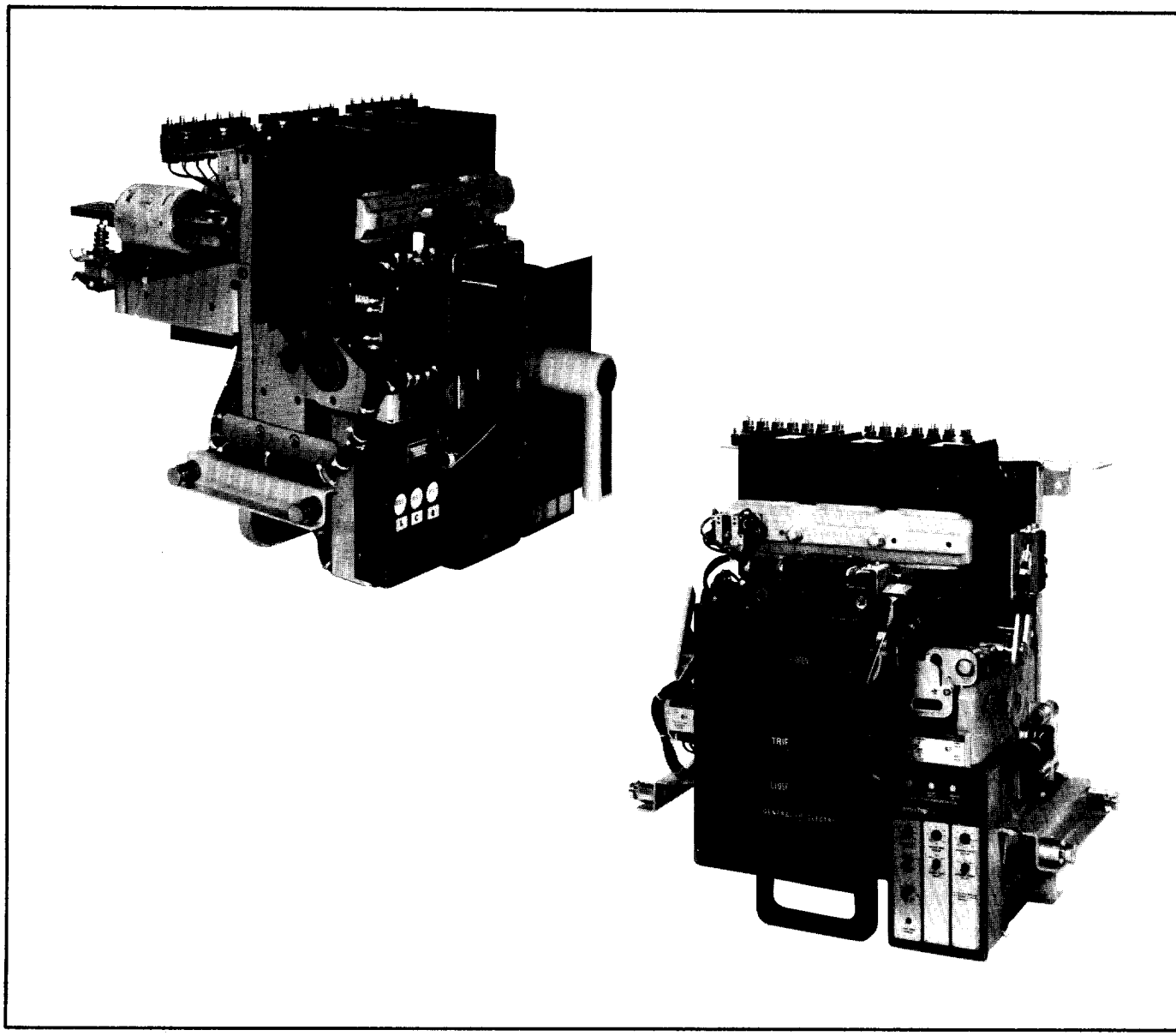
Contact
Adjustment
Instructions
Supplement to
GEH-5019 and
GEH-50299

Low Voltage Power Circuit Breakers

Types AKR-30S, AKRU-30S and AK-6/6A-25-1



On each breaker terminal there are three pairs (six (6) total) of stationary contacts. When the breaker is fully closed and latched, two moving contacts each make contact in a vertical line with three stationary contacts, depressing them a prescribed amount (between 5⁄32″ and 3⁄32″). This amount is called "contact depression."

"Breaker contact adjustment" is made to bring the contact depression on the stationary contacts within tolerance.

To adjust the contacts, follow these steps:

1. Provide a work area where maintenance can be performed in a safe manner.
2. Examine the breaker to verify that the breaker contacts are **OPEN**.
3. Using a 7⁄16″ wrench, remove the arc quencher retainer by loosening the hold-down nuts. When both nuts are sufficiently loosened, the retainer can be removed by moving it forward toward the front of the breaker, upward and out.
4. Remove all three (3) arc quenchers by lifting the individual pieces up vertically.
5. Locate and identify the stationary upper terminal contact assembly. There are three pairs (six (6) total) of spring-loaded contacts on the outer end of the contact assembly. When contacted by the moving contact assembly on a closing operation, the contacts pivot inwards. The distance they move inwardly is the "contact depression" that must be measured and set. To measure and set "contact depression" on the stationary contacts, proceed as follows:
   a. With the breaker in the **OPEN** position and the arc quenchers removed as described, locate a point of reference on each top contact of terminal assembly. A convenient point of reference is the steel arc runner located just above the stationary contacts and extending vertically for about two inches (2″). Place a scale, with divisions at least as small as 1⁄32″, on top of the stationary contacts, butted against the steel runner and extending forward, adjacent and parallel to the plane of the moving contacts. Refer to Figure 1 when setting up to make this point of reference.
   b. Once the point of reference has been satisfactorily determined and the scale is in place, measure the distance from the end of the scale to the vertical surface of the stationary contact. Again, see Figure 1. This measurement should be about 3⁄16″ to 5⁄32″. Record this initial measurement for each individual pole assembly. Remove the scale from the vicinity of the contacts.

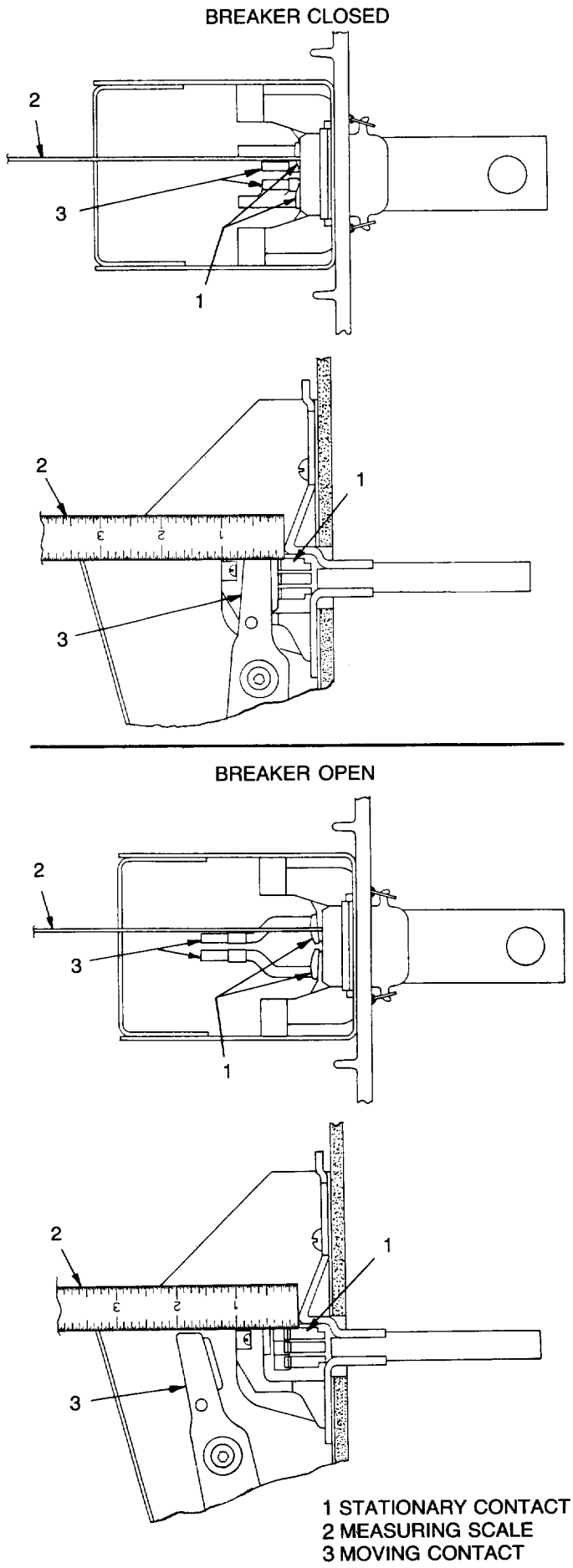


Figure 1.

c. Keeping hands and other obstructions clear, close the circuit breaker.

d. With the circuit breaker in the closed position, repeat the measurement using the *identical* point of reference that was established above. Record this measurement for each individual pole assembly.

6. To calculate the contact depression for determining the correct contact adjustment, follow these steps:

   a. Tabulate your pole identification.

   Example: **Pole 1 Pole 2 Pole 3** as viewed from the front of the breaker, left to right.

   b. Underneath your pole identification, list the respective measurement for each of the pole assemblies with the breaker in the open position.

Example:	**Pole 1**	**Pole 2**	**Pole 3**
Breaker Open	3/16″	3/16″	5/32″

   c. Now list the respective measurements for the breaker closed position underneath those for the breaker open position.

Example:	**Pole 1**	**Pole 2**	**Pole 3**
Breaker Open	3/16″	3/16″	5/32″
Breaker Closed	1/16″	1/32″	3/32″

   d. Draw a line under each column of recorded measurements and *subtract* the breaker closed measurement for the breaker open measurement. The difference between the two measurements is the "contact depression."

Example:	**Pole 1**	**Pole 2**	**Pole 3**
Breaker Open	3/16″	3/16″	5/32″
Breaker Closed	−1/16″	−1/32″	−3/32″
Contact Depression	2/16″	5/32″	2/32″

   The recommended limits for contact depression are 5/32″ maximum to 3/32″ minimum. Any readings outside of these limits require that the breaker be readjusted. Referring to the readings obtained in the above example, the contact adjustment for Pole #1 is 2/16″ or 1/8″, which is within tolerance. The reading on Pole #2 is 5/32″, which is within tolerance. The reading on Pole #3 is 2/32″, which is **not** within tolerance. Pole three should be adjusted until a reading that is within tolerance is obtained.

7. The means of adjusting contact depression is provided by an eccentric pin which passes through the center of the movable contact assembly. Each end of this pin has a free, projecting, hexagon-shaped section which is easily accessible to a small, open-end, 1/4 inch wrench. Two cantilever springs, which bear on each end against a portion of the hexagon section of the pin, lock the adjusting pin in place and provide index stops for the process of adjustment. The right-hand hexagon-shaped end of the pin is numbered from 1 to 6, which provides a reference for making depression adjustments.
   When contacts are to be adjusted, the recommended procedure is as follows:

   a. With the breaker in the **OPEN** position and using the numbers on the right end of each adjusting pin as reference, set each pin in the same position. In many cases, the number 2 is a good beginning point. The corresponding pin number is the one clearly viewed from the front (not the top) of the breaker. Note that the numbers on the pin are not in numerical sequence as the pin is rotated.

   b. By measurement, as described in 5 (a), establish the position of the front surfaces of the stationary contacts with reference to the steel arc runners above and behind the contacts.

   c. Close the breaker and establish the amount of depression by again measuring as in 5 (b), Step 2, and comparing the measurements with those taken with the breaker open.

   d. If any set of contacts leads or lags the others, open the breaker and advance or retard the adjusting pin to the next number. Moving the adjusting pin to a higher number will increase the contact depression; moving to a lower number will decrease the contact depression.

NOTE: No attempt should be made to move the adjusting pin when the breaker is closed. Besides the fact that it will be more difficult to do, the additional force required to move the pin will tend to round off the flats of the hex section of the pin.

   e. Be sure not to exceed the maximum depression recommended. If higher adjustment numbers are used, it is possible that the stationary contacts will bottom, producing excessive back force on the breaker closing mechanism so that the toggle link (4), GEH-5019 Figure 7, will not pass center. As a result, the breaker will not complete its stroke and inadequate pressure and depression will result, followed by burn-up on contacts from load current.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the GE Company.

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