



THE Breaker Buzz

Providing Electrical Solutions Worldwide VOL XII

MAY 2016

Circuit Breaker Sales Northeast Acquires Sertec Relay Services

GROUP CBS STRENGTHENS CAPABILITIES WITH ADDITION OF PROTECTIVE RELAY SPECIALIST.



CIRCUIT BREAKER SALES NORTHEAST, INC. (CBS Northeast), a Group CBS company and a leading provider and servicer of new and used circuit breakers, switchgear, and related components, is pleased to announce its acquisition of the assets of protective relay specialist service company Sertec, LLC (Wallingford, CT). Sertec specializes in buying, selling, and repairing protective relays and other specialty electrical equipment and will operate as a division of CBS Northeast.

“The addition of this one-of-a-kind specialty protective relay and electronics service facility further complements Group CBS’ strong technical commitment to the industry,” says Bill Schofield, senior

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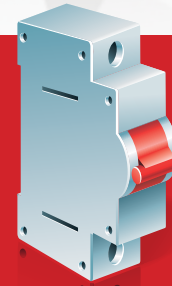
CBS Debuts Tough Duty™ Roll-in Replacement for Power/Vac® Circuit Breakers

THE BREAKERS UTILIZE THE NEWEST REPLACEMENT ENCAPSULATED POLE ASSEMBLIES FROM VACUUM INTERRUPTERS, INC.

By Tim Brewer, Vice President, Circuit Breaker Sales Co., Inc.

CIRCUIT BREAKER SALES CO., INC. has introduced CBS MaxiVac’s™ new Tough Duty™ line of roll-in replacement circuit breakers. The Tough Duty replacement circuit breakers replace a variety of Power/Vac® breakers without any modifications to existing cells or switchgear.

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THE VIEW FROM FLIGHT LEVEL 410

By *Finley Ledbetter*, CEO, Group CBS

Group CBS Fills In the U.S. Map with Move into Midwest and Much More



FOR 37 YEARS, Group CBS has served industries and utilities across the U.S. and around the world. If they consumed electrical power, Group CBS was determined to make sure they had reliable switchgear.

It didn't take long to figure out we couldn't serve all our customers from a dirt road in a small town in Texas. So we opened regional service shops to be the face of the franchise and develop relationships that transcend internet marketing and print ads. It's been a great success.

We have more than doubled the growth of our regional competitors in all markets. And while most of our national competitors have changed the name on their signs several times during the years, we have not.

And this year, I get to make the announcement I never really thought I would: In 2016, Group CBS will open its first full-service service shop in the Midwest. This will fill in the center of the map, giving Group CBS the chance to provide sales and service across the U.S. and complete my soon-to-be 40-year quest to build GCBS into a true national power.

Soon, people in Chicago and Cleveland will think of Group CBS when they think of quality electrical service, repair, and remanufacturing, just like folks in Seattle, Tampa, Houston, New York, L.A., and Charlotte. And they're just the start. Group CBS is looking to the Midwest for our next phase of expansion.

Off the Charts

The last few quarters have been outstanding, fast-paced, and incredibly busy around the Group. We have acquired, started, and shed some operations, and hired, retired, found, and lost

some good people. And nearly as important, we have brought new products and services to market (while putting some of my more boneheaded ideas on the back burner).

As I look back on 2015, it seems like maybe it was the best year the Group will ever see. (I say this every year). I can't imagine a better one. All Group CBS employees pulled together as one and helped make it happen. I hope you realize you are appreciated. We try to make sure you all know that by the way we treat you and the ways we work to improve your workplace and Group experience.

We have more than doubled the growth of our regional competitors in all markets.

We just completed the NETA show in Fort Worth. I have to say it was the best trade show and conference I have ever attended – and I have been to a bunch. We were on point and we generated more interest in a few days than we could have ever hoped for.

As I write this, I'm at CBS Northeast (CBSNE) for its two-year anniversary celebration. What we have done here in the last two years is an amazing story – from zero to a hero in two power-packed years. If the next two are even close, we will shatter all expectations. Hell, we have already shattered mine.

Watch for Western Electrical Services (WES) to open a new service group on the West Coast, while CBS Nuclear makes inroads among our commercial clients on the East Coast.


To help keep an eye on the middle, we have restructured Group HQ a bit with two new VPs, Natalie Berg and Bill Schofield. We promoted Tim Brewer to take the helm at CBS and steer it in the big waters. Tiffany Hammil, Group CBS general counsel, has moved in semi-full-time, and we are making steps into new products and services, such as the new High-Power Test Lab at Farmers Branch, and a new Group CBS training center.

Look for the Advanced Electrical Testing Laboratory to be online and a real resource for Group R&D as well as third-party testing services. The new training center will graduate more than 10 mid-level techs and mechanics each year as part of a two-year technician program. A blast from our past, Bobby Carpenter, will manage this operation and make sure the Group has a stream of strong young men and women to bolster group capabilities.

On the Move

Around the Group it seems we will be in the moving phase again soon as Circuit Breaker Sales & Repair (CBSR), WES Phoenix, Circuit Breaker Sales & Service (CBSSS), and CBS ArcSafe all start new facility upgrades. At CBSNE, modernization and acquisition are keywords as we are upgrading the metal fab with a new large-bed water jet and have just acquired another niche company, Sertec. In addition to expanding into California, WES is working to double its facility in Phoenix.

Not to be outdone, CBS has applied for a permit to add another warehouse and new loading/shipping terminal. ArcSafe acquired the real estate and building next door and plans to double manufacturing space, as well as add a new training center in 2016-17 to allow for growth in overseas markets. Vacuum Interrupters, Inc. (VI) has added a new High-Voltage Lab and 600-square-foot faraday cage.

A new environmental chamber in Farmers Branch and CBS' expansion into the Midwest will be detailed in the next Buzz. And of course, look for me to be at the Super Bowl in early 2017 watching my COWBOYS! 


Circuit Breaker Sales Northeast Acquires Sertec Relay Services

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vice president of business development at Group CBS. Sertec's facilities and inventory in Wallingford, CT, were included in the acquisition. Financial details of the deal were not released.

Paul Body, recently of Sertec, will help group CBS's Northeast operations continue their growth and expansion. "Sertec's customers can expect to receive the same excellent protective relay and electronics repair and retrofits that they are accustomed to while benefiting from the additional inventory, design, and manufacturing benefits that come from being part of Group CBS," Schofield says.

The Sertec acquisition follows Group CBS' purchases of the assets of Diversified Electrical Services (Seymour, CT) in April 2014 and Electric Control Equipment Company, Inc. (Norwalk, CT) in November 2014.


The Sertec, Diversified Electrical, and Electric Control acquisitions are part of a strategic multi-year acquisition program by Group CBS. For more details on the Sertec acquisition, or to discuss joining Group CBS' family of electrical supply, service, and engineering companies, contact Bill Schofield at (972) 250-2500. 

CBS Debuts Tough Duty™ Roll-in Replacement for Power/Vac® Circuit Breakers

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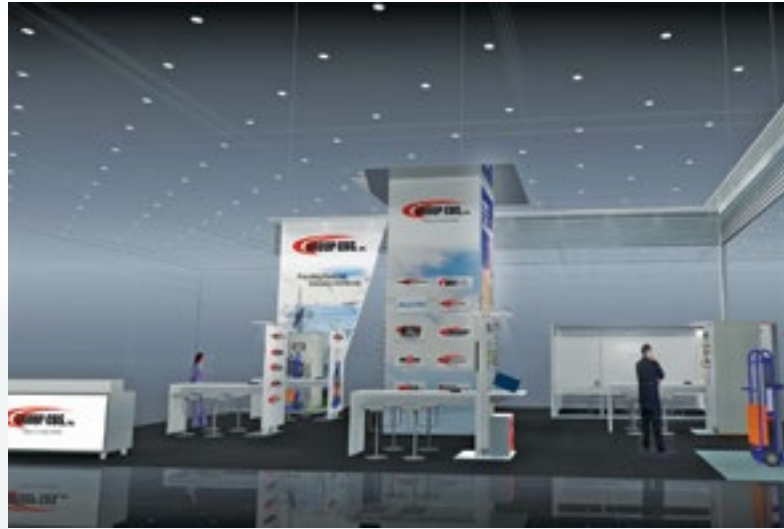
CBS MaxiVac's Tough Duty replacement circuit breakers are tested in accordance with ANSI/IEEE certification standards, are available in all standard ratings, and include the newest replacement encapsulated pole assemblies from Vacuum Interrupters, Inc. The encapsulated poles harden breakers against environmental contamination, extending the life of power distribution equipment.



USA-made Tough Duty circuit breakers are roll-in replacements and require no cell or wiring modifications, resulting in reduced switchgear replacement and downtime costs. Tough Duty circuit breakers work with existing remote racking and switching equipment and utilize trusted ML-17 and ML-18 mechanisms. 

Group CBS Affiliates to Showcase World-Class Service, New Products at Dallas' IEEE PES T&D 2016

ENCAPSULATED POLES, TOUGH DUTY™ REPLACEMENT BREAKERS, AND PD ALERT WILL BE ON DISPLAY.



ON THE HEELS of a successful showing at PowerTest, Group CBS affiliates will introduce three new products at the 2016 IEEE T&D Conference and Exposition, taking place May 2-5 in Dallas. Thousands of decision-makers from 700-plus companies from 80 countries will attend the biggest show in the T&D industry. Group CBS and all 10 of its affiliates will be represented at booth #5547. Attendees will get up close and personal with the following new products:

PD ALERT. CBS ArcSafe® will showcase PD Alert, a partial discharge sensor option to its Remote Racking System (RRS) line. The optional feature provides an additional layer of safety for technicians tasked with racking or removing circuit breakers and motor control centers. In the event of a breakdown in line-to-line or line-to-ground insulation, the PD Alert radio frequency (RF) non-contact sensor issues a visual strobe alarm or digital alarm via email or SMS text message.



TOUGH DUTY™. Circuit Breaker Sales will display CBS MaxiVac's™ new Tough Duty™ line of roll-in replacement circuit breakers, which replace a variety of Power/Vac® breakers without any modifications to existing cells or switchgear. The replacement circuit breakers are available in all standard ratings and include the newest replacement encapsulated pole assemblies from Vacuum Interrupters, Inc. Tough Duty circuit breakers work with existing remote racking and switching equipment and utilize trusted ML-17 and ML-18 mechanisms.



ENCAPSULATED POLES.

Vacuum Interrupters, Inc. has developed replacement encapsulated vacuum interrupter poles for legacy GE Power/Vac® circuit breakers. With a rated voltage of 15 kV, the new encapsulated poles will enable retrofits and upgrades to older breakers with modern encapsulated pole technology. Tested to applicable ANSI/IEEE standards, these hardened, superior replacement assemblies can extend the life of original equipment by 20 years when combined with proper mechanical maintenance. The technology also makes breakers much more resistant to environmental dangers.



WORLD-CLASS SERVICE. Group CBS affiliate companies specialize in the sale and service of low- and medium- voltage circuit breakers and other electrical power distribution equipment. From our modern facilities across the U.S., we provide new, surplus, obsolete, and remanufactured electrical equipment and replacement parts from the largest inventory in the U.S.





VISIT GROUP CBS AT BOOTH #5547



Addison, Texas – 972-250-2500. Headquartered in Addison, Texas, Group CBS includes affiliated electrical equipment, service, and engineering companies throughout the U.S., UK, Middle East, and Pacific Rim, providing premier products and services to the industrial, utility, electrical distribution, and repair markets worldwide. GroupCBS.com.



Gainesville, Texas – Ph: 800-232-5809. World's largest inventory of low- and medium-voltage circuit breakers and parts. Complete service, remanufacture, upgrade, and life- extension services. Also offers CBS MagVac magnetic latching medium-voltage breakers and Tough Duty Power/Vac® roll-in replacement breakers. CircuitBreaker.com.



Denton, Texas – Ph: 877-4-SAFETY. Remote racking systems, remote switch actuators, and handheld motorized racking tools for low- and medium-voltage switchgear. CBSArcSafe.com.



Farmers Branch, Texas – Ph: 214-442-5877. 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. VacuumInterruptersInc.com.



Matthews, N.C. – Ph: 704-882-1875. 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. CBSNuclear.com.



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



Lakeland, Fla. – Ph: 863-646-5099. One-stop service for circuit breakers, switchgear, transformers, protective relays, loadbreak switches, motor controls, unit substations, renewal parts, and repair, upgrade, life extension, and maintenance services. CBS-Florida.com.



Irving, Texas – Ph: 800-289-2757. 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 control, bus plugs, bus duct, and renewal & replacement parts. AEAMC.com.



Seymour, Conn. – Ph: 203-888-7500. 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 control, transformers, and other power apparatus. CircuitBreakerSalesNE.com.



Denton, Texas – Ph: 877-TRIP-FIX. 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. SolidStateRepair.com.



Phoenix, Ariz.; Salt Lake City, Utah; Sumner, Wash.; Vancouver, Wash. – Ph: 888-395-2021. One-stop shop for all electrical equipment sales, testing, and engineering needs and a utility-class service provider to the Southwest, Northwest, and Intermountain region T&D market. WesternElectricalServices.com.

Automatic Transfer Switches: Forget Maintenance at Your Peril

MOST OF THE TIME THEY'RE UNSEEN, ALWAYS THERE FOR YOU, AND LEFT UNLOVED.

By Tim Conley, Senior Technical Advisor, Western Electrical Services, Inc.

THIS ARTICLE OFFERS many ways to approach the subject of automatic transfer switches (ATS): how and why they operate; how and why they are serviced and tested; and how and why of what turns into once-a-month transfer test often becomes the end of all maintenance and that no further action is required. The failure to perform further maintenance activities on an ATS places a facility at risk of catastrophic failure, potentially leading to significant unplanned downtime or, worse, loss of life.

An ATS is used where power to critical electrical loads must be sustained from either a normal utility source or a backup. Where in the electrical industry do we find ATS? Hospitals, high rises, data centers, mines, mills, and, of course, my favorite —submarines! In the hospital setting, they're often critical to keeping patients safe on various types of life support. A failure here results in a loss of life. In the case of high rises and data centers, an ATS failure could mean loss of revenue, potentially in the millions of dollars per hour, during the unplanned outage. With mines and mills, the outcome could either be revenue losses or potentially a loss of life. That's the nitty gritty of it.

Recently, I had the opportunity to perform a forensics investigation of an ATS at a healthcare facility. There were conflicting reports of the utility source failing, the ATS failing to transfer, and the diesel generator (DG) failing to start and run properly. Verbal reports included that the utility had single-phased and that the DG may have been damaged as a result of the ATS not operating properly.

Installed in July 1983, this particular ATS was more than 30 years old. The maintenance plan over the 30-year period was the once-a-month cycle test and that was it. The ATS failed. A contracted electrician attempted to bypass it but couldn't. The facility electrician directed that the utility source and DG be locked out and a temporary generator be brought in until the system and components were replaced. The facility electrician's action prevented a catastrophic failure. No loss of life occurred during this event.

Below are the findings of the ATS failure. It must be noted that the manufacturer of this switch continues to produce high-quality ATS units and that their equipment, when properly maintained and serviced, will provide excellent prolonged service.

The primary findings indicated that the root cause of failure

was the lack of routine maintenance, which led to severe contact overheating, reduced output voltage, and increased current demands as a result of constant loading.

The contact moving joint lubrication had dried up, creating a less conductive surface at each contact pivot joint. Furthermore, as the lubricant dried and became less conductive, heat developed and exacerbated the condition. Only additional disassembly would confirm any development of adverse oxides between contact surfaces, but it is strongly suspected one developed.

There also was severe contact overheating damage found on all three phases of the isolation switch and phase "A" of the ATS. The overheating damaged the contact springs, resulting in lost contact pressures.

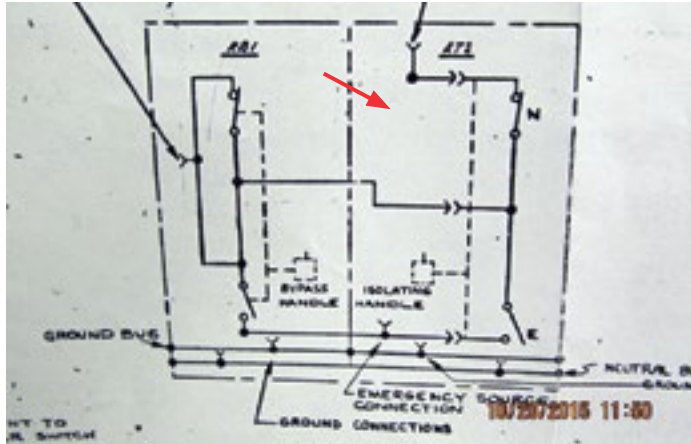
The initial responding contracted electricians reported that they were not able to operate the isolation switch and that contact assemblies must be welded shut. That turned out to be an incorrect report. The electro-mechanical interlocks that were not met prevented the transfer of the isolation switch. The isolating switch contacts did open when the interlocks were manually overridden. A large section of pipe was needed to assist in overcoming the mechanism's bearings that were dried and sticky.

However, it must be noted that had the electrician successfully transferred the ATS, the problem would not have improved and potentially could have worsened the situation. The facility representatives reported that prior to the final moment when power was isolated and the ATS shut off, several sags in output voltage and/or single phasing occurred. The utility reported that the source was stable. Ultimately, the facility's electrician arrived and directed that power be isolated. This action precluded a catastrophic failure and fire.

CONTACT PIVOT JOINT EXPLANATION

In a number of the pictures contained in this article, the term/phrase "contact pivot joint" is referenced. A pivot joint is where two or more electrical contact surfaces are in contact with one another, allowing transfer of electrical energy from a stationary element to a movable element. This movable element is then moved in a fashion to make or break contact with another stationary element, thus making or breaking the electrical circuit. These pivot joints are normally lightly lubricated with a lubri-

cant that has conductive properties. If the lubricant dries out or is overheated, it could potentially bind the moving joint or create an oxide layer between the two moving surfaces, producing a high-resistance connection.



NORMAL SWITCH CONFIGURATION

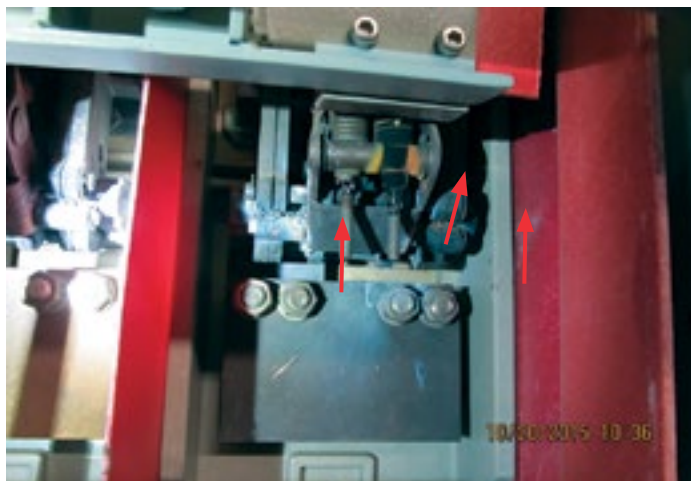
This ATS included an isolation switch with the configuration where current was always flowing through a set of normally closed contacts located in the isolation switch. This is different than newer models in which isolation contacts are normally open unless needed for ATS section isolation.

When the ATS section is needed to be isolated, the Source #2 would be placed in service and the second set of isolating contact closed, enabling isolation of the ATS section.



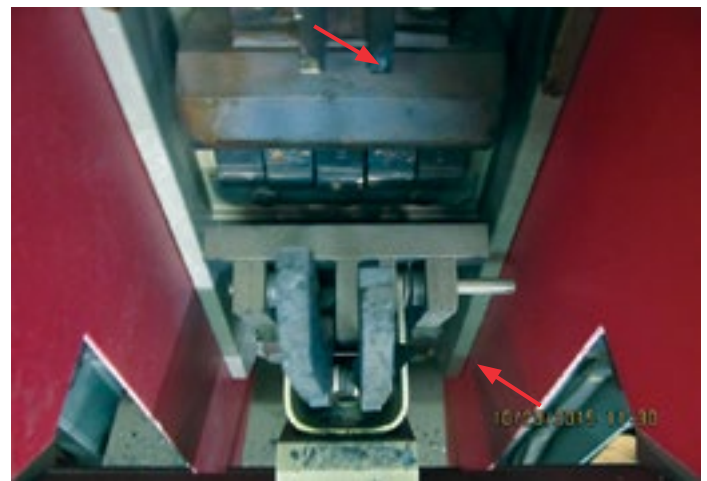
ISOLATION SWITCH CONTACT ASSEMBLY OVERHEATING

Please observe the severe overheating of the stationary arcing and mainline contacts. The upper red arrow shows that the mounting blocks holding the contact assemblies are damaged from heat stress. The black resin located at each upper corner is a sealant/insulating resin over mounting bolt heads. The heat has caused oozing. This is due to overheating, not because of arc interruptions. The lower left arrow is of the stationary mainline contacts that were heat damaged and pitted. The lower right arrow is discoloration and burned lubricants in the contact pivot joints.



ISOLATION SWITCH CONTACT PIVOT JOINT OVERHEATING

Above is an example of the overheated pivot joint. Heat damage can be seen at multiple points: heat-stressed springs, delamination of the silver plating on the contacts, and zinc plating on steel components. Note that the black material on the threads is the nylon portion of the nyloc nut.



ISOLATION SWITCH "B" PHASE

This is the "B" phase of the isolation switch. The upper arrow indicates where potential local spot arcing was occurring as a result of reduced contact pressures. The lower arrow shows where the silver plating began to delaminate from the switch contact surface.

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New Replacement Encapsulated Poles Extend the Life of Legacy GE Power/Vac® Circuit Breakers

REPLACEMENT ASSEMBLIES CAN EXTEND ORIGINAL EQUIPMENT LIFE BY 20 YEARS.

By Julia Neves, President, Vacuum Interrupters, Inc.

VACUUM INTERRUPTERS, INC. is pleased to announce the development of replacement encapsulated poles for legacy GE Power/Vac® circuit breakers. With a rated voltage of 15 kV, the new encapsulated poles will enable Group CBS' companies to retrofit and upgrade older breakers with modern encapsulated pole technology, making the breakers much more resistant to environmental dangers.

Tested to applicable ANSI/IEEE standards for use on legacy Power/Vac® circuit breakers, these hardened, superior replacement assemblies can extend the life of original equipment by 20 years when combined with proper mechanical maintenance. By encasing the vacuum interrupter in epoxy, the maintenance-free assembly is substantially tougher and better suited to withstand contaminants, moisture, and other harmful environmental conditions.


Given their high dielectric strength, the replacement encapsulated poles offer an improvement over standard vacuum interrupters without the use of greenhouse gases. Their enhanced mechanical strength offer excellent vibration and shock resistance, protecting the vacuum interrupter from accidental physical damage during maintenance of the circuit breaker mechanism.

**All trademarks are the property of their respective owners.*

The new encapsulated poles will fit any GE Power/Vac®, including 250/1200, 500/1200, and 2000 amps, up to 750 MVA. Initial models will include 40 kA, 2000-amp vacuum interrupter, and pole hardware.

Watch how easy it is to replace an aging GE Power/Vac® vacuum interrupter assembly with a new encapsulated pole from Vacuum Interrupters.



Encapsulated poles will also be available in all all standard ratings, including 5 kV/350 MVA, 7.2 kV/500 MVA, and 13.8 kV/1000 MVA. The replacement encapsulated poles allow users to continue to use their reliable USA-made ML-17, ML-18, and ML-18H mechanisms. 



CBS Goes Slow Mo



Ever want to see a circuit breaker operating in slow motion? Check out the General Electric AKR-100 mechanism, shot at 1000 frames per second.

AEAMC, CBS Nuclear Roll Out New Websites



ADVANCED ELECTRICAL & MOTOR CONTROLS INC. (AEAMC) and **CBS Nuclear Services, Inc.** have unveiled new websites that highlight the companies' position as low- and medium-voltage circuit breaker experts. AEAMC is the authority on insulated case circuit breakers and has extensive experience with molded case circuit breakers, motor controls, and more. Meanwhile, CBS Nuclear provides services on Class 1E safety-related nuclear equipment, in addition to its expertise as a circuit breaker specialist.

Breaker Adventures: Sometimes They Come Back

THEY SAY IF you love something, set it free. If it comes back to you, it's yours — that is, until you sell it to a customer in need. In August 2001, Circuit Breaker Sales sold a VAD2 2,000-amp breaker to WESCO, which in turn the distributor sold to Verizon as a spare. Flash forward 15 years, when a company called Texas Recovery Systems asked CBS's Justin Brewer if he wanted to purchase it.

"They got our name by pulling the original test data sheets taped to the front of the breaker, which had never seen the light of day," Brewer says. "It was still in our original crate and had all of our packaging on it."

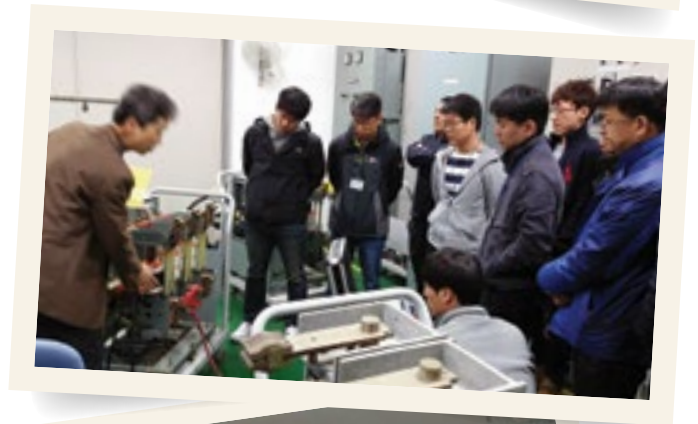
Brewer purchased the breaker for 10% of what CBS had sold it for originally.

Welcome home, VAD2, until your next adventure.



Korea Gets To Know the MAC TS4

GROUP CBS IS gaining a foothold in Korea thanks to its partnership with Neopis to represent and market GCBS products there. A recent training session in Korea familiarized technicians with Vacuum Interrupters Inc.'s MAC-TS4 vacuum interrupter tester, the only test set capable of conducting predictive testing on vacuum interrupters in the field, shop, or laboratory.



CBS Northeast Turns 2!

CBS Northeast recently celebrated its two-year anniversary. In its short history, the affiliate has become the leader in serving the industrial, utility, electrical distribution, and repair markets in the Northeastern U.S. Congratulations, and here's to many more successful years!

CBS ArcSafe Achieves ISO 9001:2008 Certification

THE CERTIFICATION REQUIRES AN ORGANIZATION TO DEMONSTRATE THAT IT CONSISTENTLY PROVIDES PRODUCTS THAT MEET CUSTOMER AND REGULATORY REQUIREMENTS.

By Chris Wykowski, ISO Management Representative, CBS ArcSafe, Inc.


CBS ARCSAFE, INC. recently received ISO 9001:2008 certification from UK-based QAS International. CBS ArcSafe received the certification for its research, design, engineering, and provision of arc-flash mitigation safety equipment.

“This certification affirms the commitment that the team at CBS ArcSafe has on behalf of its customers,” says Ashley McWhorter, president of CBS ArcSafe, Inc. “We’re very proud of the level of professionalism in our people and procedures that helped us reach this goal.”

ISO 9001:2008 certification requires an organization to demonstrate its ability to consistently provide products that



meet customer and applicable statutory and regulatory requirements. Among the principles addressed in ISO 9001:2008 certification are customer focus, leadership, continual improvement, and mutually beneficial supplier relationships.

With CBS ArcSafe’s recent certification, this now make a total of five Group CBS facilities certified by ISO 9001:2008, including Advanced Electrical & Motor Controls, Inc., The Circuit Breaker Store, and Vacuum Interrupters, Inc. Circuit Breaker Sales Co., Inc. is certified to both ISO 9001:2008 and ISO 14001:2004, the latter of which governs environmental stewardship. 

Automatic Transfer Switches: Forget Maintenance at Your Peril

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ISOLATION SWITCH ARC CHUTE

These are the arc chutes from the upper section of the isolation switch. Heat damage is evident as a result of the overheating contact structures.



ISOLATION SWITCH BEARINGS

The picture above is representative of the mechanical linkages throughout both the isolation switch and the ATS section. Bearings are dry; oils from the grease lubricants have leached out. Heavy amounts of dirt have built up. The ATS section motor gearbox lubricant has leaked out and collected on surfaces below it and on the floor. 

**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 control, bus plugs, bus duct, and renewal & replacement parts.
Irving, Texas — 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, Texas — 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, N.C. — Ph: 704-882-1875

**CBS Power Products, Inc.
CBSPowerProducts.com**

New alternative utility and industrial power products: transformers, switchgear, and other power apparatus.
Gainesville, Texas — Ph: 940-665-4444

**Circuit Breaker Analyzer, Inc.
CBAnalyzer.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, Texas — Ph: 972-290-0074

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

World's largest inventory of low- and medium-voltage circuit breakers and parts. Complete service, remanufacture, upgrade, and life-extension services. Also offers CBS MagVac magnetic latching medium-voltage breakers and Tough Duty Power/Vac® roll-in replacement breakers.
Gainesville, Texas — Ph: 800-232-5809

**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, Texas — Ph: 281-479-4555

**Circuit Breaker Sales & Service, Inc.
CBS-Florida.com**

One-stop service for circuit breakers, switchgear, transformers, protective relays, loadbreak switches, motor controls, unit substations, renewal parts, and repair, upgrade, life extension, and maintenance services.
Lakeland, Fla. — Ph: 863-646-5099

**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 control, transformers, and other power apparatus.
Seymour, Conn. — Ph: 203-888-7500

**Circuit Breaker Store, Inc.
CBSStore.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, Texas — Ph: 855-227-8673

**Group CBS, Inc.
GroupCBS.com**

Headquartered in Addison, Texas, Group CBS includes affiliated electrical equipment, service, and engineering companies throughout the U.S., UK, Middle East, and Pacific Rim, providing premier products and services to the industrial, utility, electrical distribution, and repair markets worldwide.
Addison, Texas — 972-250-2500

**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, Texas — Ph: 877-TRIP-FIX

**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 2400V to 34.5kV.
Gainesville, Texas — 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, Texas — Ph: 214-442-5877

**Western Electrical Services, Inc.
WesternElectricalServices.com**

Serving the Southwest with superior quality on-site electrical testing, maintenance, and repair services as well as rebuild, upgrade, and life extension services for switchgear, circuit breakers, and motor controls.
Phoenix, Ariz. — Ph: 888-395-2021

**Western Electrical Services, Inc.
WesternElectricalServices.com**

The only full-service electrical testing and maintenance company in the Intermountain region.
Salt Lake City, Utah — Ph: 888-395-2021

**Western Electrical Services, Inc.
WesternElectricalServices.com**

The Northwest leader in electrical testing, maintenance, and power switchgear services providing on-site electrical testing and maintenance, electrical engineering studies, and sales, repair, upgrade, and life extension services of circuit breakers, switchgear, motor controls, and transformers. Also custom manufacturing of engineered and reverse-engineered parts.
Sumner, Wash. — Ph: 888-395-2021

**Western Electrical Services, Inc.
WesternElectricalServices.com**

One-stop shop for all electrical equipment sales, testing, and engineering needs and a utility-class service provider to the Northwest T&D market.
Vancouver, Wash. — Ph: 888-395-2021

TRADE SHOW CALENDAR

Visit with Group CBS companies at the following trade shows and exhibits:

HydroVision
MINNEAPOLIS, MN
July 25-29, 2016

TSDOS-Transmission & Substation Design & Operation Symposium
FIRSCO, TX
September 7-9, 2016

TX MESE-Municipal Electric Safety Exchange
BOERNE, TX
September 21-23, 2016

Doble Circuit Breaker Test & Maintenance Training Conference
PITTSBURGH, PA
October 3-7, 2016

POWER-GEN International 2016
ORLANDO, FL
December 13-15, 2016