



Mine-Duty Circuit Breakers

K Frame Handle Reset Undervoltage Release

Introduction

The handle reset undervoltage release accessory, as shown in Figure 1, is a direct replacement, requiring minimum modification, for the "Push to Trip / Push to Reset" type undervoltage release accessory. It maintains the "Push to Trip" feature, but replaces the "Push to Reset" with direct resetting from the circuit breaker handle.

As long as the accessory supply voltage is maintained, the accessory solenoid magnetic force prevents tripping. If the accessory supply voltage is removed or falls to within 35%–70% of nominal, the solenoid will release the accessory mechanism. This directly engages the circuit breaker trip unit, causing instantaneous tripping. If the accessory supply voltage is not restored to at least 80% of nominal, the circuit breaker mechanism will release when the handle is moved from the OFF position to the ON position.

The accessory drop-out voltage is factory calibrated to operate between 35% and 70% of the accessory's rated voltage.

WARNING: Before removing or installing an undervoltage release accessory, verify that the circuit breaker is completely de-energized and disconnected from the electrical circuit. Trip the circuit by exercising the "Twist to Trip" feature or by pushing the "Reset-Trip" button. Circuit breakers and components should be handled, inspected, installed, and removed only by qualified personnel and in accordance with these instructions and accepted safety practices.

Installation as Replacement for Existing Undervoltage Release Accessory

Use the following procedure to remove the existing push button reset undervoltage release accessory from the circuit breaker and replace it with the new handle reset undervoltage release.

1. Ensure that the circuit breaker is in the tripped position and has been removed from the circuit.
2. Disconnect the accessory power source.
3. Remove the cover mounting screws from the circuit breaker and lift off the cover. Remove the handle shield.
4. Remove the accessory mounting screw (if present) in the trip unit. Seat the plunger in the coil and lift the complete undervoltage release from the circuit breaker base.
5. Assemble the undervoltage release actuator, shown in Figure 1, to the circuit breaker mechanism side frame with the pin protruding through the hole. Lock in place with the supplied C ring, as shown in Figure 2.
6. If the removed undervoltage release accessory was attached to the trip unit with a #6-32 pan-head screw, insert the #6-32 set screw supplied with the new accessory kit into the mounting hole in the trip unit. Torque the screw to 10 lb-in.
7. On Tri-Break® circuit breakers only, remove the existing phase barrier and replace it with the phase barrier supplied in the accessory kit.

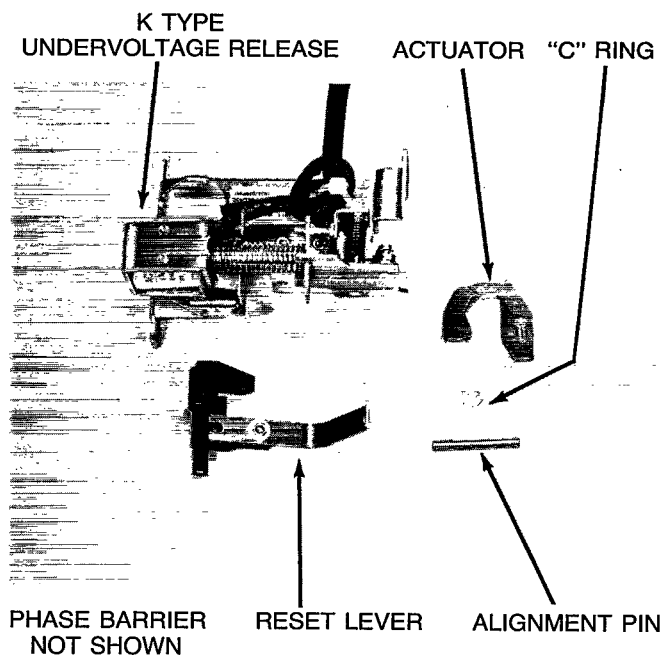


Figure 1. Handle reset undervoltage release accessory components.

8. Hold the actuator forward towards the circuit breaker handle, then place the reset lever, shown in Figure 1, in the pivot hole of the phase barrier. The reset lever will move freely up and down after assembly, as illustrated in Figure 3.
 9. Seat the plunger in the coil of the undervoltage release assembly and hold it firmly. Hold the reset lever back toward the trip unit, then place the assembly on the alignment pin or set screw and rotate it into place in the circuit breaker, as illustrated in Figure 4. The undervoltage release accessory is designed to sit freely in the breaker, as illustrated in Figure 5.
 10. Replace the handle shield removed in Step 3. Position the wire tie restraints with one on each side of the circuit breaker wall, as illustrated in Figure 6. Replace the circuit breaker cover and tighten the cover mounting screws.
 11. Snap off the push button rubber boot from the cover. Replace or completely cover the existing label with the label supplied in the kit. Snap the push button rubber boot back on.
 12. Move the circuit breaker handle to the OFF position and attempt to move it to the ON position. The handle should release and the circuit breaker mechanism return to the tripped position. Energize the undervoltage release to at least 80% of its rated voltage. Again move the breaker handle to the OFF position, then to the ON position. The breaker mechanism should remain closed.
 13. Attach the rating label supplied in the kit to the circuit breaker base next to the accessory leads exit.
6. On Tri-Break® circuit breakers only, remove the existing phase barrier and replace it with the phase barrier supplied in the accessory kit.
 7. Hold the actuator forward towards the circuit breaker handle, then place the reset lever, shown in Figure 1, in the pivot hole of the phase barrier. The reset lever will move freely up and down after assembly, as illustrated in Figure 3.
 8. Seat the plunger in the coil of the undervoltage release assembly and hold it firmly. Hold the reset lever back toward the trip unit, then place the assembly on the alignment pin or set screw and rotate it into place in the circuit breaker, as illustrated in Figure 4. The undervoltage release accessory is designed to sit freely in the breaker, as illustrated in Figure 5.
 9. Replace the handle shield removed in Step 3. Position the wire tie restraints with one on each side of the circuit breaker wall, as illustrated in Figure 6.
 10. Make a slot in the breaker cover to accommodate the accessory leads, as illustrated in Figure 7. Replace the circuit breaker cover and tighten the cover mounting screws.
 11. Snap off the push button rubber boot from the cover. Replace or completely cover the existing label with the label supplied in the kit. Snap the push button rubber boot back on.
 12. Move the circuit breaker handle to the OFF position and attempt to move it to the ON position. The handle should release and the circuit breaker mechanism return to the tripped position. Energize the undervoltage release to at least 80% of its rated voltage. Again move the breaker handle to the OFF position, then to the ON position. The breaker mechanism should remain closed.
 13. Attach the rating label supplied in the kit to the circuit breaker base next to the accessory leads exit.

Installation in Breaker without Existing Undervoltage Release Accessory

Use the following procedure to install the handle reset undervoltage release into a circuit breaker without an existing undervoltage release accessory.

1. Ensure that the circuit breaker is in the tripped position and has been removed from the circuit.
2. Verify the voltage rating of the accessory.
3. Remove the cover mounting screws from the circuit breaker and lift off the cover. Remove the handle shield.
4. Assemble the undervoltage release actuator, shown in Figure 1, to the circuit breaker mechanism side frame with the pin protruding through the hole. Lock in place with the supplied C ring, as shown in Figure 2.
5. Assemble the alignment pin, shown in Figure 1, into the trip unit. Approximately 0.66 inch of the pin will protrude from the trip unit, as shown in Figure 2.

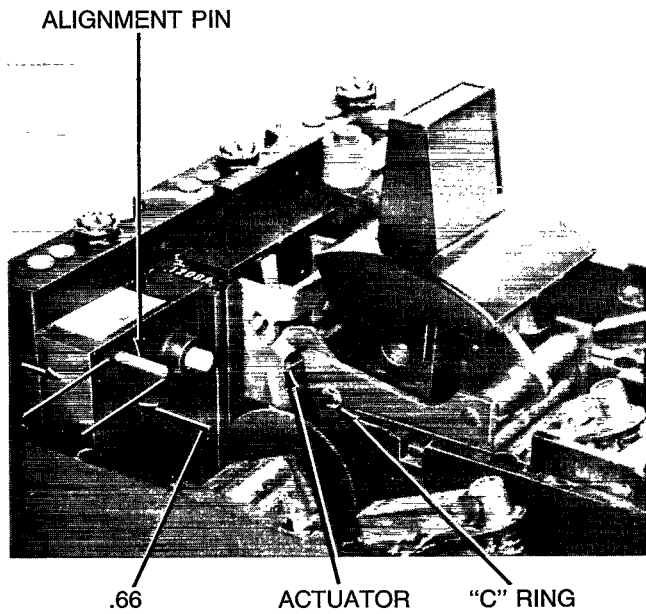


Figure 2. Actuator placement on the circuit breaker mechanism side frame and location of the alignment pin.

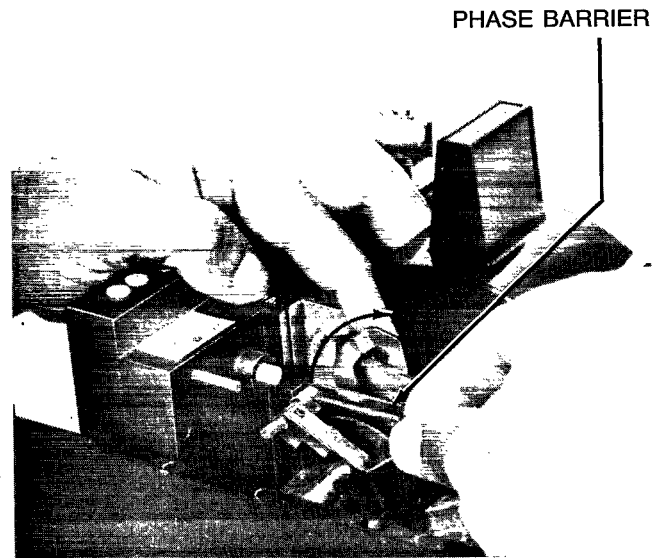


Figure 3. Placement of the reset lever in the pivot hole of the phase barrier

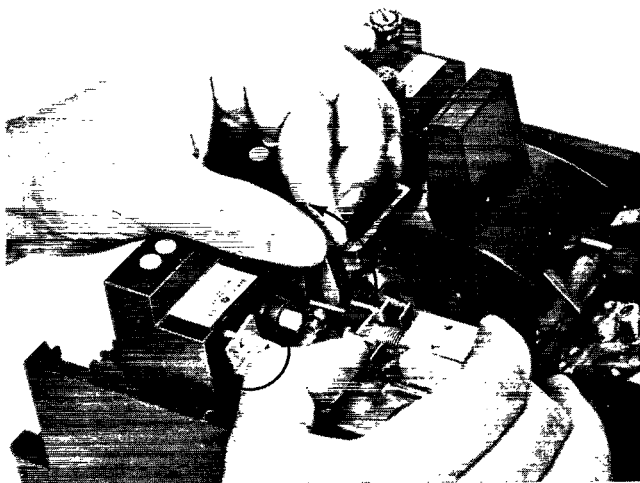


Figure 4. Placement of the undervoltage release assembly in the circuit breaker.

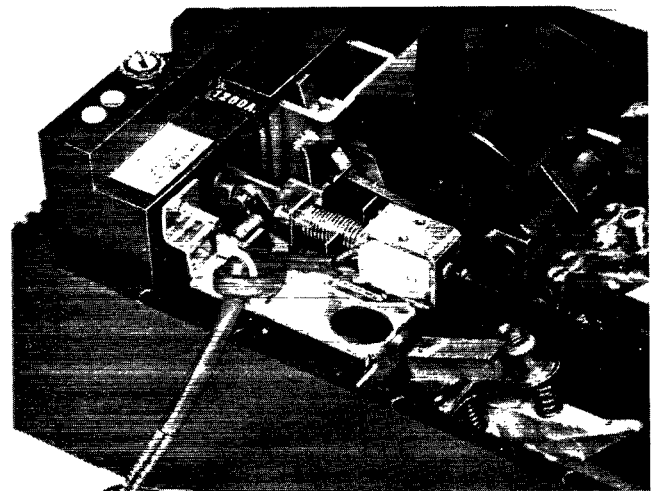


Figure 5. Undervoltage release accessory installed in the circuit breaker, with the leads exiting the case.

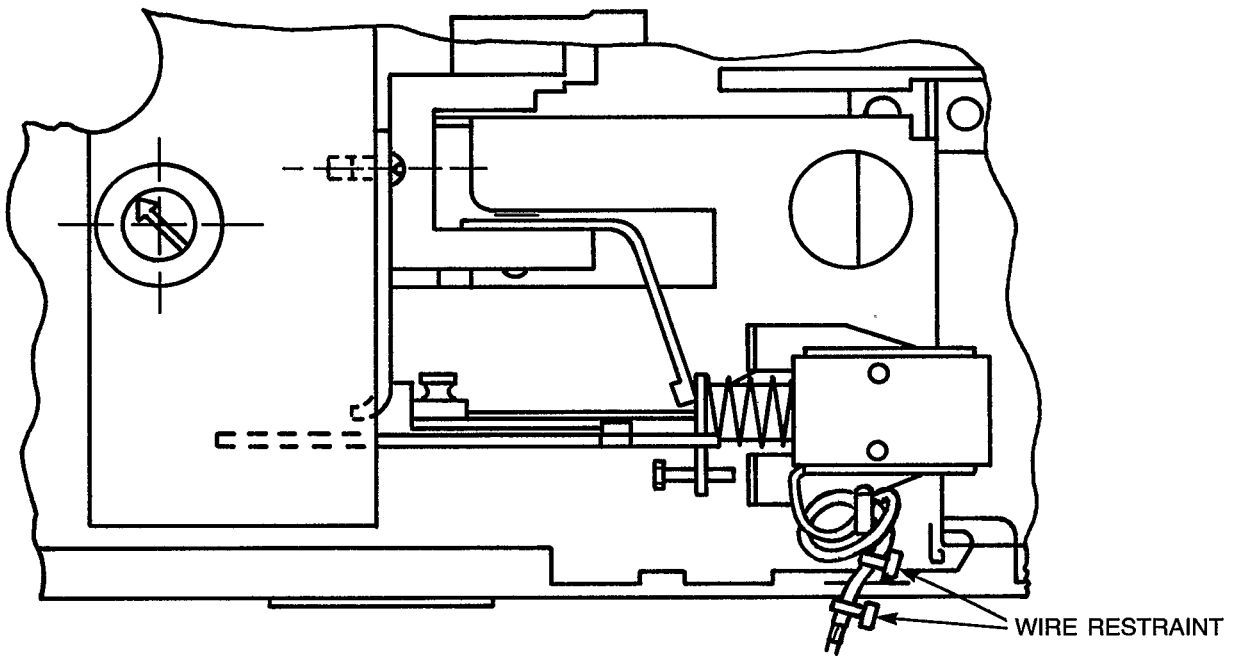


Figure 6. Sketch of the undervoltage release accessory in place in the circuit breaker, showing the position of the wire restraints.

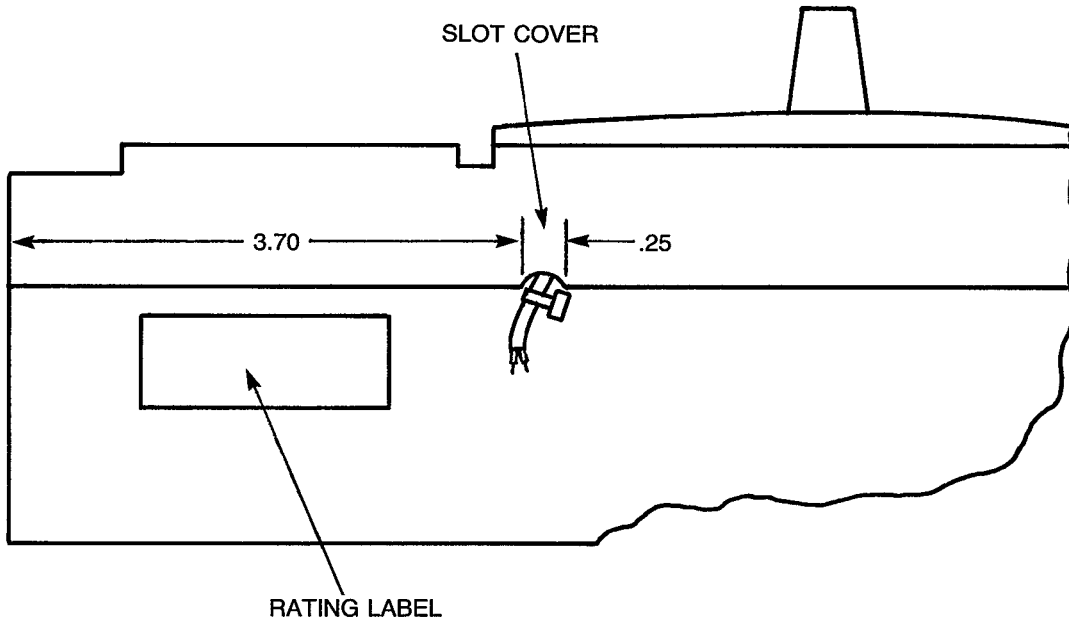


Figure 7. Sketch of the side of the circuit breaker, showing the locations of the wire slot and the new rating label.

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



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