

SB6607A INTERCOM UNIT

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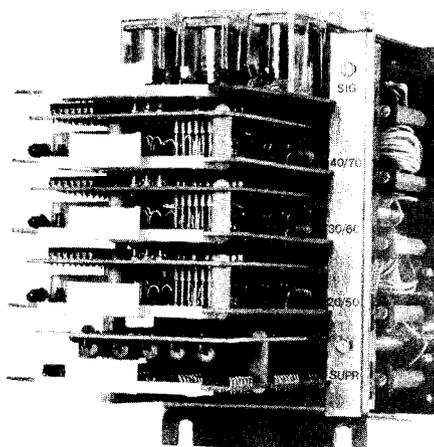


FIGURE 1
 SB6607-006 24 STATION DIAL INTERCOM SYSTEM

1.0 GENERAL

1.1 MODEL 6607A DIAL INTERCOM SYSTEM

The SB6607A Dial Intercom Unit (Fig. 1) provides for intercommunication between stations of a Key Telephone System. The unit was designed to be used with most commercially available Key Systems and consists of a set of circuit cards and pre-wired assembly designed for rapid installation in Key Telephone Systems.

1.2 The unit features dial selective signaling for up to 48 stations and provides intercommunications on a multiple link basis. The unit consists of one SB6607-100 Call Supervision Module, one SB6607-300 Signaling Module and one SB6607-200 Station Module for each eight stations in the intercom network. Each Station Module provides a complete intercom link to the stations associated with the module. Up to six Station Modules may be used to provide a maximum of six independent intercom links and 48 stations.

1.3 The unit provides single button access to the intercom links and features lamp supervision, dial tone, busy tone and ringback tone functions. The unit also features interrupted audible signaling at the called station.

1.4 The unit will permit access to paging equipment with the addition of the optional SB6607A-400 Paging Coupler. The addition of the optional SB6607-800 Touch Tone Decode Module will allow the Dial Intercom Unit to be used in a Touch

Tone Network. The addition of the Touch Tone Module allows random intermixing of rotary and Touch Tone station equipment.

2.0 SPECIFICATIONS

2.1 APPLICABLE DOCUMENTS

2.1.1 Assembly Drawings:

Top Assembly-System	ED-6607-0XX
Call Supervision Module	ED-6607-100
8 Station Module	ED-6607-200
Signaling Module	ED-6607-300
Wired Cage Assembly	ED-6607-500

2.1.2 Bills of Material:

Top Assembly-System	BM-6607-0XX
Call Supervision Module	BM-6607-100
8 Station Module	BM-6607-200
Signaling Module	BM-6607-300
Wired Cage Assembly	BM-6607-500

2.1.3 Printed Circuit Cards:

Call Supervision Module	PC-6607-100/101
8 Station Module	PC-6607-200/201
Signaling Module	PC-6607-300

2.1.4 Schematic Diagram:

Intercom System	SD-6607-000
Call Supervision Module	SD-6607-100
8 Station Module	SD-6607-200
Signaling Module	SD-6607-300

2.1.5 Optional Modules:

Paging Adaptor	PC-6607-400
Touch-Tone Decode Module	PC-6607-800

2.2 WORKING LIMITS

The maximum station conductor loop resistance should be limited to 50 ohms, to assure positive ring trip by the called station.

2.3 ELECTRICAL CHARACTERISTICS

- a. Number of stations:
Provides intercom facilities for up to 48 stations. Expandable in modular increments of 8 stations.
- b. Input Power:
24VDC A Battery (Talk)
24VDC B Battery (Signal)
10VAC (Lamps)
18VAC (Buzzers) or
105VAC, 30Hz (Ringers)
- c. Contact Ratings:
(Relay contacts perform the interruption and switching of lamp and ringer voltages.)
Ratings per 8 Station Module:
Ringer: 2 amps at 105VAC
Buzzer: 2 amps at 18VAC
Lamps: 2 amps at 10VAC
- d. Operating Environment:
0°C to 50°C, Humidity to 90%

2.4 PHYSICAL CHARACTERISTICS

a. Card Cage Assembly:

The intercom system, due to its expandable, modular design, can consist of up to 2 pre-wired card cages (7" rack type) and 10 circuit card modules depending on the number of stations and options desired. (See ordering information, Table I, for available configurations.)

A typical system configuration of 24 stations or less consists of a pre-wired card cage that utilizes a maximum of 5 circuit card modules and is 7" L x 4 1/4" W x 5 1/4" D and requires 3" of clearance behind rack.

A typical system configuration of more than 24 stations consists of 2 pre-wired card cages and max. of 10 circuit card modules and is 7" L x 10" W x 5 1/4" D and requires 3" of clearance behind rack.

Each card cage is fully wired. Power terminals and station hook-up terminals are rear mounted for in-out connections.

b. Circuit Card Modules:

The functional modules are 3 1/2" x 5" plug-in circuit cards with dual sided 20 pin card edge tab connectors.

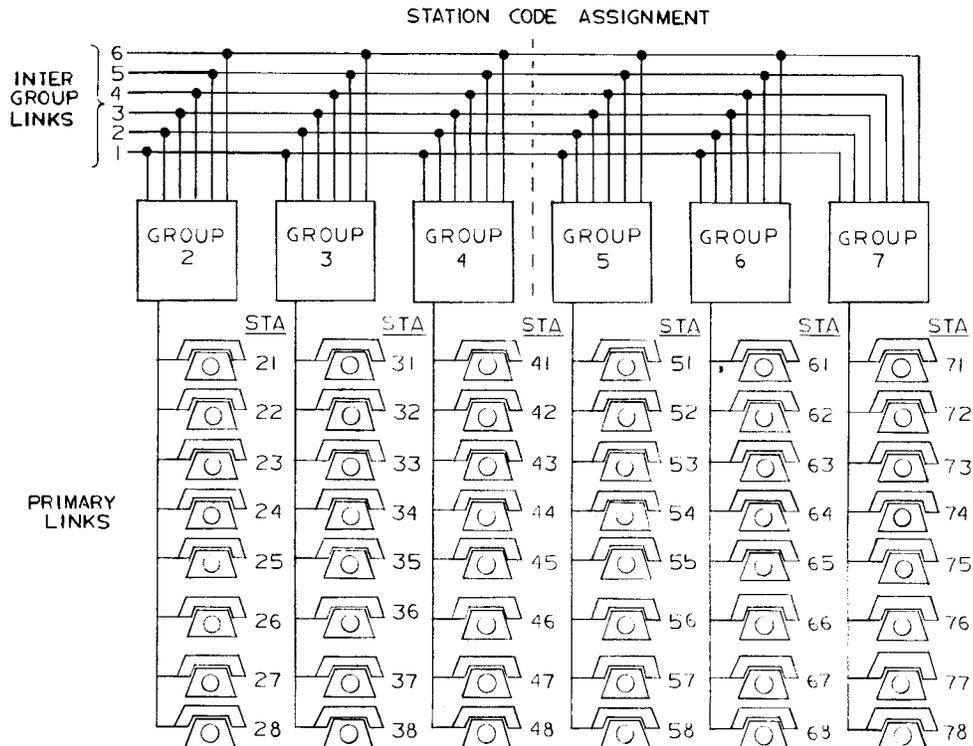


FIGURE 2

2.5 FEATURES

a. Expandable Network Configuration:

The SB6607A Dial Intercom Unit provides dial selective signaling for up to 48 stations. From one to eight stations may be assigned as a group to a station module. Up to six station modules may be used in the intercom network for the maximum configuration.

An intercom station module forms the basic group of the network and provides the primary talking path (link) to those stations assigned to the group. It is recommended that the station groupings be made on the basis of user defined centers of common interest in order to optimize link availability.

b. Station Selection:

A two-digit station code is used to designate each station within the intercom network. Figure 2 shows the assignment of the station codes by station module groups. The group designator (tens digit) excludes the digits 1,8,9, and 0 because of their frequent use in related Key System and PBX dial selective applications. The station designator (units digit) is limited to the digits 1 thru 8 since the maximum number of stations for any one group is eight.

e. Access Busy:

The pick-up button light will be lit to

indicate busy status and will be out to indicate the idle condition.

f. Access Timeout:

A period of six seconds (10 sec's by strap option) is allowed to complete a dial selection sequence. If dialing is not initiated or completed within the specified period, control will be passed to other groups demanding service and will be returned when the cycle is complete.

g. Dial Tone:

A dial tone is returned to the caller when the accessed link can accept dialing.

h. Station Busy Tone:

A busy tone will be returned to the caller when a selected group is busy.

i. Signaling:

The intercom unit provides a signal at the desired called station to operate audible ringers or buzzers over a separate signaling conductor pair. The signal will be applied for 2 seconds nominally and repeated every 6 seconds until the called party answers, the calling party hangs-up, or the prescribed time-out period has expired.

j. Unanswered Call Termination:

If a call is not answered within 18 seconds (36 seconds by strap option) the call connection will be taken down and the dial tone will be returned to the caller.

k. Ringback Tone:

An interrupted ringing tone will be re-

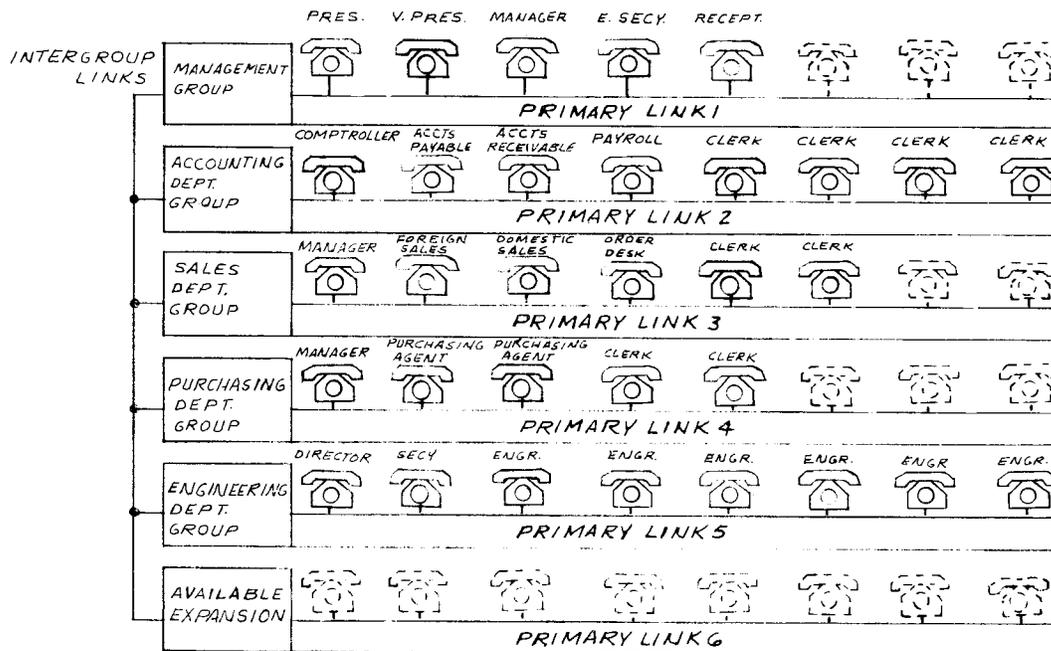


FIGURE 3

turned to the caller to indicate that ringing is occurring at the selected station.

i. Lamp Supervision:

The intercom provides illumination of station lamps under the dedicated pick-up button, to indicate busy status.

The intercom provides flashing of station lamps at 1/2 second intervals in the called station group to indicate that the accompanying audible signal is for an incoming call on the intercom link.

m. Touch Tone Dialing Options:

Touch tone dialing is accommodated by the addition of the SB6607-800 Touch tone Decode module. With the addition of the Touch Tone option, both rotary and DTMF signals are detected by the intercom, thus allowing a random inter-mixing of touch-tone and rotary dial station equipment at the users option.

n. Paging Option:

The intercom provides a means of paging over user owned public address equipment.

The SB6607-400 Paging Coupler module provides the necessary selection and control of external equipment to permit a public address announcement from any station in the intercom network.

The paging coupler is assigned to a specific station code at the time of installation. An announcement is initiated by dialing that two digit station code. The connection to the paging equipment is completed at the conclusion of the first ring. Background music is switched out while paging coupler is being accessed. The operation of the paging equipment is restored to normal when the initiating party hangs up.

c. Multiple Link System:

A station module provides a constant 60 milliamps talking battery to the stations assigned by group to the module. By means of the parallel connection of the station conductors to the talk battery, a primary talking link is established between stations in the group. This primary talking link operates completely independent of the other groups, allowing simultaneous conversations to take place within each of the primary groups. Six connecting paths are available for intergroup calls and are connected when a station outside the immediate calling group is dialed. Talking battery is

supplied to the intergroup link and access to a link is made by the calling station module when the tens digit is dialed. The two primary talking links are then connected as a single extended primary link. Other conversations may occur simultaneously on the unaffected primary and/or intergroup links.

Various station and network configurations are possible by virtue of the modular expansion capabilities of the unit. Semi privacy may be obtained by the judicious assignment of selected stations to dedicated groups. Figure 3 shows a typical installation where VIP and center of interest groupings are used.

d. Access:

Access to the intercom is by means of a single dedicated, lighted pick-up button on each station sub-set.

2.6 CIRCUIT DESCRIPTION

2.6.1 Operation

If the intercom button at the calling station is lit prior to access, a call is in process by other stations in the group and the intercom should not be accessed.

A call on the intercom is originated at the calling station by depressing the intercom button and lifting the telephone handset. The intercom lamps at all stations associated with the calling group will light steadily after the calling party goes off-hook.

When the dial tone is obtained, the desired station is selected by dialing the designated two digit number. At the completion of dialing, the audible ringer at the called station will ring and the lamps in the called group will flash indicating to the called station that the call is to be answered. The ringing and lamp flashing will be terminated when the called party answers, the calling party hangs up, or the call goes unanswered for 18 seconds. (36 seconds by strap option.)

An incoming call at the called station is answered by depressing the (flashing) intercom button and lifting the handset. When the called station answers, the group busy lamps will remain lit steadily for the duration of the call.

A call will be terminated when the calling party goes on hook. The called party cannot terminate a call as long as the calling party remains off-hook. The called party must go on hook to return it's group to idle after the calling party has terminated the call.

Dialed digits are not registered by the system until the dial tone is returned to the

calling station and therefore handset fumbling will not normally cause unintentional dialing. The digit 1, 8, 9 and 0 are not used as group select codes (tens digit) and will cause the busy tone to be returned to the caller when dialed as the group select digit position.

The digits 9 and 0 are not used in station selection (units digit) and will result in incorrect station selection when dialed in the station select digit position.

All unassigned group codes (tens digits) will cause the busy tone to be returned to the calling party when dialed.

All unassigned station codes (units digits) will cause the ringback tone to be returned to the calling party when dialed. The ringing signal will be applied to a non-existent station and will be terminated with calling party hang-up or until the ringing time-out expires.

2.6.2 Detailed Description

a. Link Seizure:

When a station having access to the intercom circuit accesses the link by engaging the pick-up key and going off-hook, the flow of current in the talking path is detected and caused to set the group busy toggle. The group busy toggle in turn causes the busy lamp at all associated stations to light steadily.

b. Dial Tone:

When the scanning function of the call supervision module arrives at the calling module just accessed, the off-hook state of the module stops the scanning process at the station module. The Call supervision module causes the talking path switching matrix in the calling group to connect to the dial tone source. This connection returns the dial tone to the calling party indicating that the intercom is ready to receive dial information. Normally the dial tone will be obtained within one second after the handset has been taken off-hook. However, if another station has seized the call supervision module, the dial tone will not be obtained until that station completes its function or is timed-out. The wait will not exceed 6 seconds even if another station is contending for service.

The dial tone remains connected until dialing occurs or until the six second time-out releases control of the call supervision module. If no other stations require service, the dial tone will be restored to the calling party within one second.

If other stations require supervision, the call supervision module will be seized for each service request and the dial tone will not be restored to the calling party until one complete service cycle has occurred.

Absolute worst case wait for dial tone would occur when all five other modules require service and each takes six seconds. This time could approach 30 seconds but is a highly unlikely situation. Delays of six seconds are more likely, yet are expected to occur infrequently.

The access time out feature prevents a chronic off-hook or accidental off-hook situation from tying up the intercom by seizing the call supervision function and holding it indefinitely.

c. Dialing:

Stations are selected by dialing the two-digit number code associated with the desired station. The dial pulses are decoded by the call supervision module and the first digit (tens transfer digit) is registered in the station module associated with the calling station. The tens transfer digit causes the talking path switch to connect to the desired station module. Prior to connecting the talking path, the call supervision module performs a test of the selected group to determine if that group is busy. If the selected group is busy, the call supervision module reconnects the dial tone source and enables an interruption of the dial tone oscillator to return a busy signal to the calling party. The busy signal is the dial tone signal interrupted at a 1/2Hz rate.

If the called group is not busy, the talking path connection is completed to the called group. The called station module is set busy and is primed to accept the units digit. When the second digit is dialed, the digit is then registered in the called station module.

The time-out function is restarted when the tens digit is received and is allowed to run to expiration between digits. The time-out period is the same six seconds as for link access. If the time-out expires before the units digit is registered, the station modules involved will be restored to idle and the dial tone returned to the caller.

The desired number will have to be re-dialed if time-out occurs before the units digit is registered. Dialing can commence when the dial tone is returned without requiring the caller to hang-up.

The units digit, registered in the called station module causes the ringer switch matrix to connect to the signaling lead for the desired station. The ringing signal is applied through the matrix to the desired station for two seconds and is repeated every six seconds until the called party answers.

The lamps at all stations connected to the called station module are set flashing at a 1/2 Hz rate during the ringing period to draw attention to the incoming call during the silent period of the audible ringer.

A ring tone is returned to the calling party by the called module when the connection is made and is removed when the called station answers.

After the talking path connection has been established and ringer signaling has been initiated to the selected station, the call supervision module is released to continue scanning the other station modules.

A ringer time out function is provided to terminate an unanswered call after a specified lapse of time. If a call is not answered within 18 sec. (36 seconds by option) of initiation, the station modules involved will be restored to the idle state and the dial tone will be returned to the caller.

When the called station answers the ring-back tone is removed, the station lamps are lit steady and the ringing signal is removed. The involved station modules are maintained on the established link until the call is terminated. The station lamps project the busy status to other potential users in the associated groups. The busy condition of the station modules prevents access into the conversation by outside groups.

d. Call Termination:

Upon completion of a conversation, a call is terminated when the stations are on-hook. The on-hook condition summons the call supervision module which removes the link connection and restores the idle circuit state to the station module.

When calls are made between stations in the same group, the calling station and called station are maintained by the same module, therefore call termination does not occur until both stations are on-hook.

When calls are made between stations in different groups, the two stations are

maintained by different modules and the termination is initiated when the calling station goes on-hook. The called station cannot initiate termination of a call. The called station therefore is free to go on-hook and off-hook at random after a call is established, without affecting the connection.

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 INSTALLATION

4.1 CONFIGURATION OPTIONS

Six standard intercom configurations are available to the user and are identified in Table 1, "Ordering Information". These standard configurations supply the necessary components to install a system whose station count is equal to, or less than the indicated station capacity. Station capacity, for expansion purposes is in 8 station increments. One SB6607-500 Intercom assembly has a 24 station capacity. Two SB6607-500 assemblies are required for 25 or more stations. This rule applies only if eight stations are assigned to each module. Such assignment may not be feasible due to the users requirements. The system capacity can be redefined under these conditions by assigning one SB6607-200 Station Module to each user defined "center of common interest" grouping of eight or fewer stations (see figure 3).

TABLE 1 - THESE PRIME ORDER NUMBERS CONTAIN THE FOLLOWING QUANTITIES OF THE REQUIRED MODULES

ORDERING INFORMATION SB6607 INTERCOM UNITS	SB6607-001 8 STATION INTERCOM UNIT (Expansion to 24 Stations - 3 Link 5x1)	SB6607-002 16 STATION INTERCOM UNIT (Expansion to 24 Stations - 3 Link 5x1)	SB6607-003 24 STATION INTERCOM UNIT (Expansion to 24 Stations - 3 Link 5x1)	SB6607-004 32 STATION INTERCOM UNIT (Expansion to 32 Stations - 4 Link 5x1)	SB6607-005 40 STATION INTERCOM UNIT (Expansion to 40 Stations - 4 Link 5x1)	SB6607-006 48 STATION INTERCOM UNIT (Expansion to 48 Stations - 4 Link 5x1)	SB6607-007 56 STATION INTERCOM UNIT (Expansion to 56 Stations - 4 Link 5x1)	SB6607-008 64 STATION INTERCOM UNIT (Expansion to 64 Stations - 4 Link 5x1)
SB6607-500 INTERCOM ASSEMBLY (wired, unequipped)	ONE REQUIRED	ONE REQUIRED	ONE REQUIRED	TWO REQUIRED				
SB6607-100 CALL SUPERVISION MODULE	ONE REQUIRED	ONE REQUIRED	ONE REQUIRED	ONE REQUIRED	ONE REQUIRED	ONE REQUIRED	ONE REQUIRED	ONE REQUIRED
SB6607-200 STATION MODULE	ONE REQUIRED	TWO REQUIRED	THREE REQUIRED	FOUR REQUIRED	FIVE REQUIRED	SIX REQUIRED	SIX REQUIRED	SIX REQUIRED
SB6607-300 24 STATION SIGNALING MODULE	ONE REQUIRED	ONE REQUIRED	ONE REQUIRED	TWO REQUIRED				
SB6607-510 CONFIGURATION PLUG	ONE REQUIRED	ONE REQUIRED	ONE REQUIRED					
SB6607-520 CONFIGURATION CABLE				ONE REQUIRED				

NOTE: FOR EXPANSION, ADD ONE SB6607-200 STATION MODULE FOR EACH 8 STATIONS REQUIRED.

The SB6607-400 Paging Coupler plugs into any standard key telephone line card slot that is wired for music-on-hold. Connection to the SB6607A-200 Station Module (strapped for paging) and the public address systems are made through the feature blocks as described in the 6607A-400 Installation instructions.

4.2 MOUNTING THE SB6607A

The SB6607-500 Assembly is designed for mounting in a standard 7" KTU rack or separately on a wall panel surface.

4.2.1 K.T.U. Mounting

- The SB6607-500 Assembly has four mounting slots at 6-1/2" x 2-5/8" centers for mounting in a standard KTU rack. Four 12-24 screws are furnished with each SB6607-500 Assembly for mounting to KTU racks. One SB6607-500 requires approximately 4 1/4" of rack space and will accommodate up to 24 stations. Systems with more than 24 stations will require two SB6607-500 assemblies which will occupy approximately 10" of rack space.
- Figure 7A shows the position of the mounting brackets for mounting into a KTU rack. The locking bar should be on the left so the components are above the printed circuit board.
- Figure 4 provides information for mounting the SB6607-500 Assembly in the SB6600A K.T.U.

NOTE: Mounting space requirement of a 48 station configuration limits power supply and ringing generator options. Refer to CD6600-000 for definition of power supplies and options available.

4.2.2. Wall Panel Mounting

Mounting hardware is available to mount the SB6607-500 on any suitable wall panel surface. For large Key Telephone Systems with a full configuration of C.O. lines and stations, a separate wall mount can simplify installation, if space is not available in the KSU.

Figure 7B shows the position of the mounting brackets for wall mounting the card cage. The best mounting position is with the hinge on the left side and the locking bar on the top.

4.4 CONNECTIONS

4.4.1 Power Connections

- External power should be connected with at least 20 gauge wire for lengths less than 10 feet. Refer to Figure 5 for a description of the backpanel terminals.
- "A" battery ground and "B" battery ground must be common and therefore are bussed together internally. Pairs of SB6607-500 assemblies should have the battery terminals bussed together. The other terminals may be individually connected to their supplies or bussed together.
- "A" battery and "B" battery fuses may be replaced with 2 amp fuses when exact replacements are not readily available.
- Each group has separate ringing supply terminals and may have entirely different ringing supply voltages. When a common ringing supply voltage is used, the terminals may be bussed together. Note that if the ringing supply can supply more than 2 amps into a short circuit, it should be fused at 2 amps.

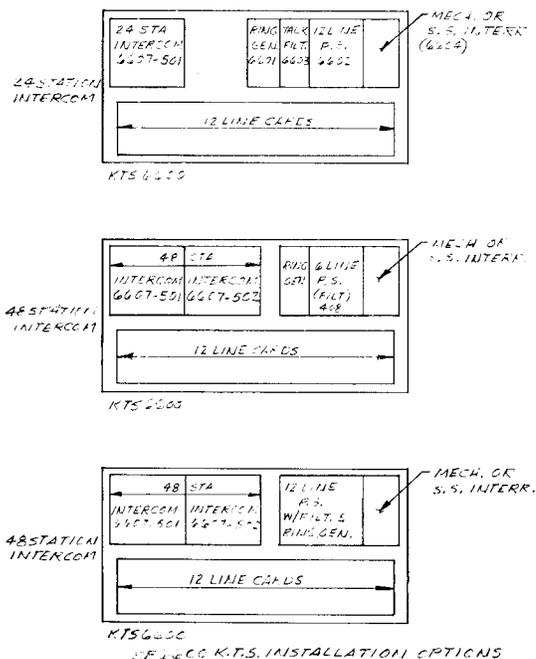
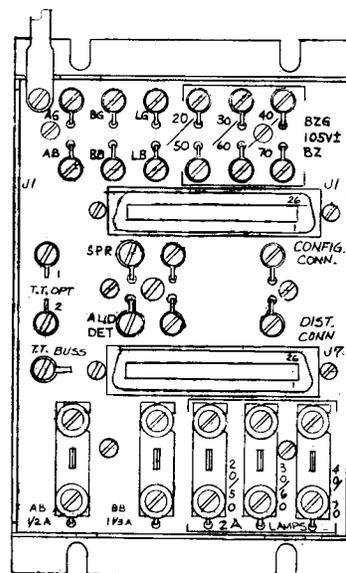


FIGURE 4



SCREW TERMINAL CONNECTIONS
 AB = "A" BATTERY (-24 VDC, LOW RIPPLE)
 AG = "A" BATTERY GROUND
 BB = "B" BATTERY (-24 VDC, HIGH RIPPLE)
 BG = "B" BATTERY GROUND
 LB = LAMP SUPPLY (10VAC, 60 KHZ)
 LG = LAMP SUPPLY RETURN
 BZ = RINGING SUPPLY (105 VAC, 20-30HZ)
 BZG = RINGING SUPPLY RETURN

BACK PANEL WIRING FOR ONE TO THREE LINKS

FIGURE 5

4.4.2 Station Connections

- a. The intercom connects to the 24 stations through the 25 pair distribution connector on the backpanel.

Figure 12 shows a typical installation where a 25 pair cable has been punched into a 66B block for distribution. Some of the cable wires connect to as many as eight stations and so a second 66B block is needed to provide enough pins.

The example in figure 12 also shows typical connections to a 25 pair cable that will in turn connect to line 5 of a standard Key phone. Figure 13 shows the entire distribution cable assignments in the order that they typically appear at the 66 block.

- b. Separate buzzers may be installed at the stations to audibly distinguish incoming calls from intercom calls. This will require use of separate vacant signaling pairs.
- c. If both rotary and Touch Pad Dial telephones are used in an intercom, then 200 ohm, 2 watt resistors must be added in series with the rotary telephones to equalize the TIP-RING currents.

4.4.3 Other Connections

- a. The intercom will not function if the Touch Tone option connections are left open. The option connections on the distribution connector can be easily jumpered at a feature block by connecting the wires from pins 25 and 50 of the distribution connector. The other option connections are on the back panel (TT OPT terminals 1 and 2) and are shipped with the jumper already installed.
- b. A Touch Tone converter can be connected through the distribution connector or through the terminals on the SB6607-500 back panel. Consult the SB6607-800 circuit description for details.

4.4.4 Station Assignment Tips

- a. Use spare Key phone lines to connect to other links. The busy status of the other links will be shown by the lamps, and, the station will be able to call or be called on whichever link is not busy. This would be of special benefit to central stations such as a receptionist station.
- b. Other stations that receive fewer calls, can be connected to more than one link without using up more than one station number, by not connecting the ringing signals from the other links. Such a station will not receive calls on the added links, but will have the other advantages mentioned previously.

4.5 CARD INSERTION

Referring to Figure 6 of this document, position the card cage with the locking bar on the left. Note the extra space above the J6 connector. All cards will insert with the components above their printed circuit board. The Call Supervision Module inserts in the bottom card position designated J2 on the card frame. Card positions J3, J4, and J5 are for the Eight Station Module cards. While these cards may be interchanged with each other, the card positions themselves correspond to specific station groups. The J3 card position corresponds to the 20's group in a one to three link system; the J4 position corresponds to the 30's group; and the J5 position corresponds to the 40's group. In a four to six link system, the J3, J4 and J5 positions in the second card cage correspond to the 50's, 60's, and 70's group respectively. The top card position is for the Signaling Module. The extra space above the J6 connector is for the relays on this module. The Call Supervision Module installed in the first card cage controls from one to six links. Therefore, in a four to six link intercom system the Call Supervision Module is not installed in the second card cage and the J2 position in the second card cage must remain unused. One Signaling Module is required for each card cage. If no telephone stations are used in a specific group, then the Eight Station Module for that group should be removed. This way the caller attempting to dial into that group will receive a busy signal and no connection will be made.

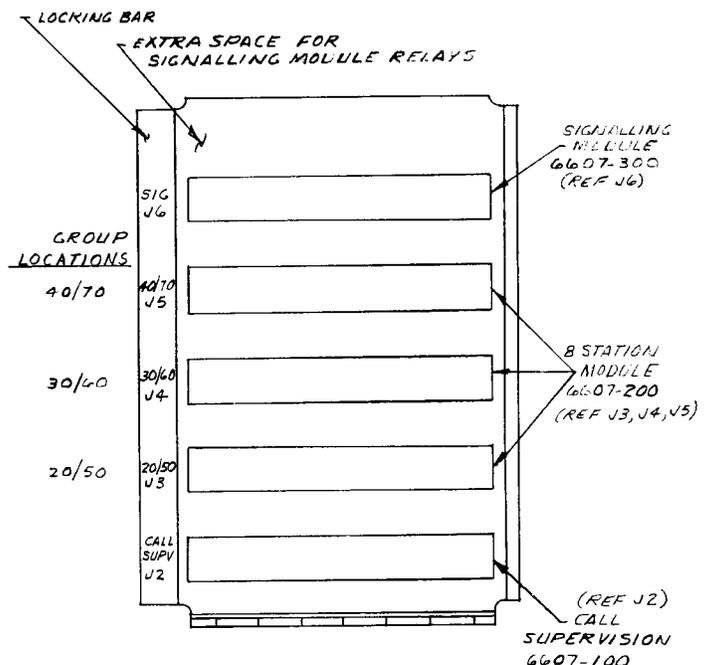


FIGURE 6

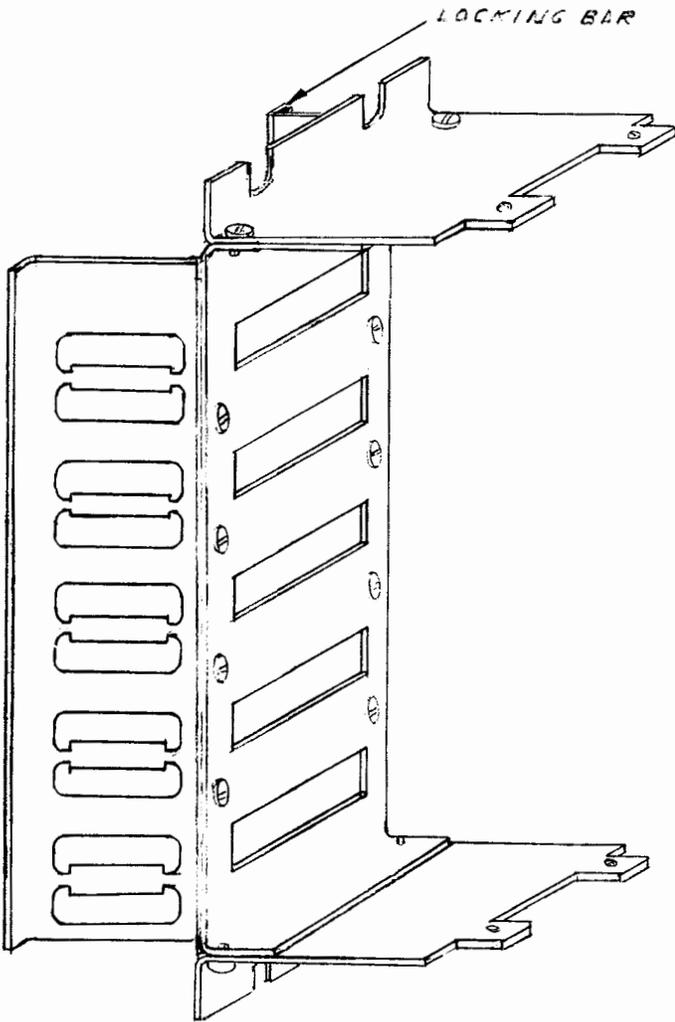


FIGURE 7A

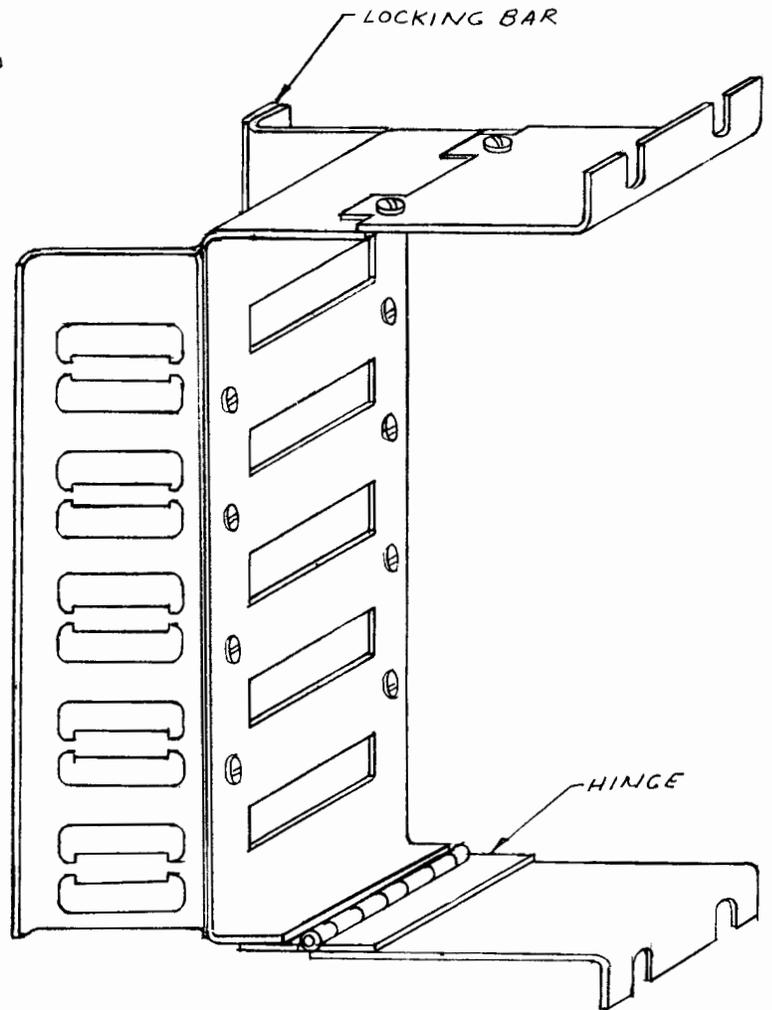


FIGURE 7B

5.0 TESTING

- 5.1 If trouble is encountered during the SB6607A intercom installation, verify that all connections or wiring options have been made properly. The Intercom Unit Assembly contains no electrical components that are normally considered subject to failure. However, possible wire breakage or poor wire terminations may exist. These may be traced using normal continuity checking procedures with a multimeter (Simpson 263 or equivalent).
- 5.2 Field repairs involving replacement of electrical components on plug-in modules are not recommended. Field repair should occur at the replaceable module level only. All Intercom modules are warranted individually and may be returned for repair separ-

ately. Refer to the individual unit's circuit description for warranty details. The basic SB6607A Intercom is warranted for one year from the date of purchase. Return to SAN/BAR Corporation, 17422 Pullman Street, Santa Ana, California 92711. For technical assistance call (714) 546-6500.

5.3 Unit Verification:

When installation is complete, the following tests conducted at a convenient station will verify correct operation.

1. Press the dedicated intercom pick-up button and lift the handset off-hook. The lamp under the pick-up button should light and the dial tone should be heard in the ear piece within one second of the initial access. Dial tone will be delayed if another station simultaneously accesses the intercom or a station is acci-

dentally off-hook. Under these conditions the dial tone will be obtained within 6 seconds from the time of initial access.

2. With dial tone received, hold the line without dialing for 6 seconds. The dial tone should be removed at the end of the 6 second time out period (12 seconds by option). This action permits all other stations desiring access to the intercom at that time to be serviced. Dial tone will be returned to the test station when the scan cycle is complete.
3. With dial tone received, dial a two digit station number. If the selected station is not busy, a connection will be made to the group module selected and a signal will be applied to the audible ringer (buzzer) at the called station. The intercom lamps at all of the stations associated with the called group should flash. When the called party answers, the ringer signal will be removed and all lamps in the called group should lite steadily.
4. Hang up the test station handset, the connection should be taken down. If the called party remains off-hook, that

module will remain in the busy state until hang-up occurs.

5. Allow a dialed station to ring unanswered. The called module should time-out within 24 seconds and break down the connections. The dial tone should be returned to the calling station.

6.0 ORDERING INFORMATION

The ordering information table provides a simplified way to specify the SAN/BAR SB6607A Intercom. The basic system number, SB6607A, is followed by three digits to indicate the configuration desired. Simply append the appropriate digits to the system number to order the desired configuration.

6.1 OPTIONS

Optional modules are ordered as separate items to the prime order number as required to complete the desired configuration. The application table provides information describing limitations of use and ordering information for the optional modules.

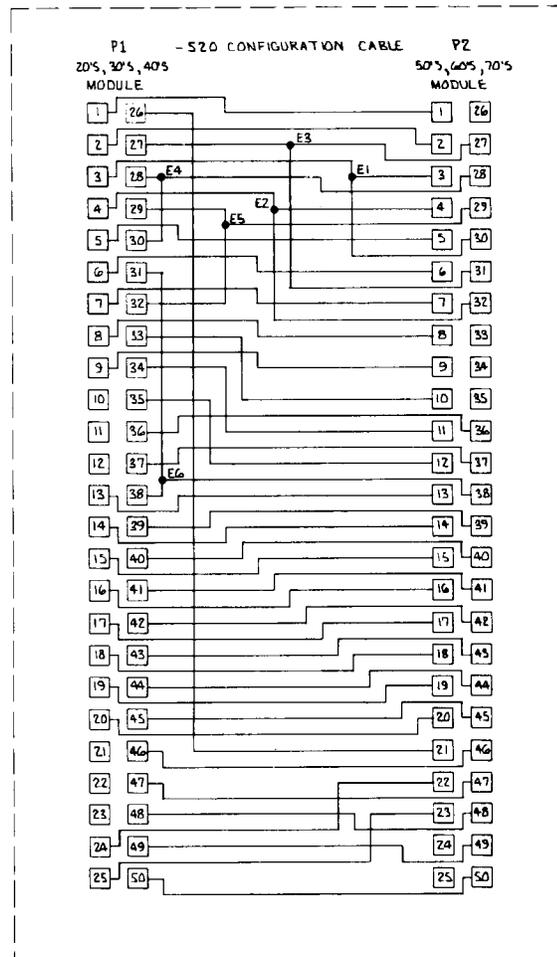
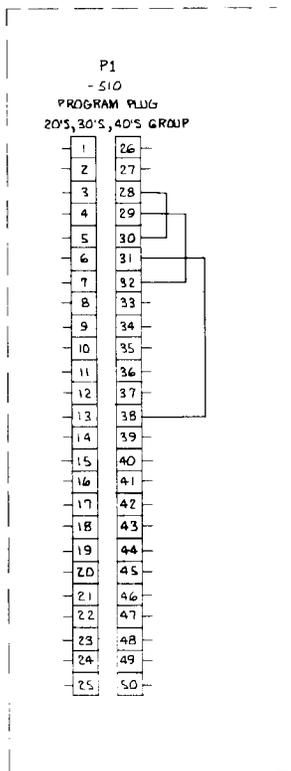


FIGURE 8

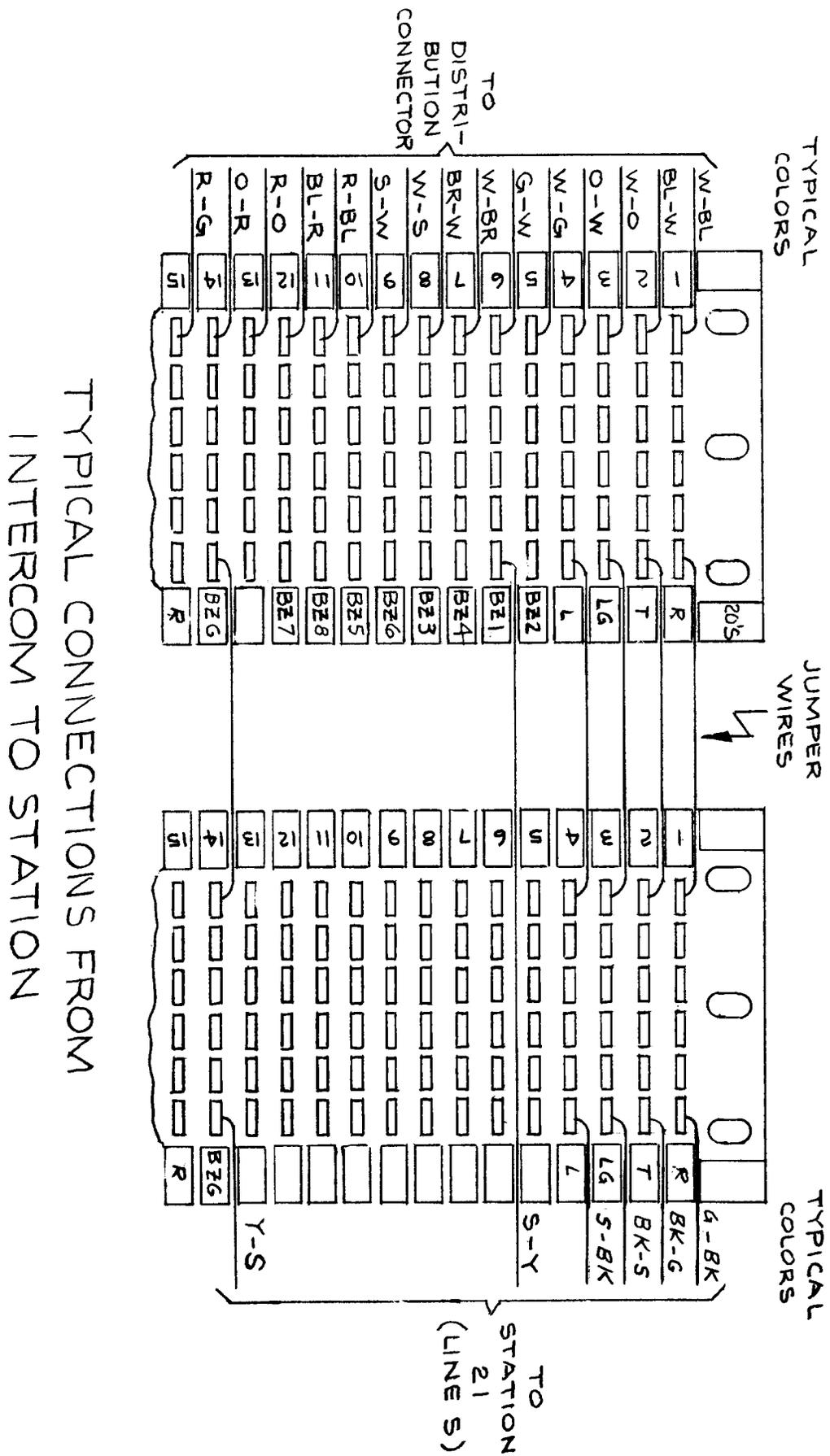
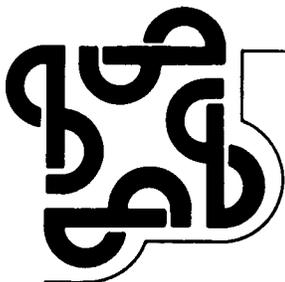


FIGURE 10



SAN/BAR CORPORATION

INSTALLATION INSTRUCTIONS **"CAUTION"**
for the SB6607 INTERCOM SYSTEM
Revision C

**VOLTAGE LEVELS AND REGULATION ARE
CRITICAL TO SYSTEM OPERATION. CHECK
CAREFULLY BEFORE CONNECTING POWER**

1. CARD INSERTION:

- a. Referring to Figure 1 of this document, position the card cage with the locking bar on the left. (Note the extra space above the J6 connector.) All cards will insert with the components above their printed board. The Call Supervision Module inserts in the bottom card position designated J2. Card positions J3, J4, and J5 are for the Eight Station Module cards. While these cards may be interchanged with each other, the card positions themselves correspond to specific station groups. The J3 card position corresponds to the 20's group in a one to three link system; the J4 position corresponds to the 30's group; and the J5 position corresponds to the 40's group. In a four to six link system, the J3, J4 and J5 positions in the second card cage correspond to the 50's, 60's and 70's group respectively. The J6 position is for the Signaling Module.
- b. The Call Supervision Module installed controls from one to six links. Therefore, in a four to six link intercom system the Call Supervision Module is not installed in the second card cage and the J2 position must remain unused. One Signaling Module is required for each card cage used. If no telephone stations are used in a specific group, then the Eight Station Module for that group should be removed. (This way the caller attempting to dial into that group will receive a busy signal and no connection will be made.)

2. INSTALLATION OF THE CARD CAGE:

- a. Figure 2A shows the position of the mounting brackets for mounting into a seven inch K.T.S. rack. The locking bar should be on the left, so that the components are above the printed circuit board.
- b. Figure 2B shows the position of the mounting brackets for wall mounting the card cage. The best mounting position is with the hinge on the left side and the locking bar on the top.

3. POWER CONNECTIONS

- a. External power should be connected with at least 20 gauge wire for lengths less than 10 feet. Refer to Figure 3 for a description of the backpanel terminals.
- b. "A" battery ground and "B" battery ground must be common and therefore are bussed together internally. Pairs of SB6607-500 assemblies should have the battery terminals bussed together. The other terminals may be individually connected to their supplies or bussed together.
- c. "A" battery and "B" battery fuses may be replaced with 2 amp fuses when exact replacements are not readily available.
- d. Each group has separate ringing terminals and may have entirely different ringing supply voltages. When a common ringing supply voltage is used, the terminals may be bussed together. Note that if the ringing supply can supply more than 2 amps into a short circuit, it should be fused at 2 amps.

4. STATION CONNECTIONS

- a. The intercom connects to the 24 stations through the 25 pair distribution connector on the backpanel. Figure 4 shows a typical installation where a 25 pair cable has been punched onto a 66B block for distribution. Some of the cable wires connect to as many as eight stations and so a second 66B block is needed to provide enough pins. The example in Figure 4 also shows typical connections to a 25 pair cable that will in turn connect to line 5 of a standard Key phone. Figure 5 shows the entire distribution cable assignments in the order that they typically appear at the 66 block.
- b. Separate buzzers may be installed at the stations to audibly distinguish incoming calls from intercom calls. This will require use of separate vacant signaling pairs.
- c. If both rotary and Touch Pad Dial telephones are used in an intercom, then 200 ohm, 2 watt resistors must be added in series with the rotary telephones to equalize the TIP-RING currents.

5. OTHER CONNECTIONS

- a. The intercom will not function if the Touch Tone option connections are left open. The option connections on the distribution connector can be easily jumpered at a feature block by connecting the wires from pins 25 and 50 of the distribution connector. The other option connections are on the backpanel (TT OPT terminals 1 and 2) and are shipped with the jumper already installed.
- b. A Touch Tone converter can be connected through the distribution connector or through the terminals on the SB6607-500 backpanel. Consult the SB6607-800 circuit description for details.

6. STATION ASSIGNMENT TIPS

Use spare Key phone lines to connect to other links. The busy status of the other links will be shown by the lamps, and, the station will be able to call or be called on whichever link is not busy. This would be of special benefit to central stations such as a receptionist station. Other stations that receive fewer calls, can be connected to more than one link without using up more than one station number, by not connecting the ringing signals from the other links. Such a station will not receive calls on the added links, but will have the other advantages mentioned previously.

7. TESTING

- a. If trouble is encountered during SB6607A intercom installation, verify that all connections or wiring options have been made properly. The Intercom Unit Assembly contains no electrical components that are normally considered subject to failure. However possible wire breakage or poor wire terminations may exist. These may be traced using normal continuity checking procedures with a multi-meter (Simpson 263 or equivalent) while referring to figures 6 and 7.
- b. Field repairs involving replacement of electrical components on plug-in modules are not recommended. Field repair should occur at the replacement module level only. All Intercom modules are warranted individually and may be returned for repair separately. Refer to the individual unit's circuit description for warranty details. The basic SB6607A Intercom is warranted for one year from the date of purchase. Return to SAN/BAR Corporation, 17422 Pullman Street, Santa Ana, California 92711. For technical assistance call (714) 546-6500.
- c. Unit Verification:
When Installation is complete, the following tests conducted at a convenient station will verify correct operation.
 1. Press the dedicated intercom pick-up button and lift the handset off hook. The lamp under the pick-up button should light and the dial tone should be heard in the ear piece within one second of the initial access. Dial tone will be delayed if

another station simultaneously accesses the intercom or a station is accidentally off-hook. Under these conditions the dial tone will be obtained within 8 seconds from the time of initial access.

2. With dial tone received, hold the line without dialing for 6 seconds. The dial tone should be removed at the end of the 6 second time period. This action permits all other stations desiring access to the intercom at that time to be serviced. Dial tone will be returned to the test station when the scan cycle is complete.
3. With dial tone received, dial a two digit station number. If the selected station is not busy, a connection will be made to the group module selected and a signal will be applied to the audible ringer (buzzer) at the called station. The intercom lamps at all of the stations associated with the called group should flash. When the called party answers, the ringer signal will be removed and all lamps in the called group should lite steadily.
4. Hang up the test station handset, the connection should be taken down. If the called party remains off-hook, that module will remain in the busy state until hang-up occurs.
5. Allow a dialed station to ring unanswered. The called module should time-out within 36 seconds and break down the connections. The dial tone should be returned to the calling station.

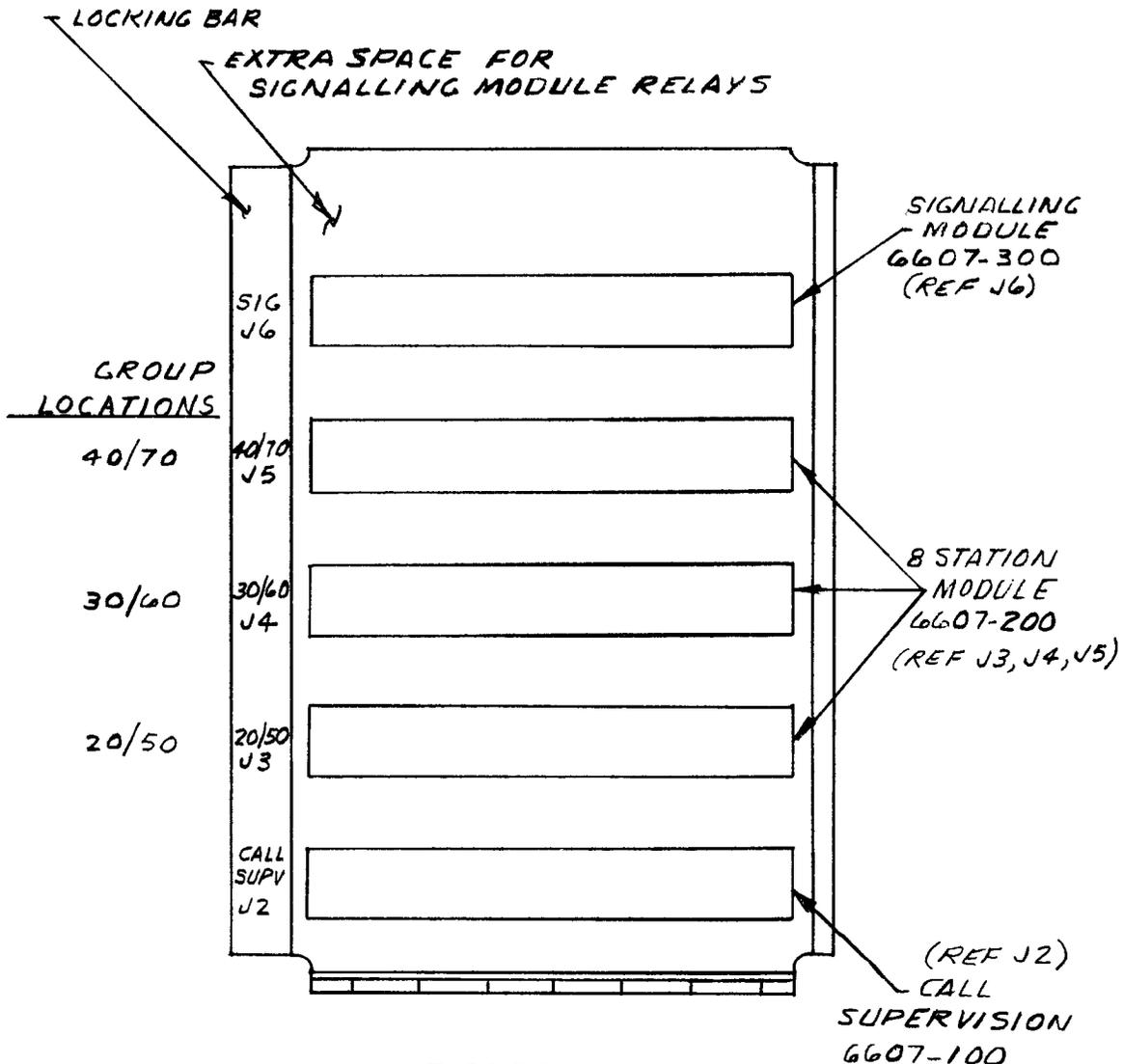


FIGURE 1
CARD POSITIONS

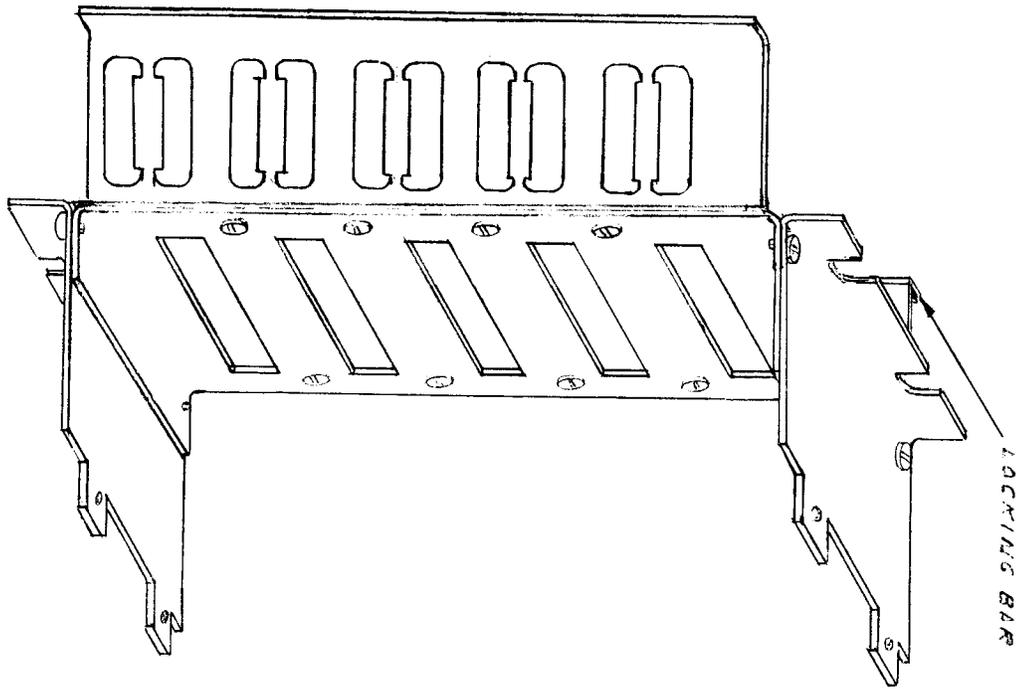


FIGURE 2A
BRACKET POSITION FOR KEY SYSTEM MOUNTING

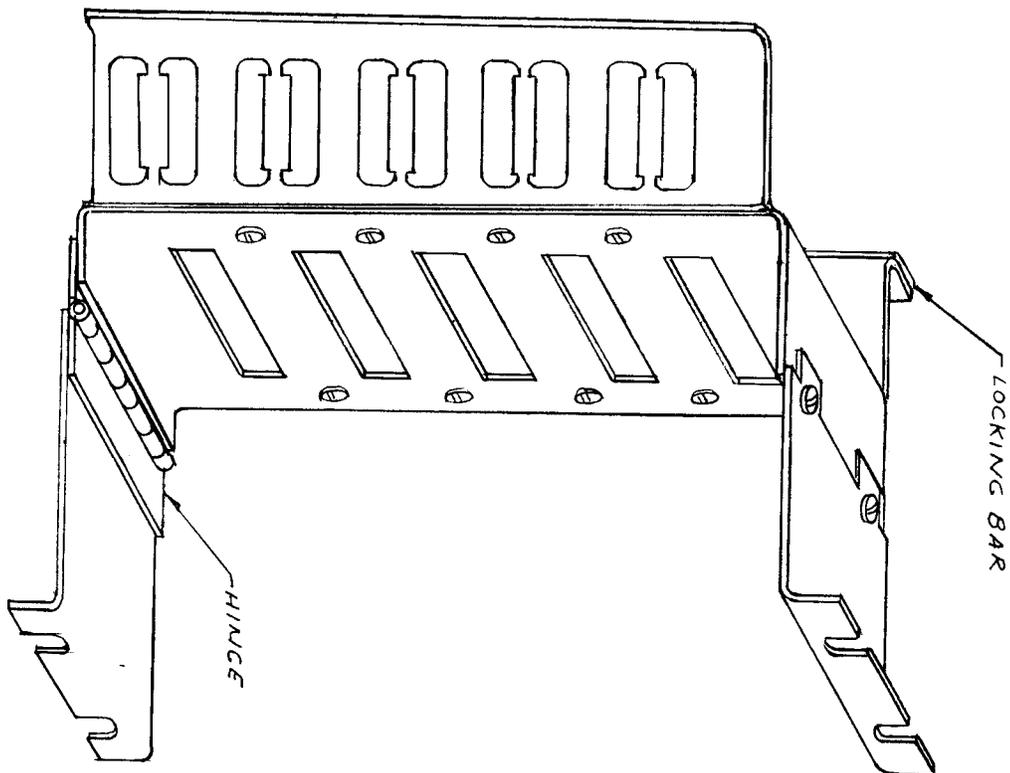
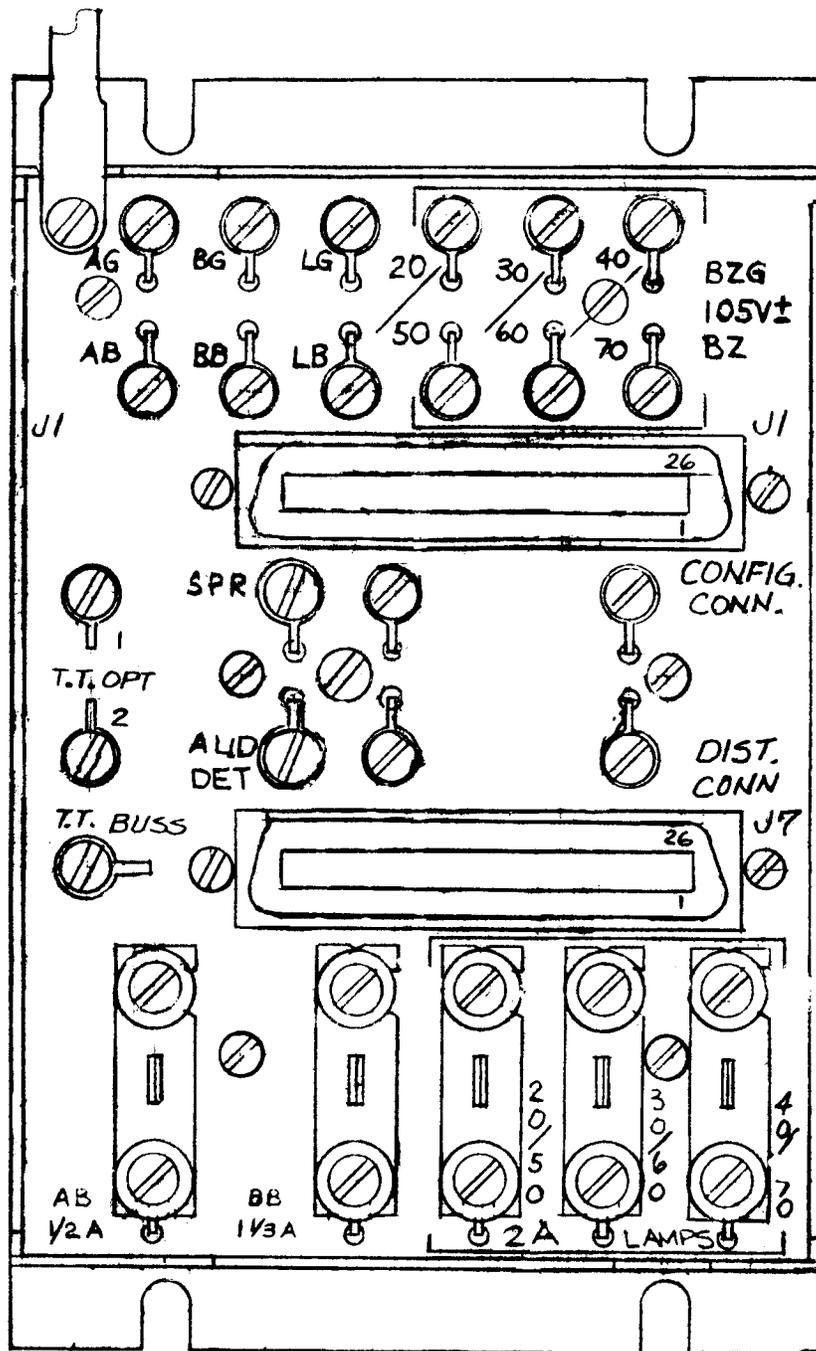


FIGURE 2B
BRACKET POSITION FOR WALL MOUNTING

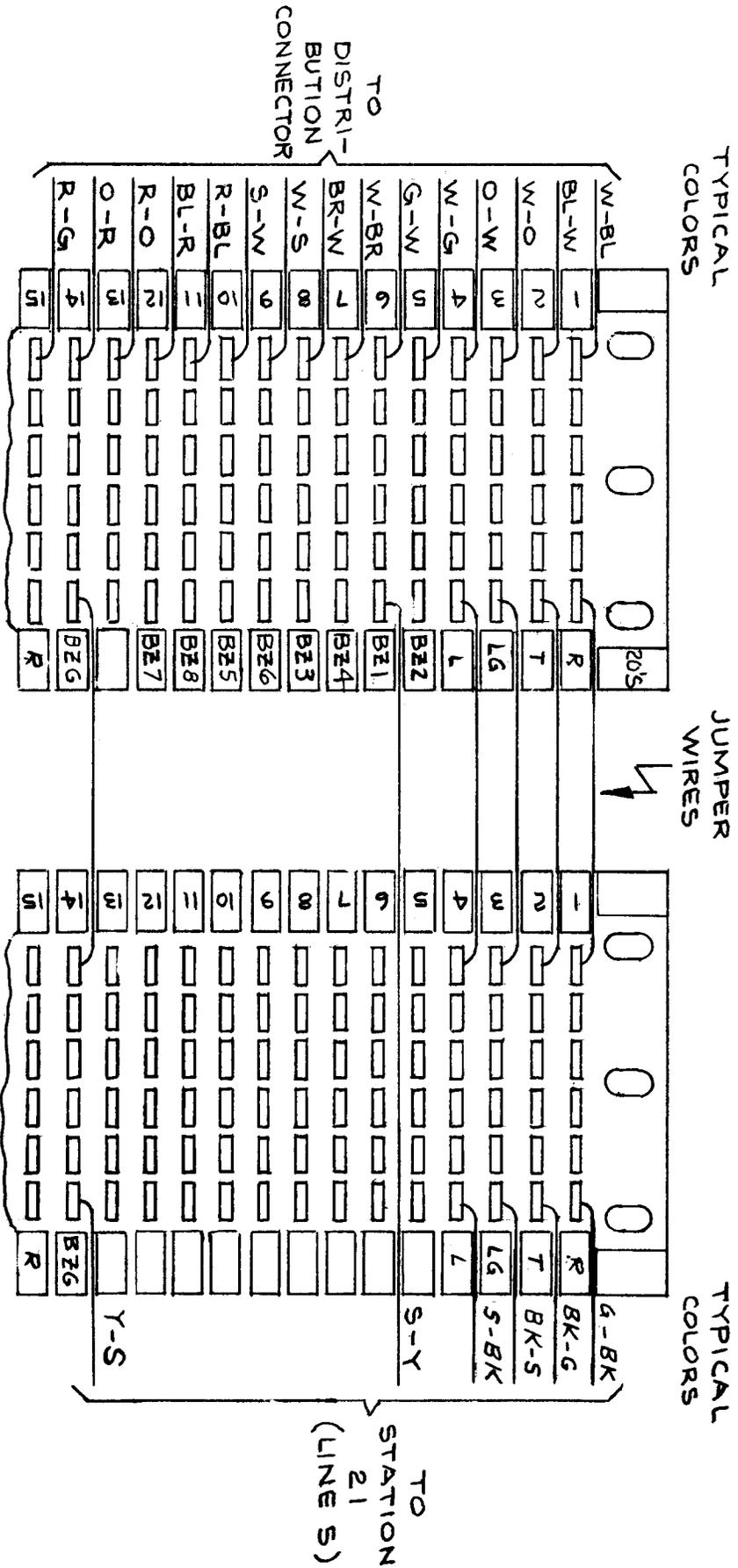


SCREW TERMINAL CONNECTIONS

- AB = "A" BATTERY (-24 VDC, LOW RIPPLE)
- AG = "A" BATTERY GROUND
- BB = "B" BATTERY (-24 VDC, HIGH RIPPLE)
- BG = "B" BATTERY GROUND
- LB = LAMP SUPPLY (10VAC, 60 KHZ)
- LG = LAMP SUPPLY RETURN
- BZ = RINGING SUPPLY (105 VAC, 20-30HZ)
- BZG = RINGING SUPPLY RETURN

FIGURE 3

BACK PANEL WIRING FOR ONE TO THREE LINKS

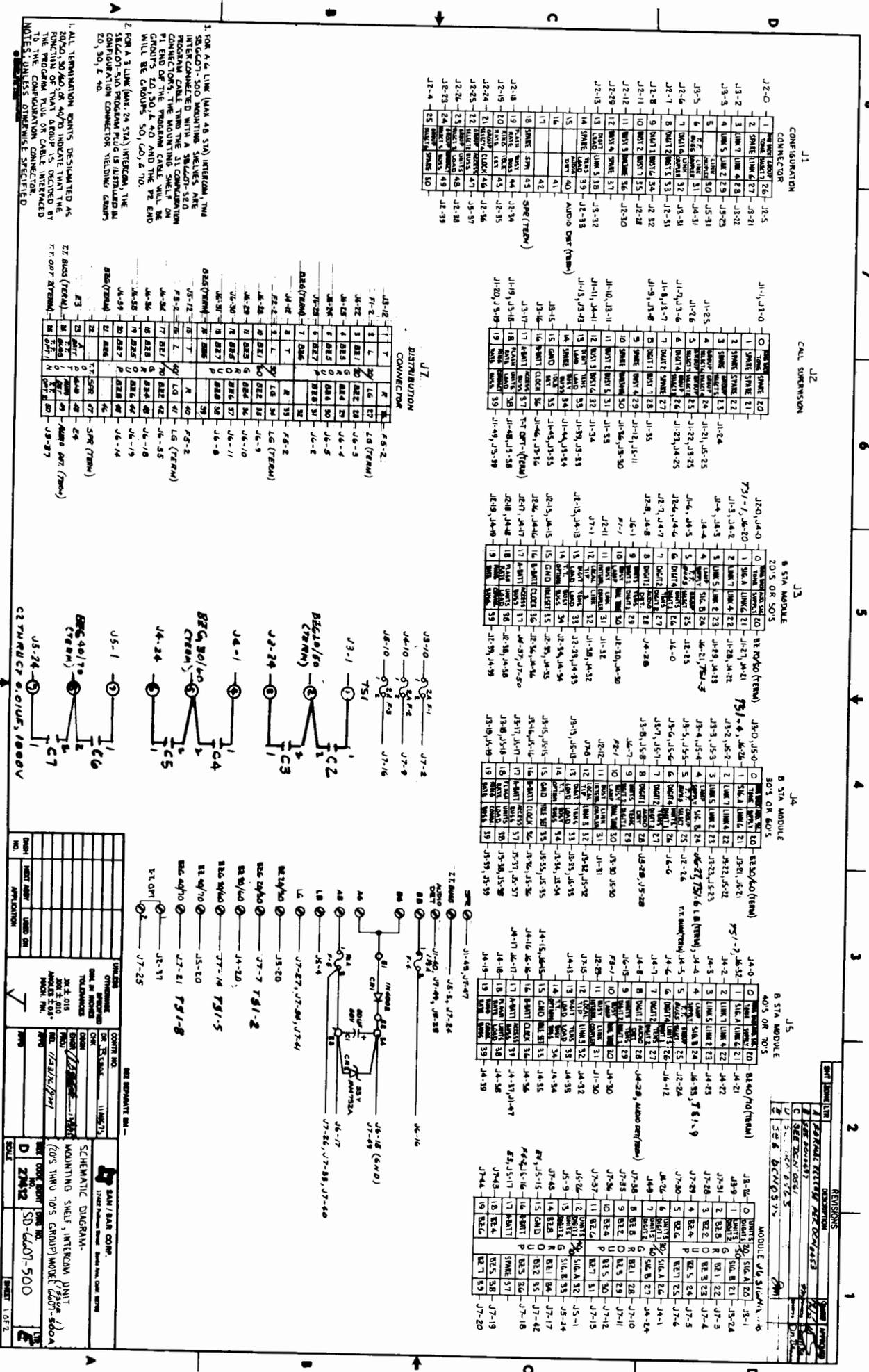


TYPICAL CONNECTIONS FROM INTERCOM TO STATION

FIGURE 4

GROUP	FUNCTION	DIST. CONN. PIN NO.	TYPICAL CONDUCTOR COLOR	TYPICAL 66 BLOCK PIN NO.
20's/50's	R	26	W-BL	1
	T	1	BL-W	2
	LG	27	W-O	3
	L	2	O-W	4
	BZ2	28	W-G	5
	BZ1	3	G-W	6
	BZ4	29	W-BR	7
	BZ3	4	BR-W	8
	BZ6	30	W-S	9
	BZ5	5	S-W	10
	BZ8	31	R-BL	11
	BZ7	6	BL-R	12
		32	R-O	13
	BZG	7	O-R	14
30's/60's	R	33	R-G	15
	T	8	G-R	16
	LG	34	R-BR	17
	L	9	BR-R	18
	BZ2	35	R-S	19
	BZ1	10	S-R	20
	BZ4	36	BK-BL	21
	BZ3	11	BL-BK	22
	BZ6	37	BK-O	23
	BZ5	12	O-BK	24
	BZ8	38	BK-G	25
	BZ7	13	G-BK	26
		39	BK-BR	27
	BZG	14	BR-BK	28
40's/70's	R	40	BK-S	29
	T	15	S-BK	30
	LG	41	Y-BL	31
	L	16	BL-Y	32
	BZ2	42	Y-O	33
	BZ1	17	O-Y	34
	BZ4	43	Y-G	35
	BZ3	18	G-Y	36
	BZ6	44	Y-BR	37
	BZ5	19	BR-Y	38
	BZ8	45	Y-S	39
	BZ7	20	S-Y	40
		46	V-BL	41
	BZG	21	BL-V	42
OPTIONS	SPARE	47	V-O	43
		22	O-V	44
	GND	48	V-G	45
	A-BATT	23	G-V	46
	AUD. DET. T.T. BUSS	49	V-BR	47
	T.T. OPT2	24	BR-V	48
T.T. OPT1	50	V-S	49	
	25	S-V	50	

TYPICAL CONNECTIONS OF THE DISTRIBUTION CABLE FIGURE 5



1. ALL TERMINATION POINTS DESIGNATED AS FOLLOWS: 20/40/60/80/100 INDICATE THAT THE PROGRAM WILL OPERATE ON THE INDICATED CONNECTION POINT. CONNECTION POINTS NOT SO DESIGNATED WILL BE GROUPS 50, 60, 70, 80, 90, 100.

2. FOR A 3 LINE (MAX. 48 STX) INTERCOM, THE SIGNALS TO 500 WATT SPEAKERS ARE INTERCONNECTED WITH A 300V-250V PROGRAM CABLE TIED TO THE 31 CONNECTION POINTS. THE MOUNTING SHELF ON FRONT OF THE PROGRAM CABLE WILL BE CROOKED TO THE END AND THE PE ENDS WILL BE GROUPS 50, 60, 70.

3. FOR A 3 LINE (MAX. 48 STX) INTERCOM, THE SIGNALS TO 500 WATT SPEAKERS ARE INTERCONNECTED WITH A 300V-250V PROGRAM CABLE TIED TO THE 31 CONNECTION POINTS. THE MOUNTING SHELF ON FRONT OF THE PROGRAM CABLE WILL BE CROOKED TO THE END AND THE PE ENDS WILL BE GROUPS 50, 60, 70.

NOTES: UNLESS OTHERWISE SPECIFIED

J1
CONNECTION
CALL SIGNATURE

J2-C	1	26	J2-5
J2-C	2	27	J2-21
J2-C	3	28	J2-32
J2-C	4	29	J2-33
J2-C	5	30	J2-34
J2-C	6	31	J2-35
J2-C	7	32	J2-36
J2-C	8	33	J2-37
J2-C	9	34	J2-38
J2-C	10	35	J2-39
J2-C	11	36	J2-40
J2-C	12	37	J2-41
J2-C	13	38	J2-42
J2-C	14	39	J2-43
J2-C	15	40	J2-44
J2-C	16	41	J2-45
J2-C	17	42	J2-46
J2-C	18	43	J2-47
J2-C	19	44	J2-48
J2-C	20	45	J2-49
J2-C	21	46	J2-50
J2-C	22	47	J2-51
J2-C	23	48	J2-52
J2-C	24	49	J2-53
J2-C	25	50	J2-54

J2
CALL SIGNATURE

J1-1	1	J2-1
J1-2	2	J2-2
J1-3	3	J2-3
J1-4	4	J2-4
J1-5	5	J2-5
J1-6	6	J2-6
J1-7	7	J2-7
J1-8	8	J2-8
J1-9	9	J2-9
J1-10	10	J2-10
J1-11	11	J2-11
J1-12	12	J2-12
J1-13	13	J2-13
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J1-15	15	J2-15
J1-16	16	J2-16
J1-17	17	J2-17
J1-18	18	J2-18
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J1-21	21	J2-21
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J1-24	24	J2-24
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J1-33	33	J2-33
J1-34	34	J2-34
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J1-36	36	J2-36
J1-37	37	J2-37
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J1-39	39	J2-39
J1-40	40	J2-40
J1-41	41	J2-41
J1-42	42	J2-42
J1-43	43	J2-43
J1-44	44	J2-44
J1-45	45	J2-45
J1-46	46	J2-46
J1-47	47	J2-47
J1-48	48	J2-48
J1-49	49	J2-49
J1-50	50	J2-50

J3
CALL SIGNATURE

J20	1	J3-1
J20	2	J3-2
J20	3	J3-3
J20	4	J3-4
J20	5	J3-5
J20	6	J3-6
J20	7	J3-7
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J20	9	J3-9
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J20	13	J3-13
J20	14	J3-14
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J20	16	J3-16
J20	17	J3-17
J20	18	J3-18
J20	19	J3-19
J20	20	J3-20
J20	21	J3-21
J20	22	J3-22
J20	23	J3-23
J20	24	J3-24
J20	25	J3-25
J20	26	J3-26
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J20	28	J3-28
J20	29	J3-29
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J20	31	J3-31
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J20	46	J3-46
J20	47	J3-47
J20	48	J3-48
J20	49	J3-49
J20	50	J3-50

J4
CALL SIGNATURE

J20	1	J4-1
J20	2	J4-2
J20	3	J4-3
J20	4	J4-4
J20	5	J4-5
J20	6	J4-6
J20	7	J4-7
J20	8	J4-8
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J20	37	J4-37
J20	38	J4-38
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J20	41	J4-41
J20	42	J4-42
J20	43	J4-43
J20	44	J4-44
J20	45	J4-45
J20	46	J4-46
J20	47	J4-47
J20	48	J4-48
J20	49	J4-49
J20	50	J4-50

J5
CALL SIGNATURE

J20	1	J5-1
J20	2	J5-2
J20	3	J5-3
J20	4	J5-4
J20	5	J5-5
J20	6	J5-6
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J20	46	J5-46
J20	47	J5-47
J20	48	J5-48
J20	49	J5-49
J20	50	J5-50

J7
DISTRIBUTION CONNECTOR

J7-1	1	J7-1
J7-2	2	J7-2
J7-3	3	J7-3
J7-4	4	J7-4
J7-5	5	J7-5
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J7-45	45	J7-45
J7-46	46	J7-46
J7-47	47	J7-47
J7-48	48	J7-48
J7-49	49	J7-49
J7-50	50	J7-50

J7
DISTRIBUTION CONNECTOR

J7-1	1	J7-1
J7-2	2	J7-2
J7-3	3	J7-3
J7-4	4	J7-4
J7-5	5	J7-5
J7-6	6	J7-6
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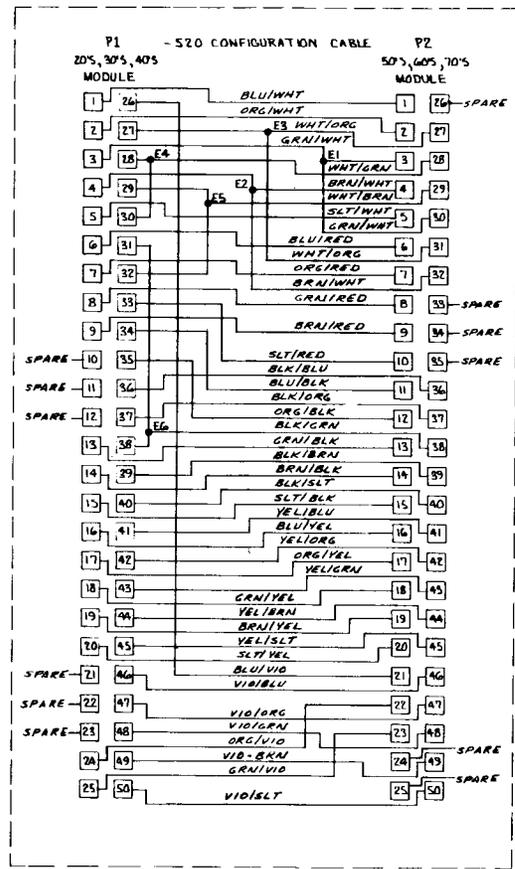
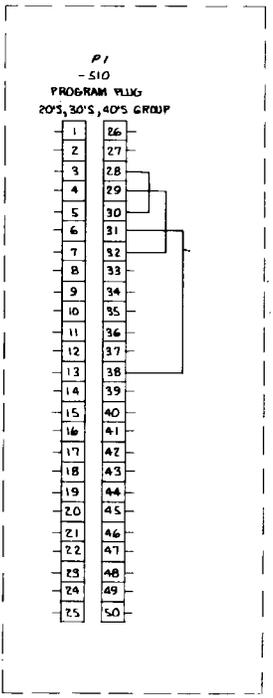
J7
DISTRIBUTION CONNECTOR

J7-1	1	J7-1
J7-2	2	J7-2
J7-3	3	J7-3
J7-4	4	J7-4
J7-5	5	J7-5
J7-6	6	J7-6
J7-7	7	J7-7
J7-8	8	J7-8
J7-9	9	J7-9
J7-10	10	J7-10
J7-11	11	J7-11
J7-12	12	J7-12
J7-13	13	J7-13
J7-14	14	J7-14
J7-15	15	J7-15
J7-16	16	J7-16
J7-17	17	J7-17
J7-18	18	J7-18
J7-19	19	J7-19
J7-20	20	J7-20
J7-21	21	J7-21
J7-22	22	J7-22
J7-23	23	J7-23
J7-24	24	J7-24
J7-25	25	J7-25
J7-26	26	J7-26
J7-27	27	J7-27
J7-28	28	J7-28
J7-29	29	J7-29
J7-30	30	J7-30
J7-31	31	J7-31
J7-32	32	J7-32
J7-33	33	J7-33
J7-34	34	J7-34
J7-35	35	J7-35
J7-36	36	J7-36
J7-37	37	J7-37
J7-38	38	J7-38
J7-39	39	J7-39
J7-40	40	J7-40
J7-41	41	J7-41
J7-42	42	J7-42
J7-43	43	J7-43
J7-44	44	J7-44
J7-45	45	J7-45
J7-46	46	J7-46
J7-47	47	J7-47
J7-48	48	J7-48
J7-49	49	J7-49
J7-50	50	J7-50

J7
DISTRIBUTION CONNECTOR

J7-1	1	J7-1
J7-2	2	J7-2
J7-3	3	J7-3
J7-4	4	J7-4
J7-5	5	J7-5
J7-6	6	J7-6
J7-7	7	J7-7
J7-8	8	J7-8
J7-9	9	J7-9
J7-10	10	J7-10
J7-11	11	J7-11
J7-12	12	J7-12
J7-13	13	J7-13
J7-14	14	J7-14
J7-15	15	J7-15
J7-16		

REVISIONS			DATE	APPROVED
SHT	ZONE	LTR	DESCRIPTION	
A			SEE SH 1 OF 2	
B			SEE SH 1 OF 2	
C			SEE SH 1 OF 2	
D			SEE SH 1 OF 2	
E			SEE SH 1 OF 2	



SEE SEPARATE DM -

CONTR NO. DR 15 10816	11 AUG 75	SAN / BAR CORP. 17422 Pullman Street Santa Ana, Calif. 92705
CHK		
DESIGN		SCHEMATIC DIAGRAM - MOUNTING SHELF, INTERCOM UNIT (20'S THRU 70'S GROUP) MODEL 6607-500A
ENGR <i>[Signature]</i>	12/1/75	
PROJ	REL 12/27/97	SIZE CODE IDENT
APPD		DWG NO. SD-6607-500
DASH NO.	NEXT ASSY APPLICATION	NO. 27412
		SCALE
		LIT. E
		SHEET 2 OF 2

FIGURE 7