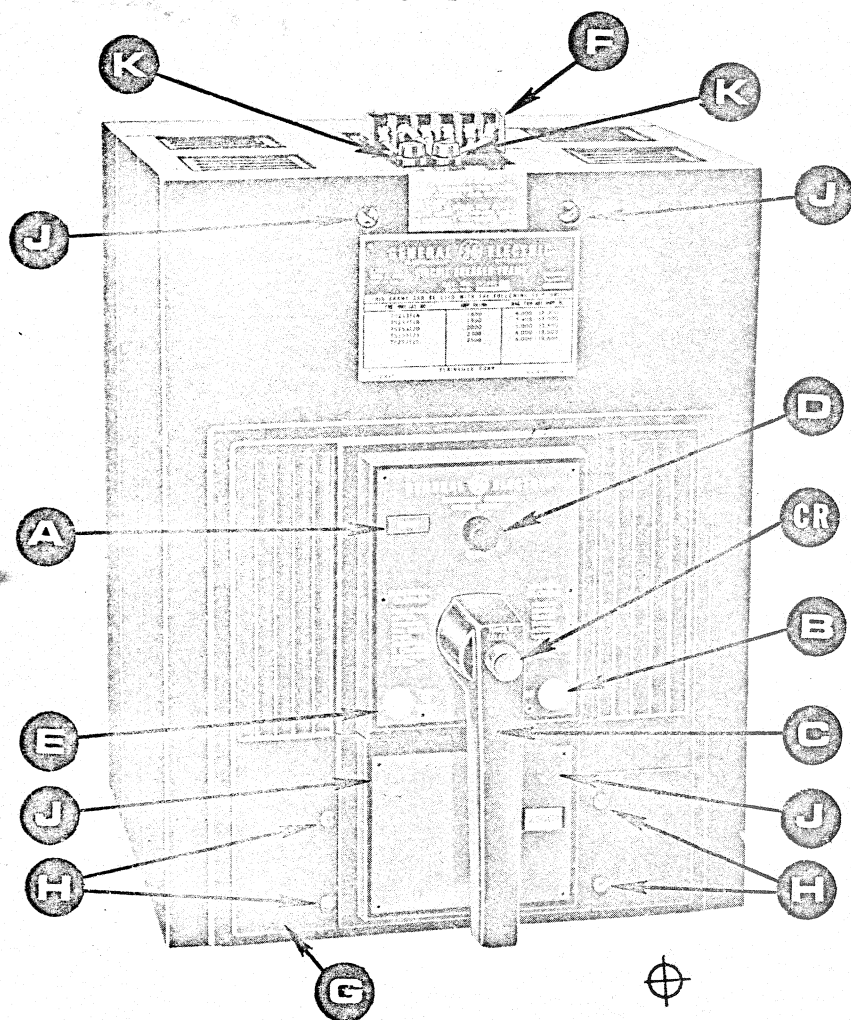


## INSTRUCTIONS

# ELECTRICALLY OPERATED S2500 LINE MOLDED CASE CIRCUIT BREAKER

**DESCRIPTION:** The Electrically Operated S2500 line molded case circuit breaker is similar to the manually operated S2500 in that it will open automatically under abnormal conditions when applied within its interrupting capabilities.



This circuit breaker may be closed remotely by first initiating a charging cycle, then energizing the closing solenoid. It may also be opened remotely by the use of a shunt trip or optional undervoltage release. These operations may be performed at the front of the breaker: "Charge" pushbutton initiates the electrical charging cycle, a "Close" pushbutton closes the breaker, and an "Open" pushbutton opens the breaker. In addition, the manual handle may be used as a manual substitute to charge the breaker for subsequent closing. However, once the handle release button has been depressed and handle cocked for the first power stroke, the manual charging sequence of three 120° clockwise power strokes *must* be completed.

**NOTE:** Breaker must only be mounted vertically with line end up to insure proper operation of drive unit.

Figure 1

- (A) **Indicator** — Shows breaker position. Open (green) Closed (Red) Charged (Yellow)
- (B) **Charge Button** — When indicator shows breaker open, push Charge button to charge system.
- (C) **Manual Handle** — May be used to manually charge mechanism. Hold release button (CR) and rotate handle counter-clockwise three times and return three times.
- (D) **Close Button**
- (E) **Open Button**
- (F) **Terminal Board**
- (G) **Trip Unit Escutcheon Plate**
- (H) **Escutcheon Plate Mounting Screws**
- (J) **Cover Mounting Screws** — Only two exposed on front cover.
- (K) **Motor Protection Fuses**

## OPERATING INSTRUCTIONS

With the breaker OPEN, press the CHARGE button, or remotely energize the circuit. The CHARGE INDICATOR will indicate when the charging cycle has been completed. Breaker is now ready to be closed. This can be done manually at the front of the breaker by pressing the CLOSE button, or remotely by energizing the closing circuit. Indicator after either operation will show CLOSED. If it is desired to discharge the mechanism without closing the breaker contacts, push OPEN button. The breaker may also be closed automatically after charging when a shunt is placed between terminals 5 and 6 on the Terminal Board.

Automatic resetting will result if a shunt is placed between terminals 3 and 4 on the Terminal Board. **WARNING** – With automatic resetting, it will not be possible to discharge the mechanism as described above. Also, if for any reason the breaker latch is held open as by an undervoltage release, the charging mechanism will continue to cycle and some provision must be made to recognize this condition and shut the system off within a reasonable period of time. Due to the nature of their operations, device must not be wired to provide *both* automatic reset and automatic closing.

**IMPORTANT:** Manual Handle is for charging only and will *not* turn the circuit breaker ON or OFF.

## SERVICE AND MAINTENANCE

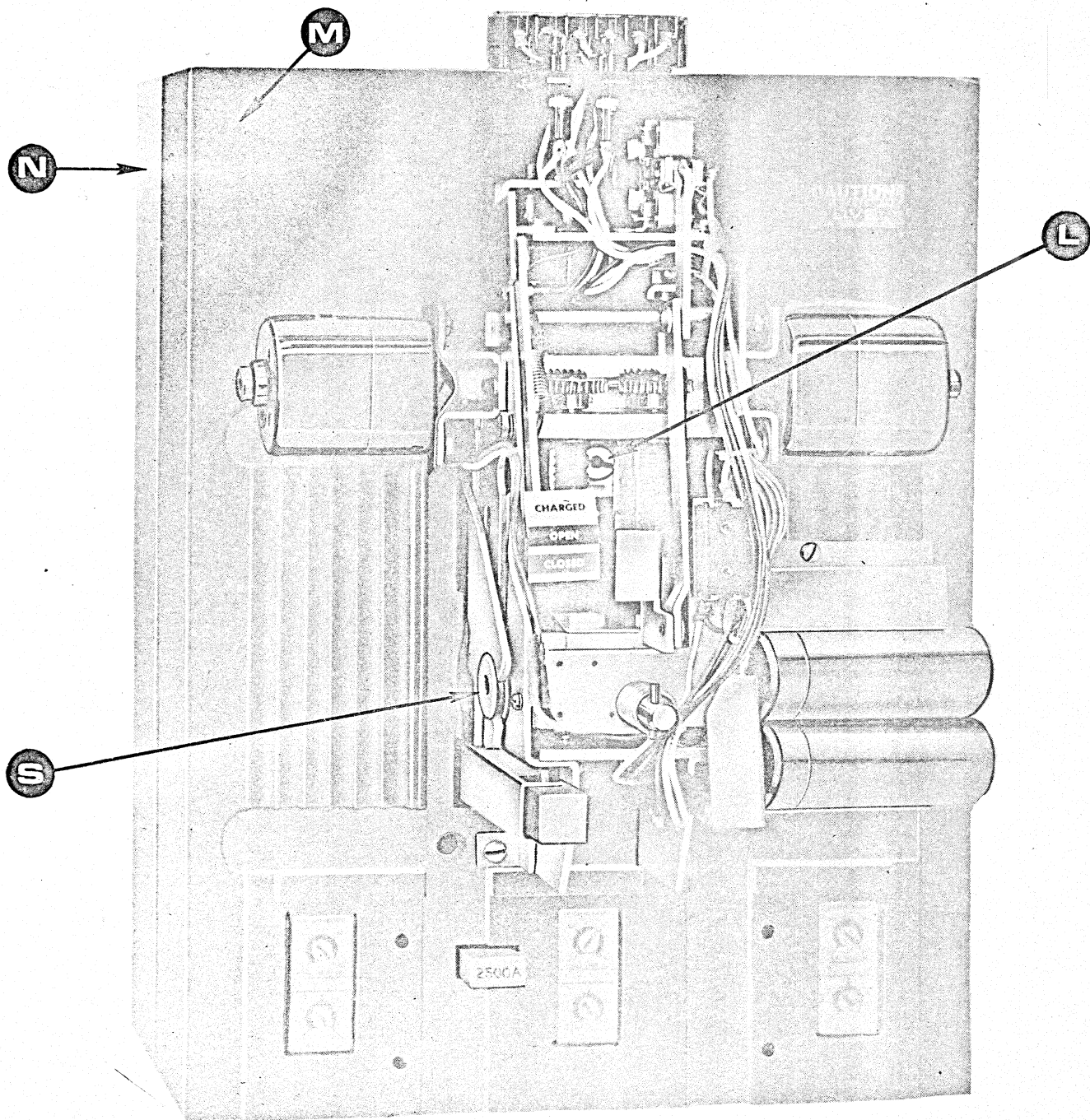
### I. Removal of Outer Cover

1. Remove accessory power leads from Terminals 1 and 2. Press "Open" Button Figure 1 (E) to open breaker contacts or discharge mechanism.
2. Remove trip unit escutcheon plate Figure 1 (G) by removing screws Figure 1 (H).
3. Remove cover mounting screws Figure 1 (J). (4 screws).
4. Remove outer cover taking care that Terminal Board support slips out of notch in outer cover and remains with mechanism assembly.

**NOTE:** Do not separate power unit from inner cover as loss of factory adjustment will result.

## II. Removal of Inner Cover and Power Unit Assembly

1. Unscrew inner cover retaining nut shown on Figure 2. (L)
2. Remove inner cover and power unit assembly Figure 2. (M) from breaker base Figure 2. (N).



### III. Re-Assembly of Unit

1. Slide inner cover and power unit assembly on to breaker base and mechanism shown in Figure 3, taking care to assure correct lineup of handle shaft Figure 3 (P) and operating levers Figure 3 (R). Operating lever slots must engage in grooves in rollers. Figure 2 (S)
2. Tighten inner cover retaining nut shown in Figure 2. (L)
3. Slide outer cover on to unit taking care that terminal board support Figure 4 (T) slides into slots in cover.
4. Install cover mounting screws Figure 1 (J). Center outer cover and be sure OPEN button moves freely before tightening.
5. Install trip unit escutcheon plate Figure 1 (G) with screws, Figure 1 (H)
6. Reconnect power leads as shown on wiring diagram.

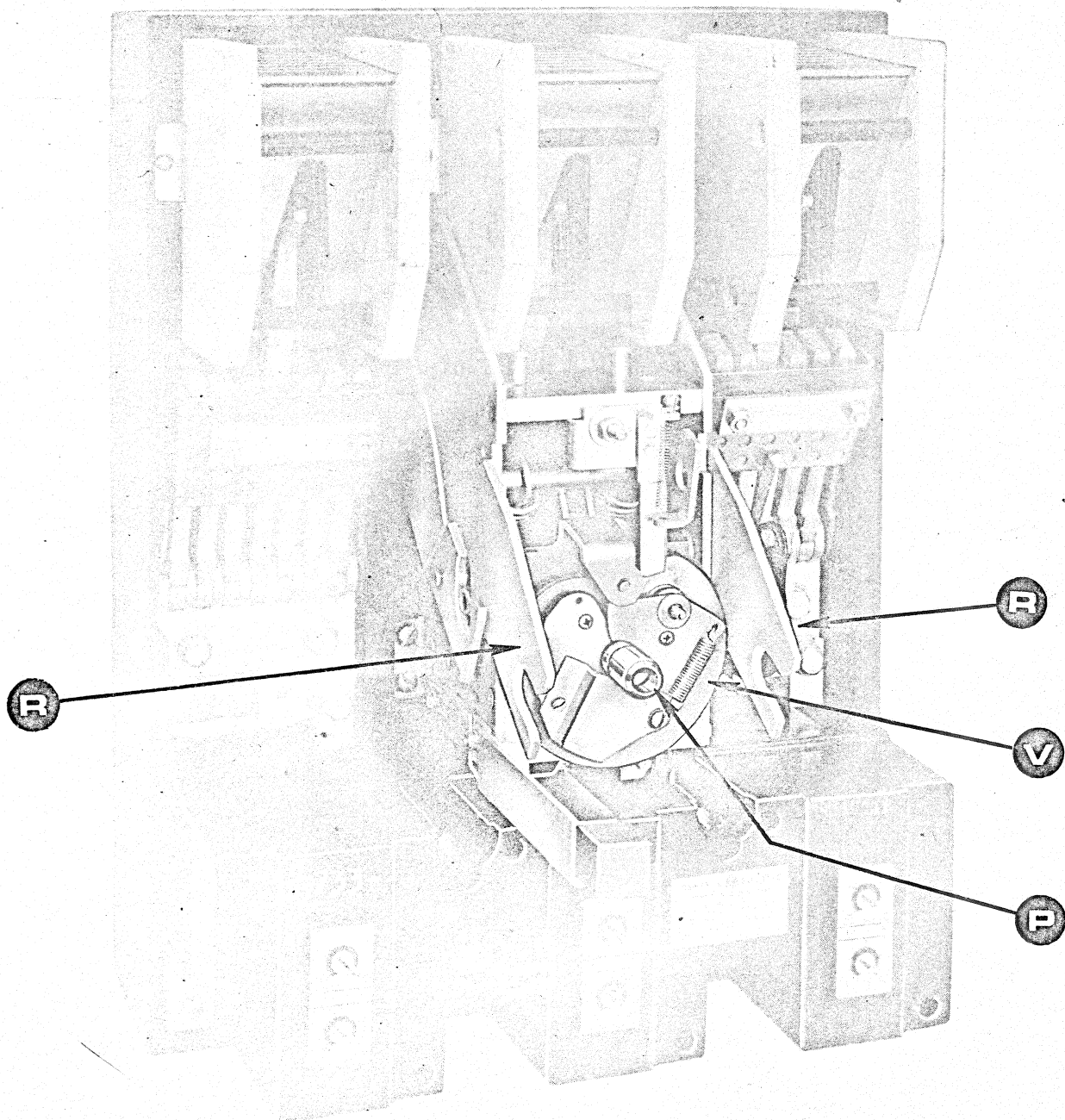


Figure 3

**Switch and Electrical Component Layout**  
(Switch identification as shown in wiring diagram)

- Switch A. Trip indication sensing switch.
- Switch B. Motor rotation direction switch.
- Switch C. Carriage retracted cutoff switch.

- Switch D. Mechanism latched & hooked sensing switch.
- Switch E. Correct cam position sensing switch.
- Switch F. Charging switch.
- Switch G. Correct handle position sensing switch.

Wiring diagram and identification of electrical components can be used as an aid to solving operational problems, should they arise. Unit is so interlocked that if manual charging cam, Fig. 3, (V) is out of position, electrical charging or closing is prevented. If screw driven carriage is out of extreme downward position, it will be impossible to manually or electrically close breaker. Slots are provided in outer ends of motor

shafts, Fig. 4 (W) to permit clockwise rotation of left motor shaft (counter-clockwise for right motor shaft) to move carriage to correct bottomed position. Turn shaft with screwdriver until no further motion of carriage is noted.

**Warning:** Never attempt to close breaker with outer cover removed as metal parts will be at line potential.

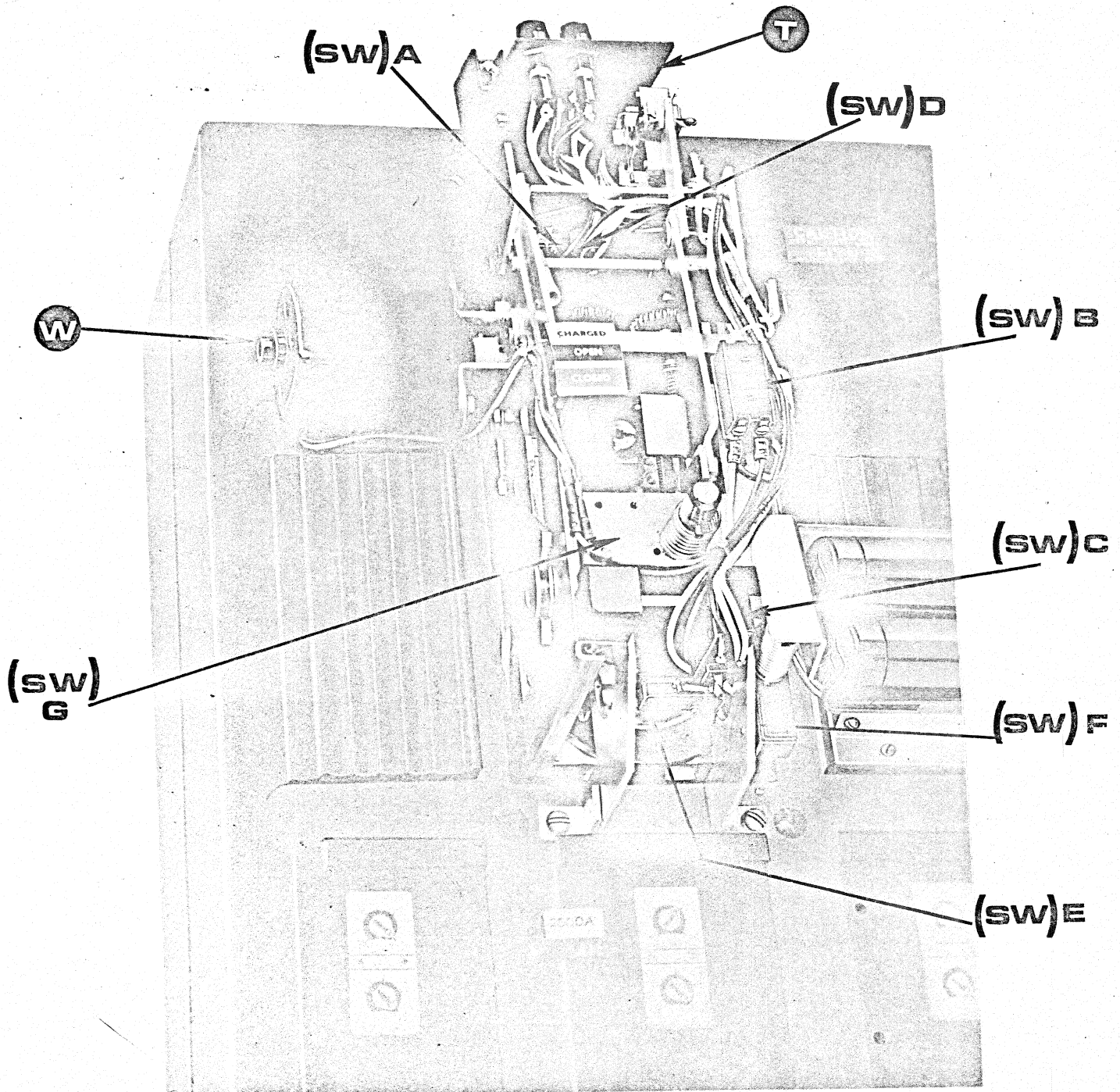


Figure 4

## OPERATIONAL DATA

Control Voltage	Motors Locked Rotor Amps Peak*	Motors Running Amps RMS	Charging Time Sec. (1)	Closing Time Cycle (2)	Opening Time Cycle (3)	Closing Solenoid Amps Peak
120V AC	15	3.0	3.5	5	3	9.5
240V AC	9	2.0	3.5	5	3	3.0
125V DC	21	2.5	3.5	5	3	8.0
250V DC	12	1.5	3.5	5	3	2.5

\*A ½ cycle peak of approximately 50% more than locked rotor current occurs as motors reverse.

### Footnotes:

1. Average charging time at 100% rated voltage. Indicates time from sequence initiation to motor cutoff.
2. Average closing time at 100% rated voltage. Indicates time from sequence initiation to breaker contacts closed.
3. Average opening time at 100% rated voltage. Indicates time from sequence initiation to auxiliary switch cutoff (breaker contacts open).

Note: For 480V applications use at least a .5 KVA dry type transformer.

Optional overload trip lockout shown on wiring diagram prevents remote charging under that condition. Charge button on breaker front must be used to reset device.

Consult factory for availability of other ratings, frequencies, and special features.

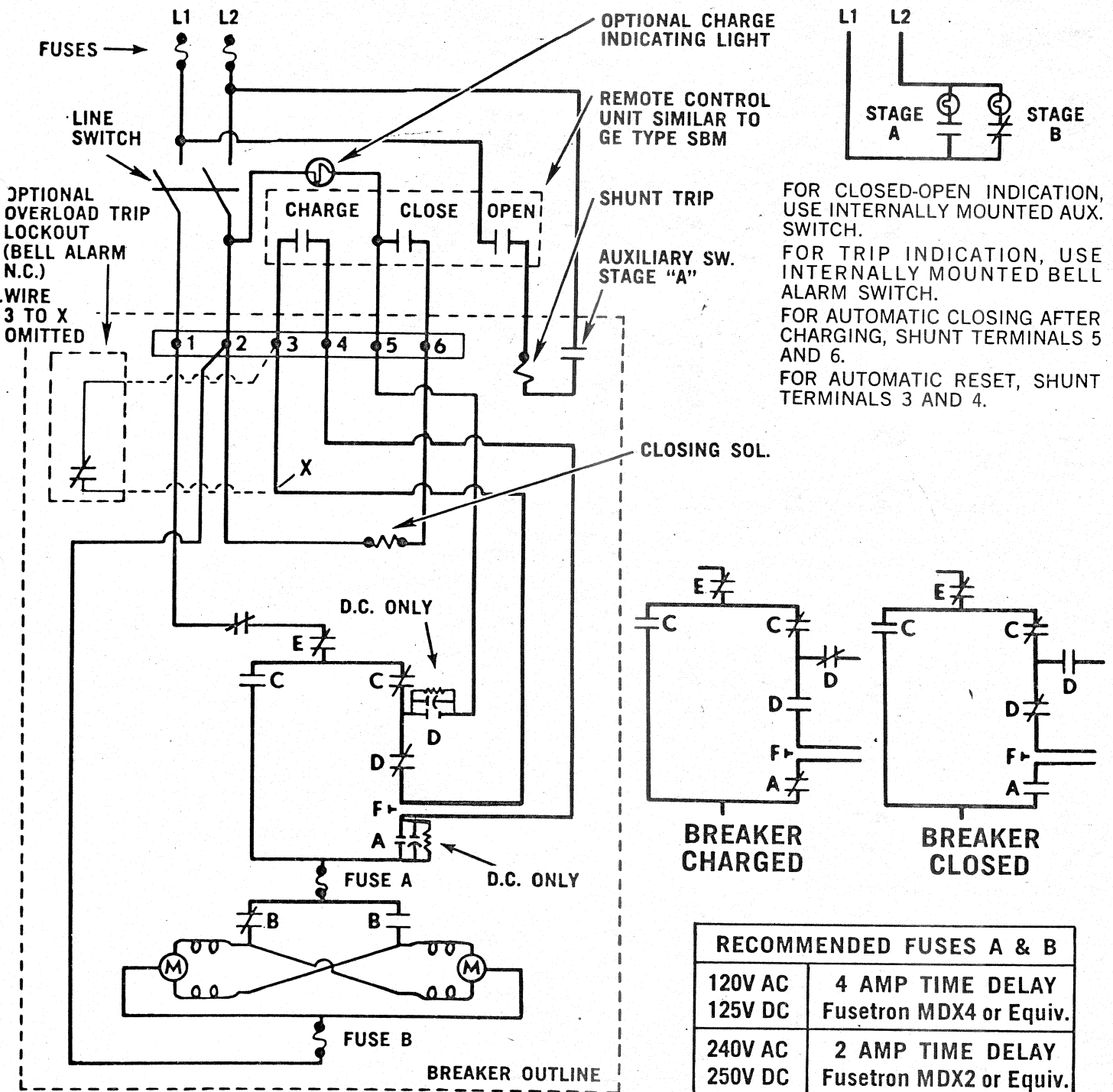
### Installation of Terminal Stubs

Stationary Breaker — Refer to GEH-3371.

Drawout Breaker — Refer to GEH-3386.

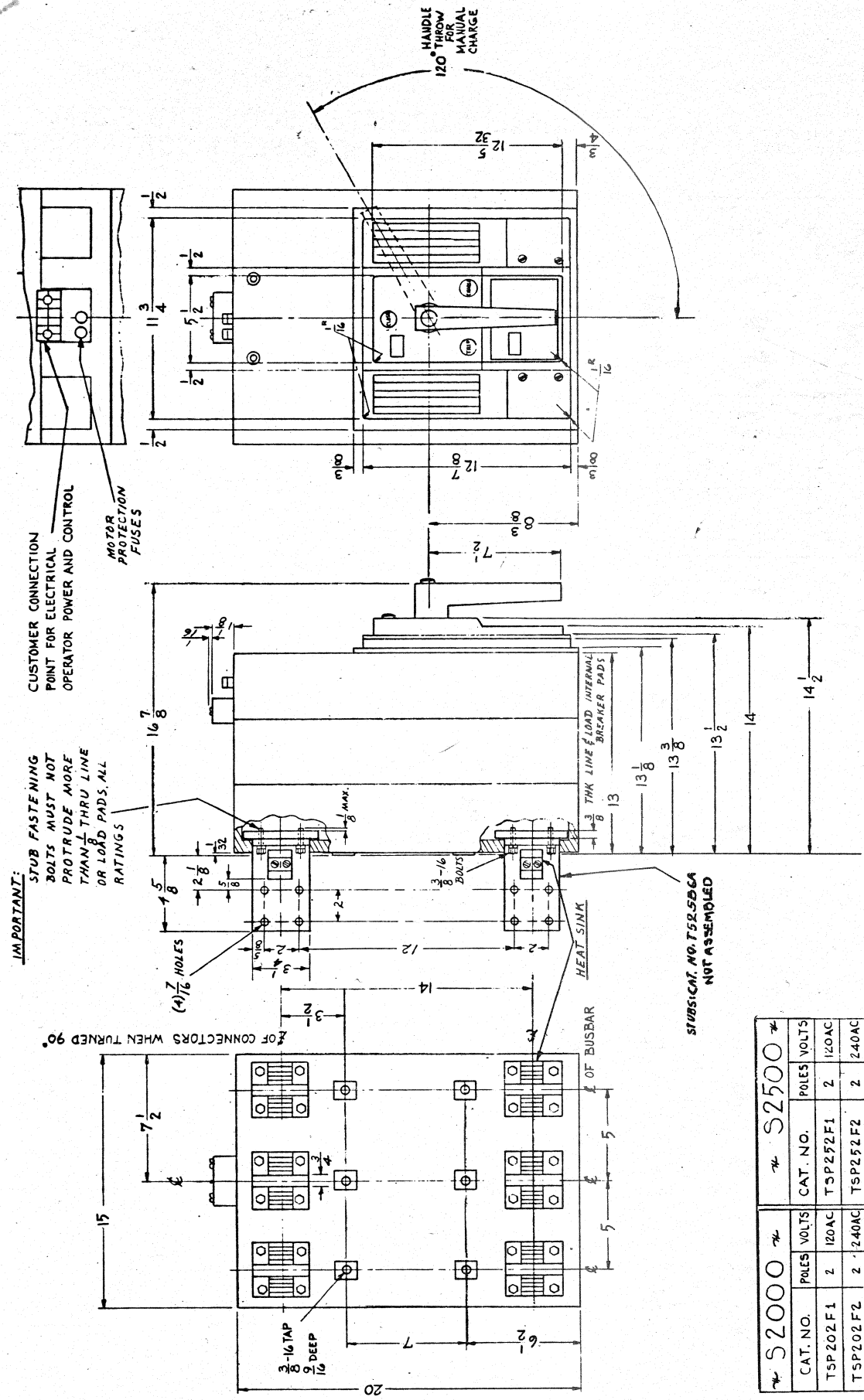
# WIRING DIAGRAM

# ELECTRICALLY OPERATED S-2000 AND S-2500, 2- AND 3-POLE MOLDED CASE CIRCUIT BREAKER



## BREAKER OPEN

NOTE: ONLY ITEMS SHOWN INSIDE BREAKER OUTLINE ARE SUPPLIED WITH UNIT.



**IMPORTANT:**

SUBS. CAT. NO. T525BGA  
NOT ASSEMBLED

S2000		S2500	
CAT. NO.	POLES	CAT. NO.	POLES
TSP202F1	2	TSP252F1	2
TSP202F2	2	TSP252F2	2
TSP202F3	2	TSP252F3	2
TSP202F4	2	TSP252F4	2
TSP203F1	3	TSP253F1	3
TSP203F2	3	TSP253F2	3
TSP203F3	3	TSP253F3	3
TSP203F4	3	TSP253F4	3

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.