Bulletin DB-680A15

Unitized "Quick Install" Switches for Substation Applications

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Cleaveland/Price "Quick Install" Substation Switches

Cleaveland/Price "Quick Install" switches are unitized switches that ship from the factory fully assembled and adjusted on a mounting frame or on a customer's mounting structure. These unitized switches are available for any group operated switch design from 15 kV through 230 kV for installation in a substation. Unitized switches are also available for transmission line applications (Reference bulletin DB-605A12).

"Quick install" switches are engineered to customer specifications. The customer stipulates switch type, rating, structure type (number of support legs), mounting position, phase spacing, and distance from the ground to bus centerline (when applicable); Cleaveland/Price takes care of the rest. Drawings for approval are submitted prior to fabrication.

Cleaveland/Price switch assemblers take the guesswork out of switch adjustment. Each pole unit is expertly adjusted on the factory floor and the three phases are further adjusted to work in perfect unison. The switch arrives at site ready to install. Once the design is tried and proven, it can become a standard that takes all of the headaches and sweat out of future installations.

"Quick Install" Substation Switches

- Easy to install
- Switch adjustment is not necessary during or after installation
- Customized to customer specifications
- Ideal for situations that require a fast switch installation
- Reduces the amount of crane time necessary at site
- Cost effective

Options in supplying unitized switches are:

- The entire mounting structure can be supplied by Cleaveland/Price or be supplied by the customer and drop shipped to Cleaveland/Price. The switch would be mounted to a platform and the manual or motor operator and vertical operating pipe would be installed on the support pedestal or legs.
- Cleaveland/Price can supply the switch on a platform for installation on customer's pedestal.

With Cleaveland/Price' "Quick Install" switches, you can take advantage of our expertise while reducing your installed asset costs. Utilities that use contractors to install switches find that Quick Install switches solve all of their skill level problems.

How Well Does It Work?

A major northeast utility had a critical location substation at which they needed to replace twenty-one 230 kV vertical break switches in a short outage window. All of the switches had ground blades on one or both ends of the switch. The utility planned three outages of three days each to accomplish this task and they turned to Cleaveland/Price to help make it happen. Cleaveland/Price had introduced the unitized switch concept to the utility on an earlier project.

Over the course of three weeks, Cleaveland/Price delivered seven fully assembled and adjusted "Quick Install" switches per week. The utility worked efficiently to remove the existing switches and install the new unitized switches. During each outage, *seven switches were installed in two days*. No adjustments were required on any of the twenty-one switches.

By using Cleaveland/Price "Quick Install" switches, the utility was able to meet their aggressive schedule and avoid significant system costs that would have been incurred by longer outages.

Switch Installation - *It's this easy!*

1

The switch pole units are assembled and mounted on a structural platform. Interphase operating linkage is installed and the main switch and ground switches are then adjusted.

2

The unitized switches ship from the Cleaveland/Price factory fully assembled and adjusted on the structural platform.

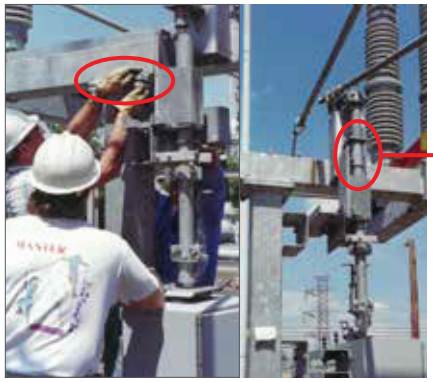
3

When at the jobsite, the vertical structural support legs with operating mechanism attached are removed from the truck and fastened to the foundation anchor bolts.

4

The unitized switch is removed from the truck and positioned over the vertical supports.

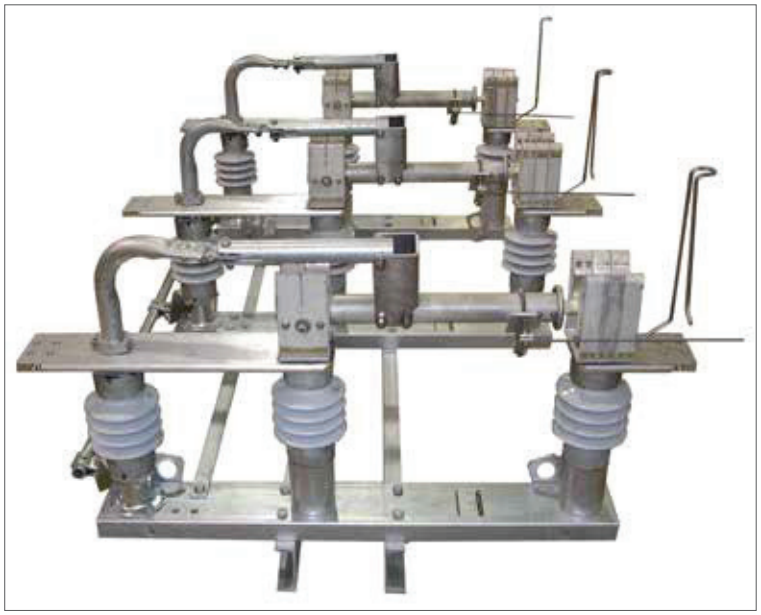
5



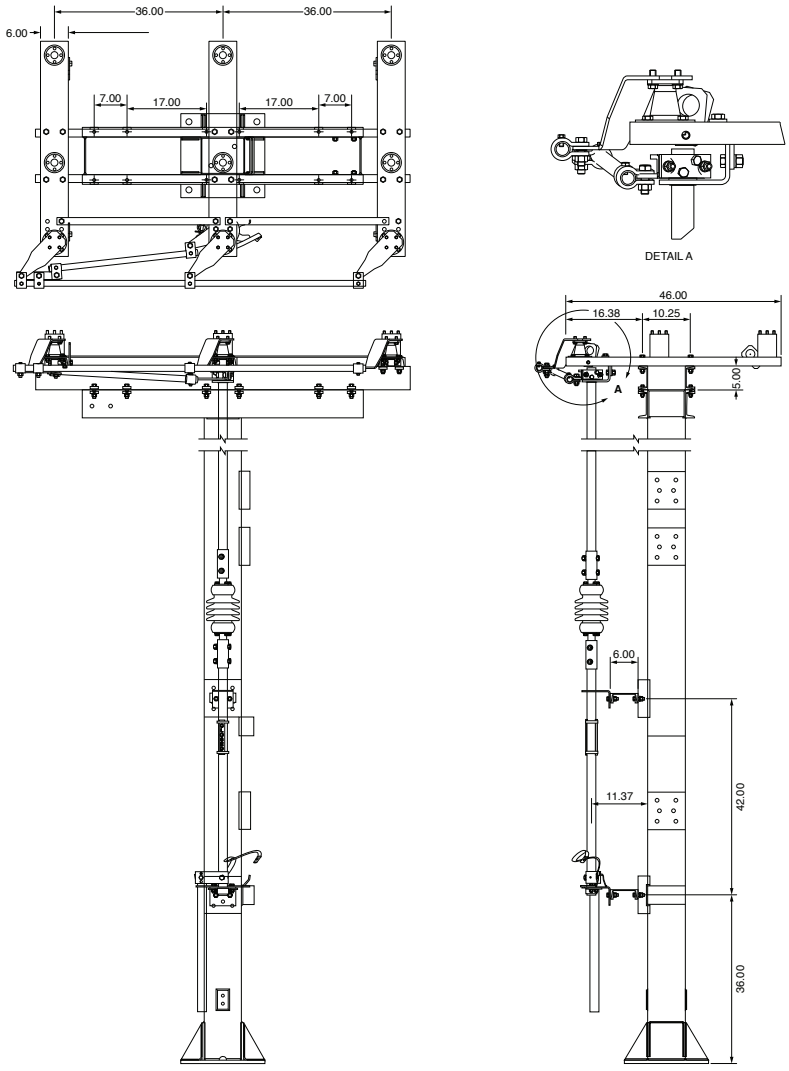
The switch platform is bolted to the two vertical support legs and the operating mechanism vertical pipe is bolted to the outboard bearing assembly via a coupler.

6

Eleven bolts after the structure legs are anchored, the motor operated switch is completely installed and operating electrically! Installation time for this 230 kV switch with hinge and jaw end ground blades was less than one hour. No field adjustment was needed.



“We were from truck to pole and gone in 45 minutes!”



15 kV, 2000 A. V2-CA unitized vertical break switch with direct drive to the center phase rotating insulator.

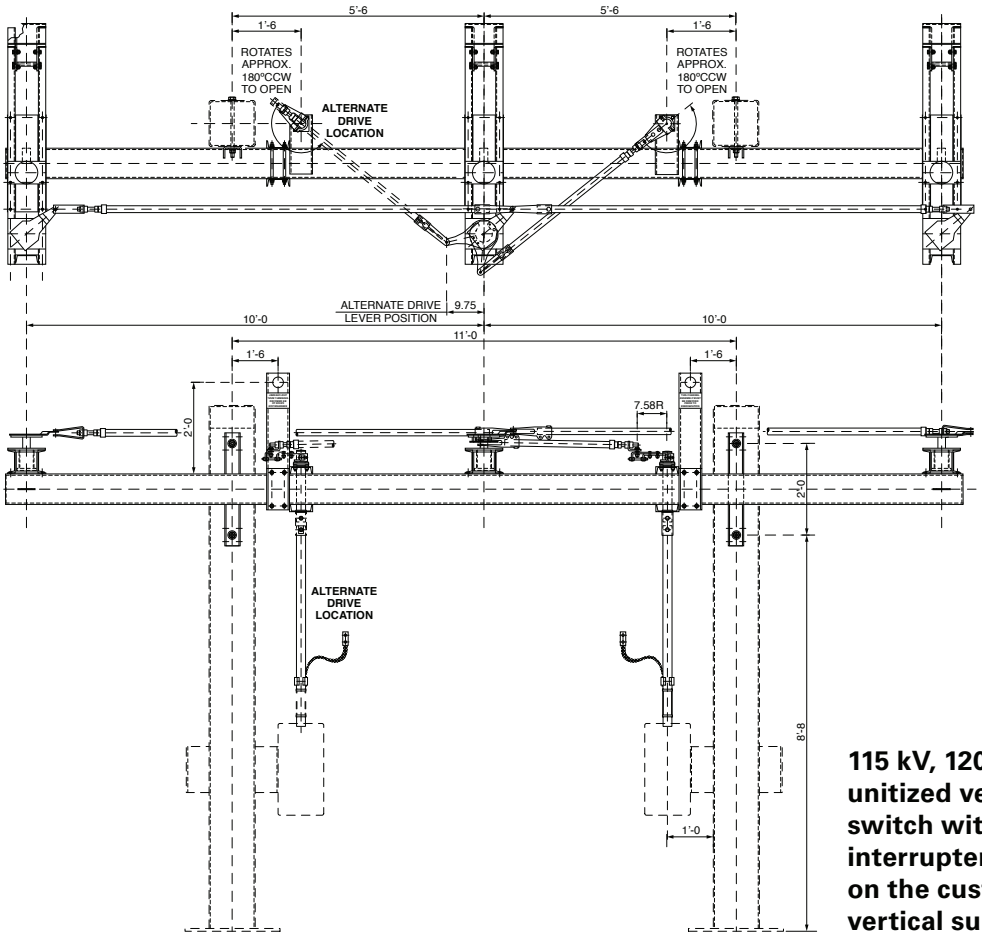
69 kV Double Break "Quick Install" Switch

In this application, the customer was isolating a breaker and needed to disconnect both sides of the breaker. Cleaveland/Price supplied two vertically oriented double break switches mounted back-to-back on a frame. The frame was engineered to attach to two tall vertical structure members supplied by the customer. The two vertical members were shipped to Cleaveland/Price for pre-delivery mounting of the operating linkage. The switch shipped with all the operating linkage in place and only needed the joining of two couplers to be operable.

The switches and structure were built in the factory to install the operating mechanism linkage and adjust the switch.

After the switch was adjusted, it was removed from the vertical supports and loaded on a flatbed, ready to be reassembled at the jobsite.

At site, the vertical supports were erected and the switch mounting frame was attached to the supports. Coupling the vertical operating pipes to the outboard bearing assemblies completed the installation.



115 kV, 1200 A. V2-CA unitized vertical break switch with vacuum interrupters mounted on the customer's vertical supports.

Unitized switch assembled at the factory.

The unitized switch is attached to the supports.

The switch is lifted into place.

Installation is complete in less than one hour.

This brochure describes a standard product and does not show variations in design that may be available. Contact the factory for additional details.

Cleaveland/Price reserves the right to make changes or improvements to the product shown in this brochure without notice or obligation.