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SB6620B 3-LINE KEY SYSTEM Issue 1

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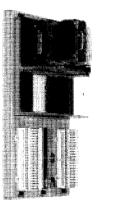
1.0 GENERAL

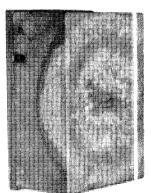
1.1 This section provides general description and installation instructions for the SAN/BAR SB6620B 3-Line Key System Issue 1.

The SB6620B KTS consists of a basic pre-wired mounting fixture (for wall mounting) which will mount a variety of plug-in circuit cards, and a power supply assembly. The system is designed to provide a means of connection to a maximum of three central office lines and also has one mounting slot for several special functions. The basic SB6620B may be modified to a maximum of five central office lines and one special position by field addition of the model SB6620B-210 Expansion Kit (shown in figure 1A.)

1.2 The SB6620B may be equipped to provide such features as music-on-hold, PA coupler, Manual Intercom, Off-Premises extension, FM Music Source, and Dial Intercom.

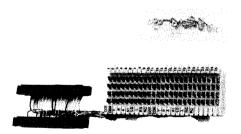
The SB6620B is provided with two quick connect distribution blocks as shown in Figure 1 for all wiring interfacing to the central office and local distribution.





SB6620B KEY TELEPHONE SYSTEM FIGURE 1

1.3 The power supply assembly (shown in Figure 2) mounts at the top of the SB6620B and is held in place with snap fasteners for quick installation or replacement. All distribution wiring between the power supply and the rest of the SB6620B is by a keyed locking connector assembly assuring proper interconnect wiring. The power supply assembly may be provided with interrupter and/or ringing generator as options. The power supply and ringing generator are U.L. recognized assemblies.



SB6620B-210 EXPANSION KIT Figure 1A

- 1.4 The SB6620B is wall mounted; mounting is easily accomplished by one installer. A keyhole is located at the top center of the assembly to initially mount the unit, and mounting holes are located on each side of the center terminal block at the bottom to secure the assembly to the wall. Each unit is provided with a cover.
- 2.0 SPECIFICATIONS
- 2.1 List of Applicable Drawings a. Assembly Drawings

Chassis: ED-6620-200 (fig. 6) Power Supply: ED-6610-301/306 (fig. 7) Ringing Generator: ED-6610-401 (fig. 8)

b. Bill of Materials

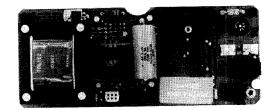
Chassis: BM-6620-200 Power Supply: BM-6610-301/306 Ringing Generator: BM-6610-401

c. Schematic Diagrams

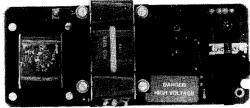
System: WD-6620-200 (fig. 4) Power Supply: SD-6610-301 (fig. 5) Ringing Generator: SD-6610-401 (fig. 5) Expansion Kit: WD-6620-210 (fig. 9)

- 2.2 Electrical Characteristics
 - a. 3 CO or PBX Lines expandable to 5 max.
 - b. One special feature connector is provided for options such as the SB6609B Dial Intercom, SB423A Manual Intercom, or SB4201 FM Receiver.
 - c. Input Power: 90 to 130 VAC, 60 Hz.
 - d. Available Voltage: 24 VDC: A-Battery (AC Ripple suitable for Talk Battery) 0.7A 18VAC: (Buzzers) 1 amp continuous, 4 amps, intermittent. 105 VAC: 30 Hz: (Ringers) 50 ma nominal.
 - e. Fuses: 110 VAC Input 2A. 10/18 VAC Output - 5A. 24 VDC Output, 105 VAC ringing are self limiting and are not fused.
 - f. Operating Environment: 0° to 50°C, Humidity to 90%.
 - g. Lamp Flash: Flashing visual signal on incoming calls.
 - h. Station Audible or Common Audible: 18VAC for buzzers or optional 105 VAC, 30 Hz for ringers.
 - i. Line Busy Indication: Steady lamp signal during line busy conditions.

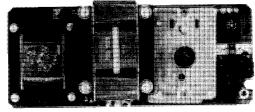
- j. Hold Function: Individual holding of calls on any line.
- k. Lamp Wink: Winking visual signal during hold condition.



SB6610B-301 Basic Supply



SB6610B-306 Supply with Ringing Generator



SB6610B-306 Supply with Interrupter Figure 2. Power Supply Options

- 2.3 Physical Characteristics
 - a. Overall Dimensions (including cover) 9.8"W x 15"H x 7"D.
 - b. Wall Mounting Holds: 3 mounting holes are provided with ¼ inch clearance holes for the mounting hardware. The maximum O.D. for washers used should be ¾" or less.
 - c. Rear Access: Rear access is normally not required. The power supply is mounted from the front and all normal wiring is available from the front.
 - d. Weight: Approximately 13 lbs. with power supply. (Not including Circuit cards.)
 - e. Component Connectors (power units): A quick-connect connector is provided for ease of installation of the power unit, with prewired harness.
 - f. Interrupter Mounting: Plug-in connector is prewired for installation of the mechanical interrupter provided by SAN/BAR as part number POR-3010-000A.

a. SB4000F KTU Line Card-

Specially designed circuitry and solid state components eliminate high voltage transient failures and prevent false ring-in through line induced AC voltages or remote two-wire telephone instrument dialing. Design guarantees that 200 milliseconds of ringing signal will trigger the ring-in circuitry, and also provides protection against drop-out of hold during battery reversal.

Equipped with a light emitting diode to indicate busy or idle line condition. Also available with circuitry that protects against false "Dial-1 transfer" with a strap option for 500 ms Delayed Hold Release.

b. SB4100A KTU Line Card for Off-Premises Extensions —

A complete KTU line circuit with the additional circuitry required to permit duplication of keyset features and supervision at remote locations to provide off-premises extension service with one control pair. Provides means for two or more connected stations to completely control a telephone circuit. One unit required at each location. Loop limits 1800 ohms.

c. SB4200A Music-On-Hold Card-

Provides KTU Line Card, Music-On-Hold and Bell System Interconnect interface (MOH), (STC) function all on one 18-pin circuit card. With these built-in features, installation consists only on connecting of two leads from the music source to two points on the KTU mounting shelf. No other auxiliary devices or wiring is required. The built-in MOH specification circuitry provides DC isolation, amplitude limiting at -12 dbm and at least 85 dbm cross-talk attenuation. Equipped with LED to indicate busy or idle condition.

d. SB4201 FM Receiver for Music-On-Hold-

A complete music source designed to be used in conjunction with SB4200A KTU line cards to provide music-on-hold service. One SB4201A is normally sufficient to provide service for an entire installation. Receiver is mounted on a 18-pin KTU line card-sized circuit board which inserts in any KTU line card position. Music is transmitted from the SB4201A to SB4200A line cards on pins 3 and 18 via common straps in the KSU. e. SB423A Manual Intercom-

Standard KTS Manual Intercom similar to WECO 401. Manufactured to SAN/BAR's strict quality control for long, trouble-free service.

f. SB6609B Single Link Intercom-

Single link intercom providing intercommunications between 10 stations of a key telephone system. The basic unit SB6609B is rotary dial and the model SB6609B-100 contains a tone converter so that both rotary dial and touchtone phones may be intermixed within the intercom system. The basic SB6609B intercom is field expansable to include the touchtone converter by ordering the SB6609B-101 assembly.

3.0 INSPECTION

Inspect the unit thoroughly as soon as possible after delivery. Visually inspect for broken and loose wires, or chassis damage. If any part of the unit has been damaged in transit, report the extent of damage to the transportation company immediately.

4.0 MOUNTING

The SB6620B KTS is designed for wall mounting and should be mounted firmly to a suitable backboard as required. Three mounting holes are provided for use with 1/4" lag bolts or wood screws. Clearance is provided for up to 3/4" O.D. washers. Locate the desired position for the KTS and mark the top center keyhole location.

NOTE: The KTS may be mounted as close as desired to adjacent equipment or ceiling. No clearance for the hinging of the cover is required. Screw the KTS to the wall with the one top mounting hole, then locate the two lower mounting holes.

5.0 INSTALLER CONNECTIONS

The SB6620B KTS is factory wired and requires only minimal amount of installer wiring for most installations. A prewired connector allows the power supply to be quickly installed. All normal user functions appear at the two feature blocks located on the chassis. Figures 4 & 5 show the basic wiring for the system and power unit.

5.1 FEATURE BLOCK CONNECTIONS

Line cards and special feature cards plug into the 4 standard 18-pin connectors. The required functions appear for distribution at the appropriate locations of the feature blocks. Card positions 1, 2, and 5 are wired for standard line cards (such as the SB4000F or WECO 400D). Position 6 is wired primarily for the SB6609B Intercom, but may be adapted to other special features.

a. For card positions 1, 2, and 5 all wiring is per conventional practice with the following exceptions. Pins 3 and 18 appear individually at the feature blocks (rather than bussed) for use on special function cards. Pin 10 is wired for interrupted 18 VAC for buzzers. Pin 11 is wired for interrupted 105 VAC for ringers. Therefore either interrupted buzzer or ringing can be chosen for common audible by strap option on the line card. For buzzers, option-T, for ringers, option-W.

b. Each of the two feature blocks is wired for two circuit card connections as shown below. Figure 3 gives the function as they appear at the blocks.

TB-A (upper)	Pos. 1
TB-A (lower)	Pos. 2
TB-C (upper)	Pos. 5
TB-C (lower)	Pos. 6

c. Table 1 below defines the possible usage of each of the card positions for the most common usage functions. Follow the circuit descriptions of the individual cards for detailed installation instructions.

TABLE 1:

Ca	rd Function	SAN/BAR Card Type Number	Car	6620B d Slot gnmen	t
1.	Line Card	SB4000F	1, 2	, &	5
2.	Off Premises Extension Line Card	SB4100A	1, 2	, &	5
3.	Music On Hold	SB4200A	1, 2	, &	5
4.	Music Source (FM Tuner)	SB4201A	1, 2,	5, &	6
5.	Manual Intercom	SB423A	1, 2,	5, &	6
6.	Single Link Dial Intercom	SB6609B	6	oniy	

d. Cable routing to the feature blocks is up through two cut-outs in the bottom of the KTS cover. Cut-outs in the chassis for securing the cable with "ty-wraps" have been provided. Do not route any wires along the outer edge of the chassis that will interfere with the KTS cover.

5.2 POWER SUPPLY INSTALLATION

a. SB6610B-301/306 Power Supply

The power supply is installed in the upper part of the chassis, and held in place by snapping in the two locking plungers. Connection is made to the system through a keyed female connector J7 on the power supply and mating male connector P7. Route the power supply cord through either the left or right cut-outs provided in the cover. (Using the left cut-out may require that the cord lay over the top of the ring generator.) The line cord is then plugged into the 117V, 60Hz AC supply.

NOTE: Although the chassis and positive battery are grounded through the AC line cord, there is the possibility of lightning damage due to a voltage difference to true earth ground. It is therefore recommended that connection be made to a good ground, such as a main cold water pipe, to binding post E1. The largest wire that E1 will accept is 12 AWG.

b. SB6610B-401 Ringing Generator

This section only applies for field installation of a ringing generator in the SB6610-301 power supply. (The SB6610-306 power supply is equipped with the ringing generator mounted in place).

Disconnect the line cord from the AC supply and remove power supply from the chassis. Mount the ringing generator assembly on the front side of the supply, using the four unused holes on the mounting plate. Orient the generator assembly so that the connector is positioned over J10 of the power supply. Use the four screws provided.

c. Interrupter

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To install the interrupter the power supply does not have to be removed from the chassis. Simply plug the interrupter into J8, and secure it by tightening the captive screw.

d. Bell/Buzzer Option for Intercom

A U-link strap option is provided on the power supply so that either 105 VAC (bell) or 18 VAC (buzzer) will appear at J6, the intercom card position. Set U-link as follows:

18 VAC- Option A (factory set)105 VAC- Option BThe 18/105 VAC option also appears at TBA for external use (see fig. 3).

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a. SB6609B 10 Station Intercom

Install the SB6609B in position 6 of the KTS only. Select the audible signaling (18 VAC/105 VAC) as specified in section 5.2d. Refer to Fig. 3 for function assignment at the feature block. NOTE: Audible common RG is the same as lamp ground (LG). Terminate the buzzer or bell returns to spare RG or LG terminals as required. Refer to the SB6609B Circuit Description for more details.

b. SB423A Manual Intercom

May be installed in any line card position 1, 2, 5 or 6. Talk battery to the card must be jumpered at the feature blocks. (see following section c.). Jumper (at the appropriate line position) AG to 3, AB to 18, as shown in Fig. 3. 18 VAC appears at TBA as described in section 5.2e., if required for buzzer signaling. Refer to CD-0423-000 for more details.

c. Intercom Feature Block Straps - TBC

The strap for SB6609A or SB6609B 10 station intercom is factory strapped. Remove this strap and restrap if SB423 Manual Intercom or other feature is used.

ASSEMBLY	FROM	то
SB6609A/B	TBC-2B	TBC-13C
SB423A	TBC-2B TBC-2C TBC-13A	TBC-11B TBC-11C TBC-13C

5.4 MUSIC-ON-HOLD INSTALLATION

a. SB4200A Line Cards

The SB4200A cards may be installed in position 1, 2, and 5. The music source is distributed via pins 3 and 18. Jumper together all pin 3's and all pin 18's at the appropriate feature block positions involved. Connect the music source (if externally provided) to any of the pins 3 and 18 terminals. Refer to CD-4200-000 for more details.

b. SB4201 FM Receiver

If using the SB4201A, install in any spare position 1, 2, 5 or 6. Jumper (at the feature block) pins 3 and 18 to the rest of the music distribution as described above. If using position 6 for the SB4201A, and pins 3 and 18 are labeled Sig-1 and 2 respectively (refer to fig. 3.) External antenna connections are brought into the feature block to COT, COR, (sig-0 and 5 position 6).

NOTE: If using AE line cards for music-on-hold, connect together all the pin 3's of each position including the SB4201A. Leave pin 18 open at each line position. Jumper AG to 18 at the SB4201A position.

5.5 COVER MOUNTING

The cover for the KTS secures to the chassis by snap-in tabs. The cover does not require any additional clearance from the ceiling or adjacent equipment. To mount the cover, first insert the two top mounting tabs. Secure the cover by inserting the two lower (outside) tabs and then snapping the locking tab (lower-middle) into place. To remove, press up on the locking tab and the cover will come off easily.

5.6 SB6620-210 EXPANSION KIT INSTALLATION

Ascertain the following parts are contained in the SB6620B-210 package.

QTY ITEM

- 1 SB6620B-210 Prewired Terminal block and J3-J4 connectors
- 4 Screw, 6-32 x 3/8
- 4 Screw, 4-40 x ¹/₂
- 4 Flat Washer 4-40

Remove SB6620B Key Telephone System from wall mounting surface so that access is available to rear of the SB6620B.

Position J3-J4 connectors over center opening of the SB6620B TBB location. Pass connectors and wire harness through the SB6620B and rotate add-on assembly so that the terminal block is flat against the mounting surface. Secure the terminal block with four 6-32 x 3/8 screws.

Position J3-J4 in their proper location and secure using four 4-40 x $\frac{1}{2}$ screws and flat washers.

Terminate wire from J3, J4, and TBB as follows:

FROM	COLOR	<u>T0</u>
J3-4	Yel	TBA-1D
J3-5	Grn	J1-5
J3-10	Blue	J1-10
J3-11	Org	J1-11
J4-2 J4-7	Yel/Brn Yel/Wht	J5-2 J5-7
TBB-12C	Red	TBA-12C
TBB-16	Blk	TBA-16
TBB-17	Brn	TBA-17
TBB-19	Slt	TBA-19

Inspect buss wires between J3 and J4 to assure no wires touch causing a short circuit.

Remount SB6620B and reconnect Key System.

6.0 CIRCUIT DESCRIPTION

Please refer to the schematic drawings Figures 4 & 5 for the following descriptions.

6.1 SB6610B-301 Power Supply

117 VAC is applied to the primary winding (Blk-Blk) of transformer T1. The transformer has two secondary windings. One winding is tapped to provide 10 and 18 VAC which provides the lamp and buzzer output voltages. The other winding has an output of 32 VAC which is full-wave rectified by diode bridge CR1-CR4 to produce 40VDC across capacitor C1. Transistors Q1 and Q2, together with Zener diode CR5, form a preregulator which keeps a constant 30VDC across the input of VR1. VR1 is an integrated voltage regulator which maintains a constant 24VDC at its output. VR1 is internally current limited, so no output fusing is necessary.

6.2 SB6610B-401 Ringing Generator

AC line voltage appears across the split primary windings and associated network of T2. Because of the diode CR1, much more current flows in one direction than the other, causing the secondary voltage to have a heavy 30 Hz component. Capacitor C1 and the secondary winding are resonant at 30 Hz, so that the output voltage across T2-4 and T2-3 will be an approximate sine wave, with a fundamental frequency of 30 Hz.

6.3 INTERRUPTER

When AC common is applied to the interrupter on the ST lead, the motor will run. 10 VAC, 18 VAC and 105 VAC are interrupted by cam -driven contacts to provide Lamp Wink, Lamp Flash, Interrupted Buzzer and Ringing voltages.

7.0 TESTING

Key Telephone System

If trouble is encountered with the SB6620B Key Telephone System, check that all installer connections or strap options have been made properly. Refer to the individual circuit card descriptions for test of the units. The KTS fixture contains no electrical components that are normally considered subject to failure. However, possible wire breakage or poor wire terminations may be verified using normal continuity checking procedures with a standard multimeter (Simpson 263 or equivalent).

7.2 Power Supply Assembly

If the system difficulties is determined to be related to the power unit, make sure that the system power requirements have not exceeded the power supply rating specified in section 2.0. Make sure that the installer connections are made properly. Verify that the connector is mating properly. If trouble persists, verify that all power supply voltage outputs are present using a standard multimeter. Refer to the schematic diagrams for locating where the outputs appear.

(NOTE: It may be necessary to remove the power supply from the KTS to verify the problem if it is due to shorts in the system.)

7.3 If it has been determined that there has been a card, chassis, or power failure; do not attempt to make field replacement of electrical parts. The SB6620B is warranted for a period of 2 years from date of purchase.

Return unit to:

SAN/BAR CORPORATION 17422 Pullman St. P.O. Box 11787 Santa Ana, CA 92711

For Technical assistance call: (714) 546-6500

TB - A

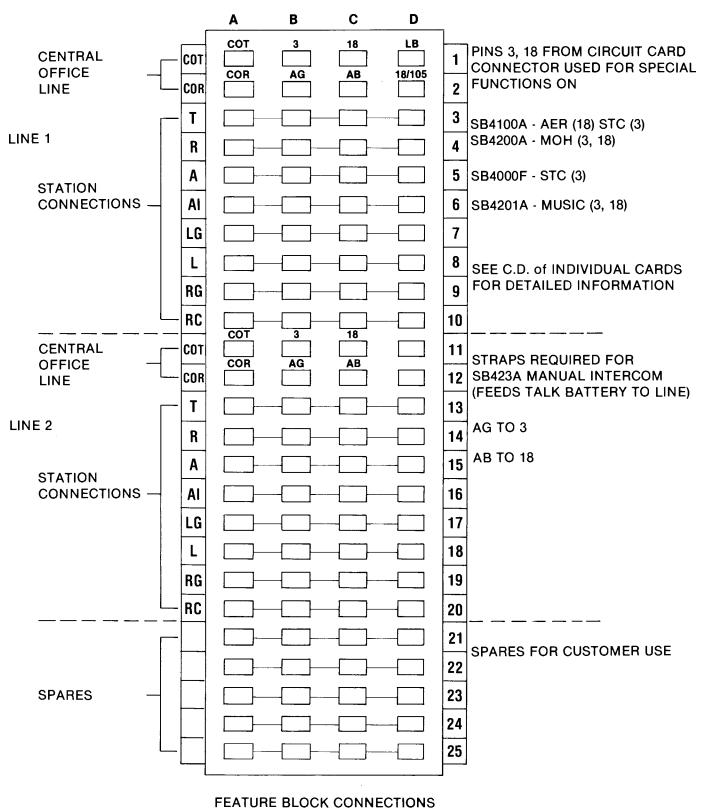
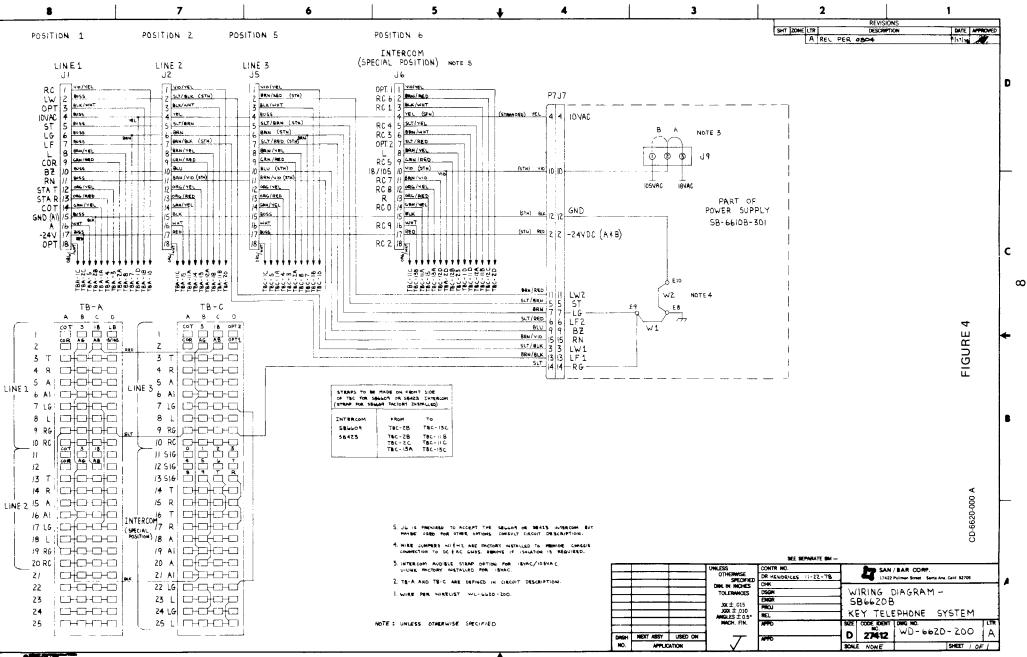
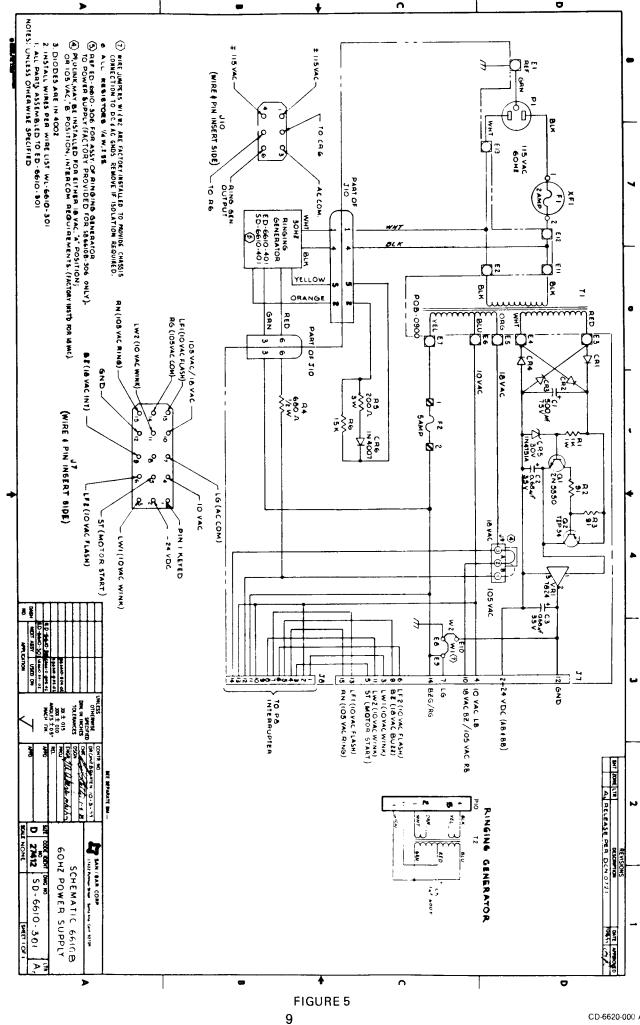
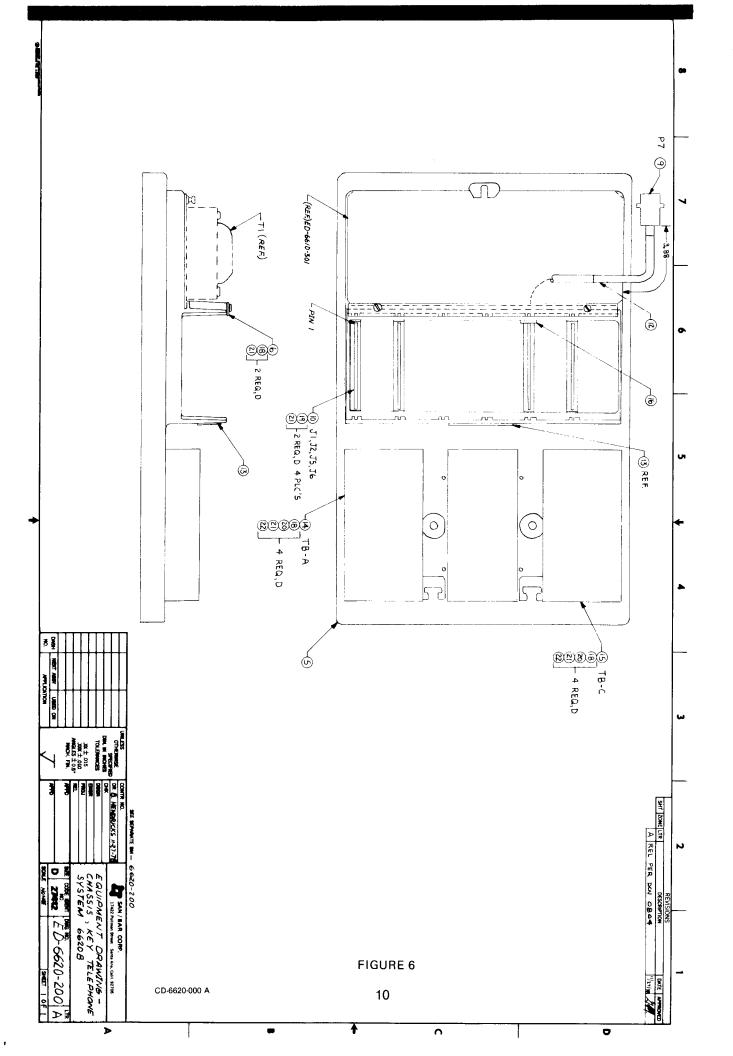


FIGURE 3A



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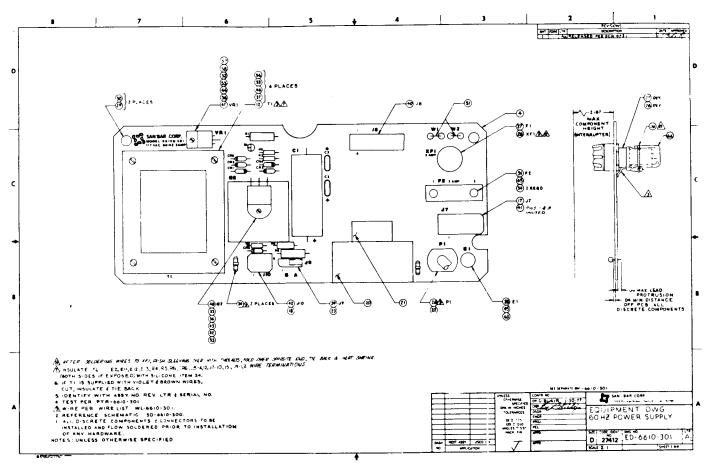


Figure 7

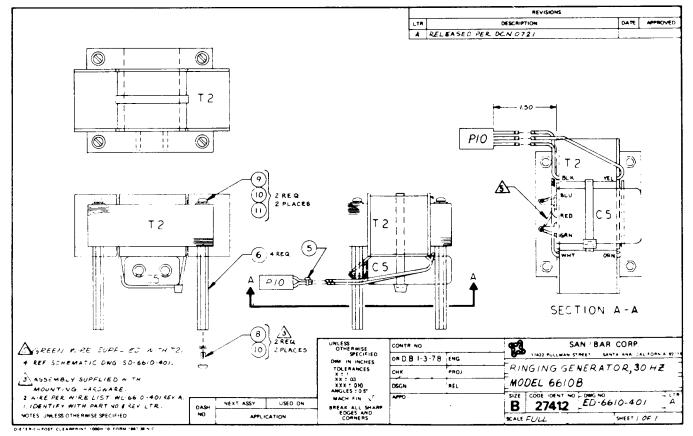
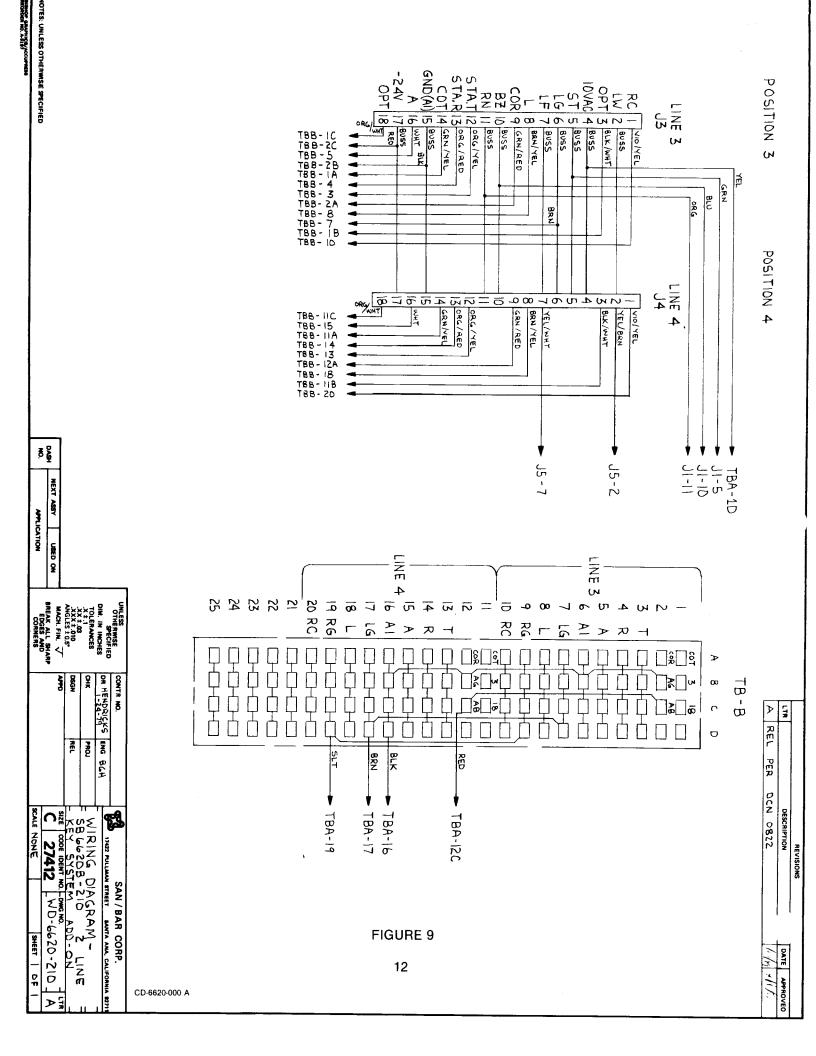
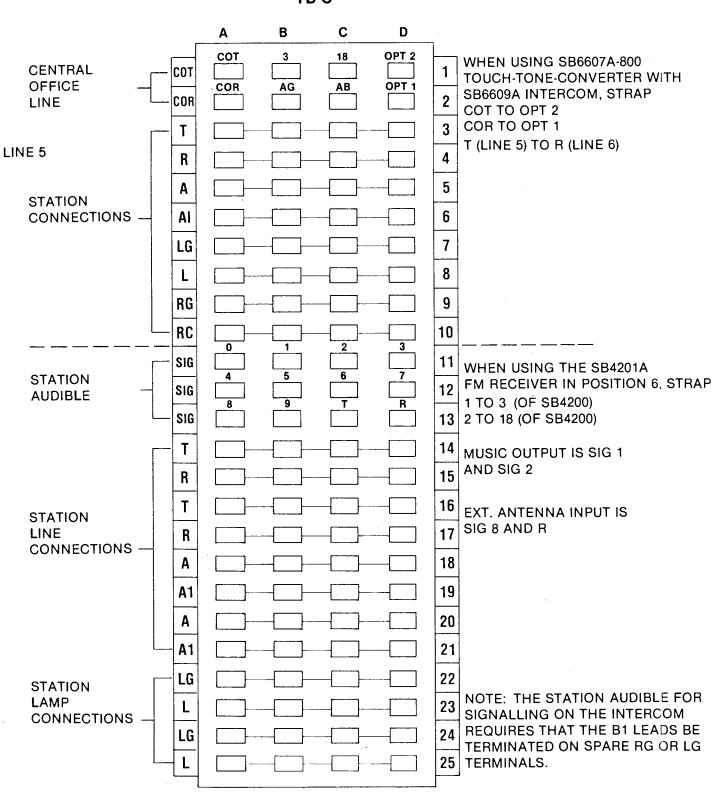


Figure 8





FEATURE BLOCK CONNECTIONS FIGURE 3B

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TB-C