



OCTOBER 1, 1966

ESCUTCHEON OPERATING FEATURES FOR K-LINE CIRCUIT BREAKERS

Manual and electrically operated K-Line circuit breakers are provided with an extendible escutcheon face plate. This escutcheon provides a central area for the controls which are mounted directly on the circuit breaker. The controls for manually operated circuit breakers, Fig. 1, included in the escutcheon face plate are: (a) a nameplate giving the various ratings assigned to that particular type of circuit breaker, (b) the manual operating handle, (c) the manual trip rod extension, (d) the OPEN and CLOSED position indicator, (e) the automatic trip indicator with optional facilities for alarm indication and for lockout and (f) a means for padlocking the circuit breaker in the CONNECTED, TEST or DISCONNECTED positions.

The controls for the electrically operated circuit breakers, Fig. 2, are the same as the manually operated circuit breakers except for the absence of the manually operated handle and the presence of (g) closing spring charging indicator (h) cutoff-switch for the motor electrical circuit, (j) electrical close push button switch and (k) manual close lever.

The manual and electrically closed drawout circuit breaker escutcheon also contains the interlocked shutter for insertion of the drawout crank.

A self-aligning plate immediately behind the escutcheon face plate is used to exclude dust from the circuit breaker compartment. On drawout type circuit breakers, the escutcheon face will protrude through the front door of the compartment when the circuit breaker is in the TEST and DISCONNECTED positions. In these positions, the dustplate still functions to exclude dust.

(A) CIRCUIT BREAKER NAMEPLATE (Figs. 1, 2 & 3)

The circuit breaker nameplate contains information regarding (1) the manufacturer's name and address, (2) type of circuit breaker design, (3) serial number of circuit breaker, (4) continuous current rating of frame size, (5) interrupting current at rated voltages, (6) voltage and frequency.

The actual continuous current rating of a given circuit breaker is established by the continuous current rating of the overcurrent trip coil.

(B) MANUAL CLOSING HANDLE (Fig. 1)

The manual closing handle is a T-shaped lever used to charge the closing spring and release energy of these springs to close the circuit breaker in a downward thrust.

(C) MANUAL TRIP BUTTON (Figs. 1, 2 & 3)

The manual trip button is a push rod which is used to manually trip open the circuit breaker mechanism.

(D) CIRCUIT BREAKER POSITION INDICATOR (Figs. 1, 2 & 3)

The circuit breaker position indicator is a mechanical visual means of showing whether the circuit breaker contacts are in the OPEN or CLOSED position.

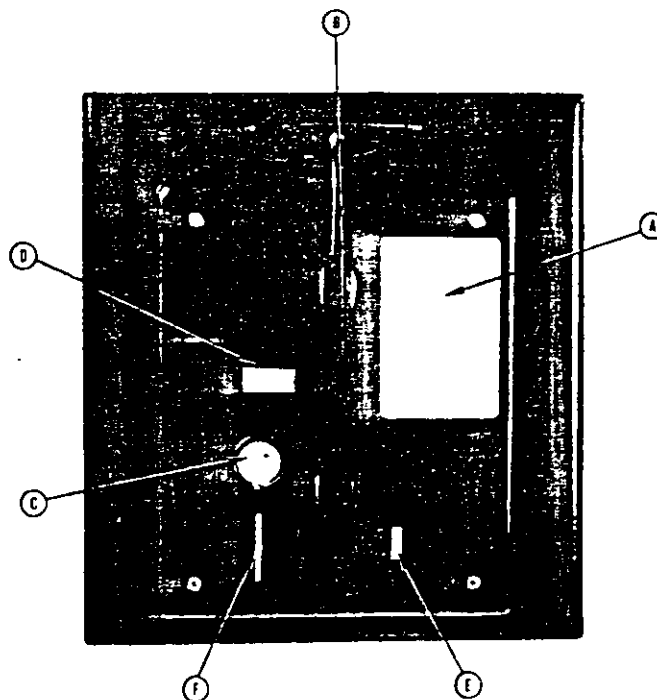


Fig. 1-Escutcheon for Manually Operated K-225 to K-2000 Circuit Breakers.

(E) AUTOMATIC TRIP INDICATOR (Figs. 1, 2, 3 & 4)

The automatic trip indicator is provided as standard equipment on the K-Line circuit breakers and is used to indicate the operation of direct-acting trip device. This device is an indicator only and does not prevent the circuit breaker reclosing.

The device consists mainly of a spring loaded trip indicator with its associated latch linkage. Upon an overcurrent trip operation, the tripper bar causes an extension to release the indicator latch which allows the indicator to protrude from the front plate.

The automatic trip indicator may be reset after each trip indication by pushing back into its



ESCUTCHEON FEATURES (Cont.)

normal latch position. The operator should investigate the cause of tripping before resetting the automatic trip indicator and subsequent reclosing the circuit breaker after an outage which results in an operation of the indicator.

Automatic Trip Alarm Contacts (Hand Reset)

An alarm switch for electrical indication, which is optional, shows when automatic tripping has occurred. This is accomplished by adding a precision snap switch to the automatic trip indicator assembly. The camming surface of the automatic trip indicator actuates the roller on the alarm switch which in turn causes a normally open contact to close on overcurrent trip. The alarm contact is manually reset. A normally closed contact is also available which will open on an overcurrent trip operation.

Automatic Trip Lockout (Hand Reset)

An additional device (which is also optional) may be added to the automatic trip device which serves to mechanically prevent reclosing the circuit breaker after an automatic trip operation. This device consists of the addition of a lockout plate to the automatic trip indicator assembly. Upon an overcurrent trip operation, the tripper bar will cause the tripper to release the automatic trip indicator latch which allows the indicator link to move forward. Rotation of the latch carrying the lockout plate prevents the tripper bar from resetting. When the trip indicator is pushed in the circuit breaker mechanism can then be operated to close the circuit breaker contact.

(F) PADLOCKING DEVICE (Figs. 1, 2 & 3)

All K-Line circuit breakers are equipped with means of padlocking the circuit breaker mechanism in a trip-free position. This is accomplished by the use of a locking plate to maintain the manual trip rod in a tripping direction when the locking plate is held forward by one or more padlocks. To obtain the condition for padlocking the circuit breaker in the open position, the manual trip rod is first pushed inward, thus rotating the tripping latch of the circuit breaker mechanism. Then the padlock plate is pulled out and the padlock inserted into the vertical slot. In this position, the mechanism is maintained trip free and the contact arm can not be moved toward the closed position.

On circuit breaker equipped with drawout mechanism, the padlocking device is associated with

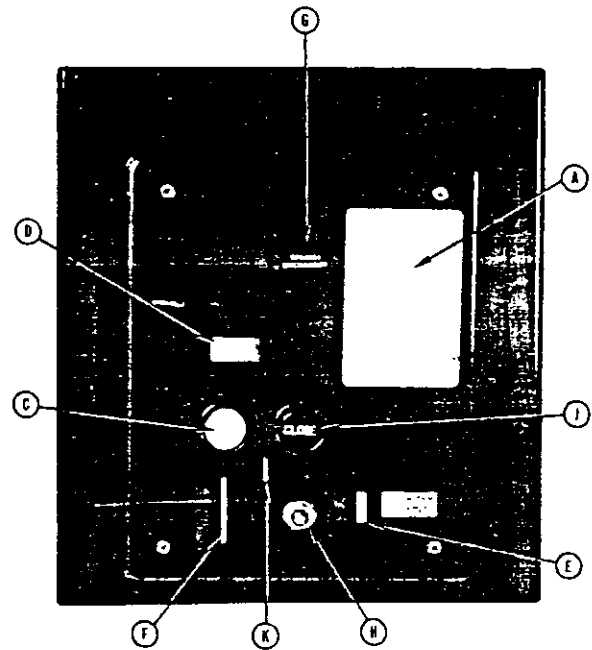


Fig. 2-Escutcheon for Electrically Operated K-225 to K-2000 Circuit Breakers.

the drawout interlocking mechanism so that the circuit breaker can not be moved from any of its three basic drawout positions of CONNECTED, TEST or DISCONNECTED with the padlocking in effect.

(G) CLOSING SPRING CHARGE INDICATOR (Figs. 2 & 3)

Under normal operating conditions, the closing springs are automatically charged after each tripping operation. However, there are occasions when the springs will be in a discharged state. Therefore, it is desirable that means be available to indicate the charged or uncharged condition of the closing springs. This is accomplished by a visual flag seen through an aperture in the escutcheon plate. The flag is marked CHARGED and UNCHARGED.

(H) MOTOR CUT-OFF SWITCH (Figs. 2 & 3)

The motor cut-off is a single pole, single-throw toggle type switch connected in series with the charging motor circuit and is used to disconnect the motor circuit from the voltage source. This cut-off switch is used (1,) when it is desirable to prevent automatic recharging of the closing springs just prior to placing the circuit breaker out of service for maintenance and (2,) for control wiring dielectric test. The motor must be disconnected for the 1500 volt test and subsequently tested at 900 volts.



OCTOBER 1, 1966

ESCUTCHEON FEATURES (Cont.)

(J) ELECTRICAL CLOSE PUSH BUTTON (Figs. 2 & 3)

The electrical close push button is used to electrically close the circuit from the escutcheon. This contact is connected in series with the latch release coil. Energizing the latch release coil allows the charged springs to close the circuit breaker.

(K) MANUAL CLOSE LEVER (Figs. 2 & 3)

The manual close lever is provided on all electrically operated circuit breakers to provide a safe means of closing the breaker without control power. The closing springs are charged manually and released by operating the close lever, with the compartment door safely closed.

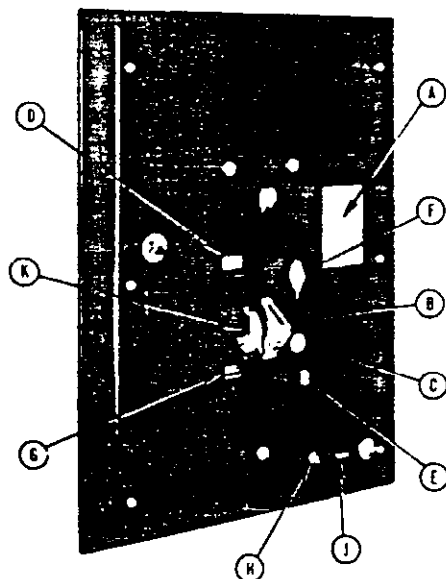


Fig. 3 - Escutcheon for Electrically Operated K-3000 and K-4000 Circuit Breakers.

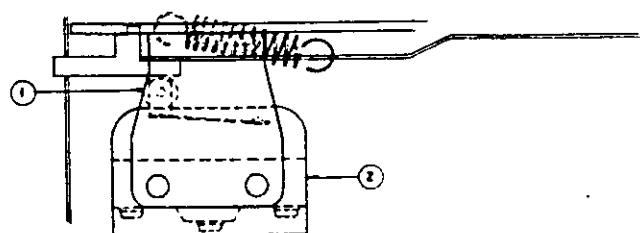
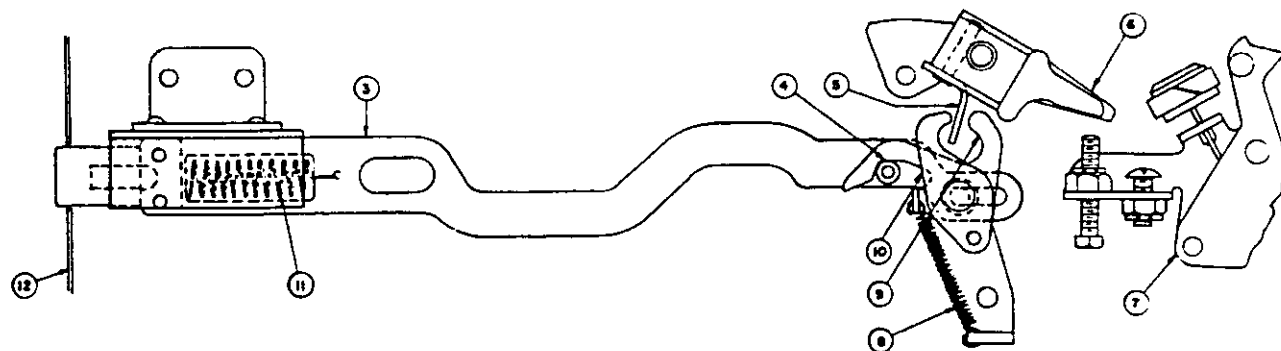


Fig. 4 - Automatic trip indicator (hand reset) for K-Line Circuit Breakers.



LEGEND

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|----------------------------|------------------------------------|------------------------------------|
| 1. Roller (alarm switch) | 5. Tripper (tripper bar) | 9. Latch |
| 2. Alarm switch | 6. Tripper bar | 10. Lock-out plate |
| 3. Trip indicator | 7. Overcurrent trip armature | 11. Spring (trip indicator return) |
| 4. Roller (trip indicator) | 8. Spring (indicator latch return) | 12. Front plate (breaker) |