



THE Breaker Buzz

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CBS Nuclear Takes Flight During Hurricane Florence

By Scott Peterson, President, CBS Nuclear, Inc.

IN SEPTEMBER 2018, Hurricane Florence unleashed punishing rain and wind on the Carolinas, causing \$16.7 billion in damage. More than a week after the rain stopped, river levels were still on the rise, flooding many roads, homes, and businesses. In our world of power-system maintenance and testing, customers are counting on us to be there 24/7 with labor, equipment, and expertise. Sometimes that requires us to think outside the box.



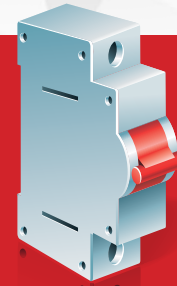
Continued on page 3

CBS ArcSafe Integrates Martek Limited, Launches Online Product Finder

By Tommy Phillips, General Manager, CBS ArcSafe

FOR CBS ARCSAFE, 2019 is poised to be our best year yet. Following our acquisition of Martek Limited LLC this past summer, we absorbed approximately 30 products from its Chicken Switch, LongArm, and RakTek lines. These additions will allow CBS ArcSafe to reach new customers in the arc-flash protection market throughout the world. All of our demo trucks and Group CBS affiliates will have the Chicken Switch available for demonstration purposes by the first of the year.

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THE VIEW FROM FLIGHT LEVEL 410

By *Finley Ledbetter*, CEO and Chief Scientist,
Group CBS, Inc.

GCBS Celebrates Our Strongest Year Yet



I have to say, the last four to five months have been the highest activity level I have ever operated at. What a great time for all things GCBS. Let's start with a welcome to all the new people and a happy holidays wish to all from the GCBS team.

This year has been outstanding for GCBS. The economy is running wide open, and our business has had to keep up. We will finish about 15 percent ahead of last year, and last year was the best year ever for us.

Around the Group, we see strong movement. AEAMC's cryptocurrency mining work was a truly outstanding achievement and a great success story from a mass manufacturing standpoint. CBS got into the crypto market as well, building medium-voltage gear for two large mines in Texas. This is a wild swing in our focus as a business, but it has really bloomed.

CBSNE has started build-out of its new service shop in western Pennsylvania and has agreed to purchase a service organization in New England. These moves will strengthen CBSNE's reach and help the company grow into the largest service supplier in the region.

Our new service shop in Detroit is open, booking work, and growing every day. Thanks to Denise Green and all her people for making this happen. A special shout-out goes to Shermco for allowing us to co-locate with them. Let's not forget a shout-out to Dean, Tim, Chuck, and all the Midwest team for a great job building a new service shop and to CBS&R for reaching goals we never thought we would achieve. I could mention many more, but I will do that in the next bimonthly GCBS video — so watch for a special holiday version!

Vacuum Interrupters, Inc., and GCBS announce their new VI manufacturing capability and a new process to

condition and breathe new life into older high- and medium-pressure vacuum interrupters. What a tremendous new technology this is. Please contact VI, Inc., to get a copy of the new white paper explaining this process.

We will be revealing tech papers at several conferences this year. Also look for a demonstration on Thursday, March 14, during PowerTest 2019. Sign up for the bus tour to VI, Inc., to witness the demo and plan to stay for Thursday night's Texas-themed party, with music by Ray Wylie Hubbard, hosted by GCBS and Shermco. Contact your GCBS or Shermco rep to secure a pass to this event.

“This year has been outstanding for GCBS. The economy is running wide open, and our business has had to keep up. We will finish about 15 percent ahead of last year, which was the best year ever for us.”


My message to all of GCBS and our great clients and friends is to be thankful for all we have, what we do, and the opportunities we have. It would be so easy to forget and not appreciate life every day. I want to thank all the people who have made my life the joy it is and has been, especially in the holiday season — and offer the true hope that my Cowboys actually win the Super Bowl this year! Brett, that's for you, buddy!

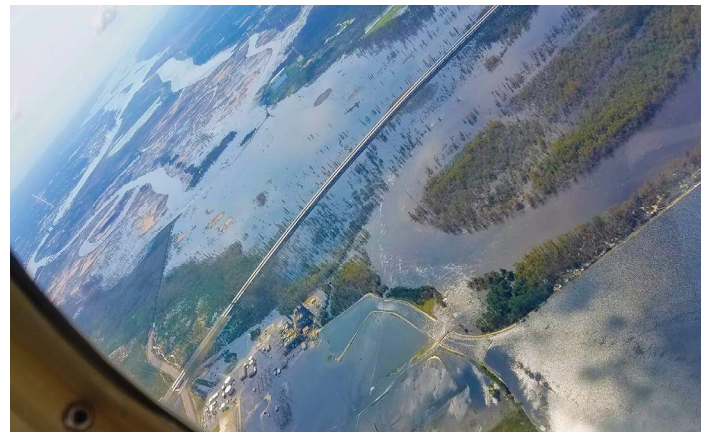
CBS Nuclear Takes Flight During Hurricane Florence

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A customer's 15,000 volt substation near Wilmington, about 200 miles southeast of our Charlotte facility, was submerged under 7 feet of water and needed critical parts to get basic systems on line. Between our warehouse and some quick-ship parts from AEAMC and Circuit Breaker Sales & Repair, we had everything the customer needed. But with many roads closed — and after four hours on the phone with FEMA and the North Carolina State Highway Patrol — it was obvious the parts had to go by air.

However, no charter flights were available. The only available aircraft were at a flight school. So that left us with only one option: to sign up on the spot for a pilot training program. My first training flight would go to Wilmington the next morning.

There's a lot to learn on your first flight, and conditions further complicated the experience. Despite the challenges, the customer received the parts by noon, while I got a bird's-eye view of the devastating effects of Hurricane Florence. The experience taught us the importance of having a disaster recovery plan because the middle of a natural disaster is the worst time to develop one. 



Top: A flight-school airplane delivers critical parts to a substation customer.

Bottom: An aerial view shows the devastating floods in North Carolina.

CBS ArcSafe Integrates Martek Limited, Launches Online Product Finder

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The Chicken Switch is very popular in the arc-flash mitigation world, mainly because of its small size and simple operating function. It's a great fit within the CBS ArcSafe product offerings because, while CBS ArcSafe builds RSAs for hundreds of individual breakers, the Chicken Switch line features seven versions designed for the most popular applications. Plus, it's easy to reproduce.


While the acquisition included intellectual property and a great lineup of products, the biggest gain was the outstanding people employed at Martek Limited. They are loyal, dedicated, and very good at what they do. When we look back at this acquisition in 15 years, we will see that the Martek personnel added to our team was by far the best asset gain.

CBS ArcSafe has made another big investment in the future with our new online Product Finder. This tool greatly simplifies the search function on our website and saves time for customers, who can search nearly 1,000 products by OEM and product type.

The Product Finder will become even more useful throughout 2019 as we add demonstration videos to accompany each product. In a few years,

this will be an excellent demonstration tool for international business, as well as for locations where we are unable to conduct a site visit. The Product Finder will save CBS ArcSafe money while simultaneously opening new avenues for growth. Sometimes, it simply isn't cost-effective to fly a salesperson halfway around the world for a single demonstration.

CBS ArcSafe's perseverance in improving our product lines and accessibility to them has yielded another victory: our third-largest sales month in company history. We attribute this success to a number of factors, not the least of which was our people beating the bushes for every available order. We also made a targeted effort to follow up on live quotes and to get our people in front of customers more often than this time of year usually allows. CBS ArcSafe was also aided by the fact that many businesses are trying to use up their remaining year-end capital budgets.

We look forward to continuously reporting "our biggest month yet" in the upcoming year. With the acquisition of the Chicken Switch and launch of the Product Finder, CBS ArcSafe looks to 2019 and beyond as being full of optimism and opportunity. 

AEAMC Cashes in on Cryptocurrency Mining

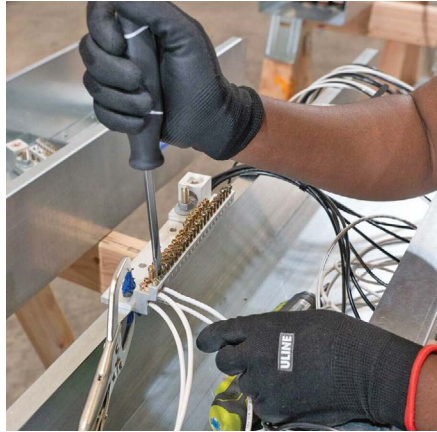
By Bill Schofield, President, AEAMC

TO BTC OR not to BTC, that is the question. Whether it is more noble to just make standard distribution equipment and suffer the slings and arrows of outrageous fortune or to take arms against a sea of troubles and build something new!

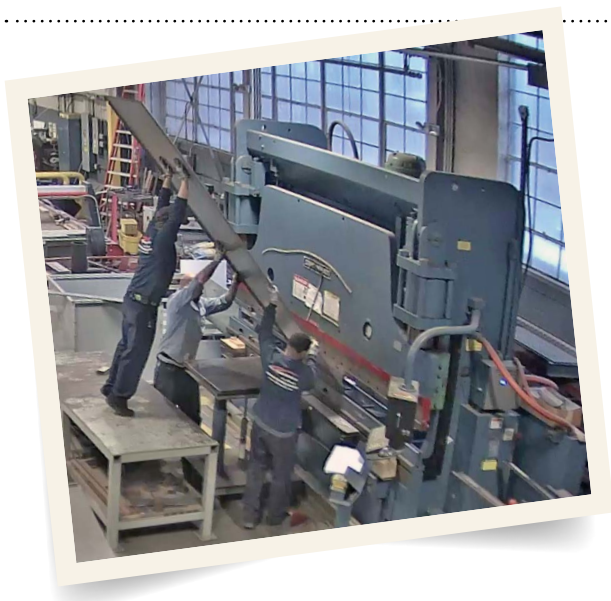
Taking a little literary license from the great bard William Shakespeare, Advanced Electrical & Motor Controls, Inc. (AEAMC) has begun another chapter in our evolution as a custom panel manufacturer. A new customer recently ordered hundreds of specialized distribution panels to power computer servers for cryptocurrency mining. To meet the customer demand, we added staff who are working full time in our additional space.

These specialized panels are really just giant column-mounted power strips, allowing the mining facility to plug in ASIC miners, or specialized hardware for mining cryptocurrency. The higher the voltage of the panels, the more efficiently the ASIC miners run.


Across the world, people are looking at how to use and mine blockchains and cryptocurrencies. Whether this new technology will replace our standard money or transaction systems remains to be seen, but blockchain offers innovations in a host of areas. Just as folks did not know how to use the internet when it first emerged, likewise they are trying to find ways to use blockchains. At AEAMC, we are working to develop even better products for this burgeoning industry and look forward to seeing where the technology takes us. 



AEAMC staff builds specialized distribution panels for computer servers used in cryptocurrency mining.



CBS Northeast Puts Pedal to the Metal

AS PART OF A SWITCHGEAR general auxiliary control house rebuild for a utility gas turbine site in Holtsville, NY, CBSNE designed, fabricated, and installed a replacement roof and sidewall panels, as well as returned the gas turbine units to service during the eight-week outage window. 

Justin Gaull Joins CBS ArcSafe



Justin Gaull

CBS ARCSAFE WELCOMES Justin Gaull as our business development manager following the acquisition of Martek. In 2016 Gaull joined Martek, where he developed new-business and marketing strategies.

Gaull will continue these activities in his new role at CBS ArcSafe, focusing on forming relationships at the corporate and enterprise levels, as well as establishing partnership opportunities. He will also oversee CBS ArcSafe's marketing program.


"I'm excited about developing new market opportunities we haven't capitalized on yet," Gaull says. He cites NFPA 70E as an example. "As more businesses come to understand the importance of the standard, demand will increase for our

product lines in markets such as wastewater and health care. We see this trend extending to international markets as well."

Prior to joining Martek, Gaull worked as a consultant for the West Virginia Small Business Development Center, where he helped start-up companies develop product commercialization and go-to-market strategies. He also served as economic development director for the Charleston Area Alliance.

"Justin brings to this position business and technical expertise, along with a deep knowledge of our remote racking and switching solutions," says Tommy Phillips, general manager of CBS ArcSafe. "We are lucky to have him on our team."

Gaull holds a bachelor's degree in environmental science and a master's degree in technology entrepreneurship.

"I want the best for everyone around me, and that includes our customers and sales team," Gaull says. "I like that CBS ArcSafe equipment gives people peace of mind." 



AEAMC Expands to Chicago


AT THE CHICAGO WORLD'S FAIR in 1893, Nikola Tesla and industrialist George Westinghouse illuminated the fairgrounds' neoclassical buildings with 100,000 incandescent lamps. But the Great Hall of Electricity displayed something even more monumental from Tesla: an AC power-generation system that revealed a more efficient way to drive motors and power lighting.

At the time, Chicago was at the cusp of the electrical revolution, but 125 years later, the city and surrounding areas are left to maintain decaying infrastructure estimated to cost nearly \$1 billion to fix. With a new facility

opening in Elgin, IL, in Q1 2019, Advanced Electrical & Motor Controls Inc. (AEAMC) aims to capture the market by performing life-extension services and offering emergency repair and services on aging circuit breakers.

"Not only is Chicago the third-largest power consumption market in the U.S. but the age of the infrastructure lends itself to our solutions," says Bill Schofield, president of AEAMC. "Many of the original circuit breaker manufacturers such as ITE, Allis-Chalmers, and Federal Pacific are no longer around, so all of their equipment still in service doesn't have an OEM to support it anymore."

AEAMC's full-service breaker repair and service shop will offer the same inventory as its Irving, TX, headquarters, including circuit breakers, motor controls, switches, and industrial control panels. As the only ISO-certified vendor in the space, the Chicago location will also feature modern NETA testing equipment and a knowledgeable staff culled locally and from Texas.

"With a local inventory, we can respond to orders faster than shipping from Texas," Schofield says. "There's no reason we can't be as big in the Chicago area as we are here in Texas." 

CBS ArcSafe RSA-242 Wins Product of the Year Award

THE CBS ARCSAFE RSA-242 remote switch actuator has won Occupational Health & Safety (OH&S) magazine's 2017 New Product of the Year Award in the Electrical Safety category. This honor is CBS ArcSafe's ninth New Product of the Year Award for innovative safety products that protect electricians and maintenance personnel from arc-flash danger. The RSA-242 allows technicians to remotely close or trip the ABB SACE Novomax air circuit breaker while stationed up to 300 feet away, well outside the arc-flash zone.

The RSA-242 has also been named finalist for the Product of the Year Award in Safety from Plant Engineering. Cast your vote here: <https://bit.ly/2TgdLeL>.



Circuit Breaker Sales Opens Detroit Apparatus Service Center

CIRCUIT BREAKER SALES Co., Inc. (CBS), announces the opening of CBS Detroit Apparatus Service Center, its newest Midwest service facility. This location specializes in the repair, remanufacture, and life extension of low- and medium-voltage switchgear and circuit breakers. The building, which also provides on-site breaker support and emergency on-call services, comprises two parts: a 6,000-square-foot production facility and a 6,000-square-foot external warehouse carrying test equipment, breaker stock, and substation sections and components.

The service center will be managed by Denise Green, an industry veteran with 29 years of experience overseeing field-service activities and breaker shops. "The CBS Detroit Apparatus Service Center allows customers in the utility, automotive, and other industrial and commercial markets to keep their electrical equipment closer to home, rather than having to ship it across the country for repair or upgrade," Green says. "We've already been fielding a lot of sales calls, and customers keep telling us they are glad we are here."

The CBS Detroit Apparatus Service Center, which is on track to hire six breaker techs, will offer a competitive advantage in the market. "We are a dedicated breaker facility, whereas many other facilities in the area focus


on testing, with breaker service and repair as an aside or afterthought," Green says.

The Detroit Apparatus Service Center will join service centers in Chicago, St. Louis, and Crown Point, IN, enabling CBS to provide comprehensive coverage throughout the Midwest. Headquartered in Gainesville, TX, CBS also has a service center in Lakeland, FL.

To contact the Detroit Apparatus Service Center, call 734-357-8005 or visit CircuitBreaker.com.



WES Sponsors Champions

WESTERN ELECTRICAL SERVICES, INC., is proud to announce it is sponsoring Champions Soccer Academy in Phoenix. Champions is an exceptional organization run by a team of professional soccer club administrators and actively involved families across the Salt River Valley. A special thank-you to Juan and Maria Cardiel for their involvement in providing an opportunity for youths to gain not only athletic experience and skills but life lessons in teamwork, responsibility, and sportsmanship. 



WES Personnel Pass NETA Exam


WESTERN ELECTRICAL SERVICES, INC. (WES), would like to congratulate the following personnel for passing their NETA certification testing during the October exam period: Joey Ascitutto (NETA II); Jason Carlson, Toby King, and Tim Klosterman (NETA III); and Joel Wilbur, who passed the highest certification level exam, NETA IV.

The InterNational Electrical Testing Association (NETA) is an association

of leading electrical testing companies comprised of visionaries who are committed to advancing the industry's standards for power system installation and maintenance to ensure the highest level of reliability and safety.

NETA's primary missions are to serve the electrical testing industry by establishing standards; publishing specifications; accrediting independent, third-party testing companies; certifying

test technicians; and promoting the professional services of its members. The association also collects and disseminates information and data of value to the electrical industry and educates the public and end user about the merits of electrical acceptance and maintenance testing.

Congratulations, team, on passing these very difficult exams! 



Joey Ascitutto



Jason Carlson



Toby King



Tim Klosterman



Joel Wilbur

High-Voltage Laboratory Testing Improves Performance and Safety of Electrical Systems

By Jerod Day, Vice President, Vacuum Interrupters, Inc.

THE PURPOSE OF high-voltage testing is to evaluate the design configuration and materials of a system for suitability, reliability, performance, and safety, primarily as it relates to the efficacy of insulation and dielectric materials. Manufacturers of electrical equipment must test their designs to ensure they conform with specifications and national and international standards.

High-voltage equipment is defined by IEEE as equipment operating at voltages greater than or equal to 1000 V for AC applications and 1500 V for DC applications. Other standards may define high-voltage differently.

While numerous types of high-voltage tests can be performed on insulation systems in the field, some tests are better performed in a laboratory environment due to environmental factors, test levels, or equipment requirements.

The High Voltage Testing Laboratory (HVLab) at Vacuum Interrupters, Inc., can perform basic insulation level, partial discharge, dielectric withstand, dielectric flashover, accelerated aging, and contamination tests, among others.

THE VALUE OF LAB TESTING

Since the early days of electricity, the theory of high-voltage testing has not changed tremendously; however, there have been substantial improvements in the technology used to perform testing and to measure the results accurately and precisely.

Examples of high-voltage testing performed at the HVLab include:

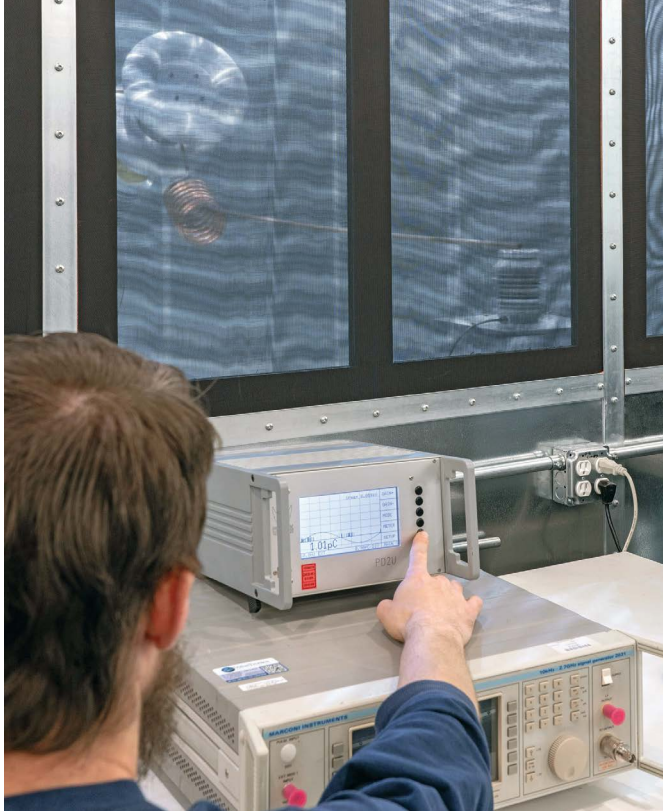
- 1. Basic insulation level (BIL) testing of a new circuit breaker design.** Although the switchgear may have been tested and certified previously, any change to the system, such as a new circuit breaker design, warrants additional testing and, most likely, recertification of the switchgear. Any change to the system, such as a change of design, insulation, distances, materials, or insulating mediums, could affect its overall performance. BIL testing generally takes place inside a high-voltage lab due to the size of the test system and environmental factors.
- 2. Partial discharge testing of a molded insulator design.** The process of manufacturing a molded insulator can leave small voids inside the finished insulator. These voids act as capacitors inside solid insulation, producing




BIL testing

recurring discharges that do not fully bridge the space between the two conductors — hence, “partial” discharge. This will lead to erosion of the solid insulation and, eventually, insulation breakdown. To obtain an accurate and precise measurement of partial discharges, sensitive voltage measurement equipment, usually in the form of a coupling capacitor, must be used. Often, measurements must be taken inside an environment with low electrical noise, such as a Faraday cage.

- 3. Dielectric breakdown test performed on a new insulator design.** The dielectric breakdown test is a common design test performed on insulators before production to determine the point at which an insulator can no longer withstand the voltage being applied and produces internal or external flashover.



Partial discharge testing

High-voltage test labs provide an indispensable source of information about electrical products that ultimately improves the overall reliability, performance, and safety of electrical systems. Testing of electrical products at VI's HVLab helps to prevent bias and improve the accuracy of a product's electrical specifications. Information gathered at a high-voltage lab can help companies progress electrical technologies, improve the reliability of existing electrical systems, and keep operators safe. 



Dielectric breakdown testing


WES Expands Farther West With New Hires

By Jason Bontrager, Sales Manager, Western Electrical Services, Inc.

WESTERN ELECTRICAL SERVICES, Inc. (WES), has hired two new account representatives, strengthening its westward expansion. Chris Foley joined WES in September to manage the Oregon and Southwest Washington sales territories. Chris has been involved in electrical testing and power distribution products and sales for more than 20 years after graduating as a field services engineer in South Wales, UK. Since moving to the United States, Chris has worked for many of our industry peers and customers, such as Taurus Power and Controls, Electro-Test and Maintenance, Siemens Industrial, and General Pacific.



Chris Foley

Kasey Allen joined WES in September to manage the company's Nevada and Northern California sales territories. He brings with him six years as an electrical test technician and sales representative, much of it in Southern California. Notable projects include work at Camp Pendleton, Hoover Dam transformer replacement, and work with the San Diego County Water Authority. He has also worked for Mark Thomas & Associates Electrical Engineers, ABM Industries Incorporated, and Wildwood Power. 



Kasey Allen

GROUP CBS AFFILIATES

Advanced Electrical & Motor Controls Inc. | AEAMC.com

Advanced Electrical & Motor Controls is a certified UL508A industrial control panel builder and specialist in the sales and service of insulated case circuit breakers, molded case circuit breakers, bolted pressure switches, panelboards, switchboards, motor controls, bus plugs, bus ducts, and renewal and replacement parts.

Irving, TX – Ph: 800-289-2757

CBS ArcSafe, Inc. | CBSArcSafe.com

Remote racking systems, remote switch actuators, and handheld motorized racking tools for low- and medium-voltage switchgear.

Denton, TX – Ph: 877-4-SAFETY

CBS Nuclear Services, Inc. | CBSNuclear.com

Specializes in shop and on-site field servicing of Class 1E safety-related low- and medium-voltage switchgear and circuit breakers. Also services industrial and non-nuclear-related circuit breakers and related switchgear and substations.

Matthews, NC – Ph: 704-882-1875

Circuit Breaker Analyzer, Inc. | CBAAnalyzer.com

Providing new circuit breaker testing methods that utilize vibration analysis combined with internet data transfer and sophisticated condition-based analysis to determine the condition of all types of circuit breakers.

Farmers Branch, TX – Ph: 972-290-0074

Circuit Breaker Sales Co., Inc. | CircuitBreaker.com

World's largest inventory of low- and medium-voltage circuit breakers and parts. Also offers CBS MagVac magnetic latching medium-voltage breakers and Tough Duty Power/Vac[®] roll-in replacement breakers. Regional service centers provide repair, remanufacture, upgrade, and life extension of electrical equipment, in addition to preventive maintenance and emergency on-call services.

HEADQUARTERS: Gainesville, TX – Ph: 800-232-5809

REGIONAL SERVICE CENTERS:

Chicago Service Center Chicago, IL – Ph: 847-697-8720	Midwest Service Center Crown Point, IN – Ph: 219-213-2095
Detroit Apparatus Service Center Detroit, MI – Ph: 734-357-8005	St. Louis Service Center Pinckneyville, IL – Ph: 618-357-6300
Florida Service Center Lakeland, FL – Ph: 863-646-5099	

Circuit Breaker Sales & Repair, Inc. | CBSalesAndRepair.com

Servicing the Gulf Coast with shop or field service, repair, upgrade, or replacement of power system apparatus. La Porte, TX – Ph: 281-479-4555

Circuit Breaker Sales NE, Inc. | CircuitBreakerSalesNE.com

A leader in providing power distribution products and services, specializing in life-extension services and offering an expansive inventory of new, surplus, and reconditioned circuit breakers, switchgear, motor controls, transformers, and other power apparatus.

Seymour, CT – Ph: 203-888-7500 | Johnstown, PA – Ph: 203-888-7500

Circuit Breaker Sales Southeast, Inc. | CBSSoutheast.com

CBS Southeast provides sales and repair, upgrade, reconditioning, and life-extension services of utility-industrial circuit breakers, motor controls, switchgear, substations, transformers, and other electrical equipment.

Gonzales, LA – Ph: 225-673-2278

Circuit Breaker Store, Inc. | CBStore.com

Your online source for all Group CBS products; a powerful solutions provider with a specialty vendor network that can supply factory new, surplus new, and reconditioned circuit breakers, electrical distribution, control equipment, parts, and remote racking equipment.

Gainesville, TX – Ph: 855-227-8673

Solid State Exchange & Repair, Inc. | SolidStateRepair.com

Quality, reliable, on-time service and support for all brands and types of solid state power electronics, including circuit breaker trip devices, protective relays, motor overload relays, and rating plugs.

Denton, TX – Ph: 877-TRIP-FIX (874-7349)

Transformer Sales Co. | CBSales.com/transformers/index.htm

Offers a complete line of new, surplus, and reconditioned dry-type, cast-coil, and liquid-filled power transformers from 1000 to 5000 kVA with primary voltages from 2400 V to 34.5 kV.

Gainesville, TX – Ph: 940-665-4484

Vacuum Interrupters, Inc. | VacuumInterruptersInc.com

Provides replacement vacuum interrupters, MAC-TS4 predictive vacuum interrupter and CBT-1201 for circuit breaker test sets, and new replacement encapsulated poles for Power/Vac[®] circuit breakers.

Farmers Branch, TX – Ph: 214-442-5877

Western Electrical Services, Inc. | WesternElectricalServices.com

Serving the Western U.S. with on-site electrical testing and maintenance, electrical engineering studies, and sales, repair, upgrade, and life-extension services for circuit breakers, switchgear, motor controls, and transformers. Also custom manufacturing of engineered and reversed-engineered parts.

HEADQUARTERS: Phoenix, AZ – Ph: 888-395-2021

REGIONAL SERVICE CENTERS:

Chino, CA	Sumner, WA	Reno, NV
Sacramento, CA	Salt Lake City, UT	Vancouver, WA

GROUP CBS TRADE SHOW CALENDAR

DISTRIBUTECH | NEW ORLEANS, LA
February 5–7, 2019

ABM | ATLANTA, GA
February 7–8, 2019

IEEE ESW | JACKSONVILLE, FL
March 4–8, 2019

POWERTEST 2019 | GRAPEVINE, TX
March 11–15, 2019

PROTECTIVE RELAY | TX A&M
March 25–28, 2019

DOBLE | BOSTON, MA
April 7–12, 2019