Instructions for Type BA & CLE Fuses

I.L. 47-069-8

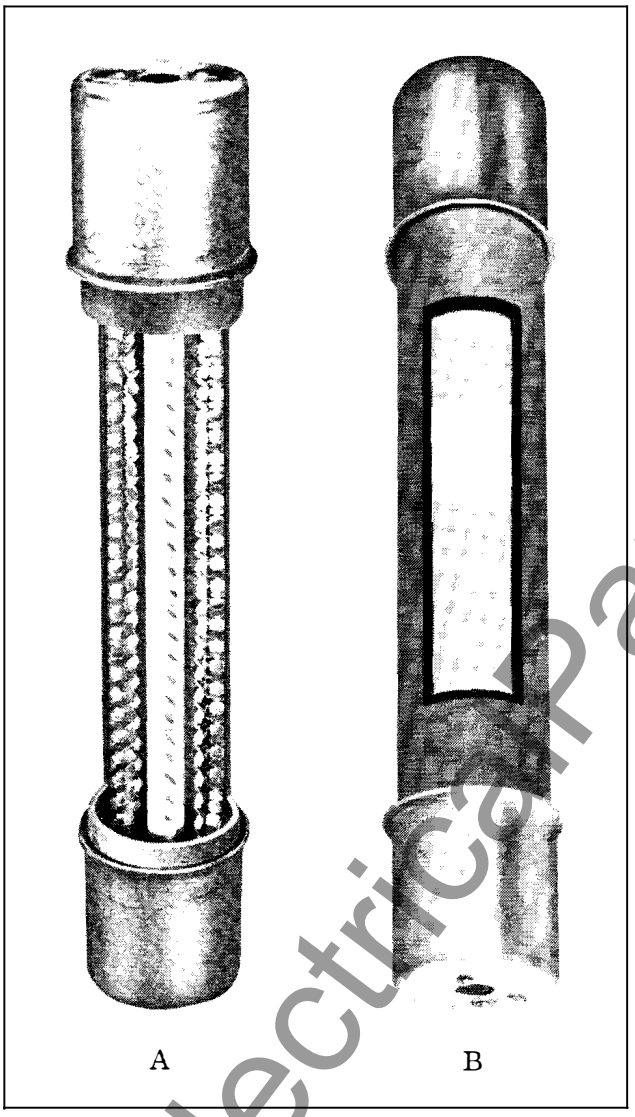

Fig. 1 Type CLE Fuse

To isolate a transformer in the event of an internal fault, BA or CLE protective fuses (depending on interrupting capacity) are connected between the high voltage switch and the transformer.

Type BA De-ion fuses, when used in combination with an LBF load break switch provide an inexpensive non-automatic load interrupter with high short circuit protection. Short circuit currents are removed with split-second action by use of a dry boric-acid cylinder within which the fuse arc is drawn. The dry boric acid is decomposed by the intense heat of the arc forming water vapor and inert boric oxide. The electrical interruption is caused by the steam de-ionizing the arc as it is drawn through the cylinder by action of a helical spring and arcing rod.

OPERATION

CLE type current limiting fuses interrupt high fault currents before the first loop of fault current has reached its natural crest value. They perform their function by producing arc voltages which exceed the system voltage by a significant amount and thereby force current zero. They will interrupt currents of short circuit magnitude in approximately 1/2 cycle measured from the instant of initiation of the fault and provide maximum protection to transformers and other apparatus on the system.

CONSTRUCTION

The BA fuse consists of a flame retardant filament wound glass epoxy holder enclosing a helical spring, flexible shunt within the spring, arcing rod, and boric acid fuse refill unit. The refill unit consists of two de-ionizing chambers in parallel, a large bore through which the arcing rod passes, and a small bore for the auxiliary fuse wire. Through selective operation, the small bore interrupts low current faults and the larger bore interrupts high current faults. Type BA fuses are provided with condensers which not only act as silencers, but totally enclose the fuse discharge. This feature makes the BA fuse ideal for applications where open flame discharge and noise cannot be tolerated.

Type CLE power fuses are basically of inorganic construction, the only organic material used being the glass-resin outer cas-

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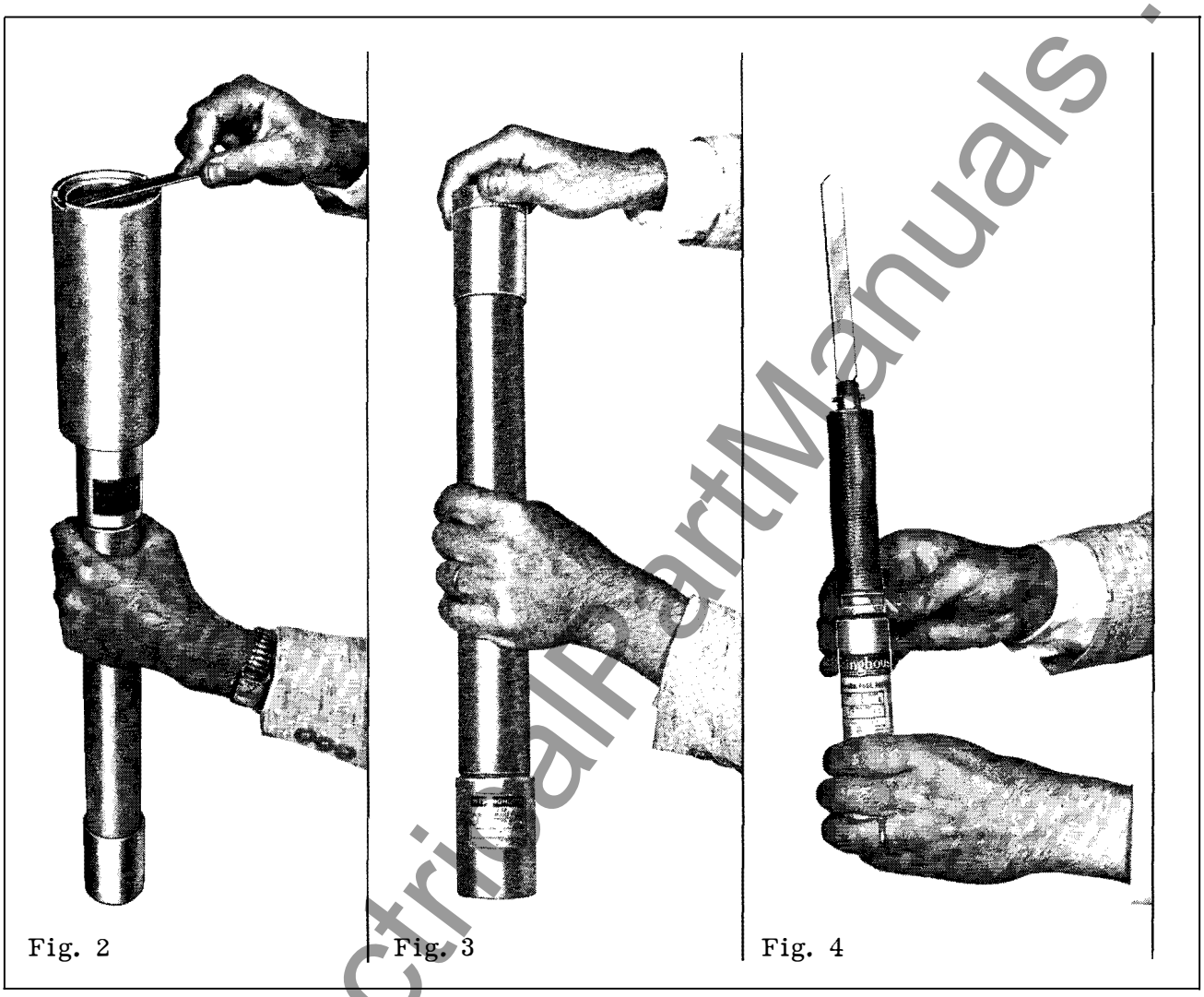

Fig. 2 Fig. 3 Fig. 4

ing and the plastic indicator. There are no vent holes; ferrules are cemented, so they are effectively sealed.

A distinguishing design feature of this type of fuse is a pure silver strap element. The design of the element combines maximum load carrying ability with the most favorable short circuit interruption characteristics. The silver element is pleated giving it a "fatigue proof" feature. This design limits the motion due to expansion from thermal cycling. (see A of Fig. 1).

CLE transformer fuses are filled with high purity silica sand and have sandwiched between the sand filling an additional layer of pulverant arc quenching material. (see B of Fig. 1). The addition of this band of filler to the fuse changes its melting characteristics and facilitates low current interruption. This gives the fuse a characteristic more suitable for transformer protection.

INSTALLATION

Fuses for use with transformers are mounted in the switch when shipped from factory. Shortages should be checked with the carrier, or if shortages are not the fault of the

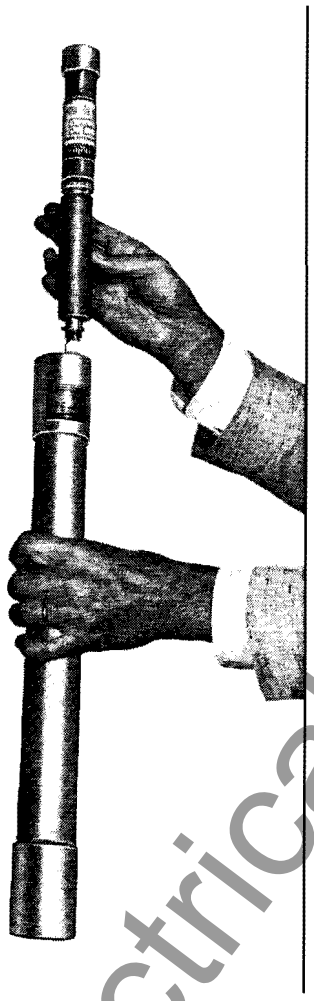

Fig. 5

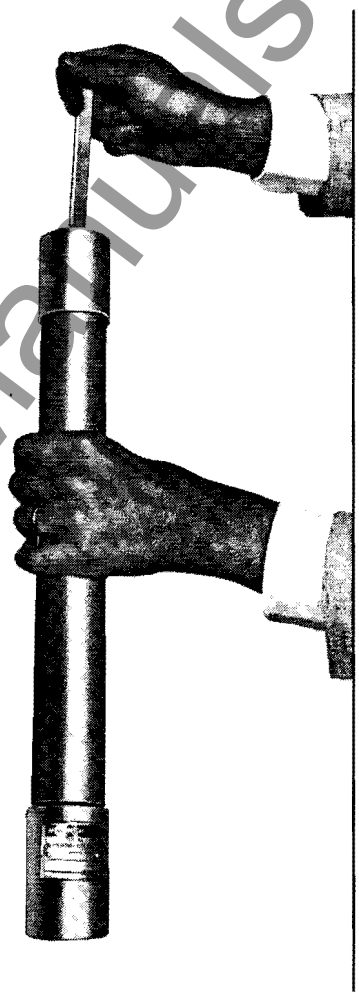

Fig. 6

carrier, with the nearest Westinghouse Sales office.

BA fuses are shipped from the factory with the fuse refill in place.

CLE fuses are complete within themselves.

MAINTENANCE

BA and CLE fuses are simple in construction and require little maintenance. Refills of the proper rating should be kept in stock. Refill type numbers can be obtained from the transformer outline drawing or from nameplate on the fuse.

INSTRUCTIONS FOR REPLACING BLOWN BA REFILL

1. Lift fuse holder straight out from fuse clips.

2. With refilling tool, unscrew condenser, Fig. 2.

3. Unscrew cap, Fig. 3, and unlatch spring allowing refill to slide out.

TO INSTALL A NEW REFILL

1. Screw the refilling tool into latch end of spring. Screw spring and refill firmly together by hand, Fig. 4.

DO NOT USE A WRENCH.

2. Slide this assembly into the fuse holder, Fig. 5.

3. Stretch and latch spring, Fig. 6. Remove refilling tool.

4. Screw cap in place and tighten, Fig. 3.

5. Tighten condenser using refilling tool, Fig. 2.

For CLE fuses, the whole unit must be replaced. On fuses rated 2500 volts and above, a red plastic indicator projecting below the ferrule gives ready indication that the fuse has operated.

Westinghouse Electric Corporation
Power Transformer Division, Sharon, Pa.

Printed in U. S. A. (W. E.)

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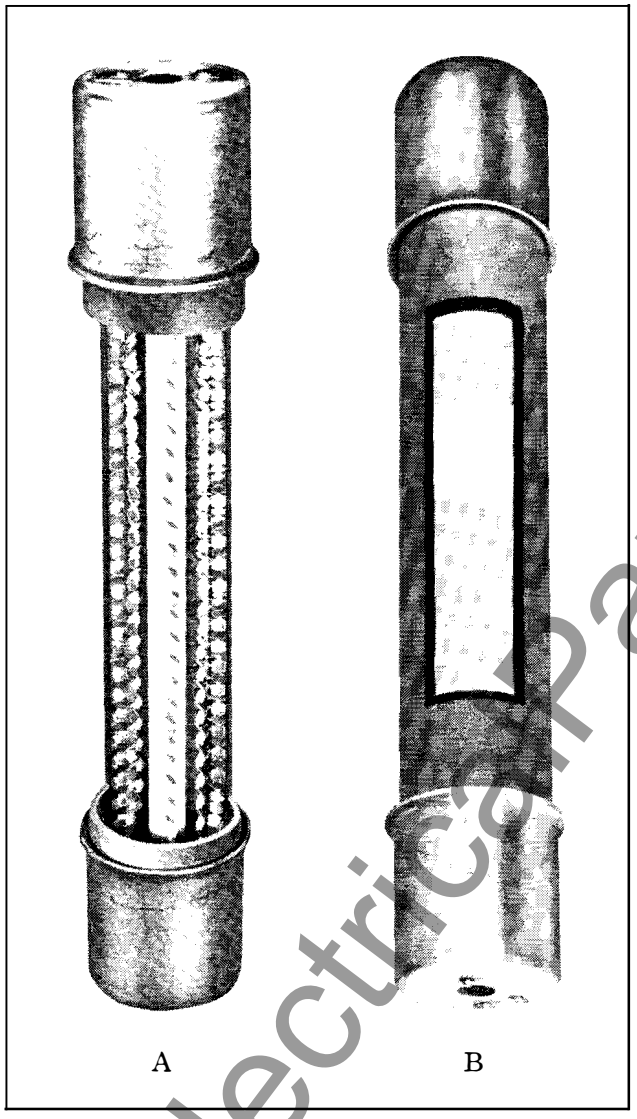

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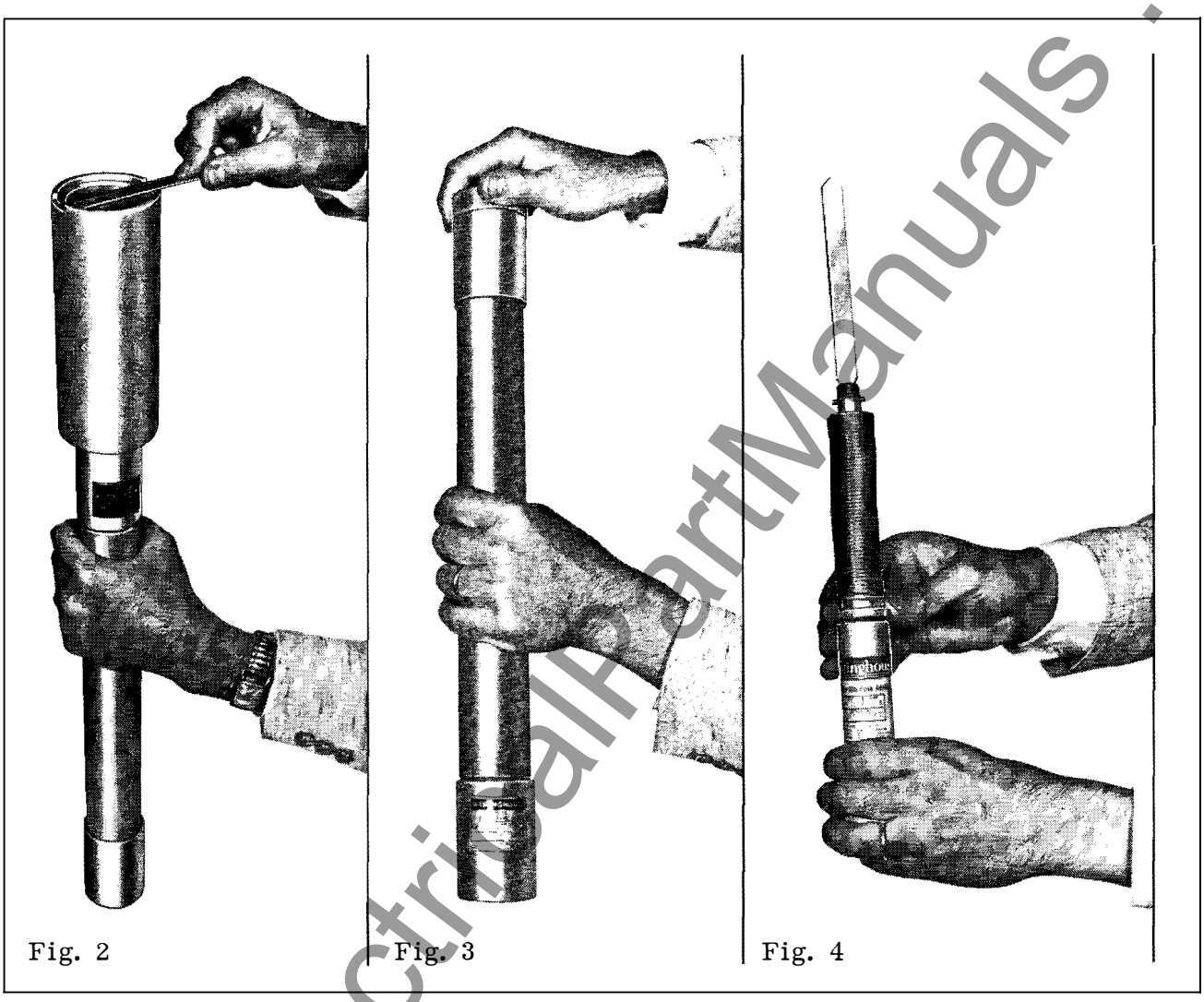

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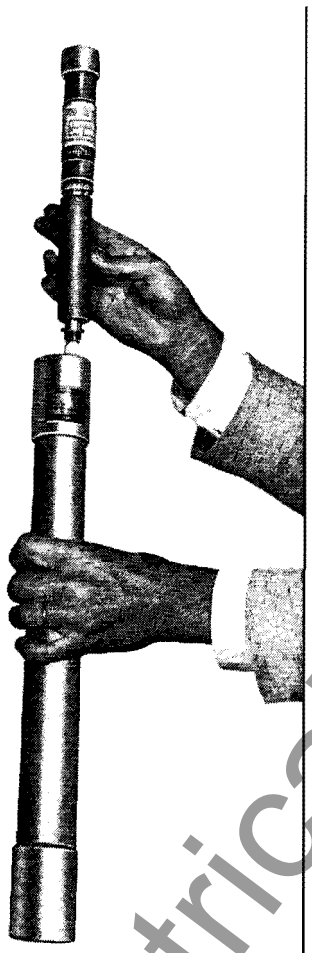

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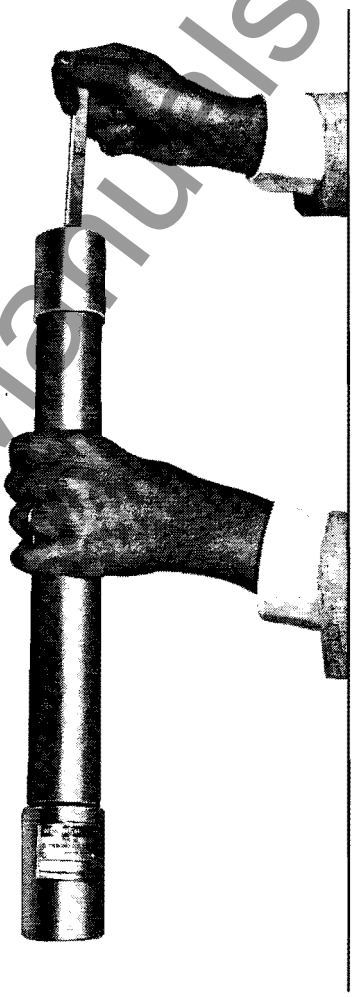

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