

Remote Racking for Magne-Blast® Circuit Breakers

The operator of a coal-fired power plant in Montana had opted for an aftermarket remote racking system for their GE Magne-Blast® circuit breakers. These vertical lift circuit breakers can weigh up to 3,700 pounds—so they must be positioned with care. The existing aftermarket device used a variety of very basic methods to determine their proper placement, which resulted in damage to the breakers and the racking mechanism. Using this device also required that the operation be conducted with the enclosure doors open. After consulting with GE Energy engineers, the power plant operator installed a GE Remote Racking System, which enables safe, precise control of these heavy breakers from a distance of up to 30 feet—with the door closed.

The Challenge: Racking Its Circuit Breakers Without Damaging Its Switchgear

The aftermarket remote racking system that the operator of a Montana coal-fired power plant purchased lacked the precision to effectively rack the power plant's Magne-Blast circuit breakers into place. Rather than rely on the cubicle's mercury tip switches, these PLC-driven devices forced the circuit breakers against the stop bolts, causing damage to the porcelain insulation on the primary disconnects, which can increase the possibility of an arc flash occurrence.

The aftermarket device also used an oversized motor that stripped jackscrews and bent the racking mechanism. The remote racking system was so big that it required a two-person crew to operate and had to be trucked from location to location. Faced with recurrent downtime and costly repairs, the power plant operator called in GE Energy for help.

The Solution: Remote Racking for Magne-Blast Circuit Breakers

For the operator, the compelling advantage of the GE remote racking system was that it was designed by GE to work on GE equipment. Rather than using an outsized motor, it uses a fractional electric motor that has just enough power to slowly lift the breaker. And rather than using a PLC and a set of arbitrary measurements, it relies on the cubicle's existing elevation and disconnect switches to place it properly.

Remote Racking for Magne-Blast Circuit Breakers

GE's remote racking system for Magne-Blast circuit breakers is built from user-serviceable parts and offers a number of important features:

- For safety, racking is done from a distance of 30 feet with the breaker cubicle closed and existing GE safety interlocks in place.
- It is light, portable, and suitable for outdoor use.
- Precision placement is achieved using mercury-tip switches.
- Only minor modification is required for installation.



case study

Another big plus for the operator was safety. Using the GE remote racking system, a single worker can raise and lower the circuit breaker from a distance of 30 feet with the door in place. There's no need for special PPE clothing. In addition, the GE system optionally provides the ability to open and close the breaker remotely. And even discounting the damage to their switchgear, the operator found that the GE solution was less expensive than the aftermarket equipment with its extensive electronics.

Once the power plant operators decided to switch to the GE remote racking system, installation was straightforward. They placed a receptacle in the cubicle door and made minor modifications to the switchgear wiring—and they were ready to go. In addition, they were able to purchase remote racking systems with the proper motor size and gear ratios for the specific model Magne-Blast circuit breakers they had installed.

The Takeaway: Thoughtful Design and Careful Integration Pay for Themselves

GE's remote racking system handles Magne-Blast circuit breakers with ease because it is designed to take advantage, not override, the mercury switches that enable precise positioning. Furthermore, it was conceived not simply to raise and lower the breaker, but to raise and lower the breaker with the maximum of safety. In other words, the system reflects the kind of care and experience you can expect from a Fortune 100 company with a hundred-year history of providing thoughtfully designed power distribution equipment to its customers.



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