

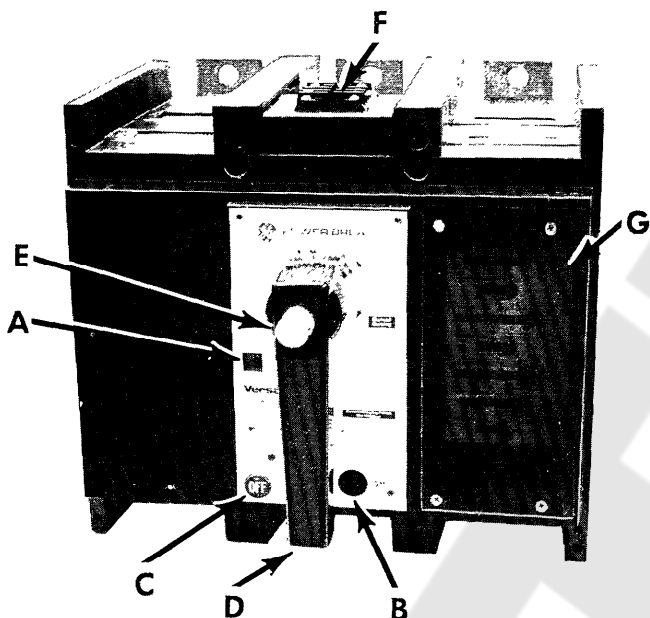


POWER-BREAK[®] GENERAL

GEH-4327
Rev. D

Circuit Protective Devices Department — Plainville, Connecticut 06062

ELECTRICALLY OPERATED BREAKERS 600-1600A FRAMES



- A Indicator**
"OFF" Green; "ON" Red; "CHARGED" Yellow
- B Breaker "ON" Button**
Push to turn breaker "ON"
- C Breaker "OFF" Button**
Push to turn breaker "OFF"
- D Manual Charge Handle**
- E Lockable Manual Charge Engagement Button**
- F Drive Unit Terminal Board** (See Figure 2)
- G Removable protective programmer cover**
(Solid state breakers only).

DESCRIPTION

The electrically operated Power-Break[™] is fully equipped for local as well as remote operation of all control functions: CHARGE, CLOSE (5 cycle maximum) and OFF.

A terminal block (F) is provided for wiring control circuits to remote operating stations.

To close the breaker's main contacts, a CHARGE cycle must first be initiated. This may be done electrically as shown in figure 2, or manually by depressing the handle lock release button (E) and sequencing the handle (D). The breaker is now in

a "ready" state. Depressing the ON button (B) or shorting points (5) and (6), figure 2, closes the breaker's main contacts. The OFF pushbutton (C) or a remote tripping function may be used to open the breaker. The breaker's state is indicated at (A) as OFF (green), ON (red) or CHARGED (yellow).

The remote tripping function may be in the form of a shunt trip or undervoltage release.

CAUTION: Do not trip the breaker from a charged position. Equipment damage may result.

TABLE 1 — SEQUENCE OF OPERATION

Indica'or (A)	Main Breaker Contacts	Condition of Charging Springs	Permissible Operating Function
Off	Open	Discharged	Mechanism may be Charged
Charged	Open	Fully Charged	Contacts may be Closed
On	Closed	Discharged	Contacts may be Opened

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 General Electric Company.

Instructions

DUTY CYCLE

The drive unit is rated for intermittent duty. Operation should be limited to not more than two operations per minute.

OPERATING INSTRUCTIONS

1. With Circuit Breaker “OFF”

- a) Mechanism may be electrically charged by connecting Terminal 3 to Terminal 4 (Figure 2).
- b) Mechanism may be manually charged by pushing in the lockable manual charge engagement button (Figure 1) until it is flush with the handle surface, then rotating handle 120° counterclockwise followed by 120° clockwise rotation. Handle will **not** turn breaker ON.

NOTE: If button does not depress fully, slight rotation of the handle may be required to align the internal coupling.

2. With Mechanism Charged

- a) Breaker contacts may be remotely closed by connecting Terminal 5 to Terminal 6 (Figure 2).
- b) Breaker contacts may be closed manually by pushing the “ON” button (Figure 1) on the breaker escutcheon.

CAUTION: Do not trip the breaker from a charged position. Equipment damage may result.

NOTE: If unit has a manual closing interlock (Cat. No. TPMCEI) installed, breaker will not close without control power.

3. With Circuit Breaker Closed

- a) Breaker contacts may be opened remotely by energizing shunt trip device or de-energizing undervoltage release device.
- b) Breaker contacts may be opened manually by pushing the “OFF” button (Figure 1).

AUTOMATIC OPERATION

Automatic Closing

This may be accomplished by connecting terminal 5 to terminal 6. The breaker will close automatically as soon as the charging cycle is completed.

Automatic Charging

Automatic charging can be accomplished by connecting terminal 3 to terminal 4. The breaker mechanism will charge automatically when the breaker is opened (tripped).

CAUTION: Do not wire breakers for both automatic charge and automatic close unless a bell alarm overcurrent lockout function is incorporated. Failure to do so may result in repeated closures into an overcurrent fault.

NOTE:

The motor operator contains a feature which shuts off control power if the OFF button is held depressed. Thus, electrical operation is prevented if a “Kirk” lock or padlock accessory is used in the breaker locked OPEN condition. If the breaker is equipped with a drawout interlock (TPDO-1), electrical operation is permitted only if the drawout carriage is in the ENGAGED or TEST position.

CAUTION: The bell alarm lockout and undervoltage release device both hold the breaker latch open when activated. To prevent continuous cycling (see application note 4) when wired for automatic charging, the following is required:

- a) **For Bell Alarm Lockout** — Interconnect bell alarm switch to motor operator terminal board as shown in Figure 2.
- b) **For Undervoltage Release** — Consult factory.

WIRING DIAGRAMS

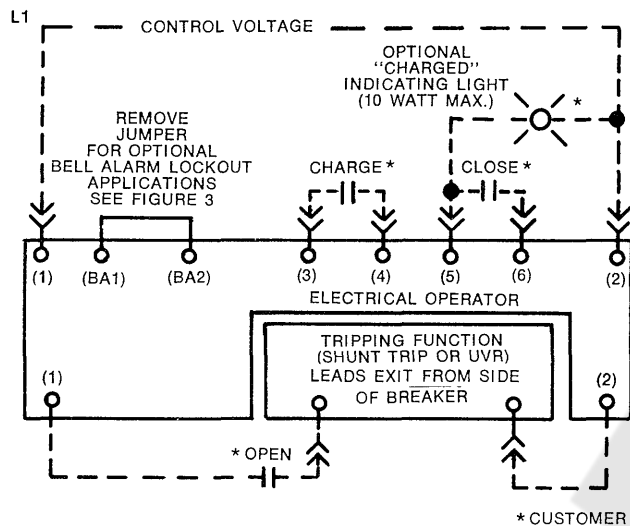


Fig. 2 — Wiring Diagram

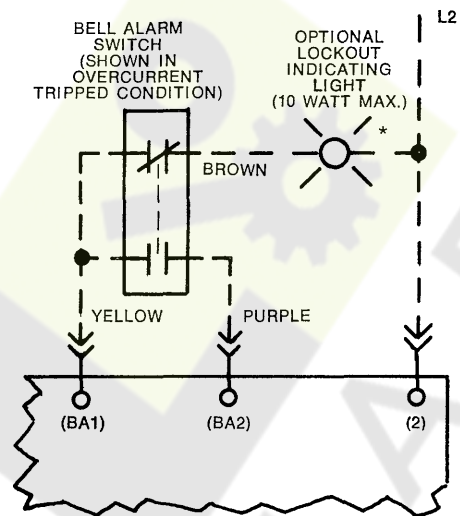


Fig. 3 — Wiring for optional Bell Alarm Lockout

WIRING NOTES

1. Customer supplied control contacts (i.e.: "CHARGE" and "CLOSE") should be momentary action, rated ¼ amp at 125VDC for DC motor operators. For AC motor operators these contacts should be rated 3 amp 120VAC.
2. Do not apply power to any terminal board point other than points (1) and (2).
3. Observe proper polarity for DC electrical operators (Point (1) positive).

4. When hi-pot or dielectric testing:
 - a) Remove all power leads — control and power.
 - b) Short all electrical operator terminal board points.
 - c) Open circuit breaker.
 - d) Test between electrical operator terminal board points and load side of breaker center pole (This is connected to the frame).
 - e) Test at 2200 VAC for one (1) minute using a current limited non-destructive AC hi-pot tester with maximum output of 20 milliamperes.

TABLE 2 — APPLICATION DATA

Rated Voltage	Operating Voltage Range	Motor Current (Amperes)			Close Solenoid (Peak Amperes)	Fuses (Slo Blo) 125V	Nominal Charge Time (seconds)	Maximum Close Time (seconds)	Maximum Opening Time (seconds)
		Locked Rotor	Full Load	Average					
120Vac	102-132	8	2.5	1.5	3.0	2A	5.0	.083	.050
125Vdc	100-140	10	2.5	1.5	3.5	2A	6.0	.083	.050
72Vdc	57-81	13	3.0	2.0	5.0	3A	6.0	.083	.050
48Vdc	38-58	20	5.0	2.5	6.6	4A	6.0	.083	.050
24Vdc	19-29	24	7.0	3.0	13.2	6¼ A	7.5	.083	.050

APPLICATION NOTES

1. Size control power source per data outlined in Table 2 above. If a single source is to supply several motor operators it must be sized appropriately. Where breakers are wired for automatic charge it will be necessary to supply power to several operators simultaneously during startup.
2. The control power source should be sized so that the drop in voltage from No Load to Full Load does not exceed 7%.
3. Acceptable DC power sources are: DC generator; battery; three phase full wave rectified AC;

any other DC source with a peak-to-peak ripple voltage of not more than 15% of rated voltage at motor full load current (see Table 2).

4. Breakers built after approximately June 1978 are equipped with an anti-cycling circuit which will lock the breaker out if the latch fails to make (i.e.: due to a de-energized UVR). Lockout will occur if the charge time exceeds 20 seconds. Reset a locked-out breaker locally by pushing the "OFF" button, or remotely by momentarily removing control power from the electrical operator.

NATIONAL SWITCHGEAR™

CIRCUIT PROTECTIVE DEVICES DEPT., PLAINVILLE, CONN. 06062

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