

Fault Finding on Underground Cables with DC Hi-Pot Adapter on Phasing Tester

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The Chance DC Hi-Pot Adapter has proven to be a very valuable tool for locating faulted cables in an underground loop.

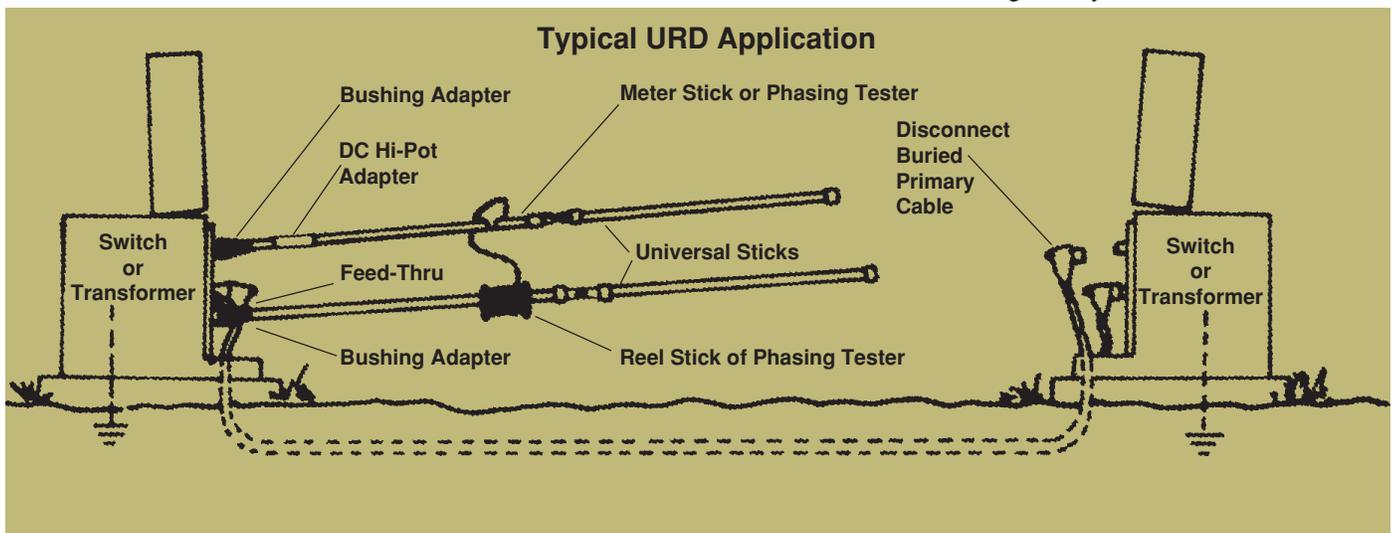
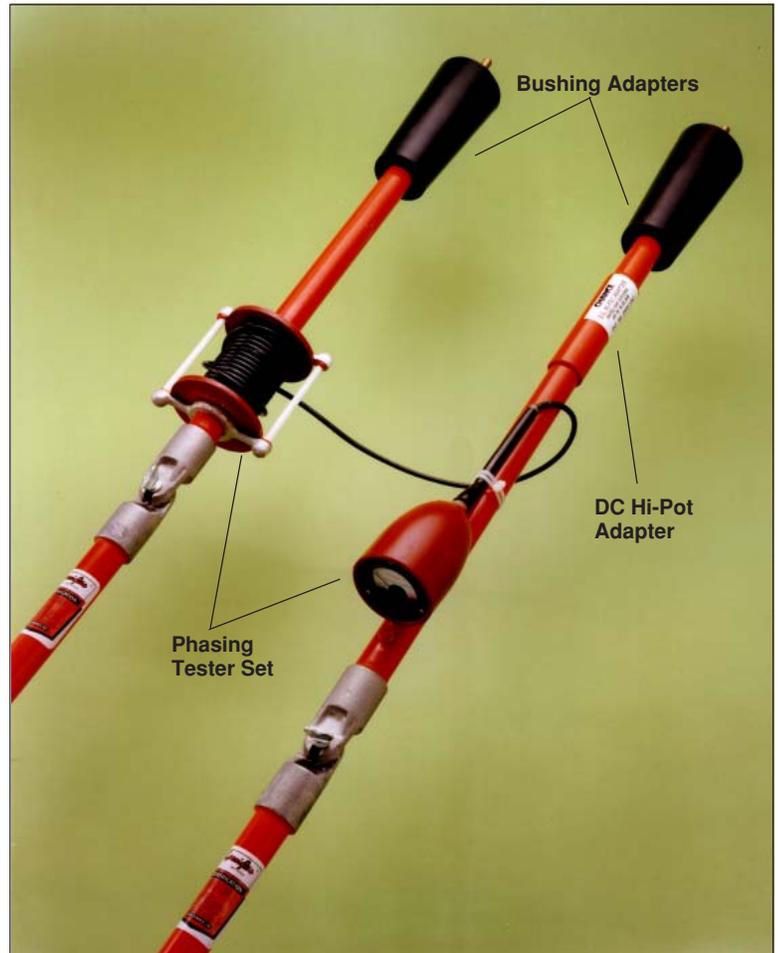
The old method of locating a fault was to repeatedly re-fuse at the riser pole and close the fuse in on different sections of cable. By dividing a URD loop in half and closing the fuse, one could tell whether the cable was good or bad. If the fuse blew, one divided the bad section of the cable in half, re-fused and closed in. This was continued until the faulted section of cable was determined.

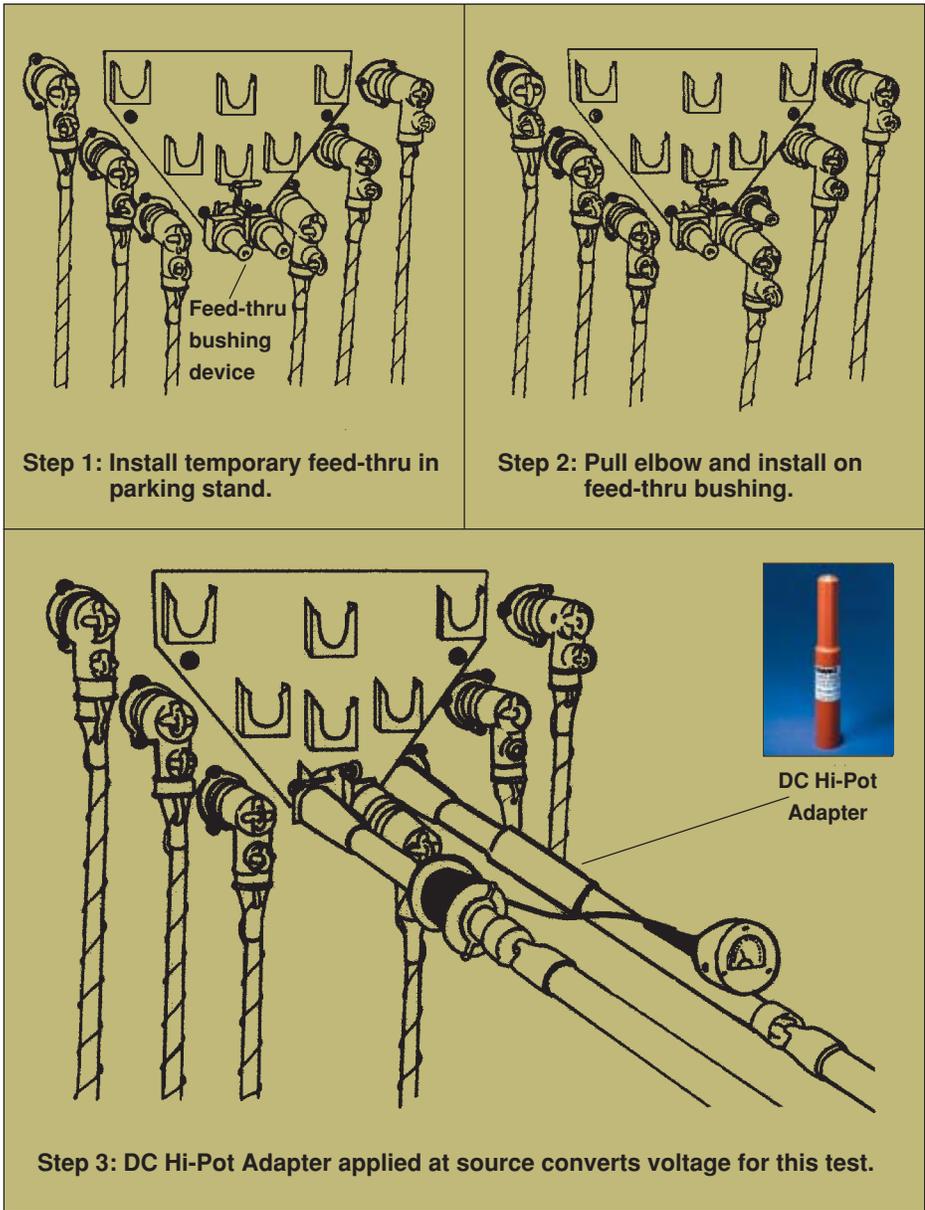
Each time one closed in on a fault, a fuse was blown which had to be replaced. There was always the possibility of injuring someone if a very violent fuse explosion occurred. We were often subjecting our URD cables to a high-fault current. Customers' lights went on and off as we closed in on good sections of cable and then opened to isolate and close in again. Especially at night, the loud report of the fuse operating disturbed nearby people. This was not a professional way to be operating.

Our new method for the past two years uses the Chance DC Hi-Pot Adapter on the Chance phasing sticks. The Adapter is basically a diode that converts the AC line voltage to a DC voltage equivalent to

the peak AC value.

For example, on a 7200-volt AC single-phase URD line, we would have approximately 10 kV DC applied on the line to test a cable. Using this system, we disconnect





DC Hi-Pot URD Test Adapters

Applications

For quick, reliable fault detection on underground cables, two units are available for phase-to-phase system voltages up to 16kV or 35kV. By converting AC source voltage to pulsating DC, these adapters permit testing of cables with a potential level equal to peak source voltage. This field-effective method proves especially beneficial for:

- Testing new cable before initial energizing.
- Testing repaired cable before re-energizing.
- Testing suspect cable spans for faults.

Operation

For metered readout, the Hi-Pot Adapters work in conjunction with Chance Phasing Tool No. H1876 (Catalog page 2452). A brass male fitting inside the larger end of either adapter simply threads onto the meter probe of the phasing tool. For testing and subsequent discharging, a brass female fitting at the smaller end of the adapter accepts either Chance Elbow Adapters or Bushing Adapters for 15 through 35 kV (Catalog page 2464).

Illustrated instruction booklet shipped with each Hi-Pot Adapter explains testing and discharging procedures.

Units contain high-voltage rectifiers encapsulated in Chance orange 1¹/₄- and 1¹/₂-inch diameter Epoxiglas[®] housings.

Ordering Information

Catalog No.	Description
C403-1762	* 16kV Hi-Pot Adapter
C403-1763	* 35kV Hi-Pot Adapter

*Maximum phase-to-phase system voltage.

Rating	Length	Weight, each	
16 kV	10 in.	1 lb.	0.45 kg.
35 kV	13 in.	1 ¹ / ₄ lb.	0.57 kg.

both ends of a cable and hook on the adapter. The cable is energized with the DC voltage. A good cable will hold a charge so the voltmeter on the phase stick will show a voltage for a second or so until the cable becomes charged. Then the voltage difference will drop to zero volts. However, when we energize a bad section of cable the fault drains off the charge and our meter continuously reads a high potential. Just as easily, the Adapter quickly tests repaired cable, too. It checks

that the fault repaired was the only fault on the cable and confirms that the repairs were effective.

We no longer blow a lot of fuses and do not close in on faults with the possibility of the cutout blowing up in a lineman's face. Frequent pumping of high-fault current through the good cables and other equipment, terminations and splices is avoided. We have eliminated disturbing the customers' lights and the loud bang of the fuses blowing.



NOTE: Because Hubbell has a policy of continuous product improvement, we reserve the right to change design and specifications without notice.

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