Instruction Leaflet **IL29C178F**

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Installation Instructions for Undervoltage Release Mechanism (Handle Reset) for R-Frame Series C Circuit Breakers and Molded Case Switches

Contents

Powering Business Worldwide

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WARNING

CONTACT WITH ENERGIZED EQUIPMENT CAN RESULT IN DEATH, SEVERE PERSONAL INJURY, OR SUBSTANTIAL PROPERTY DAMAGE. DO NOT ATTEMPT TO INSTALL OR PERFORM MAINTENANCE ON EQUIPMENT WHILE IT IS ENERGIZED. ALWAYS VERIFY THAT NO VOLTAGE IS PRESENT BEFORE PROCEEDING WITH THE TASK, AND ALWAYS FOLLOW GENERALLY ACCEPTED SAFETY PROCEDURES.

EATON IS NOT LIABLE FOR THE MISAPPLICATION OR MISINSTALLATION OF ITS PRODUCTS.

The user is cautioned to observe all recommendations, warnings, and cautions relating to the safety of personnel and equipment as well as all general and local health and safety laws, codes, and procedures.

The recommendations and information contained herein are based on Eaton experience and judgement, but should not be considered to be all inclusive or covering every application or circumstance which may arise. If any questions arise, contact Eaton for further information instructions.

1. INTRODUCTION

General Information

The undervoltage release mechanism (UVR) (Fig. 1-1) monitors a voltage (typically a line voltage) and trips the circuit breaker when the voltage falls to between 70 and 35 percent of the solenoid coil rating. The UVR consists of a continuous rated solenoid and a plunger assembled to a plug-in module. The plug-in module is mounted in slots in the accessory mounting deck in the right pole of the circuit breaker. The trip bar resets the UVR when normal voltage is restored and the circuit breaker handle is moved to the reset (extreme OFF) position. With no voltage applied to the UVR, the circuit breaker contacts will not touch when a closing operation is attempted.

Tables 1-1 and 1-2 list application and electrical ratings data for the UVR.

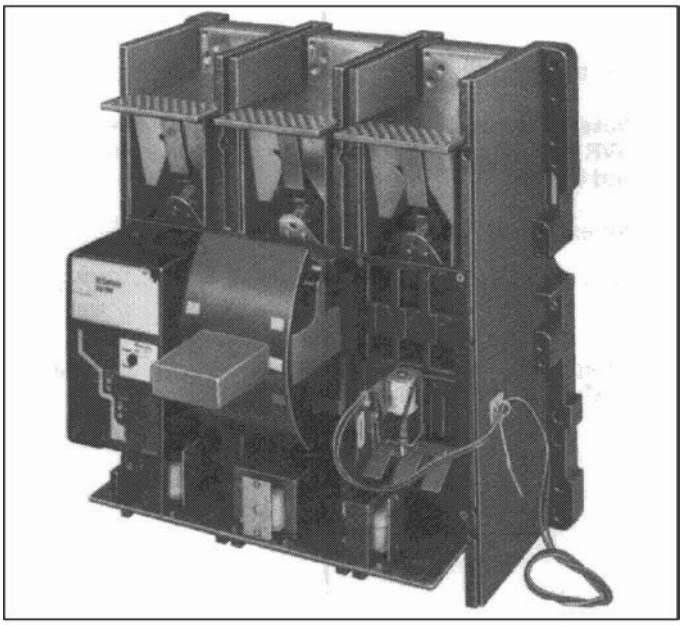

Fig. 1-1 Undervoltage Release Mechanism (Handle Reset) Installed in R-Frame Circuit Breaker

The standard wiring configuration for the UVR is pigtail leads exiting the right side of the cover. An optional terminal block (Cat No. TBRD) may be mounted on the right side of the circuit breaker to terminate attachment leads. The 18-inch long pigtail leads are color coded for identification; numbered identification labels are provided for pigtail leads.

This instruction leaflet (IL) gives detailed procedures to install the UVR.

2. INSTALLATION

Note: The UVR can be field-installed in RD and RDC circuit breakers under UL File E64983.

The UVR can be field-installed in RW and RWC circuit breakers.

The UVR is listed for factory installation under UL File E7819.

Before attempting to install the UVR, check that the catalog number is correct and rating of the accessory satisfies job requirements.

The UVR, shown in kit form in Fig. 2-1, is installed in the right pole of a 3-, or 4-pole circuit breaker. To install the UVR, perform the following procedures:

WARNING

THE VOLTAGES IN ENERGIZED EQUIPMENT CAN CAUSE DEATH OR SEVERE PERSONAL INJURY. SPECIAL ATTENTION SHOULD BE PAID TO REVERSE FEED APPLICATIONS TO ENSURE NO VOLTAGE IS PRESENT. BEFORE MOUNTING THE UVR IN A CIRCUIT BREAKER INSTALLED IN AN ELECTRICAL SYSTEM, MAKE SURE THE CIRCUIT BREAKER IS SWITCHED TO THE *OFF* POSITION AND THERE IS NO VOLTAGE PRESENT WHERE WORK IS TO BE PERFORMED.

Note: Internal accessories are most easily installed in a circuit breaker before it is mounted in an electrical system. Although it is recommended that a circuit breaker mounted in an electrical system be removed to install accessories, it is possible to perform this task in a mounted circuit breaker provided no voltage is present and proper safety precautions are followed.

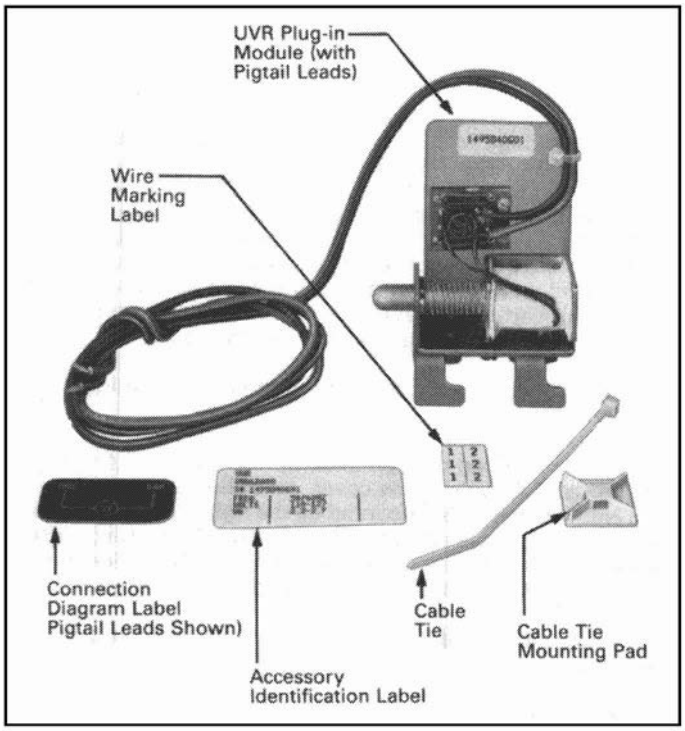

Fig. 2-1 Undervoltage Release Mechanism (Handle Reset) Kit

2.1. Switch circuit breaker to OFF position.

Note: To install UVR, circuit breaker operating mechanism must be in tripped position.

2.2. Press PUSH-TO-TRIP button to trip the operating mechanism.

2.3. Remove cover screws and cover.

2.4. Install UVR as described in following steps:

Note: For ease of installation, auxiliary switch accessories (if used) should be installed in the accessory mounting deck before the UVR or other accessories.

a. Select position of UVR on accessory mounting deck (see Fig. 2-2).

b. Place legs of UVR mounting bracket into slots in accessory mounting deck (see Fig. 2-3).

c. Slide the UVR toward the line end of the circuit breaker until the retaining clip snaps into recess in deck.

2.5. If installing two UVR's attach a numbered wire marking label to each set of leads. Labels marked "1" and "2" are provided to allow for the installation of the maximum of two UVR's.

CAUTION

PIGTAIL LEADS COULD BE DAMAGED IF IN CONTACT WITH MOVING PARTS. PIGTAIL LEADS SHOULD BE FORMED AND ROUTED TO CLEAR ALL MOVING PARTS WHEN ACCESSORY IS PROPERLY INSTALLED.

2.6. Attach cable tie mounting pad to side of circuit breaker (see Fig. 2-4 for location). Route leads to mounting pad. Ensure leads line up with slot in cover and are clear of all moving parts. Secure leads to mounting pad with cable tie. Leads from multiple accessories may be secured by a single cable tie and mounting pad (see Fig. 2-3).

2.7. Remove barrier indicated in Fig. 2-4 from cover accessory lead slot.

CAUTION

WHEN INSTALLING CIRCUIT BREAKER COVER, MAKE SURE THAT PIGTAIL LEADS ARE CLEAR OF THE COVER.

2.8. With circuit breaker handle in tripped position and accessory pigtail leads routed as required, install circuit breaker cover.

2.9. Position accessory labels supplied with kit on circuit breaker as shown in Fig. 2-4.

2.10. Where practical and after taking all necessary safety precautions, apply UVR rated voltage to UVR. Reset and close circuit breaker. Confirm that circuit breaker trips when voltage is removed.

2.11. Install circuit breaker.

Note: Accessory labels show connection diagram for UVR contacts. Pigtail leads are color coded orange and brown.

No external resistors are required.

2.12. Connect UVR to power source to be monitored (see Fig. 2-5).

Eaton assumes no responsibility for malfunctioning accessories installed improperly by the customer.

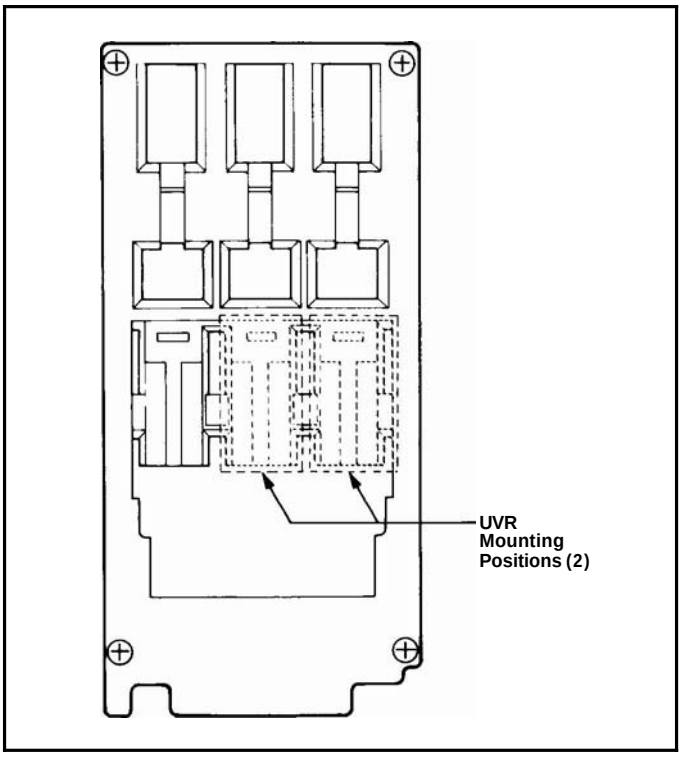

Fig. 2-2 Accessory Location Diagram

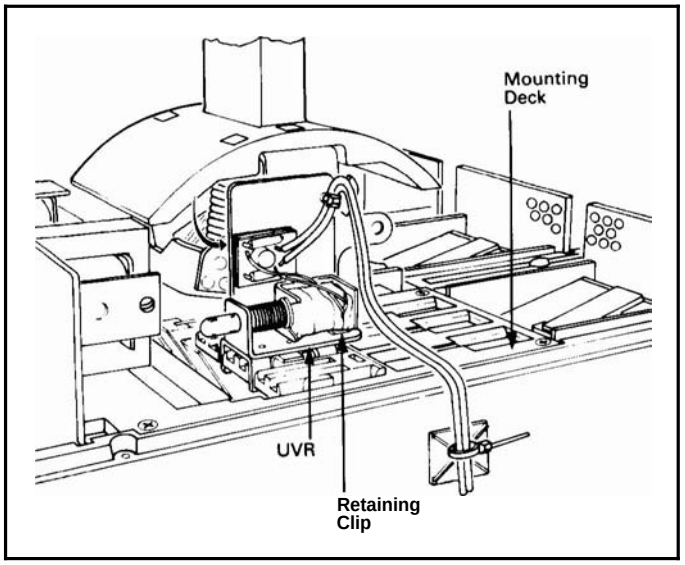

Fig. 2-3 UVR Positioned and Locked in Mounting Deck

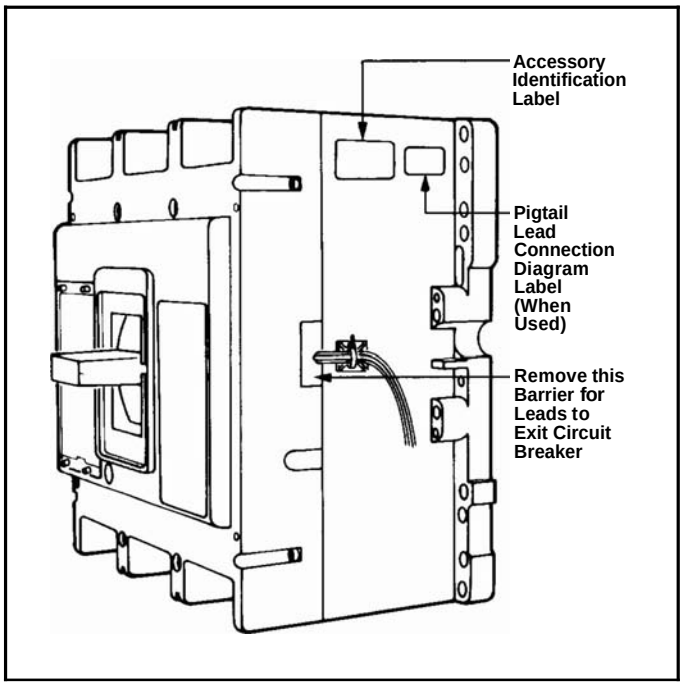

Fig. 2-4 Preferred Mounting Locations for Accessory Nameplate Labels

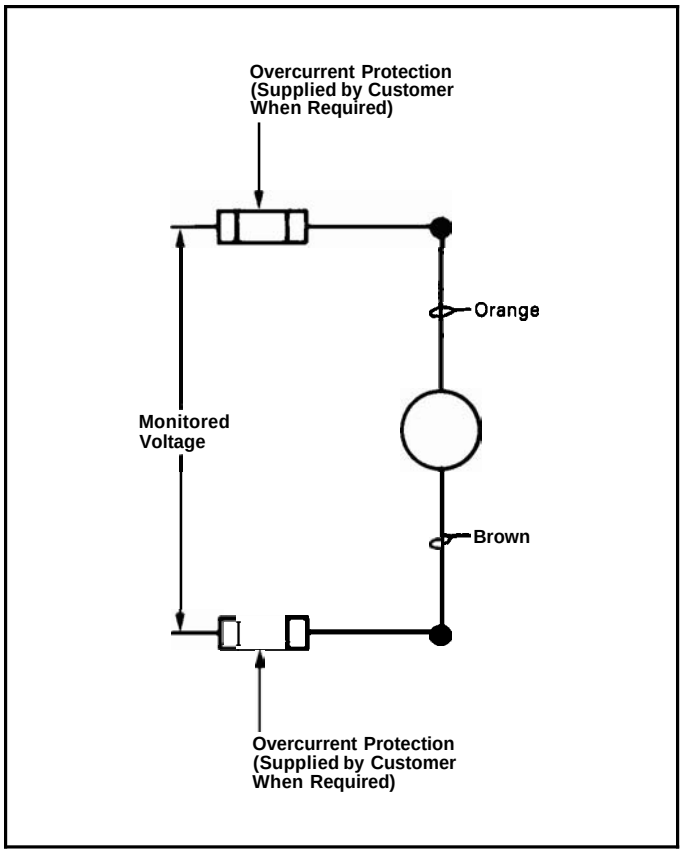

Fig. 2-5 Undervoltage Release Mechanism (Handle Reset) Connection Diagram

TABLE 1-1: AC UNDERVOLTAGE RELEASE MECHANISM (HANDLE RESET) RATINGS ①

Catalog Suffix	Application Ratings	Electrical Operating Ratings					Approximate Operating Time (ms)			
	Voltage (V)	Supply voltage(V)	Dropout Voltage(V)		Pickup Voltage (V) Max.	VA	Min. ② UVR Response	Initiation ③ Circuit Breaker Contact Separation	Maximum Circuit Breaker Contact Opening	Dielectric ④ Withstand Voltage(V)
			Min.	Max.						
01	9	9	3.2	6.3	7.7	3.9	5	46	77	1018
02	12	12	4.2	8.4	10.2	2.3	5	46	77	1024
03	24	24	8.4	16.8	20.4	3.1	5	46	77	1048
05	48-60	48 60	21.0	33.6	40.8	3.4 6.0	5	46	77	1120
08	110-127	110 120 127	44.5	77.0	93.5	3.3 3.6 3.8	5	46	77	1254
11	208-240	208 220 240	84.0	145.6	176.8	4.2 6.6 7.2	5	46	77	1480
15	380-480	380 415 440 480	168.0	266.0	323.0	3.8 8.3 8.8 9.6	5	46	77	1960

① Endurance - 500 electrical operations plus 2500 mechanical operations
② UVR will override a momentary voltage dip up to the response time shown
③ Unlatching occurs 10 milliseconds before circuit breaker contacts begin to separate
④ For 1 minute

TABLE 1-2: DC UNDERVOLTAGE RELEASE MECHANISM (HANDLE RESET) RATINGS ①

Catalog Suffix	Application Ratings	Electrical Operating Ratings					Approximate Operating Time (ms)			
	Voltage (V)	Supply voltage (V)	Dropout Voltage (V)		Pickup Voltage (V) Max.	VA	Min. ② UVR Response	Initiation ③ Circuit Breaker Contact Separation	Maximum Circuit Breaker Contact Opening	Dielectric ④ Withstand Voltage (V)
			Min.	Max.						
20	12	12	4.2	8.4	10.2	3.4	5	46	77	1024
21	24	24	8.4	16.8	20.4	4.3	5	46	77	1048
23	48-60	48 60	21.0	33.6	40.8	4.8 7.2	5	46	77	1120
26	110-125	110 120 125	43.8	77.0	93.5	3.3 3.6 3.8	5	46	77	1250
28	220-250	220 250	87.5	154.0	187.0	6.6 7.5	5	46	77	1500

① Endurance - 500 electrical operations plus 2500 mechanical operations
② UVR will override a momentary voltage dip up to the response time shown
③ Unlatching occurs 10 milliseconds before circuit breaker contacts begin to separate
④ For 1 minute

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