# Instructions for Types BF and BFD Control Relays And Accessories

**I.L. 13016A**

## THE BF RELAY FAMILY

Type BF (AC) and Type BFD (DC) control relays, their latch attachments, and solid-state timers can all be mounted on a BFMS7 mounting strip without the need for additional hardware.

This industrial type control is designed to be installed, operated, and maintained by adequately trained workmen. These instructions do not cover all details, variations, or combinations of the equipment, its storage, delivery, installation, check-out, safe operation, or maintenance. Care must be exercised to comply with local, state, and national regulations, as well as safety practices, for this class of equipment.

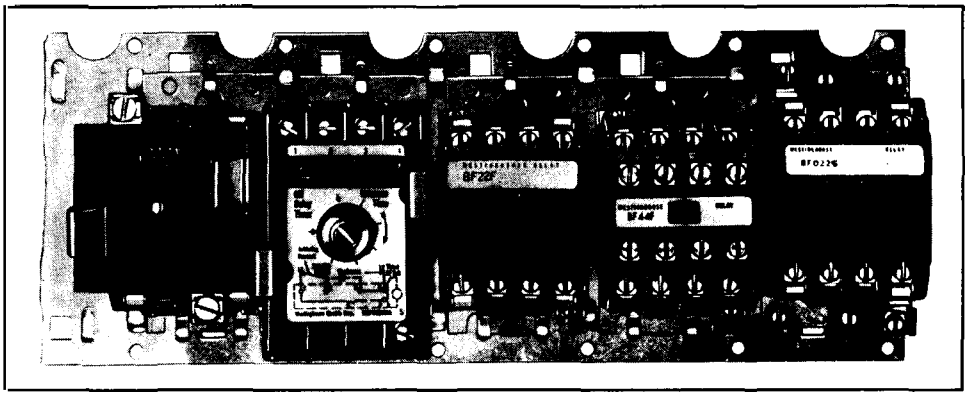


*Fig. 1 BF Relays on Mounting Strip*

## AC COIL REPLACEMENT

With replacement coil at hand, remove the relay from the panel or mounting strip. Remove the two screws that are now accessible from the back side of the relay baseplate. Be alert to capture the two coil springs that are positioned between the coil and the armature carrier. Remove the old coil and replace with a new coil. Reassemble the relay with the ends of the two coil springs confined in their respective cavities.

## DC COIL REPLACEMENT

With replacement coil at hand remove the old coil leads to the coil terminals. Remove the two screws that mount the two insulated coil terminal supports and the other two screws that attach the top plate to the magnet yoke. Remove the top plate with the contact housing attached. Remove the old coil and replace with a new coil. Reassemble the relay. Coil operates with either polarity.

**COIL DATA** (Varies with Contact Arrangement)

- Pickup Time: 25-40 milliseconds DC; 11-18 milliseconds AC
- Dropout Time: 15-25 milliseconds DC; 11-18 milliseconds AC
- Coil Power (DC): 12 Watts, 250 Volts Max.
- Coil Power (AC): 72 VA Open, 12 VA Closed

**BF RELAY ELECTRICAL RATINGS**

**AC RATING – NEMA A300**

| Volts AC | Maximum Current | | | Maximum VA | |
|---|---|---|---|---|---|
| | Cont. | Make | Break | Make | Break |
| 120 | 10 | 60 | 6 | 7200 | 720 |
| 240 | 10 | 30 | 3 | 7200 | 720 |

**Hp Ratings (UL Recognized)**

| Phase | AC Volts | |
|---|---|---|
| | 115 | 230 |
| 1 (2 poles) | 1/6 | 1/2 |
| 3 (3 poles) | . . | 1 |

**DC RATING – NEMA P300**

| Volts DC | Maximum Current | | | Maximum Make or Break VA |
|---|---|---|---|---|
| | Cont. | Make | Break | |
| 125 | 5.0 | 1.1 | 1.1 | 138 |
| 250 | 5.0 | 0.55 | 0.55 | 138 |

**Resistive Rating**
125V DC: 3 amps 250V DC: 1.5 amps

**TABLE I – RENEWAL PARTS**

Contacts are not replaceable.

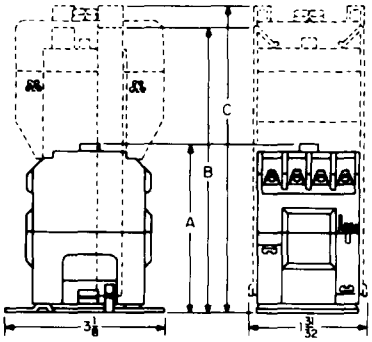
**BF Relay Replacement Coils**

| Volts | Hz | Part Number |
|---|---|---|
| 12 | 60 | 178C603G06 |
| 24 | 60 | 178C603G15 |
| 48 | 60 | 178C603G05 |
| 110 | 60 | 178C603G54 |
| 208 | 60 | 178C603G17 |
| 120/110 | 60/50 | 178C603G01 |
| 240/220 | 60/50 | 178C603G02 |
| 277 | 60 | 178C603G26 |
| 480 | 60 | 178C603G07 |

**BFD Relay Replacement Coils**

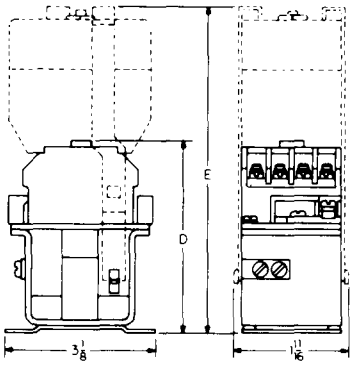
| Volts | Part Number |
|---|---|
| 6V-DC | 1259C71G12 |
| 12V-DC | 1259C71G06 |
| 24V-DC | 1259C71G07 |
| 48V-DC | 1259C71G04 |
| 120V-DC | 1259C71G02 |
| 240V-DC | 1259C71G01 |

**BF Relay With Permanent Magnet Latch and Solid-State Timer**




| No. of Poles | Dimension A BF Only | Dimension B BF With Latch |
|---|---|---|
| 4 | 3 7/32 | 6 7/32 |
| 8 | 4 3/16 | 7 3/16 |
| 12 | 4 13/16 | 7 13/16 |

**BFD Relay With Solid-State Timer**




| Dimension C BF With Timer | Dimension D BFD Only | Dimension E BFD With Timer |
|---|---|---|
| 5 5/8 | 4 1/32 | 7 1/16 |
| 6 5/8 | 4 31/32 | 8 |
| 7 1/2 | 5 5/8 | 8 21/32 |

**BF Mounting Strip Dimensions, Inches**

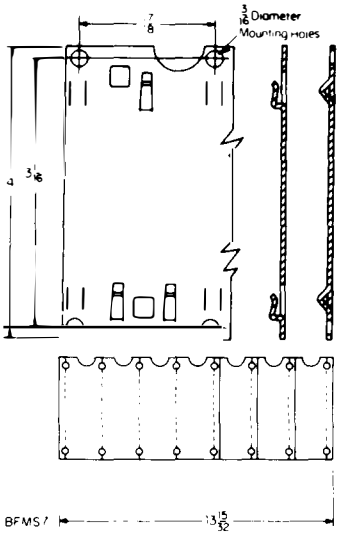



*Fig. 2 Outline and Dimension Drawings (dimensions in inches)*

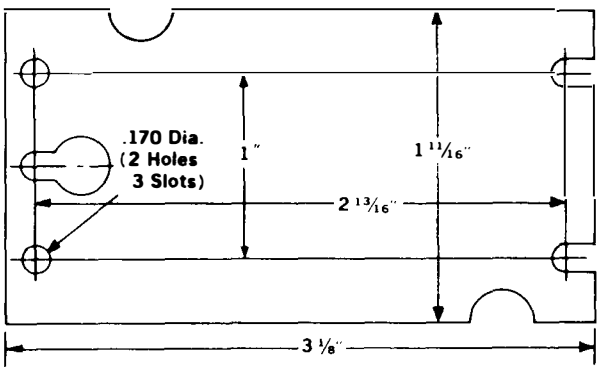



*Fig. 3 BF Relay Baseplate*

## ACCESSORIES

Solid-state timers and magnetic latch attachments are available for direct mounting on Type BF and Type BFD relays. See Table II. BSTD solid-state timers can switch at 24, 48 or 120 VDC.

**TABLE II**

**Type BST, BSTD Solid-State Timers**
**On Delay**

| Voltage | Time Delay Range | Catalog Number ① |
|---|---|---|
| 120 AC | .1 to 30 seconds | BST-ON |
| 120 AC | 30 to 60 seconds | BST-ONB |
| DC | .1 to 30 seconds | BSTD-ON |

**Off Delay**

| Voltage | Time Delay Range | Catalog Number ① |
|---|---|---|
| 120 AC | .1 to 30 seconds | BST-OF |
| 120 AC | 30 to 60 seconds | BST-OFB |
| DC | .1 to 30 seconds | BSTD-OF |

① For panel mount version, add Suffix **P** to catalog number.

**Type BFML Permanent Magnet Latch**
**For AC Relays**

| Coil Volts | Coil Hz | Catalog Number |
|---|---|---|
| 24 | 60 | BFMLI |
| 48 | 60 | BFMLJ |
| 120/110 | 60/50 | BFMLF |
| 240/220 | 60/50 | BFMLG |

**For DC Relays**

| Coil Volts | Catalog Number |
|---|---|
| 24 | BFMLL |
| 48 | BFMLM |
| 120 | BFMLS |
| 240 | BFMLT |

**Mounting Strip for BF and BFD**

| No. of Relays | Catalog Number |
|---|---|
| 7 | BFMS7 |

Place device so that steel hooks engage bottom of relay base plate.

Insert screwdriver in square opening on mounting strip above the relay.

A twist of the screwdriver forces the device into place. To remove device, insert screwdriver below the relay and reverse the procedure.

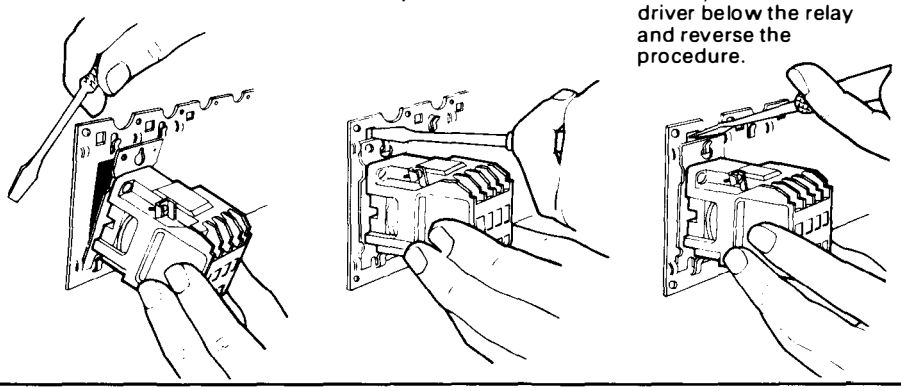


*Fig. 4 Installation of BF Relay on Mounting Strip*