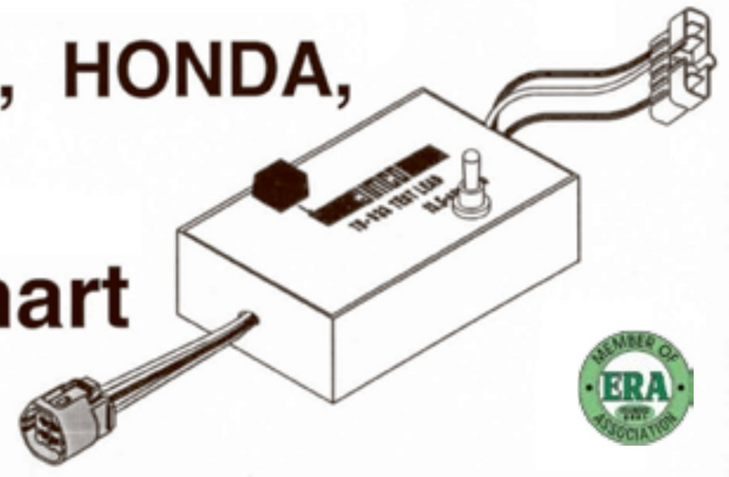

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or email
ere.wesg@gmail.com

Electrical Rebuilder's ERA 27th Annual EXPO 2015

DAVENPORT, IOWA
MARCH 13–15, 2015

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NEW BERLIN, WI 53151

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TIME

(Continued from page 1)

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The ERA Expo 2015 promises to be a great show, unique in many ways. There is a lot to see and do in and around the Quad-Cities. Davenport, Iowa is the place to be the second weekend of March. It is time for you to decide.

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GUIDE

(Continued from page 7)

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Parts/Products: Full line electrical distributor.

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16 Commerce Ct
Stoney Creek, ON L8E 4G3 Canada
905-643-4219
Website: jjcores.ca
Supplies: Import and domestic electrical cores

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10995 Canal Rd
Cincinnati, OH 45241
800-366-7100
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Parts/Products: OEM and aftermarket alternator, starter and DC motor units, service parts, accessories and shop supplies.

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611 East Walnut
Raymore, MO 64083
816-331-1917 • 800-821-7137
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JUST PARTS INC
121 West Elm Avenue
Cortland, IL 60112
815-756-2184 • 800-553-4776
Website: justpartsinc.com
Parts/Products: Full line supplier of alternator and starter electrical rebuilding parts. Diesel solenoid manufacturer.

KAR INDUSTRIES CORP
7910 NW 66th St
Miami, FL 33166
305-594-0790 • 800-332-0790
Website: karindustries.com
Equipment: Alternator and starter testing equipment, cleaning and blasting equipment, armature analyzer, solenoid analyzer, rotor analyzer, Denso drive rebuilding fixtures.

KARCHER CUDA SERIES PARTS WASHERS
4275 NW Pacific Rim Blvd
Camas, WA 98607
888-319-0882
Website: cudausa.com
Equipment: Front-load parts washers, top-load parts washers, parts washer detergents.

KNOPF AUTOMOTIVE
93 Shrewsbury Ave
Red Bank, NJ 07701
732-212-0444
Website: mmknopf.com
Parts/Products: Regulators, rectifiers, brushes, bushings, bearings, brush holders, armatures, starter drives, solenoids, hardware, fans, pulleys, grease, etc.

KOMAR SCREW CORP
7790 N Merrimac Avenue
Niles, IL 60714
847-965-9090
Website: komarscrew.com
Parts/Products: Komar supplies virtually all fastener related hardware and class "C" items. From standards to specials, steel to nylon all materials and products used to today's manufacturing world.
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LETRIKA INC
4814 American Rd
Rockford, IL 61109
815-874-4022 • 800-474-1996
Website: www.letrika.com/en
Parts/Products: Starters, alternators, spare parts, DC electric motors, heater plugs and glow plugs.

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LESTER CATALOG CO INC
9850 Hillview Road
Newcastle, CA 95658
530-823-0963
Website: lestercatalog.com
Parts/Products: Catalog software on DVD, printed catalogs and Web catalogs.
Services: Custom catalogs and Websites.

ERA Mem

LEVEL SEVEN GROUP
4807 Rockside Road
7th Floor
Independence, OH 44131
216-524-9055
Parts/Products: Software for the rebuilding industry.

ERA Member

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Cape Fair, MO 65624
417-538-2999
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316-265-7997 • 800-835-0218
Website: lsindustries.com
Equipment: Metal cleaning equipment, blasters, washers, shakers, oven dust collectors, material handling.
Parts/Products: Wheels, blades, wear plates, liners, springs, nozzles, motors, shafts, augers, buckets, belts.
Supplies: Shot, grit, glass bead, plastic shot, medias, soaps and compounds.
Services: Design, engineering, support, rebuilds.

LUNA INDUSTRIES INC
425 E Grant Rd
Tucson, AZ 85705
520-792-3080
Website: lunaindustriesinc.com
Parts/Products: DC motors (new and rebuilt) and parts, including rewound armatures, field coils, brushes and bearings. New and rebuilt brush holders. Aftermarket parts for all models of golf carts.
Services: Rebuild golf cart motors and starter generators. Rewind armatures.

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905-761-7770
Website: mt2001.com
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Parts/Products: Manufacturer of Vital alternators, high amperage for fire, EMS, police and other vehicles.
Supplies: Replacement parts for AMP, Hehr, Powerline, Penntex, as well as our Vital units.
Services: We can help you spec out a unit as to what alternator the vehicle needs to solve charging problems.

MCI CORES
6346 Plymouth Ave
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314-725-2673 • 800-878-7414
Website: mcicores.com
Parts/Products: Core supplier specializing in foreign and domestic starters, alternators, wiper motors, window lift motors and more. Se Habla Espanol.

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2109 North Wabash, Ave
Kokomo, IN 46901
765-457-4110 • 800-229-8758
Website: metrocoinc.us
Parts/Products: FANCO ® alternator fans, Drive Doctor®, Standard Starter Drive®, bushings, starter drive parts, DC motors, molded motor terminals, proprietary contact manufacturing.

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909-629-2700 • 800-263-8761
Website: metroautoinc.com
Parts/Products: Alternator and starter component parts and units.

METROPOLITAN DISTRIBUTORS
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Garfield, NJ 07026
973-772-3320 • 800-562-6975
Website: metrodist.com
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Parts/Products: Full line rebuilder supply warehouse—WAI, Transpo, OEM components, aftermarket, OEM units.

MIDTRONICS INC
7000 Monroe Street
Willowbrook, IL 60527
630-323-2800 • 800-776-1995
Website: midtronics.com
Equipment: Midtronics battery-starting-charging system testers and diagnostic chargers.

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314-890-2003 • 800-275-1925
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Services: Sell electrical starter and alternator parts, a rebuilding shop. Distributor of aftermarket units and parts to the rebuilder industry.

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Parts/Products: Rebuilt starter drives and custom rebuilding of any starter drives

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Turnwater, WA 98512
360-943-0491
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Parts/Products: Full line core supplier.

OBSOLETE PARTS
2187 Bluegrass Lane
Cincinnati OH 45237
513-731-4134
Parts/Products: Obsolete and hard-to-find parts for the rebuilder.

ONTIN NORTH AMERICA CORP
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Miami, FL 33166

334-730-4467
Website: zensa.com.br
Parts/Products: ZEN starter drives, pinions, clutch pulleys.

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858-581-6370
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Supplies: Arma-Sol Rust Inhibitor, brushes

PEER BEARING COMPANY
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Waukegan, IL 60085
847-578-1000 • 800-433-7337
Website: peerbearing.com
Parts/Products: Bearings.

PENNTEX INDUSTRIES INC
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Manchester, PA 17345
717-266-8762 • 877-590-7366
Website: penntexusa.com
Equipment: Heavy duty, high amp alternators, voltage regulators, fully automatic high idler devices, etc., for transportation and specialty vehicles. All products are new manufactured products.

PETERSON WASH & BLAST SYSTEMS
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Council Grove, KS 66846
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Parts/Products: Replacement parts and consumables for engine rebuilding equipment and parts washers.

PHOENIX AUTOMOTIVE CORES
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Parts/Products: Full line automotive core supplier. Including alternators, starters, generators, window lift and wiper motors.

P M T CORES INC
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450-971-6660 • 866-971-6660
Website: pmtcores.com
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Website: pai.com.my
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ERA Mem

RAND GROUP INC
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305-463-8088 • 866-450-7263
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Roselle, IL 60172
630-376-0600 • 800-708-2128
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RC COIL SPRING MFG CO
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Glendale Heights, IL 60139
630-790-3500
Website: rccoilspring.com
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Concord, ON, L4K 4Z2, Canada
905-660-7274
Website: rcpcanada.com
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401-822-3030 • 800-633-0162
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2575 Container Drive
Montgomery, AL 36109
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REMAN FORUMS
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Website: remanforums.com
Services: Free forums for the rebuilders.

RIVERA PARTS SUPPLIER INC
407 Industrial Road
Barnesville, GA 30204
770-872-3701
Website: rpsupplierinc.com
Parts/Products: Specializing in domestic and foreign electric, starters and alternators by part number.

ERA Member

ROMAINE ELECTRIC CORP
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Kent, WA 98031
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514-326-4649 • 855-301-4649
Website: rotekequipments.com
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RTA ELECTRIC MOTOR CORP
100 St. Regis Crescent S, Unit 1
Toronto, ON, M3J 1Y8, Canada
416-636-9546
Website: rtaelectric.com
Parts/Products: Alternator and starter components, remanufactured stators, rotors and armatures.
Services: Rewinding high output stators and rotors, winding armatures.

(See GUIDE, pg. 13)



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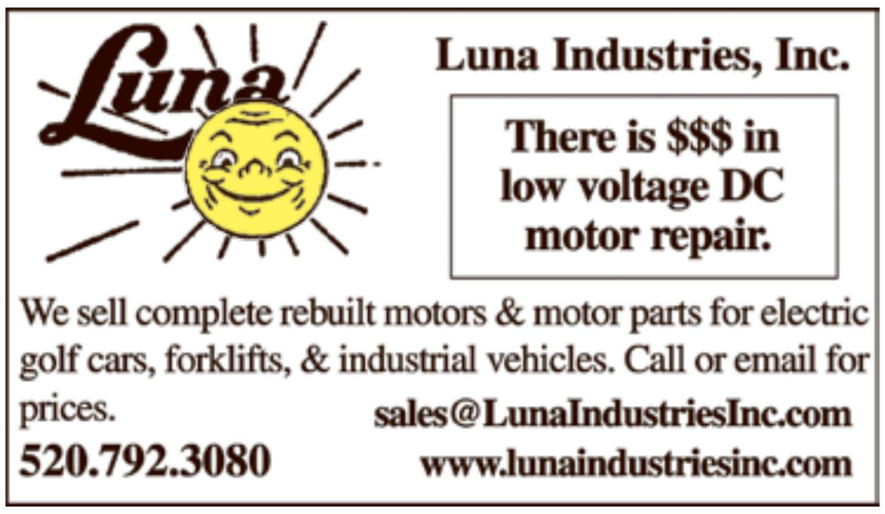

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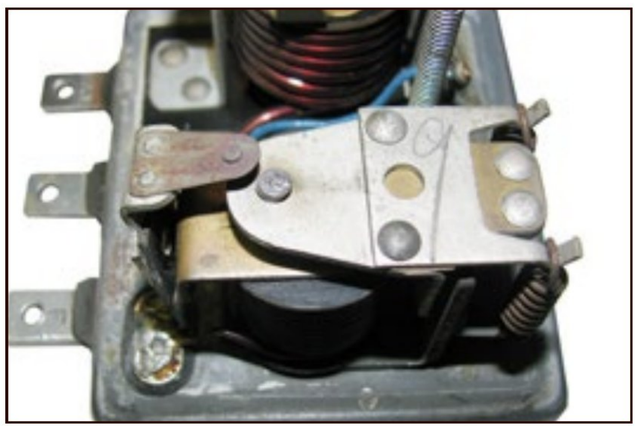

Figure 4—A view of the damaged control relay contacts.

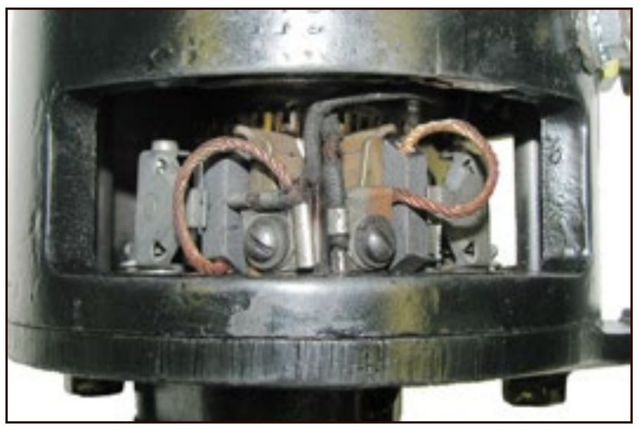

Figure 5—The positive brush is on the left, with the third (field) brush on the right.

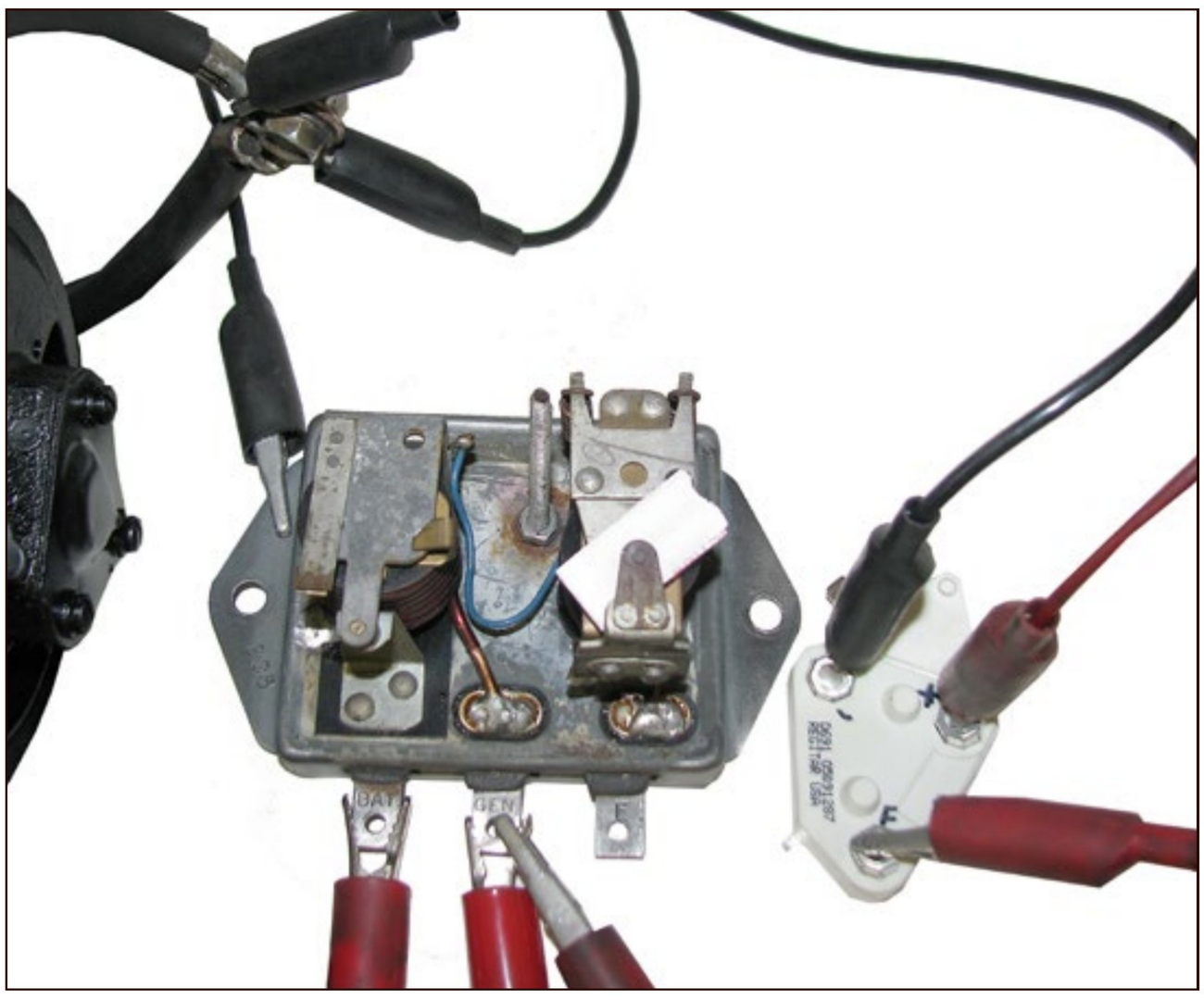

Figure 6—Testing generator using the regulator's original cutout and a 6-volt 10SI regulator.

BUICK

(Continued from page 1)

the car just liked to drive it around the block and did not care what regulator we used—as long as it kept his battery up.

Of course, there are still quite a few 6-volt, negative ground, A-circuit regulators being manufactured today, but none of them "look" the same or have the same mounting base. A search online showed that there were NOS (new old stock) regulators for sale that were very similar with the same configuration, but all were priced at over $100 and were being offered as "no return". This regulator had the Delco part number that matched with this generator number. I did not want to replace it unless I had no other choice. I tried "thinking outside the box", considering what I knew.

The cutout relay was functioning. This generator was the three-brush type, so amperage was somewhat limited by voltage output of the third brush (*see Figure 5*). Third-brush output always drops off as armature speed increases. This drop is caused by a distortion of the magnetic field between the generator's poles as a result of magnetism within the spinning armature laminations. The amount of distortion increases with the rpm and amperage being produced in the armature. Any increase in speed or increase in armature output will increase the distortion and consequently decrease third-brush output. As a result, the amperage-limiting ability of the original control relay was not absolutely crucial in this application. A more detailed explanation of this phenomenon may be found in the article "Early Forms of Generator Regulation", which is archived on the ERA website.

An electronic 6-volt, negative ground, A-circuit regulator that would fit inside the original cover, could replace the bad relay. I thought that a 10SI regulator should work (using only the three tab connections). Those mounting-bolt connections are positive, negative and A-circuit field. The two spade connections can be removed since they are not needed. These regulators are readily available in the aftermarket in 6 volts. It was worth testing.

By the time the armature was returned, the field coils had been tested, inspected, re-wrapped, re-insulated and installed back into the field case. The generator was reassembled using new brushes, bushing and bearing. First, I test ran the generator using the original regulator cutout with jumper wires connected between the generator and the three terminals on the 6-volt 10SI regulator (*see Figure 6*). Note that I inserted an insulator between the damaged control relay contacts to ensure that they did not hamper the test.

(See BUICK, pg. 14)

GUIDE

(Continued from page 11)

S & N MANUFACTURING INC
455 Stevens Street
Geneva, IL 60134
630-232-0275
Website: snmfg.com
Parts/Products: Heavy-duty solenoids; custom coil winding. ISO9002 registered.

SCHUNK GRAPHITE TECHNOLOGY
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Menomonee Falls, WI 53051
262-253-8720 • 888-560-7744
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Parts/Products: Brushes and brush holder assemblies for starters and alternators.
Contact: Christine Moore

SEYMOUR OF SYCAMORE
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815-895-9101 • 800-435-4482
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Supplies: Auto electric paints and chemicals.

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ST. MARYS CARBON
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STM HEAVY DUTY ELECTRIC
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Zionsville, PA 18092
610-967-3810
Website: stmhd.com
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5650 Blazer Parkway
Dublin, OH 43017
614-734-8385
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Contact: ron.maltarich@tendeco.com

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419-244-5555 • 800-546-2673
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VENSEL ENTERPRISES
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Milford, CT 06460
203-747-9363
Website: yaletron.com
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BUICK

(Continued from page 12)

It overcharged slightly under no-load until I remembered that the wire-wound 14-ohm resistor on the bottom of the regulator (*see Figure 7*) allowed for an alternate ground path which bypassed the original control relay contacts. It is there to help smooth out voltage fluctuations caused by the vibrating contacts. This original resistor hindered the electronic regulator under no-load conditions, so I removed it, along with the rivet that held the original control relay in place (*see Figure 8*).

Then I mounted the electronic voltage regulator where the old relay had been and made jumper wires from the A-terminal to positive on the regulator, from ground to negative on the regulator and from field to field (*see Figure 9*). Note that the positive terminal on the regulator is connected to the ARM terminal on the generator **not the generator BAT terminal**. Connecting to B+ would keep the regulator active when the vehicle is parked. We are still depending on the mechanical cutout to disconnect the battery from the armature when the engine shuts down. This hookup allows the cutout relay to disconnect the electronic regulator at the same time.

The final test of the generator and the repaired regulator together confirmed that they were now both operating perfectly (*see Figure 10*). The finished regulator looked 100% original from the outside (*see Figure 11*).



Figure 7—14-ohm wire-wound resistor



Figure 8—The resistor is removed.

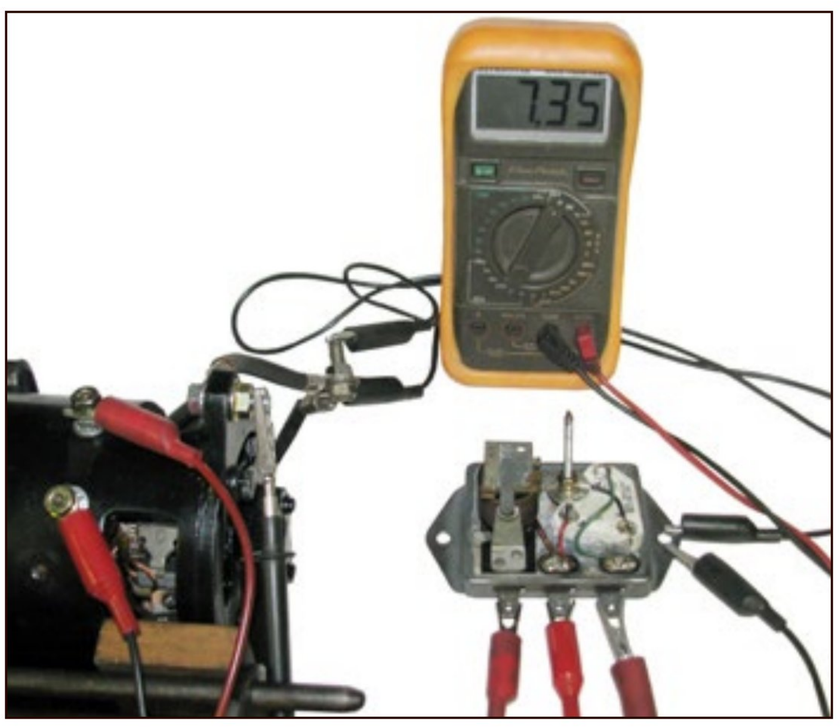

Figure 9—Final test

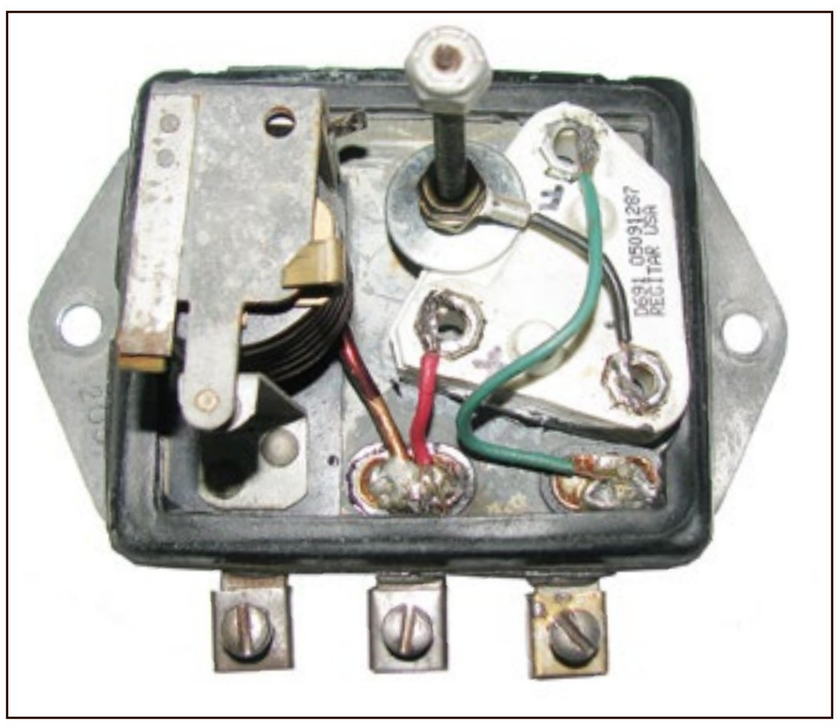

Figure 10—Close up of the new internal connections



Figure 11—Finished regulator



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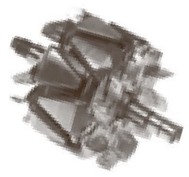


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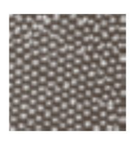




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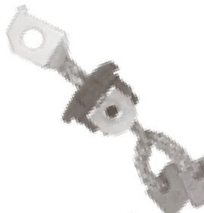


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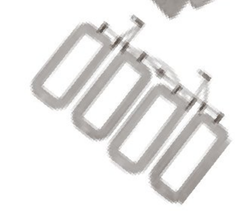


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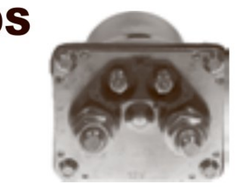

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