

## SB6606B SOLID STATE INTERRUPTER

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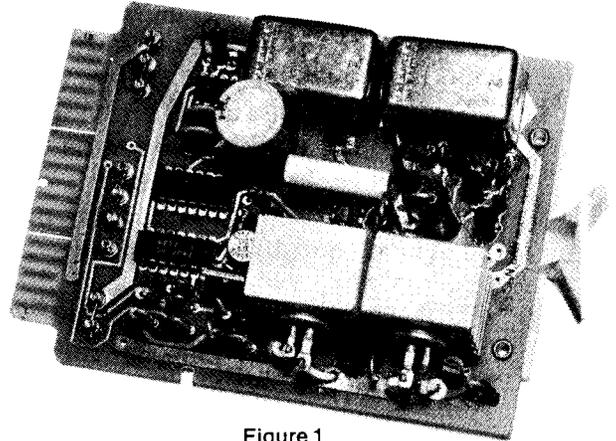


Figure 1  
SB6606B Solid State Interrupter

### 1.0 GENERAL

1.1 The SAN/BAR Model 6606B Solid State Interrupter is designed to provide the required lamp and ringing signals for application in Key Telephone Systems. The unit employs the latest advances in solid state switching technology, providing longer life and greater capacity.

1.2 The SB6606B Solid State Interrupter performs the functions previously implemented with mechanical interrupters. The unit mounts in a standard line card position. The SAN/BAR Model 319A Panel is prewired to accept the SB6606B.

### 2.0 SPECIFICATIONS

#### 2.1 Applicable Drawings

- a. Assembly Drawing: ED-6606-000 (Figure 2)
- b. Bill of Material: BM-6606-000
- c. Artwork: AW-6606-000
- d. Schematic: SD-6606-000 (Figure 3)

#### 2.2 Electrical Characteristics

- a. Operating Voltages: 10VAC lamp battery and 105V, 30 Hz ringing battery (or 18 VAC buzzer supply).
- b. Operating Environment: Temperature from 0°C to 50°C. Humidity to 90%.

- c. Current Consumption: Idle current is 0 ma. Operating current is 300 ma nominal from the lamp supply.
- d. Lamp Flash Output: On .5 sec, Off .5 sec.
- e. Lamp Wink Output: On .45 sec, Off .05 sec.
- f. Interrupted Ringing: On 1 sec, Off 3 sec.
- g. Switching Capacities
  - Lamp Supply — 6 Amps
  - Ring Supply — 1 Amp
- h. Self-protection: Self-resetting circuit breakers located on the card provide protection against overload for the lamp outputs.
- i. Isolation: The lamp and ringing outputs are optically isolated (common grounds not required).
- j. Interrupter Start: A closure from pin 5 to 6 (ST to LG) applies power to the interrupter.

#### 2.3 Physical Characteristics

- a. Dimensions: 5.3" x 3.5" x 1.4"
- b. Weight: 6 oz.
- c. Connector: 18 pin single-sided card edge, .150" spacing.
- d. Keying: Slots between pins 5 and 6, and between pins 12 and 13.

### 3.0 INSPECTION

Inspect the unit thoroughly as soon as possible after delivery. If any part of the unit has been damaged in transit, report the extent of damage to the transportation company immediately. If the unit is to be stored for some time before installation, it is recommended that an operational check be made prior to storage. The purpose of this check is to insure proper working order as received from the factory. If the check indicates satisfactory performance, the unit may be stored for future installation.

### 4.0 MOUNTING

The SAN/BAR 6606B circuit card is the same physical size and has keying and locking capability identical to a standard line card (such as WECO 400D).

The card will plug into any standard mounting shelf equipped for standard 4-inch, 18-pin cards. The SAN/BAR 319A Panel provides for mounting up to 14 line cards plus 1 SB6606B. All prewiring is done with fan-out capability such that a

“master” 319A panel can provide interrupter signalling to a “slave” panel with an additional 15 line cards.

### 5.0 INSTALLER CONNECTIONS

5.1 The SB6606B is pin compatible with a standard line card where the installation requires only light switching capacity (less than 2 Amps of lamp loads). No additional strapping is required on the card. Plug the SB6606B into any of the unused line card positions, or any other available card position (with appropriate rewiring). The wiring of the LW, LF, and RN functions must be verified to assure continuous connection throughout the system.

5.2 Where heavy duty operation is required (up to 6 Amps of lamp loads) additional strapping must be accomplished on the card. Buss wires must be added which multiplies pin inputs and outputs in order to handle the current capacity. Pins used and straps required are given in the strap option table on the schematic (Figure 3). Rewiring of the connector will be required for the additional pin inputs and outputs (not required when using SB319 Panel).

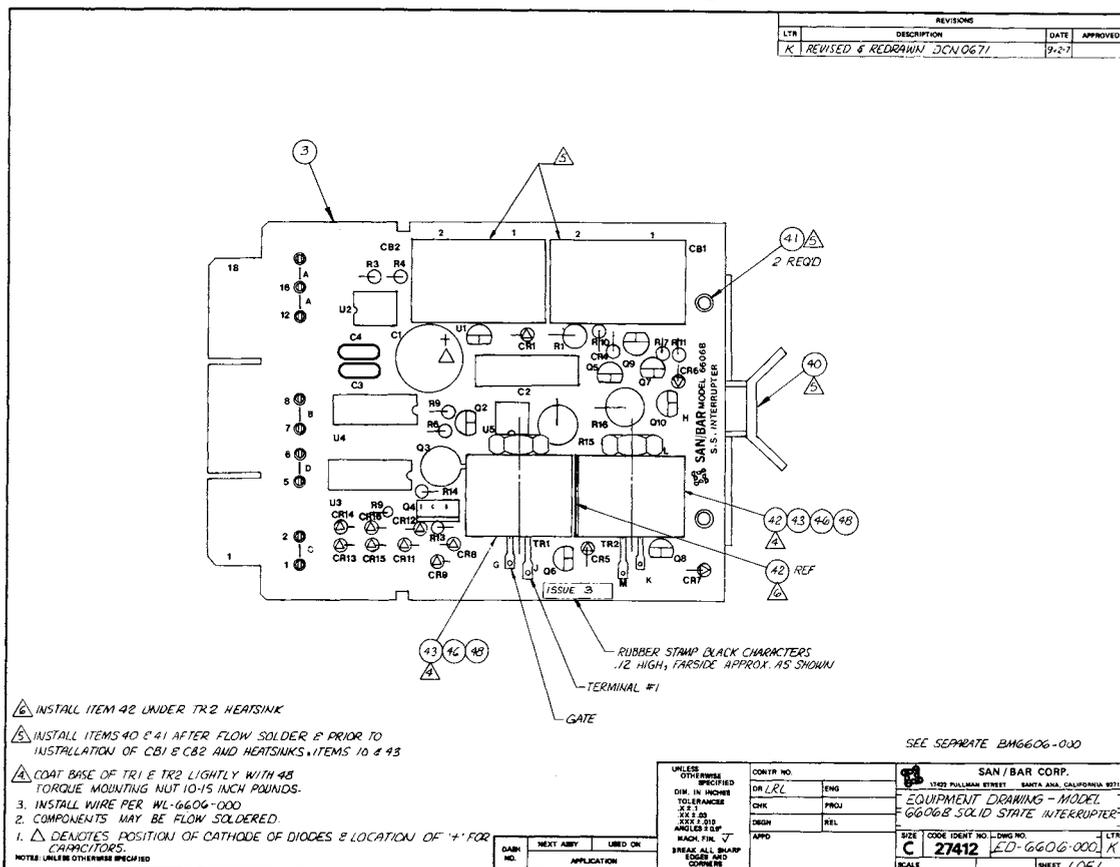
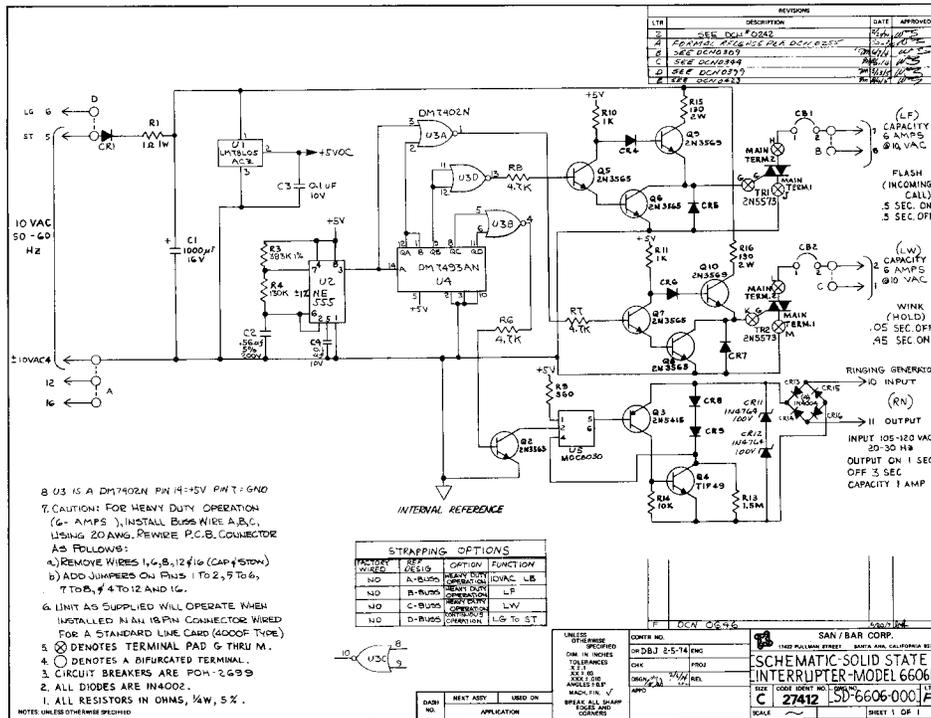


Figure 2  
Assembly Drawing ED-6606-000



- a. Basic timing for the interrupter originates with oscillator U2. Frequency and duty cycle is set by R3, R4, and C2. The output of U2 is at a "low" level for a period of 0.05 sec, and "high" for 0.20 sec. This results in a nominal oscillator frequency of 4 Hz.
- b. The output of U2 feeds binary counter U4. The first stage output  $Q_A$  of U4 provides a 2Hz timing signal. This is the basic repetition rate for the lamp wink (LW) signal. The  $Q_A$  output is NOR'ed with oscillator U2 output by U3-A. Therefore U3-A output provides the required LW signal with a 0.45 sec "high" and 0.05 sec "low" duty cycle.
- c. The  $Q_A$  output of U4 is also fed back into the second stage input of the counter. Therefore, output  $Q_B$  provides 1 Hz signal with a 50% duty cycle. This output is fed thru inverter U3-D for additional buffering. This is the required signal for lamp flash (LF).
- d. The binary counter outputs  $Q_C$  and  $Q_D$  produce 0.5 Hz and 0.25 Hz signals respectively, each with a 50% duty cycle.  $Q_C$  and  $Q_D$  are NOR'd together by U3-B. This provides the interrupted ringing signal (RN) with a 1 sec. "high" and 3 sec. "low" duty cycle.

### 6.3 Output Switches

Each of the three timing signals, LW, LF and RN are used to drive corresponding output switches. The LW, LF signals drive triac switches capable of handling up to 6 Amps. The RN signal is coupled thru an opto-isolator to the transistor output switch. This output can switch up to 1 Amp of either the 105V, 30Hz ringing or 18VAC buzzer supply.

- a. The combination triac and driver circuitry is identical for both the LW and LF signal. The LF signal is fed thru R8 to Q5, Q6, and Q9 which form the driver for triac TR1. Similarly, the LW signal is fed thru R7 to transistors Q7, Q8, and Q10 which form the driver for triac TR2. The triacs "turn-on" whenever current is supplied to the gate in-

put. This occurs when Q9, Q10 conduct and current is supplied thru power resistors R15, R16. However triacs TR1, TR2 will not "turn-off" until both gate current is removed and the 10VAC signal crosses through zero. Therefore large inductive transients are eliminated, insuring long-life. In addition each triac output TR1, TR2 is protected by self resetting circuit breakers CB1, CB2 respectively.

- b. The interrupter ringing signal RN is fed thru R6 to transistor Q2. Q2 provides switching for opto-isolator U5 input. The U5 output is a darlington transistor switch which supplies sufficient drive for transistors Q3, Q4. The transistor combination of Q3, Q4 provides the necessary high voltage switching for the ringing signal. However, unlike triacs, the transistors are not bidirectional and require the use of a full-wave rectifier (diodes CR13 thru CR16). Zener diodes CR11, 12 provide protection for Q3, Q4 by limiting inductive transients to 200V.

## 7.0 TESTING

- 7.1 If trouble is encountered with the operation of the SB6606B card, check that all installer connections and card straps have been made properly. Make certain the SB6606B card is making good connection with the shelf connector, plug and unplug the card several times. If another working unit is available, interchange cards to verify that the card is malfunctioning.
- 7.2 If it has been determined that there has been card failure, do not try to make field replacement of electrical parts. The SB6606B is warranted for a period of 2 years from date of purchase. Return unit to:

SAN/BAR CORPORATION  
17422 Pullman Street  
Irvine, California 92714

For technical assistance call:  
(714) 546-6500