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AUGAT COMMUNICATIONS GROUP INC.

THANK YOU FOR YOUR INTEREST IN MELCO PRODUCTS

We are pleased to send you the information you requested and hope it will be helpful.

Remember, if you have **ANY** questions or need more information on any **MELCO** product, please give us a call at (206) 932-8428. And, by calling Our Applications Engineering Department at toll free: (800) 336-3526 (outside Washington state), your specific application needs will be taken care of.

In case you haven't heard, **MELCO** is now a part of the growing Augat Communications Group. Today, one phone call can connect you with the broadest offering of network interconnection, telecommunication and CATV products available in the industry.

To help you get acquainted with us, we've enclosed a brochure.

Sincerely,

The Team at Augat Communications Group

MELCO

SUGGESTED LIST PRICE

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Effective January 1, 1990

PART NUMBER	DESCRIPTION	PRICE
1. Combination Intercoms		
120107	MC-9 Nine Station	116.00
120060	KC-10X Ten Station Expandable	130.00
120062	KC-19 Nineteen Station	135.00
120075	KC-37 Thirty-seven Station	160.00
2. Two-Link Intercoms		
120236	KL-19A Two-Link Intercom System	595.00
3. Intercom Mounting Panels		
120026	M-19 Modular Panel	51.00
120111	CA-7 Cable (For M-19)	23.00
120101	M-37 Modular Panel	120.00
120110	CA-12 Cable (For M-37)	26.00
4. Intercom Expanders		
120249	KX-38 Intercom Expander (For KL-19A)	320.00
120039	KX-30 Intercom Expander (For KC-10X)	99.00
5. Paging Units		
120076	KA-380 Paging Access Unit	51.00
120210	KA-384 Four Area Paging Access Unit	130.00
120118	KA-390 Paging Access Unit	41.00
120079	KT-363 Paging Access Unit	86.00
120021	KT-364 Four Area Pager	170.00
120439	PA-200A PABX Paging Access Unit	70.00
120294	PA-400 Four Area PABX Paging Access Unit	220.00
6. Line Hold Circuits		
120094	S-321 Single Line Hold	20.00
120307	S-321M Modular Single Line Hold	25.00
7. Lamp Extenders		
120018	KT-631 Lamp Extender	142.00
120019	KT-63 Lamp Extender	77.00
8. Off-Premise Equipment		
120022	M-62 A-A1 Line Adapter	10.00
120092	S64-1 Loop Detector	19.00
120217	S64-5RA Five Line Loop Detector with Relay and Amphenol	105.00
120093	S-71 Off-Premise Ringing Adapter	19.00
120024	S65-1Voice Activated Relay	46.00

MC-9™ COMBINATION INTERCOM (KTU) FOR TONE AND/OR ROTARY DIALING

1. GENERAL

1.01 The MC-9 is a nine-station, combination tone and/or rotary dialing, key system intercom. It provides station lamp control, bell (or buzzer) signaling and ringback tone. It is enclosed in a compact, plastic housing and mounts readily in an apparatus cabinet, on a backboard or in a relay rack. The MC-9 operates from a standard key system power supply.

1.02 This intercom has received FCC Type KX Registration Number AQT9PZ-69718-KX-E under Part 68 of FCC Rules and Regulations. It is designed to be used with all FCC KN registered Type 1A2 Key Telephone Systems.

2. DESIGN FEATURES

2.01 The MC-9 combination tone/rotary intercom:

- is compatible with 1A, 1A1 and 1A2 type key systems.
- can be used with tone or rotary dials, or with tone/rotary combinations.
- connects through its attached 2 x 10 connecting block.
- provides digits "2" through "0" for signaling stations and accessing auxiliary equipment.
- provides latching contacts to control paging or other auxiliary equipment.
- provides a ringing signal and ringback tone of approximately one second. Signaling can be prolonged by holding down the pad button.
- allows conference calling or repeated station signaling without reoperation of the telephone lineswitch.
- operates from a standard key system power supply.

3. INSTALLATION

3.01 Mount the MC-9 and make the connections as shown in Figure 4. Connections to the "punch-down" block should be made with the unit on a flat surface. Wire T, R, L, LG and B in multiple at station blocks.

3.02 Verify all station connections before connecting the MC-9 to the power supply. COMMON ALL GROUNDS.

3.03 Test all stations for correct lamp operation, bell or buzzer signaling, ringback tone and good transmission quality.

3.04 Paging, busy lamps, etc. can be latched or controlled by lead PC. Ground is connected to lead PC when the MC-9 is seized.



Fig. 1

4. MAINTENANCE

4.01 No provision is made for field adjustment or repair.

4.02 If the MC-9 does not function, verify connections and fuses.

4.03 The MC-9 is warranted against manufacturing and material defects. If it fails within the warranty period as a result of these defects, it will be repaired or replaced at no

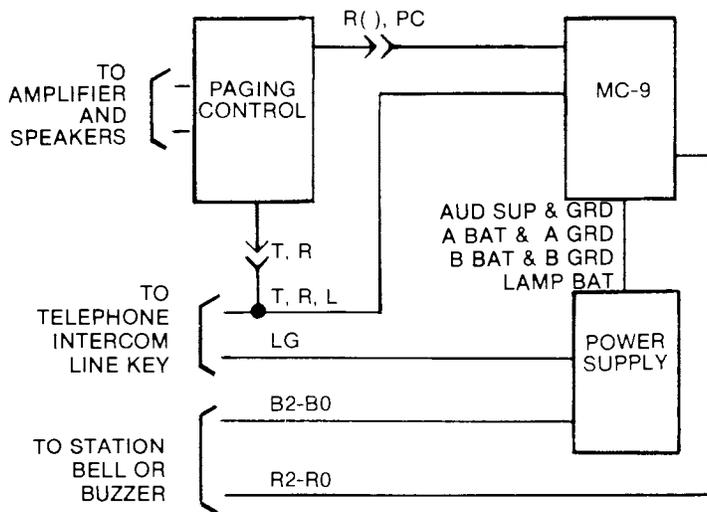
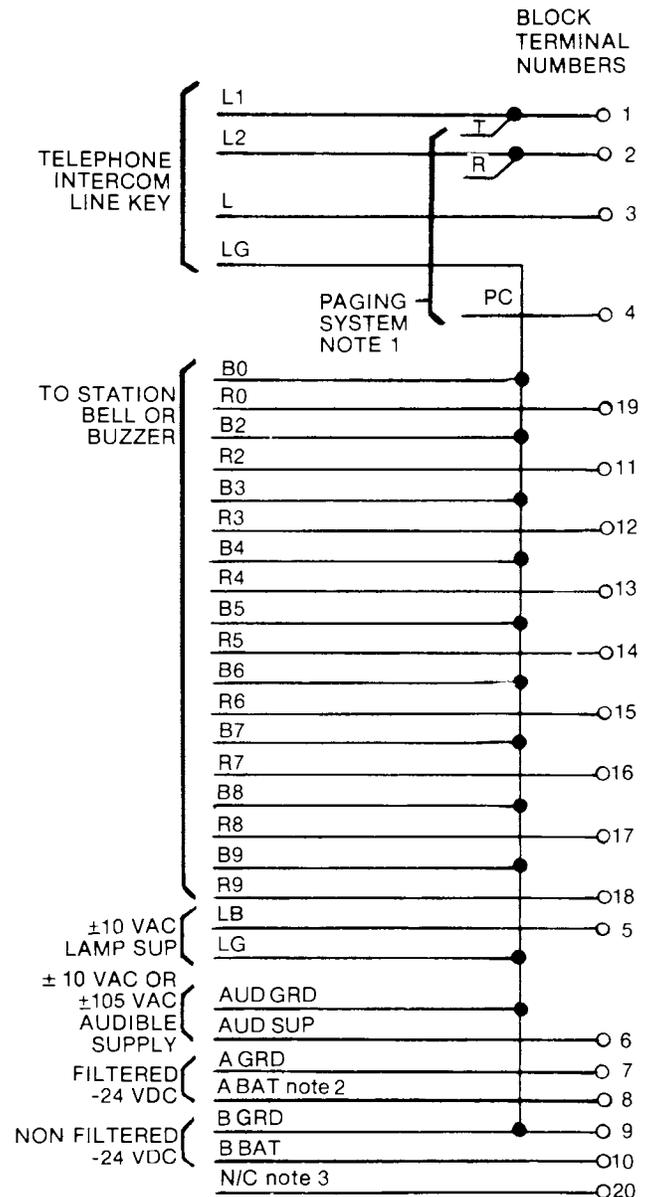


Fig. 3 — Applications Schematic of MC-9.



- NOTES: 1. CONNECT LEADS T, R, PC AND SELECTED R() LEAD TO MELCO KT-363, KT-364, KA-380 OR OTHER PAGING CIRCUIT.
2. LAMP CIRCUIT LEADS AND LEAD PC SHOULD BE TESTED FOR SHORT CIRCUITS BEFORE CONNECTING POWER TO THE MC-9.
3. N/C: NO CONNECTION

Fig. 4 — Basic Nine Station Connection Diagram.

KC-10X™ TEN STATION COMBINATION INTERCOM (EXPANDABLE) FOR TONE AND/OR ROTARY DIALING

1. GENERAL

1.01 The KC-10X is a ten-station, combination tone and/or rotary dialing, key system intercom. The KC-10X provides intercom selective signaling capability for 1A1 and 1A2 type key telephones. Expansion in 30-station increments is readily accomplished by adding Melco KX-30 Intercom Expanders.

↗ 1.02 This intercom has received Registration Number AQT9PZ-69718-KX-E under Part 68
↘ of FCC Rules and Regulations.

2. DESIGN FEATURES

2.01 The KC-10X provides 10 signal contact closures. Each closure is latched to ring a station for one second. Ringing can be repeated without hanging up simply by redialing the number.

2.02 Selective signaling may be expanded up to 90 stations with the addition of Melco KX-30 Intercom Expanders. One unit expands the system up to 30 stations, two units expand it up to 60 stations and three expand it up to 90 stations.

2.03 The KC-10X:

- mounts in an apparatus cabinet, relay rack or on a backboard.
- connects through its plug to an A25B or equivalent 25-pair connector cable.
- operates from a standard key system power supply.
- provides a latching path to control paging or other auxiliary equipment.
- provides for conference calling from a tone dialing telephone.
- provides prolonged signaling by holding down pad button.

3. INSTALLATION

NOTE: If an installation involves a KL-20 Two-Link Intercom Adapter, see KL-20 instructions.

3.01 Mount the KC-10X and secure the cable connector to the KC-10X plug with the clamp provided.

3.02 Terminate the cable on a 66-type connecting block.

3.03 Cross-connect T, R, L and LG to all telephones, paging circuits, and other auxiliary equipment.

3.04 For ten stations or fewer using single-digit codes, cross-connect one B and R pair to each bell or buzzer. Strap SL to R1X through R9X.



Fig. 1

3.05 Connect LB, AUD SUP, BAT and GRD leads to the power supply. Connect A BAT to filtered -24V DC and B BAT to non-filtered -24V DC.

3.06 When the KC-10X is seized, lead PC will furnish ground to operate or latch an auxiliary circuit such as paging or busy lamp. When PC is used, lamp ground must be connected to lead LG.

3.07 DO NOT bridge the intercom to any line supplying a foreign source of power: CO, FX, PL, etc.).

3.08 When an intercom is connected to other units which add features, such as two-link operation, flashing lamps, and do not disturb, all associated units must be served by the same power supply and all grounds must be common.

6. ORDERING GUIDE

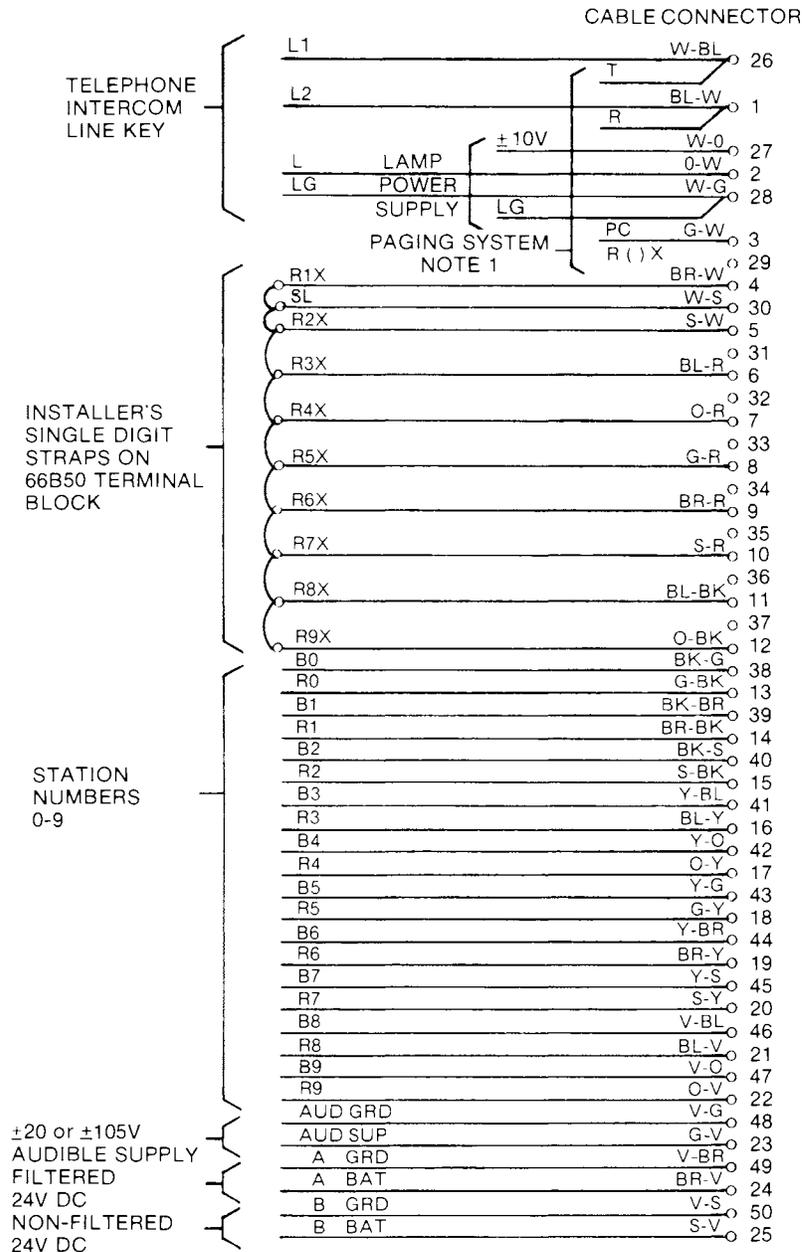
6.01 Order as follows:

(QTY) UNIT TEL KEY KC-10X

from your local supplier or distributor.

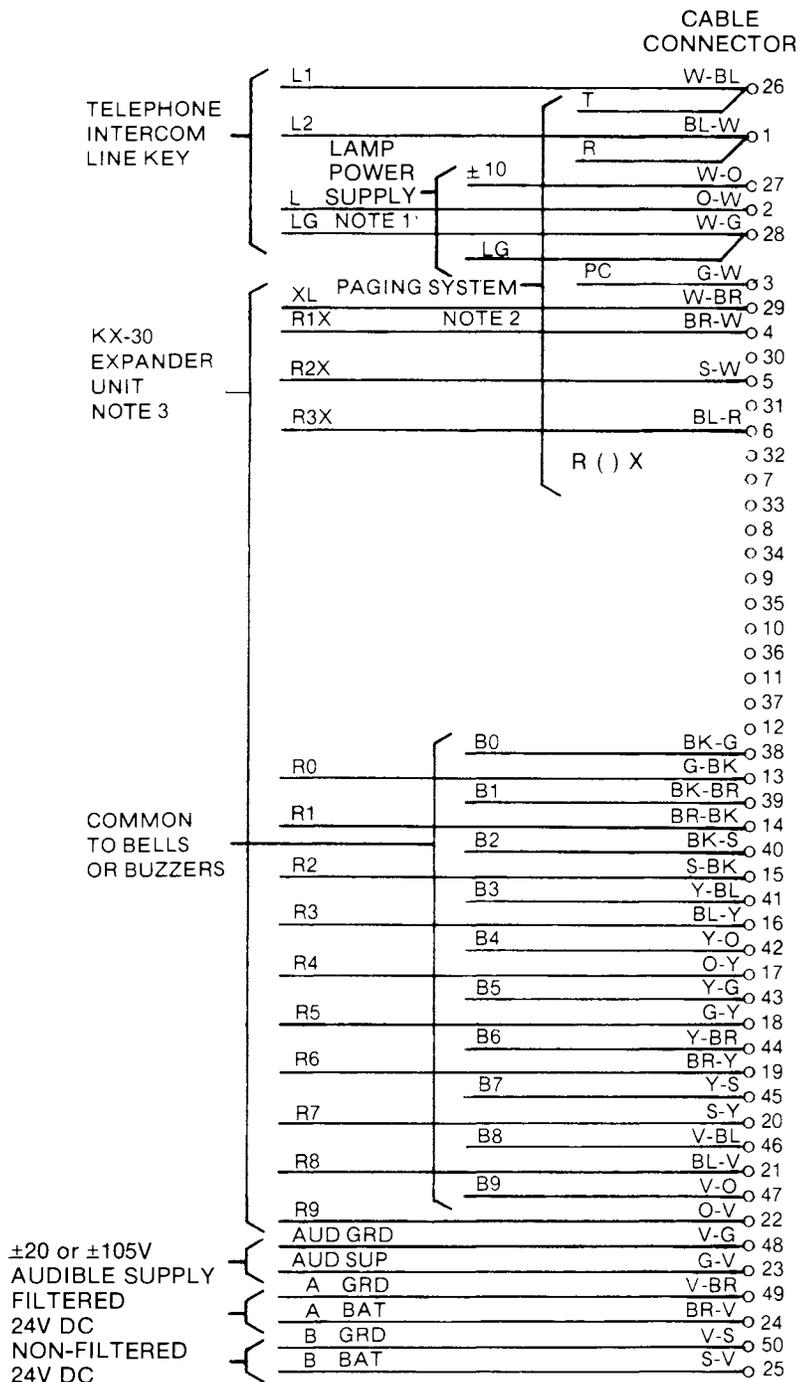
6.02 Technical assistance on the KC-10X is available from:

MELCO LABS
 14408 N.E. 20th St.
 Bellevue, WA 98007
 (206) 643-3400
 TWX: 910-443-3040



NOTE:
 1. CONNECT LEADS T, R, PC AND A SELECTED B AND R LEAD PAIR TO MELCO KT-363, KT-364, KA-380, OR OTHER PAGING CIRCUIT.

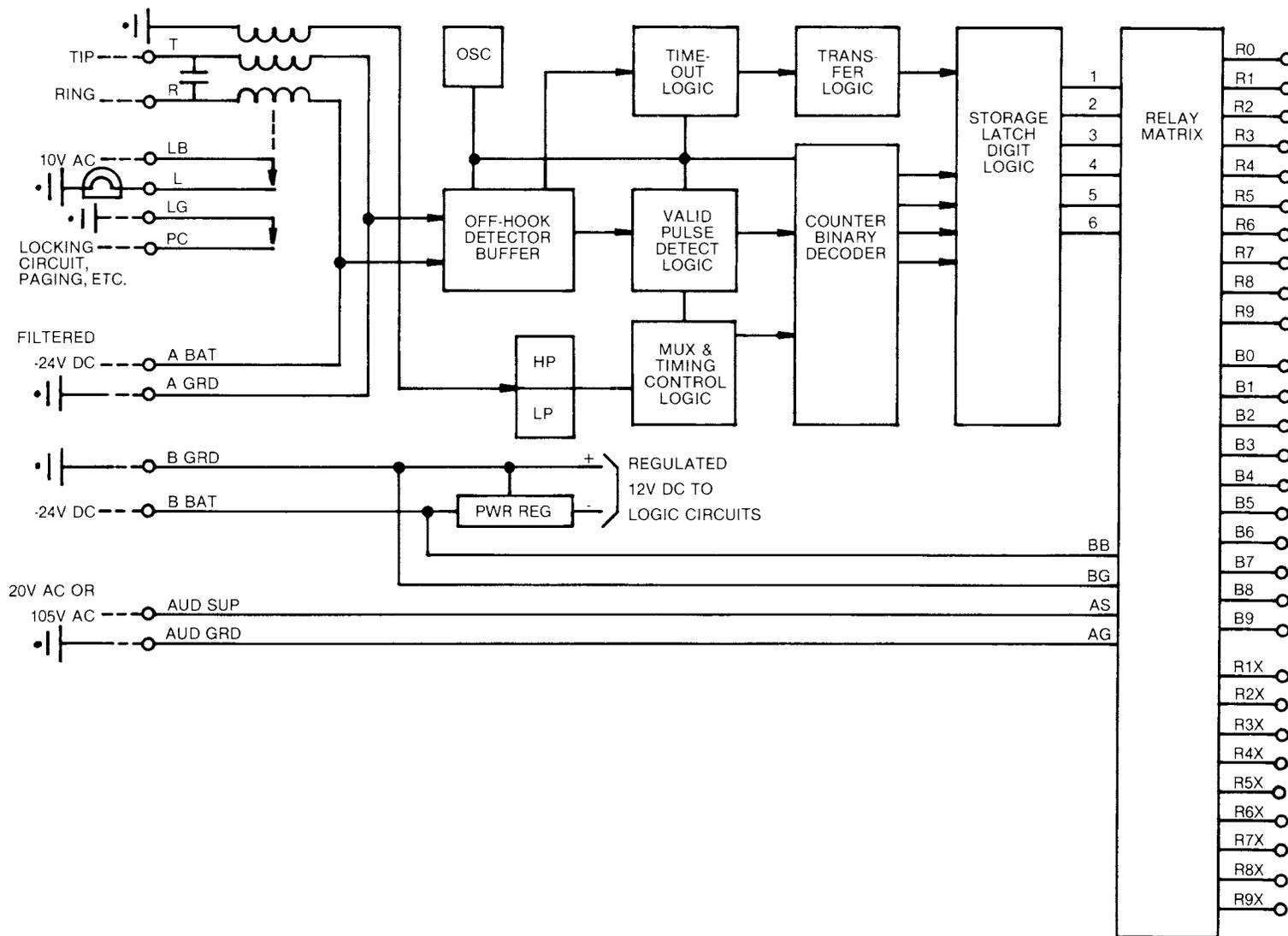
Fig. 2 — KC-10X Connections for 10 Stations.



NOTES:

1. 25 LAMPS MAXIMUM ON FACTORY WIRING. TO ADD 24 LAMPS, MOVE LAMP POWER SUPPLY LG LEAD TO B GRD TERMINAL (50); STRAP W-O (27) TO W-G (28); CONNECT ADDITIONAL LAMPS TO PC.
2. FOR PAGING SEE FIG. 2 NOTE.
3. R1X, R2X, R3X TO EXPANDER FOR FIRST DIGITS 1, 2 AND 3 OF TWO DIGIT NUMBERS, OR USE ANY R () X LEAD.

Fig. 3 —KT-10X Connections for 30 Stations with KX-30 Expander.



→ Fig. 4 — Functional Schematic of KC-10X.

KC-10X
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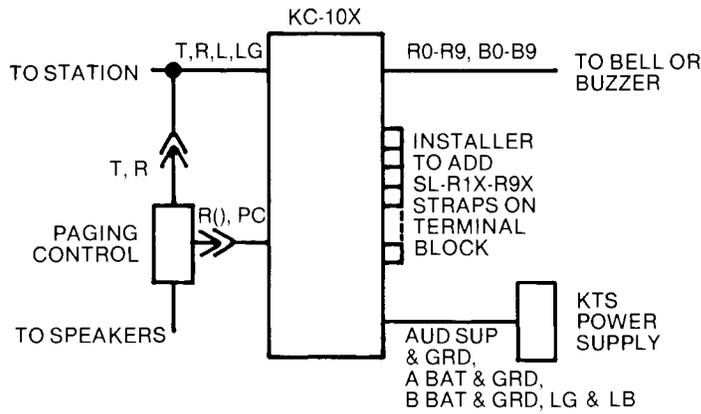


Fig. 5 — Applications Schematic of KC-10X Showing Connections for 10 Stations.

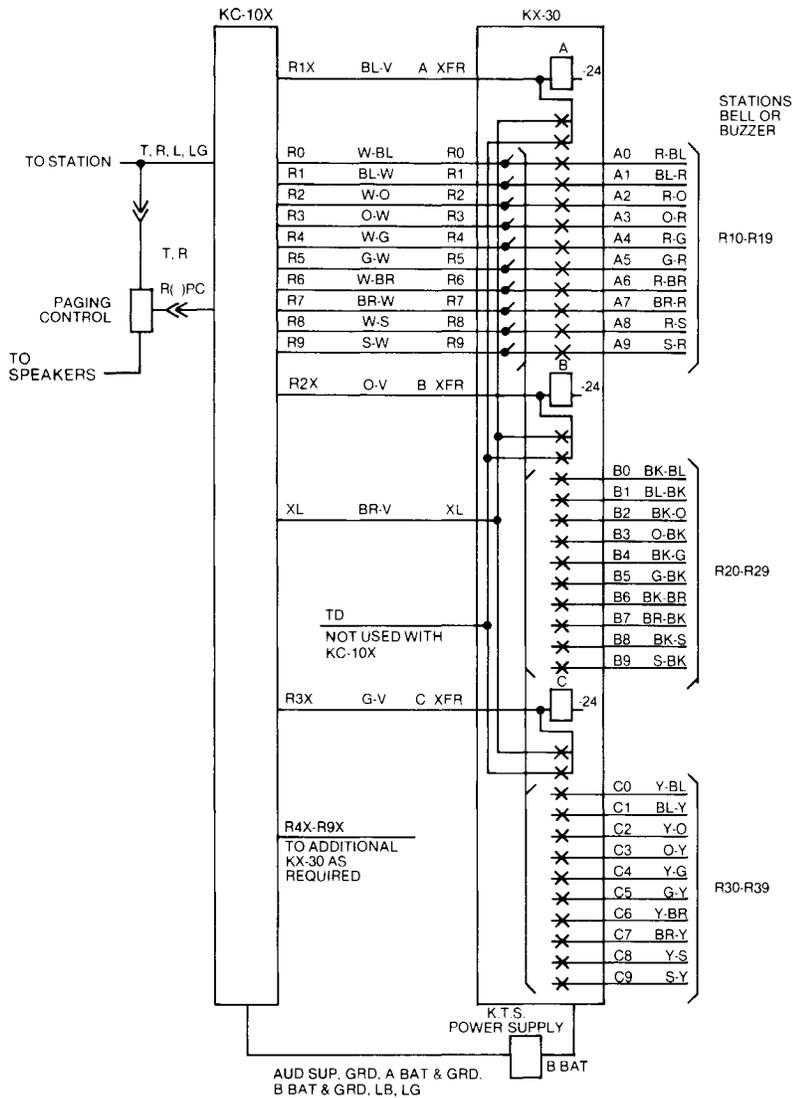


Fig. 6 — Applications Schematic of KC-10X and KX-30 Showing Connections for 30 Stations.

KC-37™ KEY TELEPHONE UNIT THIRTY-SEVEN STATION COMBINATION INTERCOM (FOR TONE OR ROTARY DIAL OR BOTH)

1. GENERAL

1.01 The KC-37 is a 37-station intercom for use with 1A1 and 1A2 key telephone systems. It is capable of fully selective station signaling by either tone or rotary dialing telephones or by a combination of both.

1.02 This device has received Registration Number AQT9PZ-69718-KX-E under Part 68 of FCC Rules and Regulations.

2. DESIGN FEATURES

2.01 The KC-37:

- is a self-contained intercom unit for use with all 1A1 and 1A2 type rotary and tone dialing key telephone systems.
- provides 37 station and auxiliary equipment access codes.
- provides one-second audible signal to the station. With tone dialing, the signal can be prolonged by holding down the pad button.
- signaling can be repeated without reoperating the switchhook.
- can be mounted in a key telephone equipment cabinet, relay rack or directly on a wall.
- mates with a standard A25B connector cable.
- operates from the key system power supply.

3. INSTALLATION

- 3.01 No special installation tools are required.
- 3.02 Written installation instructions are provided with each unit.
- 3.03 Locate and secure the KC-37 housing in a 7-inch KTU apparatus mounting, relay rack or on a wall.
- 3.04 Fasten a connector-ended cable to the KC-37 housing (see Figure 1).

3.05 Make cable connections as specified in Figure 2.

3.06 The arrangements in Figures 3 and 4 can be used by the installer to connect a KC-37 using one 66B3-50 and one 66B4-25 terminal

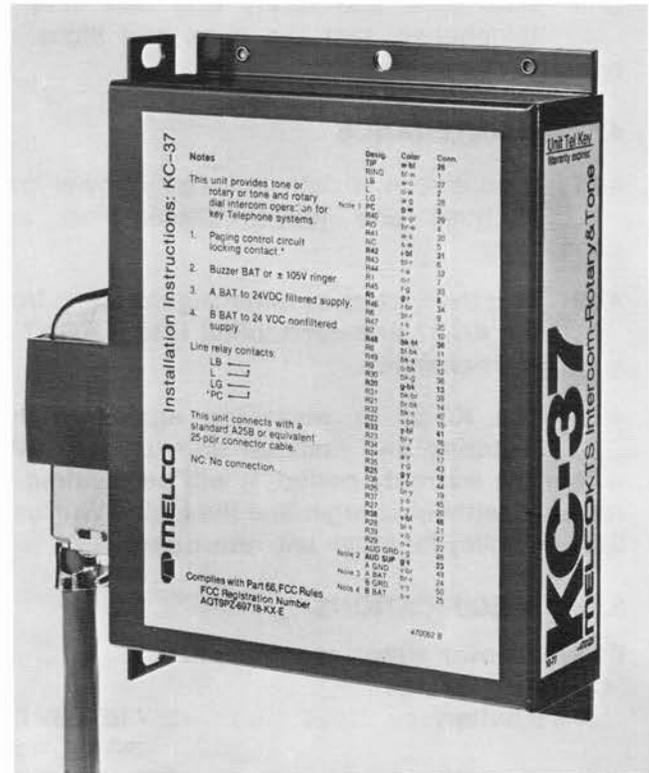


Fig. 1

block. This wiring method utilizes the standard arrangement of an A25B connector cable. Strapped as shown, the terminal block will provide 37 terminations for T, R, LG, L, B () and R (). All power connections are at the bottom of the first block.

3.07 Connections are arranged for ready replacement of a Melco KC-19 intercom. Figure 3 shows how the punchings for the B () leads of a 19-station installation are reassigned to the additional R () leads of the KC-37. Station numbers 3 and 4 are discontinued in the KC-37.

3.08 Common all grounds.

3.09 Leads LG and PC are connected to dry contacts that close when the KC-37 is seized. The contacts can be used to lock a paging circuit or a busy lamp circuit. To provide a locking ground on the PC lead for auxiliary equipment, connect lamp ground to the LG terminal.

3.10 Do not bridge the tip and ring to any line supplying a foreign source of current (CO, FX, PL, etc.).

3.11 With tone and rotary dial test sets or telephones, test the lamp and signaling operation for all stations.

4. MAINTENANCE

4.01 If no output is detected, verify power connections and fuses. Check plug and connector.

4.02 Test the system by removing the cable from the KC-37 and connecting it to a KC-37 of known serviceability.

4.03 The KC-37 is warranted against manufacturing and material defects. If it fails within the warranty period, it will be repaired or replaced without charge. See the Melco Warranty Service Policy for repair and return details.

5. SPECIFICATIONS

External power supply requirements:

Operating voltage	
A & B battery	-18V to -28V DC -24V DC nom
operating current	350 ma \pm 30%
lamp battery	10V AC, 60 Hz
audible supply	10V, 60 Hz to 105V, 20 to 30 Hz
Operating temperature	0° to 50° C 32° to 122° F
Operating humidity	0 to 95% noncondensing
Storage temperature	-30° to 70° C -22° to 158° F

Signaling:

audible signaling duration 1 sec nom

Relay contact ratings:

lamps, PC and aux. equip. 2A max (60 VA)
ringing signal 0.5A at 10V AC
0.045 A at 105V AC
(ringing generator)

Rotary dialing:

pulse ratio 60% \pm 20%
loop limit 800 ohms
dial speed 8 to 12 pps
interdigital time 200 msec min

Tone dialing:

input signal level -7.5 to +4 dBm
loop limit 750 ohms
bandwidth \pm 2% nom
recognition time 40 msec max

Release time 150 msec \pm 10%

Dimensions 7" x 5" x 2.1"
17.78 cm x 12.7 cm x 5.33 cm

Mounting apparatus cabinet, relay
rack or backboard

Connections A25B or equiv.
25-pair connector
cable

Housing epoxy coated aluminum

Weight unpacked 1 lb. 6 oz/0.62 cm

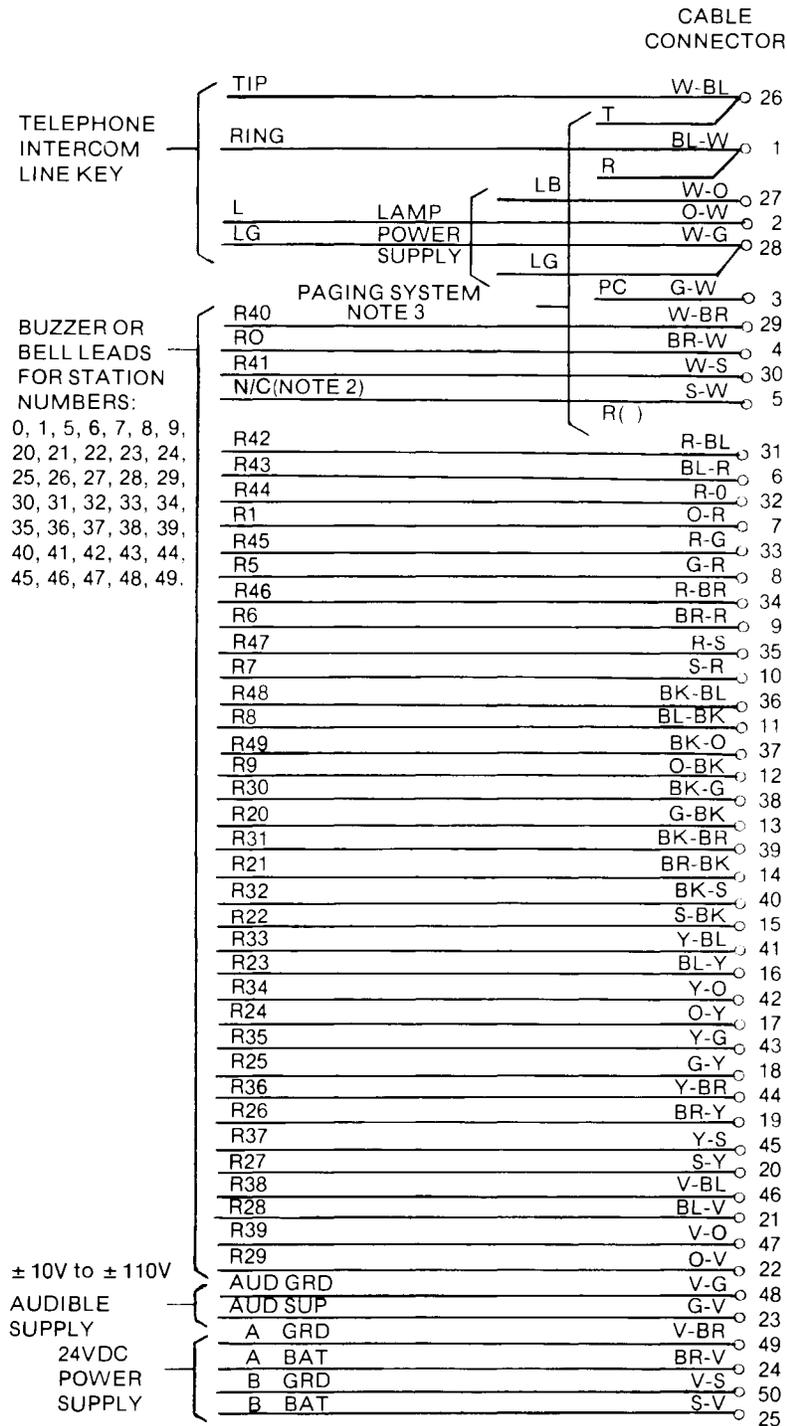
6. ORDERING GUIDE

6.01 Order as follows:

(QTY) 120075 UNIT TEL KEY KC-37
from your local supplier or distributor.

6.02 Technical assistance on the KC-37 or any Melco product is available from:

MELCO
P.O. Box 1110
Seattle, WA 98111
(206) 223-1110
TWX: 910-443-3040
FAX: 206-583-2753

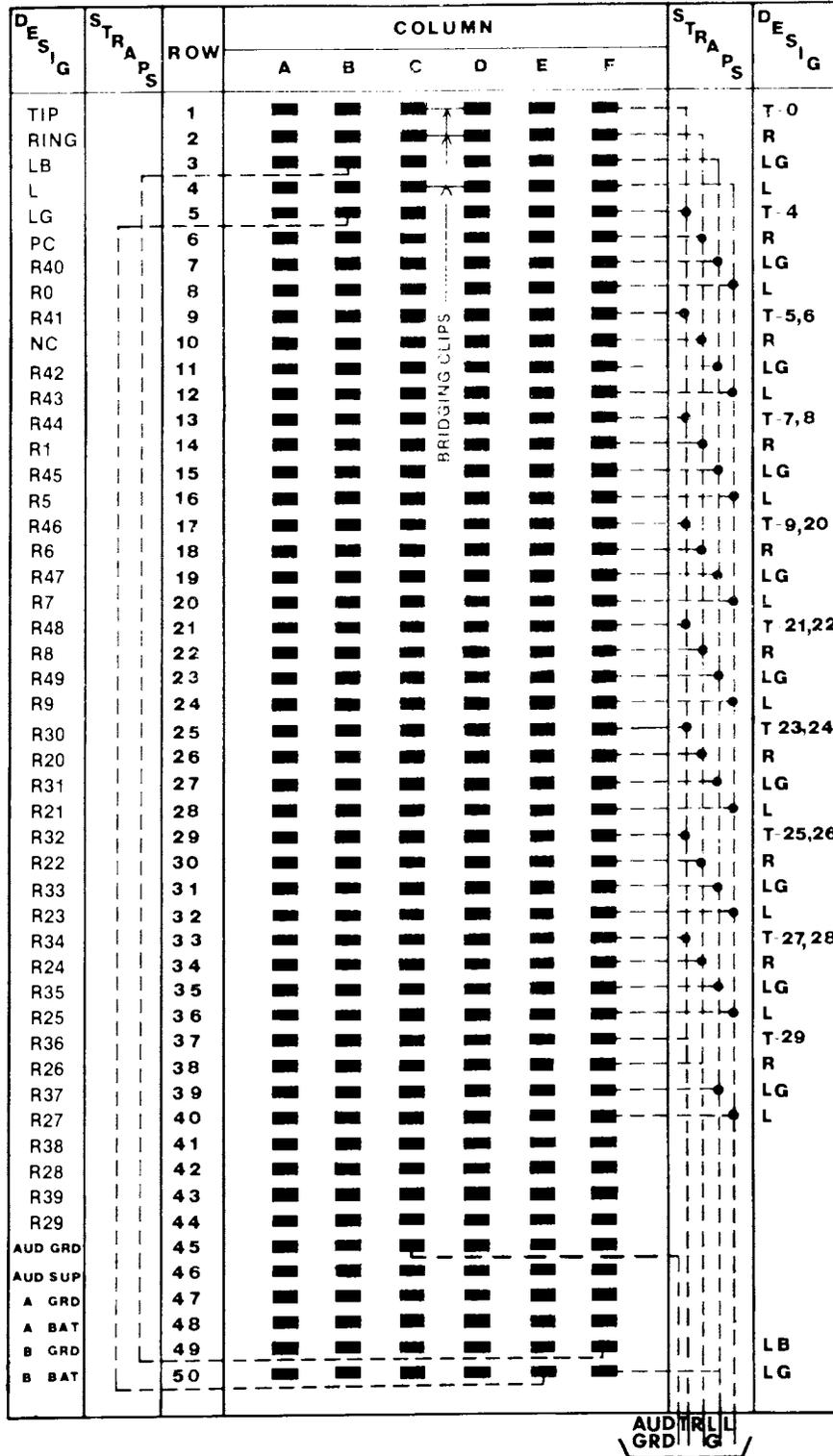


NOTES:

1. DIGITS 2, 3, and 4 CANNOT BE USED AS SINGLE DIGITS FOR INTERCOM LINE NUMBERS.
2. N/C — NO CONNECTION.
3. TO PAGING SYSTEM, MELCO KT-363, KT-364, KA-380, OR EQUIVALENT. CONNECT LEAD PC TO R() LEAD AS REQUIRED FOR ACCESS TO PAGING.

Fig. 2 — Cable Connections.

66B3-50



AUD R L G
 GRD | G
 TO NEXT BLOCK
 (FIG. 4)

Fig. 3 — Connections for 37 Stations.

CONTINUED FROM FIRST BLOCK
 (FIG. 3)

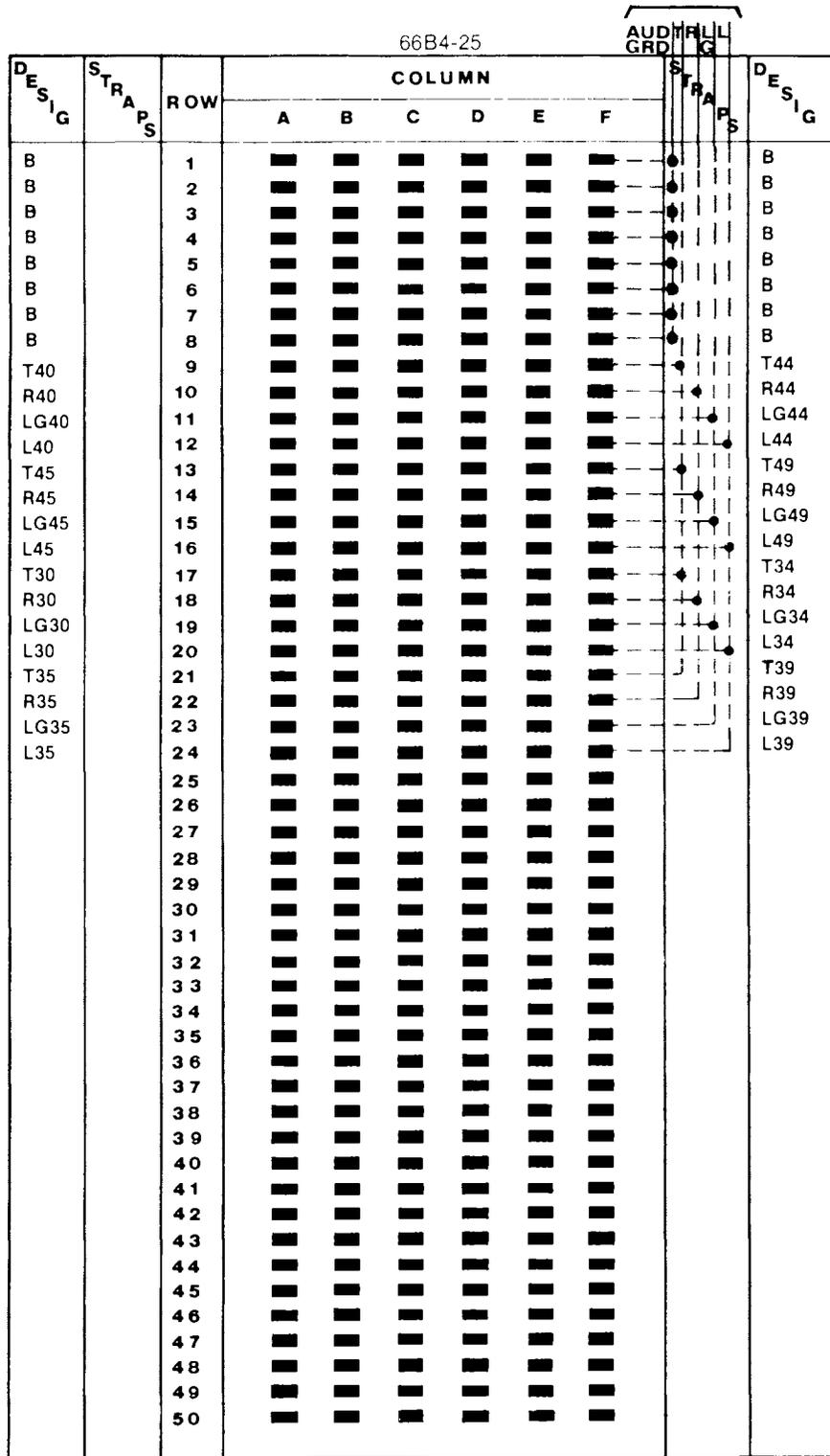


Fig. 4 — Connections for 37 Stations.

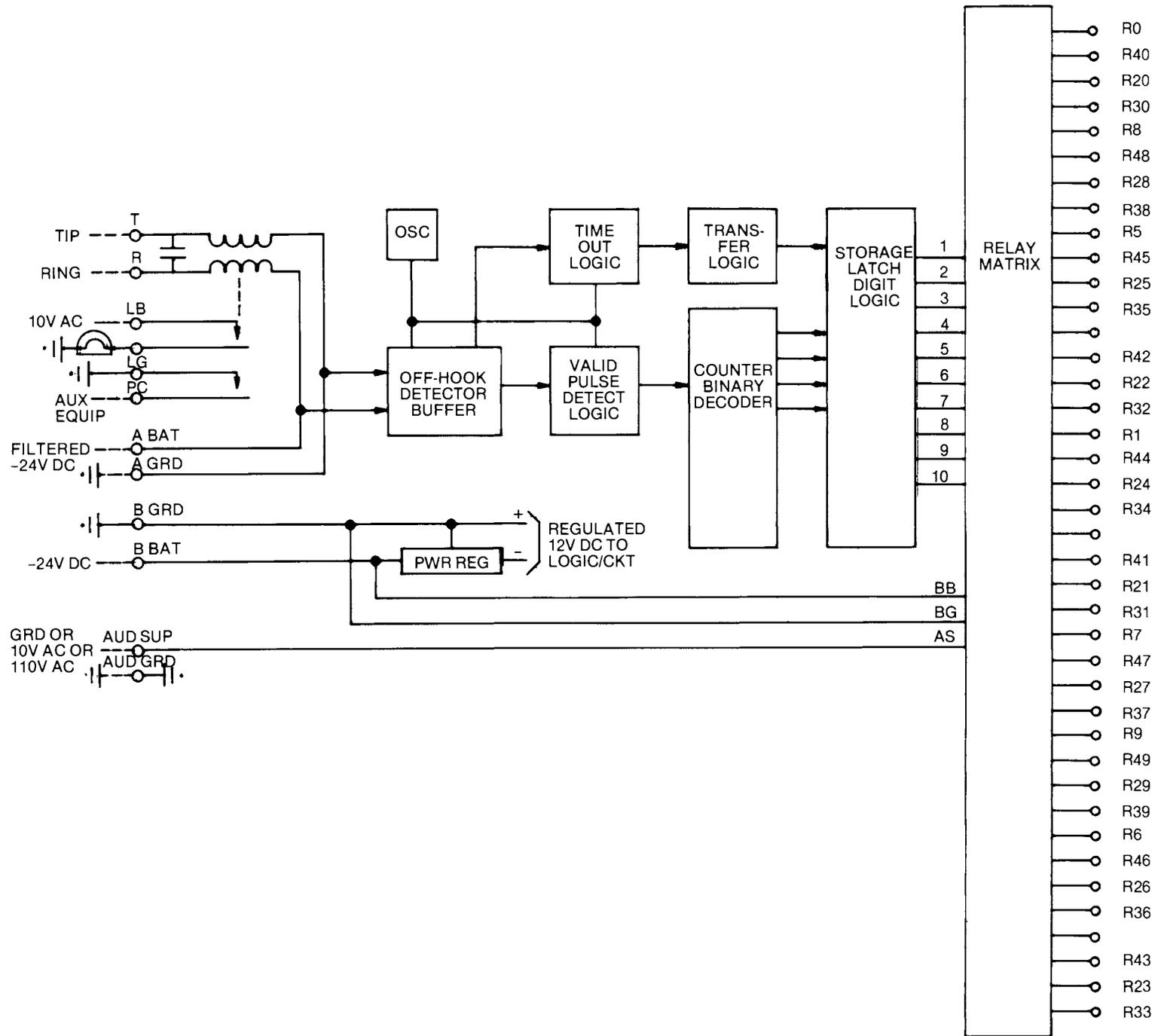


Fig. 5 — Functional Schematic.

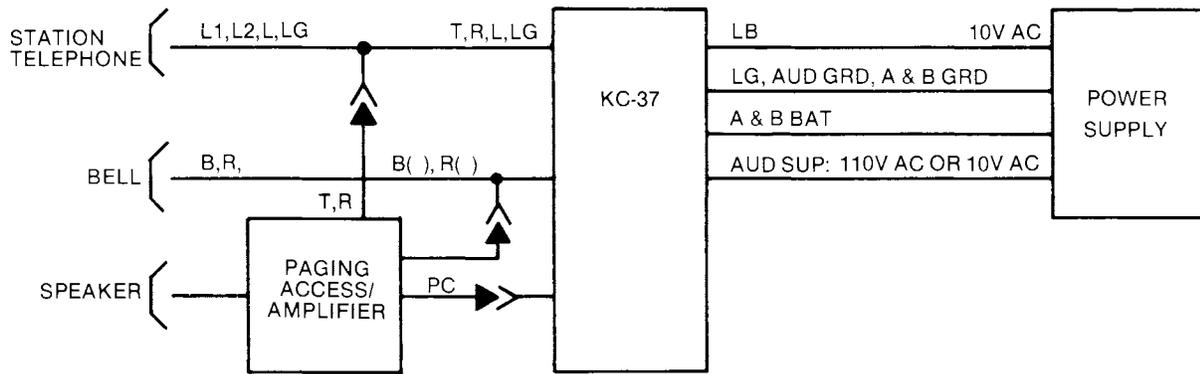


Fig. 6 — Application Schematic.

KL-30™ TWO-LINK INTERCOM**1. GENERAL**

1.01 The KL-30 is a two-link intercom system that provides up to 40 stations with two private talking paths, dial tone, busy tone, ring-back tone, flashing lamps, interrupted ringing and six switch-selectable features. The KL-30 is compatible with 1A1 and 1A2 type key systems and can be used with tone and/or rotary dial telephones.

2. DESIGN FEATURES

2.01 The KL-30:

- provides two private talking paths for up to 40 stations.
- requires one telephone pick-up key to access all stations and both links.
- provides dial tone for calling station.
- provides interrupted ringing and flashing lamp to the called station (without an external interrupter) and ringback tone to the calling station.
- provides an option for each station to receive busy tone when the called station is off-hook on any outside line.
- allows private conferencing for up to five stations per link. Either link may conference and both links may have a conference at the same time.
- permits answering from any station.
- is equipped with "punch-down" type connecting blocks for quick connecting to station telephone equipment.
- mounts in a relay rack or on a wall.
- is compatible with tone and/or rotary dial telephones.
- provides for outgoing and incoming call capability on 4 CO lines.*
- provides for paging to 4 areas.*

- places a station temporarily out of service if it is left off-hook too long without dialing.
- provides a three-beep acknowledge tone indicating that an attempt to utilize a feature is progressing satisfactorily.
- provides an alternating error tone if the user performs an invalid operation.

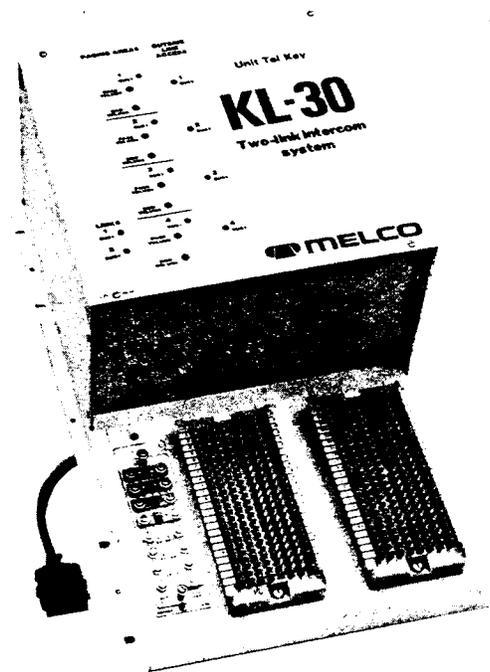


Fig. 1

2.02 The KL-30 provides standard switch-selectable features:

- conference
- message waiting
- camp-on busy
- call forwarding
- do not disturb
- CO line scan (dial 9, trunk hunting)*
- specific call pick-up (no call pick-up)

*See Section 8.03 on options.

2.03 The KL-30 provides for the addition of option cards for extra features. Please see Section 8.03 for a listing of available option cards. For further information on any of these option cards, see the specific Melco Technical Practice for each.

2.04 An optional seven-conductor power cable assembly, the CA7, is available for convenient plug-in connection to a W.E. Co. 79B1, 90B1 or a similar modular power supply. When the CA7 power cable assembly is used, power connections are made to the screw terminals on the underside of the KL-30 panel as shown in Figures 4 and 5. When the CA7 is not used, power connections can be made either to terminals on the KL-30 connecting block or to the screw terminals on the KL-30 underside.

3. INSTALLATION

- 3.01 Mount the KL-30 in a relay rack or on a wall.
- 3.02 Cross connect T, R, LG, L, B and R from the KL-30 connecting block to the stations. Connect telephone lead SB to KL-30 lead SB and system ground to KL-30 lead SG when a busy signal is desired for a called telephone off-hook on any line. (See Fig. 2.)
- 3.03 Connect B BAT, B GRD, AUD SUP, AUD GRD, LAMP SUP and LAMP GRD from the power supply to the KL-30.

NOTE: If B BAT supply results in too much hum on the talk path, connect A BAT supply instead of B BAT supply to the B BAT terminals on the KL-30. (The A BAT terminals are not used).

4. OPERATION

FIRST CALL:

4.01 The intercom is available for a call whenever the intercom pick-up key is not illuminated. To place a call, the originating station comes off-hook. Dial tone is heard and all station lamps illuminate. When the desired number is dialed, dial tone is replaced by ringback tone. The called station rings intermittently and the pick-up lamp flashes. When the call is answered ringback tone and ringing stop. Lamps at the two off-hook stations are now on steady and all other station lamps are off. One intercom link is busy and the other is available for a second call.

SECOND CALL:

4.02 When a second call is placed, the operation is the same as for the first link except that all intercom pick-up key lamps remain on when both links are busy.

BOTH LINKS BUSY:

4.03 When both links are busy, all intercom station lamps will be on and no dial tone or talk battery will be provided to a station coming off-hook.

ONE LINK IDLE:

4.04 When one of the two conversations ends and both stations return to on-hook, all lamps of idle stations turn off to indicate that another call may be made. Operation is the same as described in Paragraph 4.01.

CALLED STATION BUSY:

4.05 When the called station is off-hook for any reason, busy tone will be heard at the calling station. Also, if a non-existent number is dialed, busy tone is returned.

STATION OUT OF SERVICE:

4.06 If a station is left off-hook without dialing for 20 seconds, dial tone is replaced by error tone. If only one digit other than 0 has been dialed and is not followed by another digit within 20 seconds, error tone is also given. In each case error tone is supplied for 10 seconds, after which the station is placed out of service, freeing its link for use by others. The station is out of service until it is returned on-hook. If it is called, the caller receives busy tone.

SWITCHABLE FEATURES:

4.07 The features of Do Not Disturb, Call Forwarding, Camp-on Busy, Message Waiting, Conference and Specific Call Pick-up are put in service by operating switches located on the control card of the KL-30. (See Figs. 6, 7 and 8.) Switchable features are as follows:

1. Conference: The conference feature allows private conferencing for up to five stations. Both links allow conferencing and two conferences (one on each link)

may occur simultaneously. To initiate a conference, a station user dials "11", receives dial tone and dials the numbers of the desired stations for conference. After each station number is dialed, the conference initiator will receive dial tone unless the station is busy. (If a called station is busy, the initiator will receive busy tone and must repeat the procedure for conference, omitting the busy station.) If the number of stations dialed for conference is fewer than four, the conference initiator must redial "11".

After four stations have been dialed, or "11" has been redialed, the initiator will receive ringback tone, while each station called will simultaneously receive four periods of ringing (along with flashing lamp). Ringing and flashing lamp will stop at a station that answers. A station that does not answer within the four ringing periods will be omitted from conference. As soon as the number of stations dialed answer, or the time limit is over, conferencing may begin. All other stations are locked out. The conference feature is deactivated when all stations return on hook.

2. **Message Waiting:** This feature can be activated when the attendant (station "0") has a message for a station that is busy or does not answer. The station is signaled by a flashing intercom key lamp that the attendant called and has a message. To initiate the feature, the attendant returns on-hook after receiving busy tone or no answer, comes off-hook, dials "12," receives dial tone, dials the number of the station for which there is a message, receives busy tone, and returns on hook. If the called station did not answer, the intercom key lamp will begin flashing immediately. If the called station was busy, the lamp will begin flashing as soon as that station becomes idle. The lamp will continue to flash at the called station until the station comes off-hook, deactivating the feature. However, the feature is not

deactivated when the station comes off-hook to answer an incoming call.

3. **Camp-on Busy:** When a caller finds a station busy and wants his call returned, he can "camp" on the busy station. After he hears busy tone, he returns on-hook, comes off-hook, dials "13", receives dial tone, dials the number of the busy station, receives busy tone and returns on-hook. As soon as the busy station returns on-hook, the originator receives ringing and flashing lamp first and has four ringing periods in which to answer. If the originator does not answer, the camp-on is deactivated. If the originator does answer, then the terminator receives ringing and flashing lamp until he answers or until the originator goes on-hook, deactivating the camp-on. The feature is also deactivated if the calling station comes off-hook before the busy station returns on-hook.

Five camp-on's can be in progress at the same time. When more than one caller is camped on the same station, the calling stations are prioritized on a first come, first served basis.

4. **Call Forwarding:** This feature provides for automatic transfer of intercom calls to another station. When a station user wants to receive calls at another station, he comes off-hook, dials "14", receives dial tone, dials the number to which his calls are to be forwarded, receives busy tone and returns on-hook. Calls to his station are then transferred to the forwarded station. The feature is deactivated when the initiating station comes off-hook.

This feature cannot be multiplied — for example, if station A has forwarded his calls to station B and station B has forwarded his calls to station C, calls to station A will ring station B, not C.

5. **Do Not Disturb (Make Busy):** This feature causes a station to appear busy when signaled. When a station user does not wish to receive intercom calls, he comes off-hook, dials "15", receives busy tone

and returns on-hook. A caller dialing that station will receive busy tone. This feature is deactivated when the initiating station comes off-hook.

- 6. Specific Call Pick-up: This feature allows the system to operate in such a way that only the station being called can answer. Normal operation is to permit answering from any station (universal call pick-up).

5. MAINTENANCE

5.01 The KL-30 system, including the cards, is warranted against manufacturing and material defects for two years. If it fails within that time, it will be repaired or replaced at no charge.

CAUTION: *When replacing circuit cards, turn the power off to avoid damage to system circuitry.*

5.02 To isolate a problem with a station or group of stations, replace the associated station card with a spare. If the trouble clears, the first card is defective. A problem can also be isolated by trading station cards. The problem will follow the card to different stations. (Refer to the label on the back of the KL-30 cover for station assignments on station cards.)

5.03 If all stations are receiving a persistent busy tone, test by removing all station cards and reinserting them one at a time. The card which makes all stations busy again is defective and must be replaced.

5.04 Voltages at test points should be as follows:

TEST POINT	VOLTAGE
Red	Ground
Black	B Battery
White	-5V
Green	-9V

5.05 A troubleshooting guide, pages 10 through 13, suggests probable causes and solutions for most problems that might be encountered. The most likely cause and its solution is presented first. If a telephone develops trouble not covered in this guide, check connections and wiring to that station. If the problem persists, test the station card by replacing it with a spare card.

CAUTION: *Static charges can damage circuit packs. Do not handle unnecessarily. Keep in protective packing when not in use. Be certain that your body is discharged of static charge before handling a circuit pack and then handle only by the plastic ejectors. Do not walk about with unpackaged circuit packs. Do not insert or remove circuit packs with the power on.*

6. SPECIFICATIONS*

Operating voltage
 A & B Bat -18 to -28V DC
 -24V DC nom

Current (-24V DC)
 w/o option cards 250 mA idle nom
 550 mA operated nom

Lamp supply
 voltage 10V AC nom
 freq. 60 Hz
 current 1.6A max
 (2A fuse)

Audible supply
 voltage 10V AC nom, 60 Hz
 or 105V AC nom, 20 to 30 Hz
 (ringing generator)
 current 0.5A per station
 (2A fuse)

Rotary dialing:
 loop limit 800 ohms
 pulse ratio 60/40% ± 20%
 dial speed 8 to 12 pps
 interdigital time 200 msec min

Tone dialing:
 loop limit 750 ohms
 input sig level -7.5 to +4dBm
 bandwidth 2% nom
 recognition time 40 msec min
 interdigital time 40 msec min

Off-hook recognition 100 msec nom
 On-hook release 150 msec ± 10%
 Operating temperature 0° to 50°C
 32° to 122°F

Operating humidity 0 to 95%

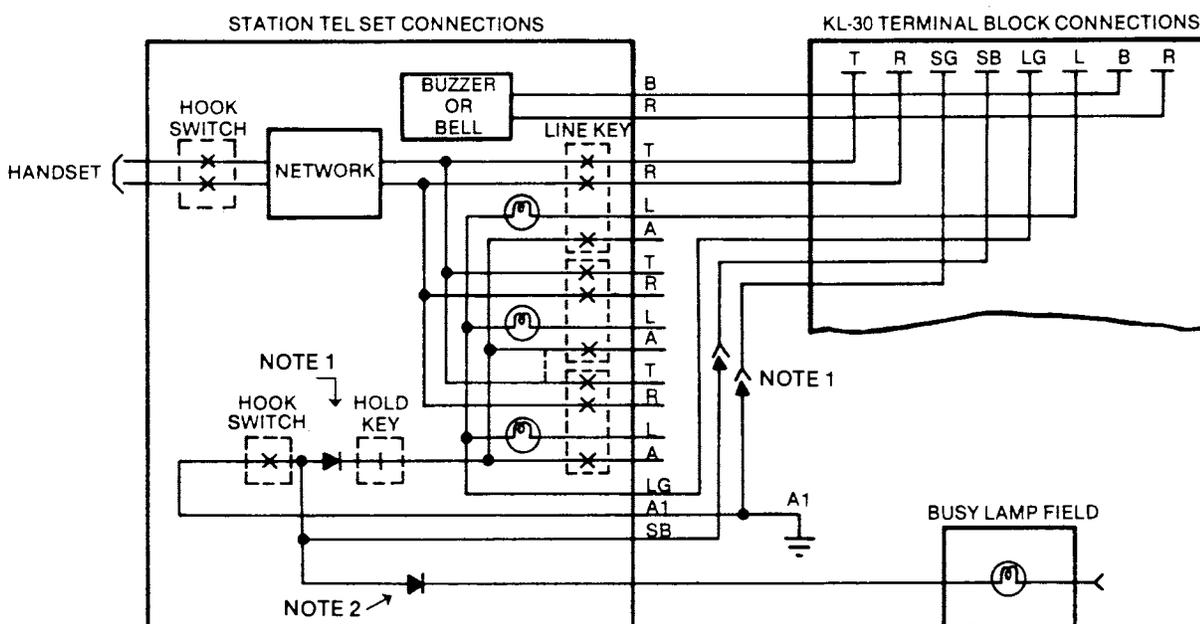
Signaling period:
 lamp 0.5 sec on, 0.5 sec off
 ringing 1 sec on, 3 sec off
 ringback 1 sec on, 3 sec off
 busy tone 0.5 sec on, 0.5 sec off

8.02 Order spares for standard items by number as follows:

TO ORDER:	SPECIFY ORDER NUMBER:	NOTES
Control Circuit Pack	120125	8 Stations/Pack Housing, Cover, Fuse Panel, Connecting Blks, PCB Backplane Operating Instruction Booklet
Power Regulator Circuit Pack	120126	
Station Circuit Pack	120127	
Housing and Backplane Assembly	120140	
User's Guide	470302	

8.03 Order optional items by number as follows:
(For details of option operation see applicable Melco practice listed below).

TO ORDER	SPECIFY ORDER NUMBER	NOTES	APPLICABLE MELCO PRACTICE
CA7	CA7	Seven Conductor Power Cable	—
4-Area Pager Circuit Pack	120128	Use when driving speakers directly	490047
Paging Access Circuit Pack	120185	Use when driving amplifiers. Has four outputs for four areas.	490048
Outside Line Access Circuit Pack	120129	Permits outgoing and incoming CO calls.	490058



NOTES:

1. CONNECT SB, SG AND DIODE FOR TELEPHONE OFF-HOOK BUSY SIGNAL. SEE PARA 3.02
2. INSTALL DIODE WHEN BUSY LAMP FIELD AND SB LEAD ARE BOTH USED.

Fig. 2 — KL 30 Typical Station Equipment Connection for 1 of 40 Stations.

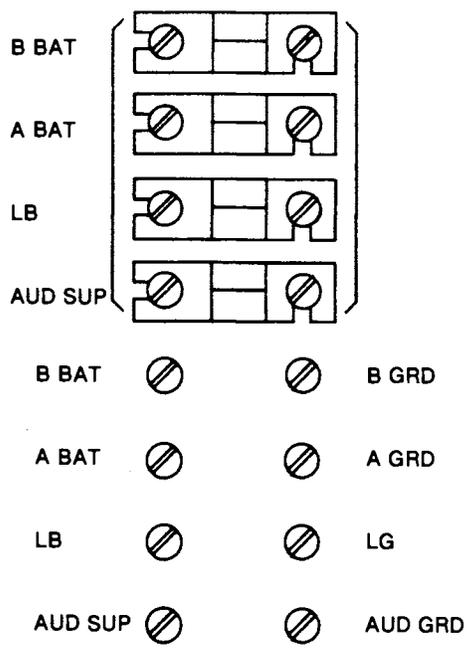


Fig. 3 — KL-30 Fuse Panel and Screw Terminal Designations.

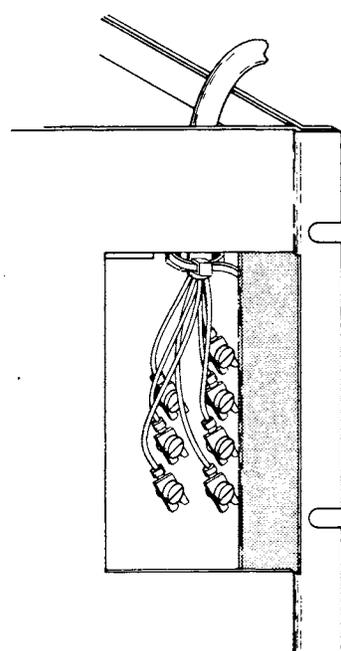
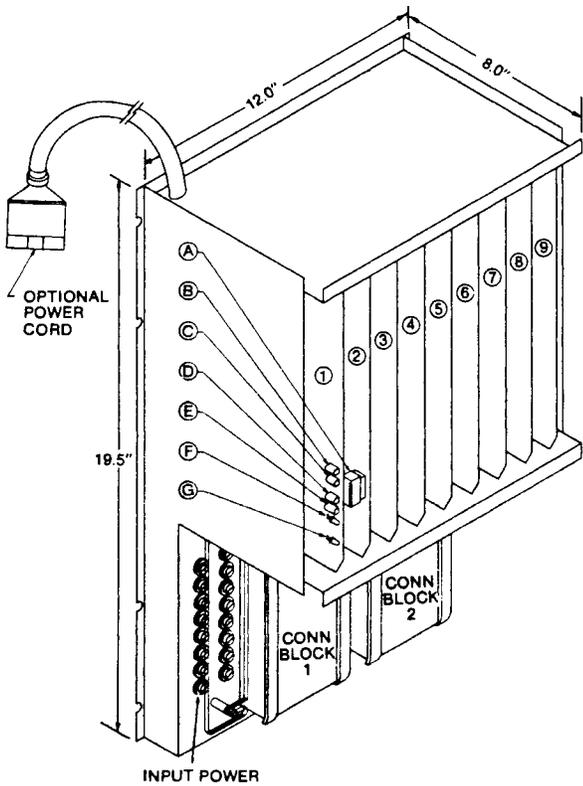


Fig. 4 — Underside of KL-30 Showing Screw Connections for CA7 Power Cable.

CA 7		KL-30	CA 7	
PLUG PIN	WIRE COLOR	SCREW POSITION & DESIGNATION ON UNDERSIDE OF KL-30	WIRE COLOR	PLUG PIN
			BLK	8
20	RED		GRN	12
16	WHT		ORN	4
24	BLU		BRN	9

Fig. 5 — Connections, Wire Colors and Plug Pin Numbers of CA7 Power Cable.



- ① POWER SUPPLY CARD (120126)
- ② CONTROL CARD (120125)
- ③ OPTION CARD, PAGING ACCESS (120185) OR FOUR AREA PAGER (120128)
- ④ OPTION CARD, OUTSIDE LINE ACCESS (120129)
- ⑤ STATION CARD (120127) 0, 20-26
- ⑥ STATION CARD (120127) 27-34
- ⑦ STATION CARD (120127) 35-42
- ⑧ STATION CARD (120127) 43-50
- ⑨ STATION CARD (120127) 51-58

- Ⓐ OPTION SWITCHES
- Ⓑ POWER TEST POINT B GRD
- Ⓒ POWER TEST POINT B BAT
- Ⓓ POWER TEST POINT -9V
- Ⓔ POWER TEST POINT -5V
- Ⓕ LINK 1 BUSY LED
- Ⓖ LINK 2 BUSY LED

Fig. 6 — Front of KL-30 Showing Card Positions.

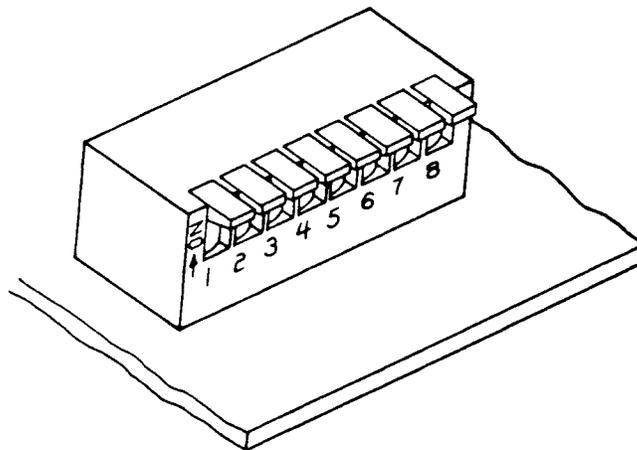


Fig. 7 — Option Switches on Control Card of KL-30.

KL-30 TWO-LINK INTERCOM SYSTEM

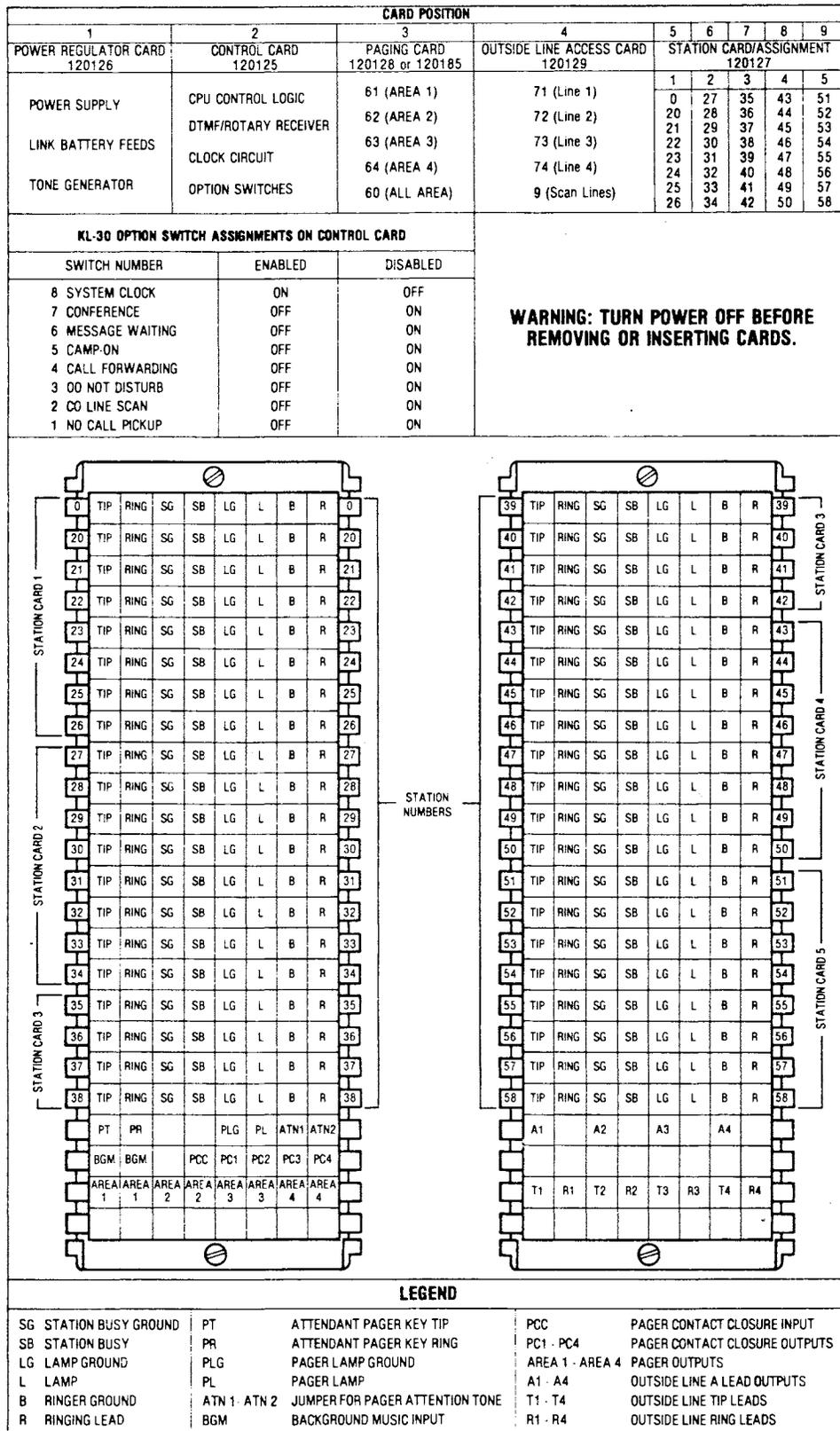


Fig. 8 — Option Switch, Function, Station, and Punch Block Pin Assignments.

TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	SOLUTION
<u>DEAD PHONE</u>		
All stations	Blown fuse(s)	Replace fuse(s)
	Open B bat. supply	Repair open connections
	Wrong voltages from power supply card (Para. 5.04)	Replace power supply card
	Open option switch on control card	Turn #8 switch "on"
	Defective control card	Replace card
Some stations	Defective station card(s) (Para. 5.02)	Replace card(s)
	Defective control card	Replace card
One station (One or both links)	Defective station card	Replace card
<u>NO LAMPS</u>		
All stations	Blown lamp bat. fuse	Replace fuse
	Open lamp supply circuit	Repair open connections
	Defective control card	Replace card
Some stations	Defective station card(s)	Replace card(s)
	Defective control card	Replace card
One station	Open station lamp circuit	Repair open connections
	Defective lamp	Replace lamp
	Defective station card	Replace card
<u>CONSTANT LAMPS</u>		
All stations	Open option switch on control card	Turn #8 switch "on"
	Defective control card	Replace card
Some stations	Defective station card(s)	Replace card(s)
	Defective control card	Replace card
One station	Defective station card	Replace card

TROUBLESHOOTING GUIDE (Continued)

<u>PROBLEM</u>	<u>PROBABLE CAUSE</u>	<u>SOLUTION</u>
<u>ERRATIC LAMPS — ON OR OFF, ON-HOOK OR OFF-HOOK, RANDOM STATION</u>	Defective control card	Replace card
<u>NO RING</u>		
All stations	Blown aud. supply fuse	Replace fuse
	No aud. supply	Repair open aud. supply circuit
	Defective control card	Replace card
Some stations	Defective station card(s)	Replace card(s)
	Defective control card	Replace card
One station	Open ringing ckt.	Repair station connections
	Defective ringer	Repair or replace
	Defective station card	Replace card
<u>CONSTANT RING</u>		
All stations	Open option switch on control card	Turn #8 switch "on"
	Defective control card	Replace card
Some stations	Defective station card(s)	Replace card(s)
	Defective control card	Replace card
One station	Defective station card	Replace card
<u>ERRATIC RINGERS — ON OR OFF, ON-HOOK OR OFF-HOOK, RANDOM STATIONS</u>		
	Defective control card	Replace card
<u>NO DIAL TONE</u>		
All stations	Defective power supply card	Replace card
	Defective control card	Replace card
Some stations or one station	Defective station card(s)	Replace card(s)

TROUBLESHOOTING GUIDE (Continued)

<u>PROBLEM</u>	<u>PROBABLE CAUSE</u>	<u>SOLUTION</u>
<u>CANNOT BREAK DIAL TONE</u>	Defective power supply card	Replace card
	Defective control card	Replace card
<u>NO BUSY TONE</u>	Defective power supply card	Replace card
<u>PERSISTENT BUSY TONE</u>		
All stations	Defective control card	Replace card
	Defective station card	Replace card (Para. 5.04)
One station	Do not disturb feature activated	
	Faulty SB lead	Repair foreign ground or other fault
	Phone off-hook	
	Defective station card	Replace card
<u>STATION BUSY (SB) CIRCUIT DOESN'T FUNCTION*</u>		
All stations	Defective control card	Replace card
Some stations or one station	Wiring errors	Correct wiring
	Defective station card(s)	Replace card(s)
<u>NO RINGBACK TONE, LAMPS LIGHT</u>		
	Defective power supply card	Replace card
	Defective control card	Replace card
<u>NO RINGBACK TONE, LAMPS DO NOT LIGHT</u>		
	Blown lamp battery fuse	Replace fuse
	Open lamp supply circuit	Correct wiring
	Defective control card	Replace card
<u>CONSTANT RINGBACK TONE & DIAL TONE</u>		
	Defective power supply card	Replace card
	Defective control card	Replace card

TROUBLESHOOTING GUIDE (Continued)

<u>PROBLEM</u>	<u>PROBABLE CAUSE</u>	<u>SOLUTION</u>
<u>NO RING CUT-OFF</u>	Defective called station card	Replace card
<u>CANNOT PAGE</u>	Defective pager card	Replace card
<u>CANNOT ACCESS OUTSIDE LINE</u>	Defective outside line access card	Replace card

*The KL-30 provides busy tone when the called station is off-hook on the intercom or an outside line.

Technical assistance on the KL-30, or any Melco product, is available from:

MELCO LABS
14408 N.E. 20th St.
P.O. Box 4026
Bellevue, WA 98009
(206) 643-3400

FOUR AREA PAGER FOR KL-30™ INTERCOM
(CIRCUIT PACK NO. 120128)

1. GENERAL

1.01 The KL-30 Four Area Pager is an option for the KL-30 Two Link Intercom for key systems. It provides paging capability to four areas without reducing station capacity. It also provides for background music to the four areas. The pager is intended for use with speakers and is not designed for use as a preamplifier.

2. DESIGN FEATURES

2.01 The Four Area Pager:

- provides two-digit dial access to any one of four areas or to all four areas simultaneously.
- provides for background music.
- has volume control for paging and background music for each area.
- has visual indicators to show which areas are being paged.

3. INSTALLATION

- 3.01 Disconnect power to the KL-30 intercom and remove the cover.
- 3.02 Insert the Four Area Pager circuit pack into position 3 of the KL-30 (components to the left). See Figure 2.
- 3.03 Turn all volume pots all the way counterclockwise.
- 3.04 Connect the speakers to connecting block terminals above labels AREA 1, AREA 2, AREA 3, and AREA 4. See Figure 3. Use speakers rated at 5 watts or more. Note that two wires are necessary; the return connects to B battery, not ground.
- 3.05 Connect wires from background music source to terminals above label BGM. See Figure 3.

3.06 Replace the cover.

3.07 Restore power to the KL-30. Adjust volume controls as desired for paging and background music for each area.

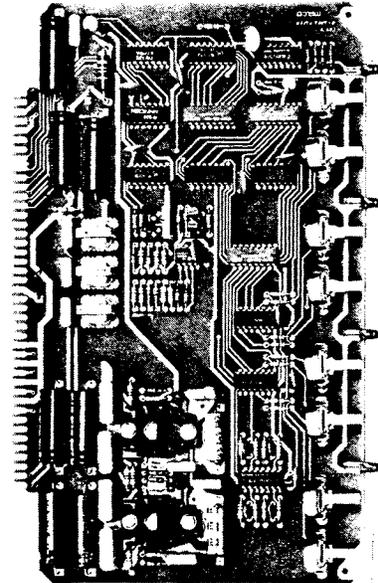


Figure 1

4. OPERATION

4.01 To access an area, the station user dials the access number for the desired paging area: 61 for Area 1, 62 for Area 2, 63 for Area 3, 64 for Area 4, and 60 for all areas. Paging in one area does not disrupt background music in other areas. Only one page at a time may be made. The talking link not being used for the page is still available for conversation. When a page to an area is in progress, the lamp for that area is lighted.

5. MAINTENANCE

5.01 Provisions are made for field replacement of defective circuit packs. Before removing, turn off the power. Replace the pack with another and restore power.

5.02 The Four Area Pager is warranted against manufacturing and material defects for two years. If it fails within that time, it will be repaired or replaced at no charge.

6. SPECIFICATIONS

6.01 Current at -24V DC @ 4 watts/area:
 w/8 ohm speakers 320ma max
 @ 1.5 watts/area:
 215ma max

Power out at 4 watts rms
 -24V DC max/area

Load 8 ohm speakers
 recommended
 (see Figs. 5 and 6)

Frequency 300 Hz to 3KHz
 response ± 3dB

6.02 Maximum loop resistance for half power to speakers: 66 ohms

Maximum cable length for half power to speakers:

18 ga.	500 ft.
22 ga.	200 ft.
24 ga.	125 ft.
26 ga.	75 ft.

6.03 Minimum input level for maximum power output of 4 watts rms: -13 dBm.

7. ORDERING INFORMATION

7.01 Order from your local supplier or distributor:

(QUAN) 120128 PAGER CIRCUIT PACK.

7.02 Technical assistance on the KL-30 Four Area Pager, or any Melco product, is available from:

MELCO LABS
 P.O. Box 4026
 Bellevue, WA 98009
 206/643-3400

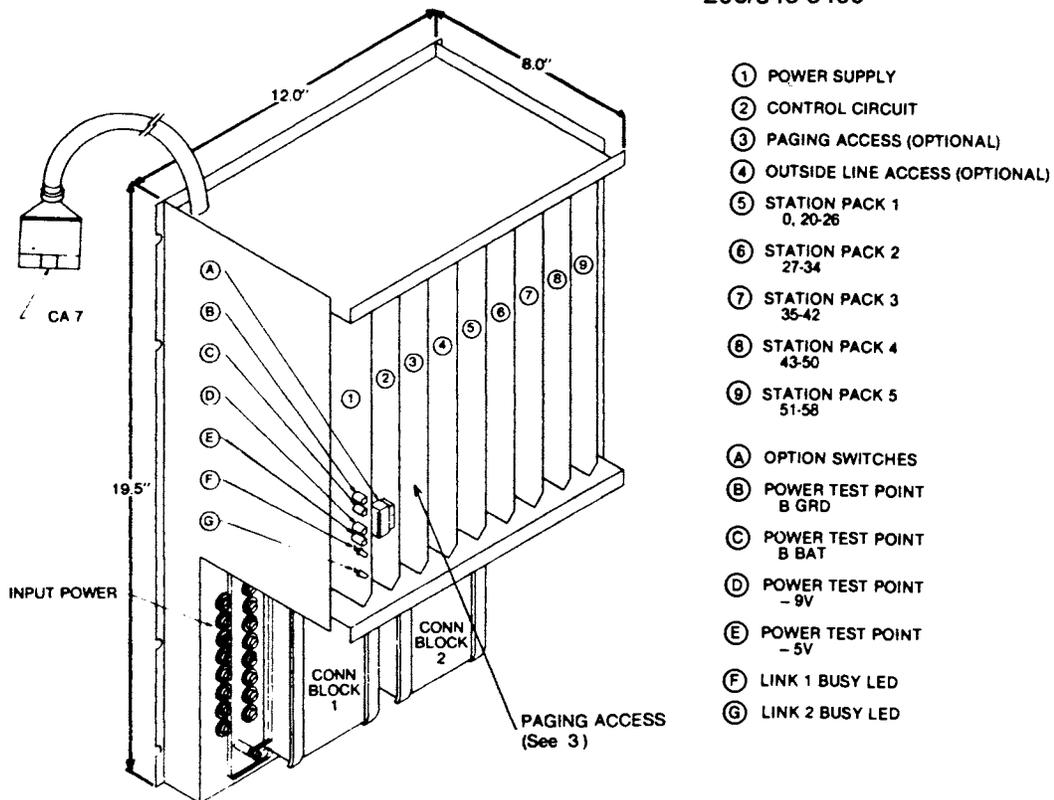


Figure 2—Front of KL-30 Showing Circuit Pack and Miscellaneous Component Locations.

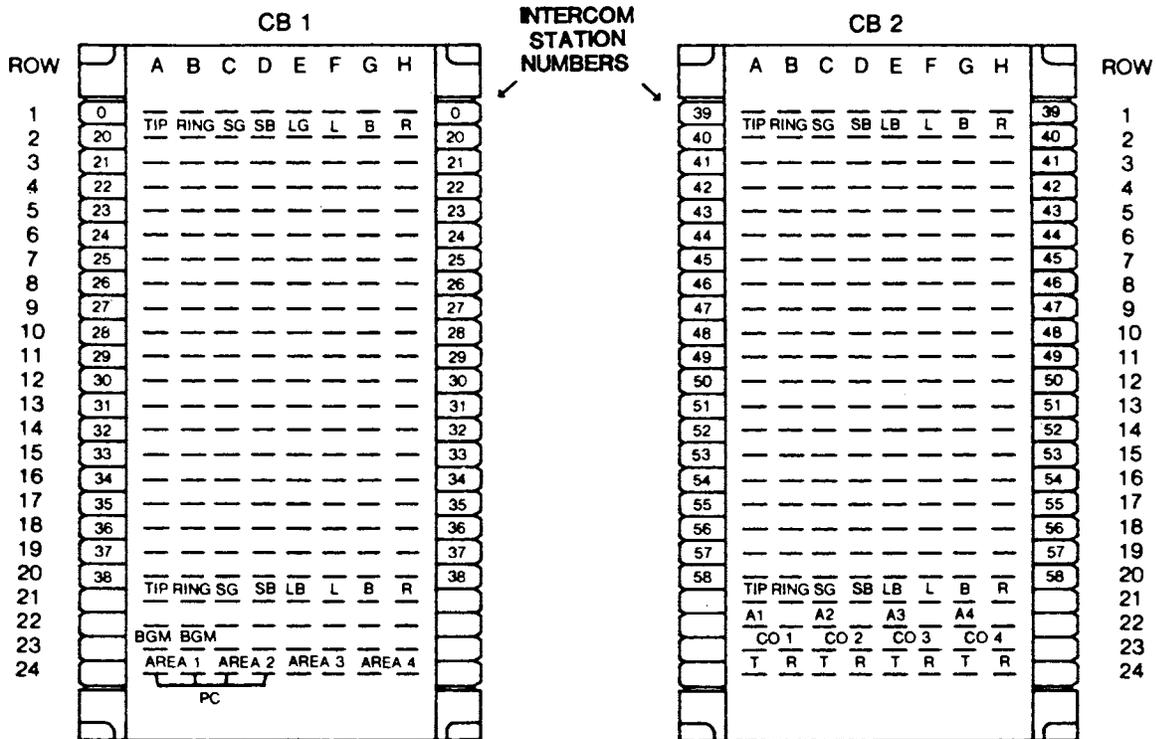


Figure 3—Station and Terminal Assignments of KL-30 Connecting Blocks.

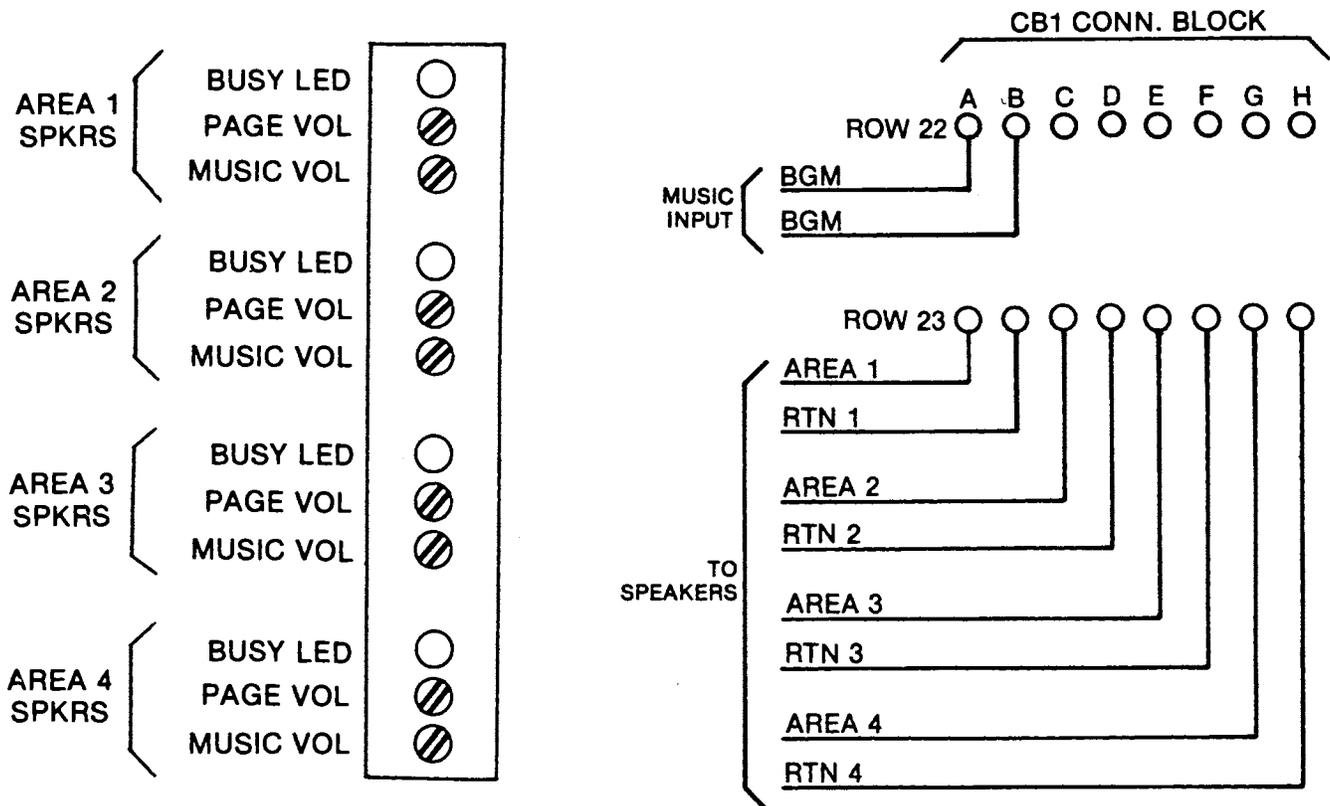


Figure 4 — KL-30 Pager Circuit Pack Card Edge.

Figure 5 — Connecting Block Terminal Assignment. Background Music and Paging.

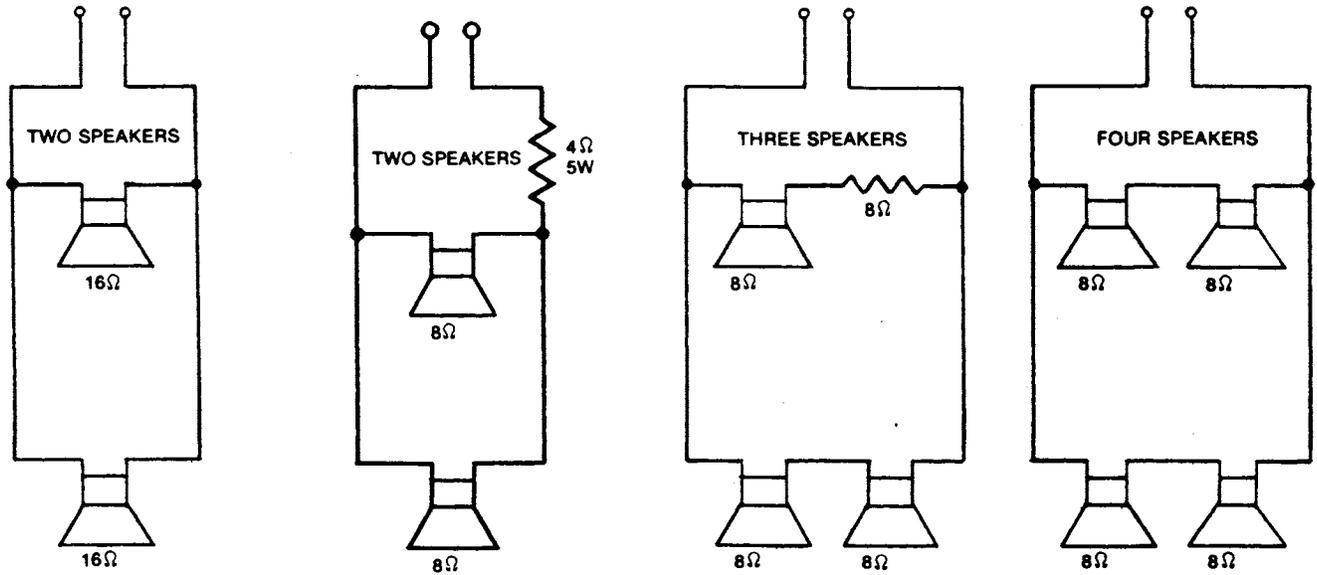


Figure 6 — Optional Speaker Arrangements

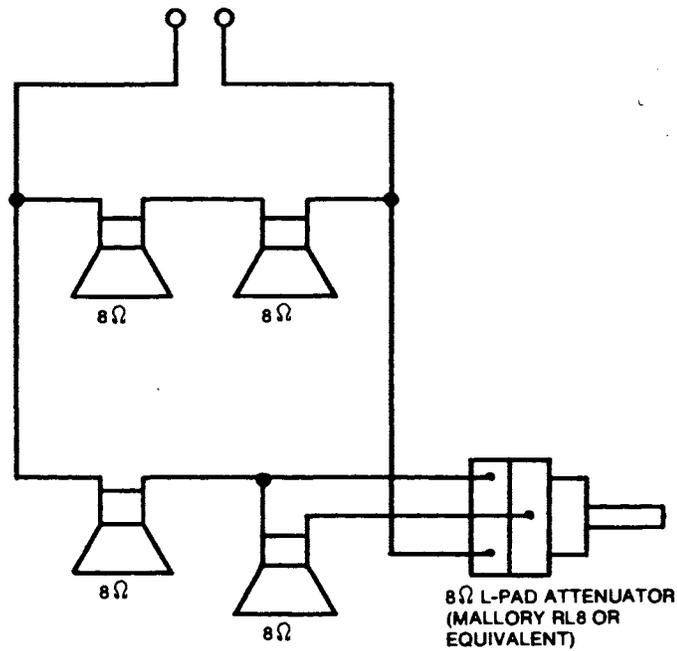


Figure 7 — Independent Volume Control Configuration

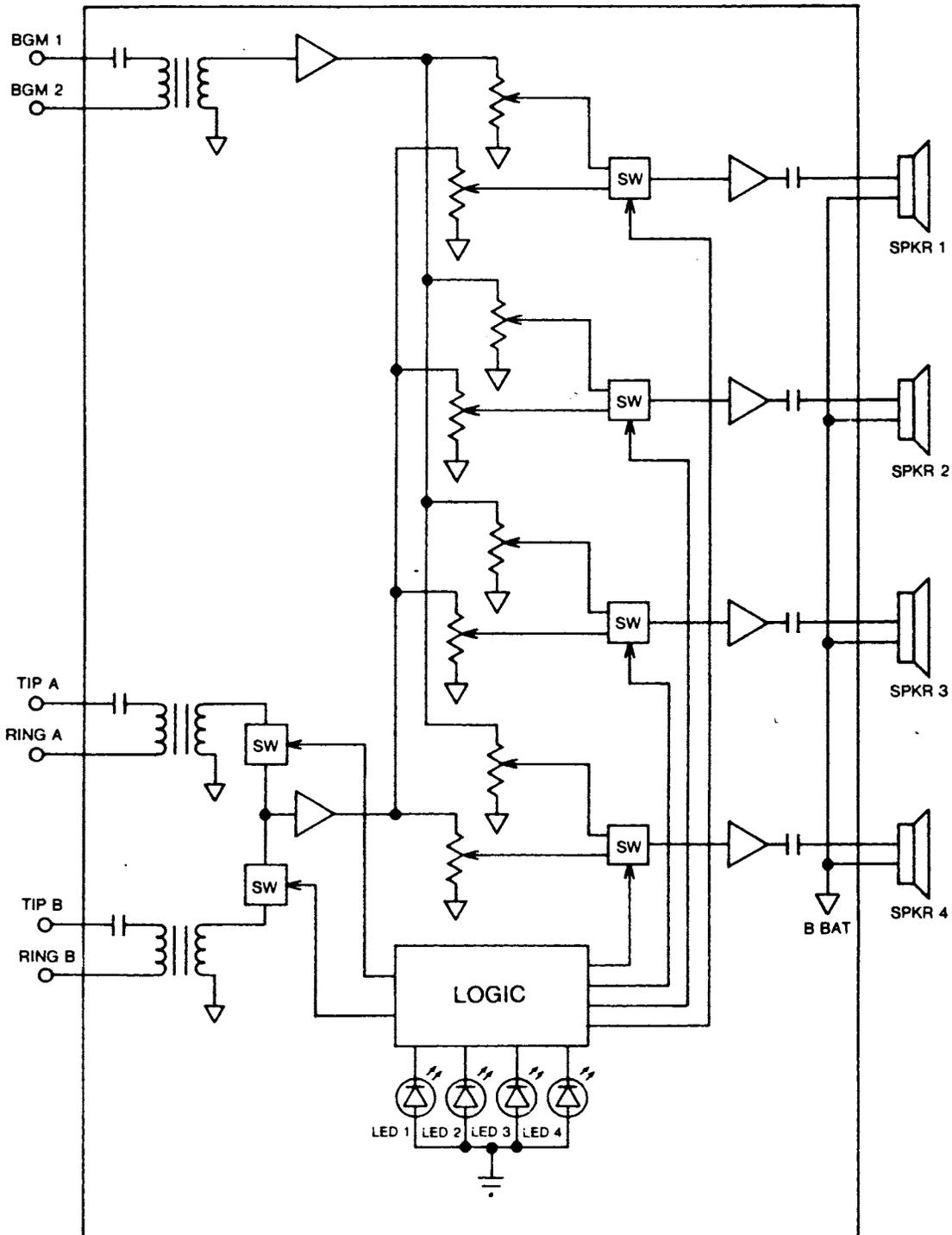


Figure 8 — Functional Schematic of KL-30 Four Area Pager

OUTSIDE LINE ACCESS FOR KL-30™ INTERCOM (CIRCUIT PACK NO. 120129)

1. GENERAL

1.01 The KL-30 Outside Line Access is an option to the KL-30 Two Link Intercom for key systems. It provides outgoing access from the intercom to four outside lines without reducing station capacity. Two CO calls may be in progress at the same time, one on each link.

2. DESIGN FEATURES

2.01 The Outside Line Access:

- provides two-digit tone or rotary dialing access to any one of four outside lines from the KL-30 intercom.
- provides busy signal if the outside line dialed is busy, ringing, or on hold.
- has visual indicators on the unit to show which outside lines are accessed.
- provides A leads to line card, if used.
- allows tone dialing telephones to establish a conference with intercom stations and an outside line.
- does not require line cards if associated lines are accessed only through the KL-30.

2.02 The KL-30 provides switch selectable features in conjunction with the Outside Line Access Option:

- conference call on an outside line
- dial 9 to scan for available outside line.

3. OPERATION

OUTSIDE LINE ACCESS

3.01 Dial the two-digit access code for the desired outside line: 71 for Line 1, 72 for Line 2, 73 for Line 3, and 74 for Line 4. The caller will receive a C.O. dial tone if the outside line is not busy. If the selected outside line is busy, the caller will receive a busy tone; another line may then be selected and accessed. The intercom talking link not being used for the outside line call is still available for an additional call.

3.02 The user may also access an outside line by dialing 9. The KL-30 then scans the outside lines and connects the calling station automatically to an available line. If no lines are available, the caller will receive a busy tone and must try again later.

NOTE: *The outside line scan option switch must be enabled to use this feature.*

3.03 When a call to an outside line from an intercom station is in progress, the LED on the circuit pack for that outside line is lit.

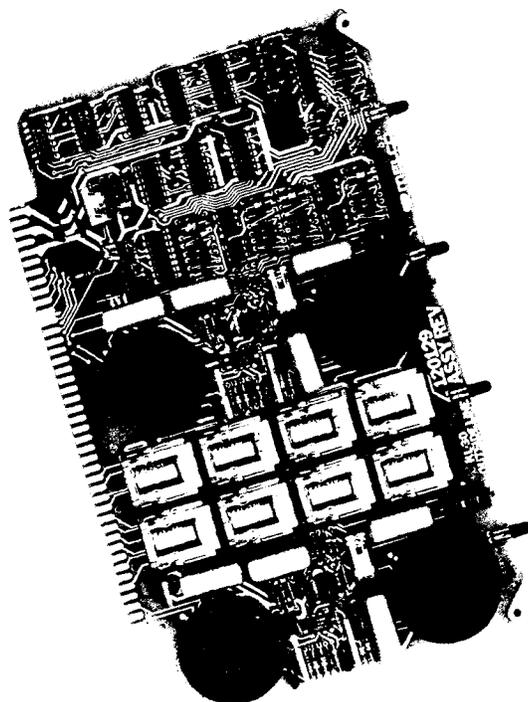


Fig. 1

INCOMING OUTSIDE LINE CALL TRANSFER

3.04 Incoming outside line calls may be transferred to an intercom station by the attendant (Station 0). The attendant places the outside line on hold, then, on the intercom key, dials 81 for Line 1, 82 for Line 2, 83 for Line 3, or 84 for

Line 4. Dial tone is reissued to Station 0. The attendant then dials the intercom station to which the outside line call is to be transferred. After the station answers and Station 0 returns on-hook, the station and the outside line are connected. If the station user does not wish to converse with the outside caller, the station user must hang up, and the attendant must press the outside line key without hanging up to keep the outside call alive. If the station does not answer or is busy, the attendant may freely use the intercom key while the outside line is still on hold.

CONFERENCE CALL ON AN OUTSIDE LINE: TONE ONLY

- 3.05 To initiate a private conference with intercom stations and an outside line, a station user dials "11", receives intercom dial tone, then dials the stations to be included in the conference. Intercom dial tone is received after dialing each station.
- 3.06 If a station is busy, busy tone is heard, and the initiator must repeat the procedure omitting the busy station.
- 3.07 After up to 3 stations are dialed, the conference initiator may dial either the two-digit access code for one of the outside lines (71, 72, 73, or 74) or the one-digit outside line scan code (9) if the outside line scan feature is enabled.
- 3.08 The conferencing stations now receive four rings (along with flashing lamp) during which time they must answer or be omitted from conference. Ringing and flashing lamp stop at a station when it answers.
- 3.09 When all stations answer or the time limit is up, central office dial tone is heard if the line is available. The outside line number may then be tone dialed. All other stations are locked out of the conference.
- 3.10 If the outside line is in use, busy tone is heard instead of the stations being rung. The initiator must repeat the procedure for conferencing.
- 3.11 At the conclusion of the conference, the equipment releases when all intercom stations disconnect.

NOTE: *The conference option switch must be enabled to use the conference feature.*

4. INSTALLATION

- 4.01 Disconnect power from KL-30 intercom and remove the cover.
- 4.02 Insert the Outside Line Access Circuit Pack into Position 4 of the KL-30 (components to the left.) See Figure 2.
- 4.03 Connect Tip and Ring of outside lines to connecting block terminals T1, R1, T2, R2, T3, R3, T4, and R4. See Figure 4. The Tip (T) terminal of unused outside lines should be connected to B battery.
- 4.04 Connect line card A leads to connecting block terminals A1, A2, A3, and A4 if a line card is used.
- 4.05 Replace cover and restore power to the KL-30.
- 4.06 Place conference and outside line scan option switches on Control Card in desired position (see Figs. 2, 3, and 4).

5. MAINTENANCE

- 5.01 Provisions are made for field replacement of circuit packs. Before removing a circuit pack, disconnect the power from the KL-30. Replace the circuit pack with another and restore power.
- 5.02 The Outside Line Access Circuit Pack is warranted against manufacturing and material defects for two years. If it fails within that time, it will be repaired or replaced at no charge.

6. SPECIFICATIONS

Current at -24V DC	
idle	20ma typ
2 lines busy	175ma typ
Crosstalk	less than -90 dBm
(0dBm 1KHz,	(output, 2nd link)
input, 1st link)	
Distortion	less than 1%
	(0dBm input)
Longitudinal balance	better than -60db
	200 to 1000 Hz
Insertion loss	3 dB max
C.O. loop	1800 ohms max
Dimensions	6.25" x 9.75" x 1.00"
Operating humidity	0 to 95%

Operating temperature0°C to 50°C
32°F to 122°F

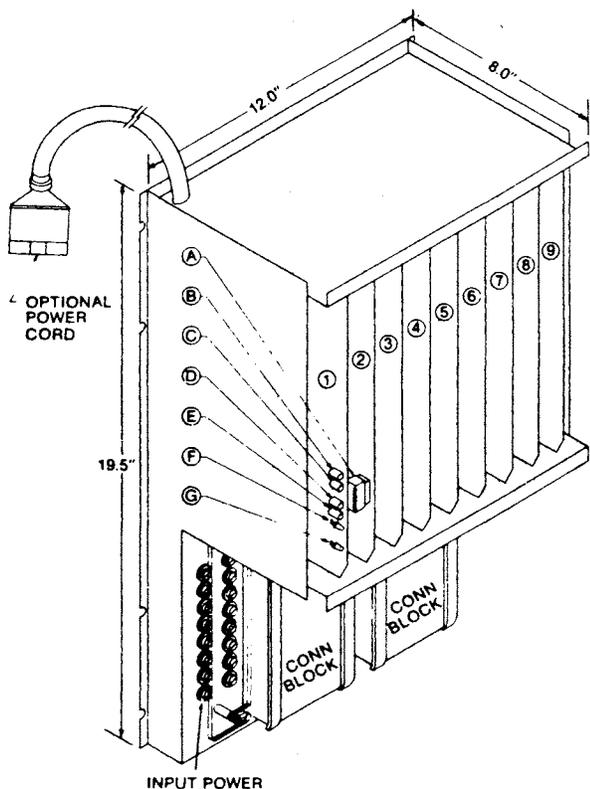
Weight2 lbs.

7. ORDERING INFORMATION

7.01 Order from your local supplier or distributor:
(QTY) 120129 OUTSIDE LINE ACCESS
CIRCUIT PACK

7.02 Further information and technical assistance on the KL-30 Outside Line Access Circuit Pack, or any Melco product, is available from:

MELCO LABS
14408 N.E. 20th St.
P.O. Box 4026
Bellevue, WA 98009
(206) 643-3400



- | | |
|--|--------------------------|
| ① POWER SUPPLY CARD (120126) | Ⓐ OPTION SWITCHES |
| ② CONTROL CARD (120125) | Ⓑ POWER TEST POINT B GRD |
| ③ OPTION CARD PAGING ACCESS (120185) OR FOUR AREA PAGER (120128) | Ⓒ POWER TEST POINT B BAT |
| ④ OPTION CARD, OUTSIDE LINE ACCESS (120129) | Ⓓ POWER TEST POINT -9V |
| ⑤ STATION CARD (120127) 0, 20-26 | Ⓔ POWER TEST POINT -5V |
| ⑥ STATION CARD (120127) 27-34 | Ⓕ LINK 1 BUSY LED |
| ⑦ STATION CARD (120127) 35-42 | Ⓖ LINK 2 BUSY LED |
| ⑧ STATION CARD (120127) 43-50 | |
| ⑨ STATION CARD (120127) 51-58 | |

Fig. 2 — Front of KL-30 Showing Card Positions.

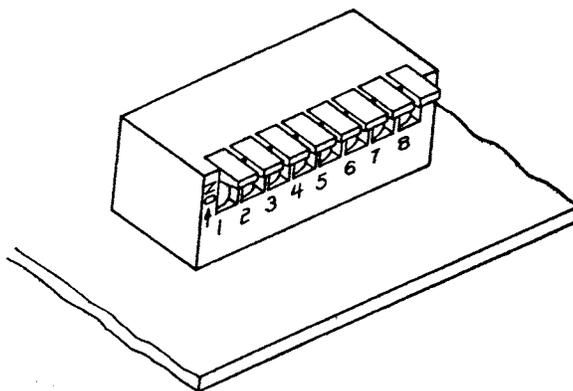


Fig. 3 — Option Switches on Control Card of KL-30.

KL-30 TWO-LINK INTERCOM SYSTEM

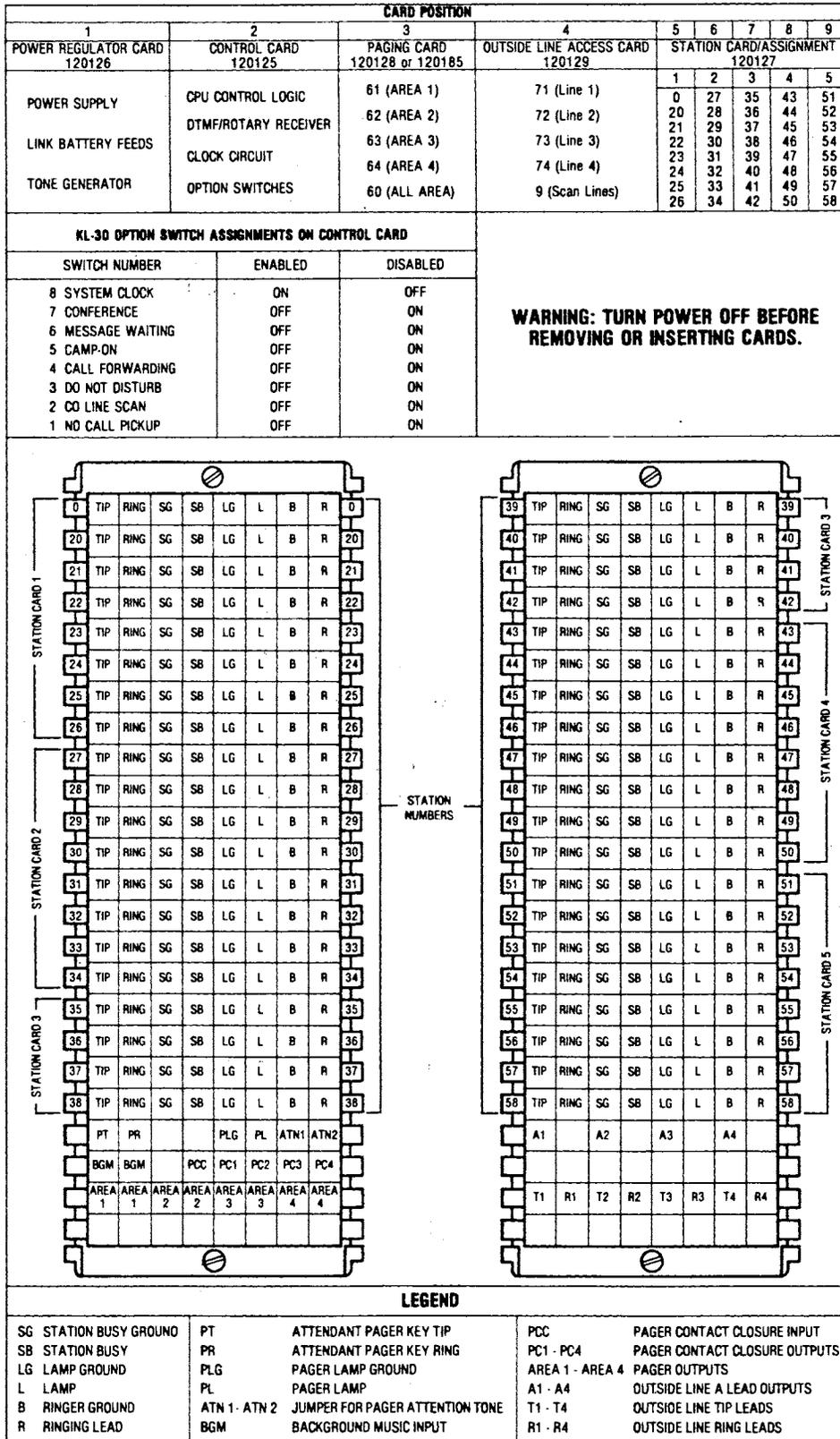


Fig. 4 — Option Switch, Function, Station, and Punch Block Pin Assignment.

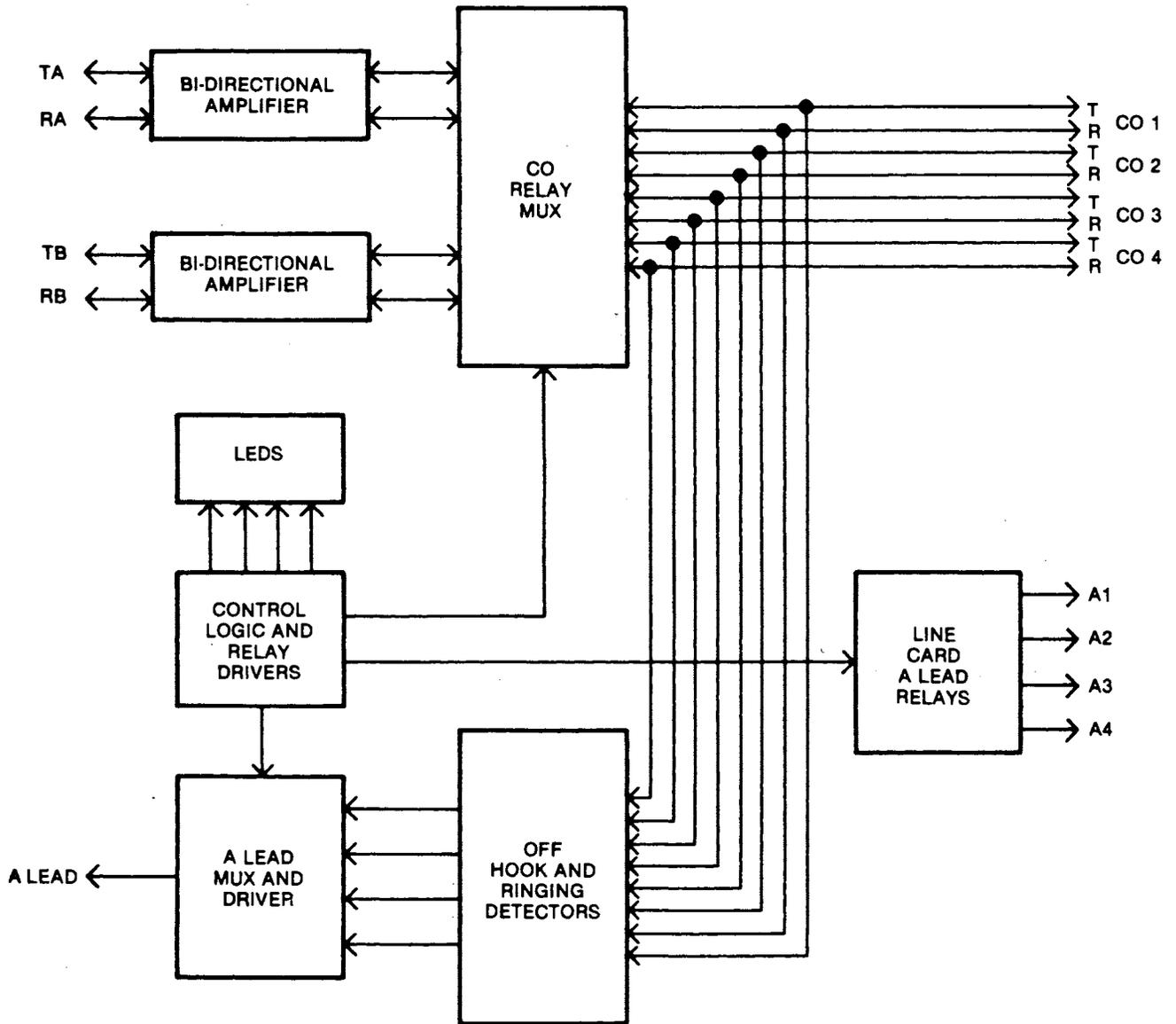


Fig. 5 — KL-30 Outside Line Access Circuit Block Diagram.

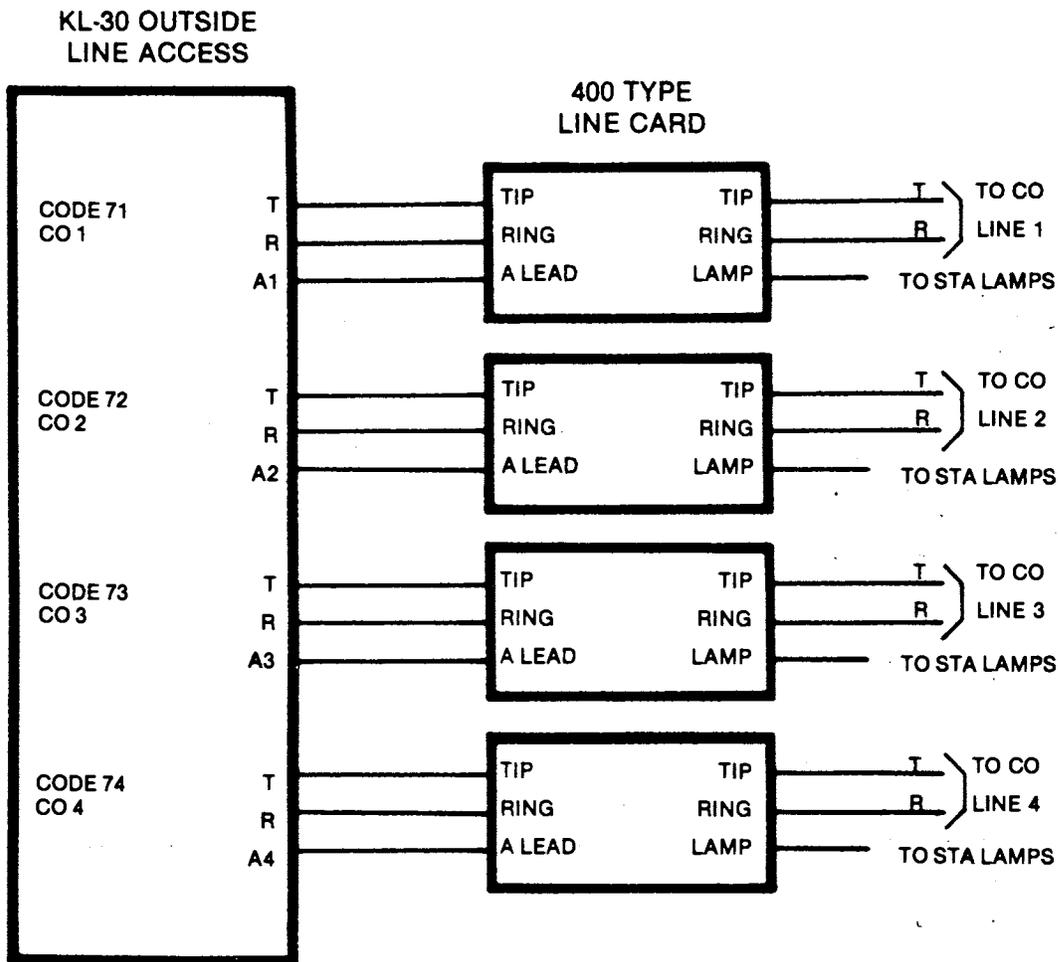


Fig. 6 — KL-30 Outside Line Access Connection to Line Cards.

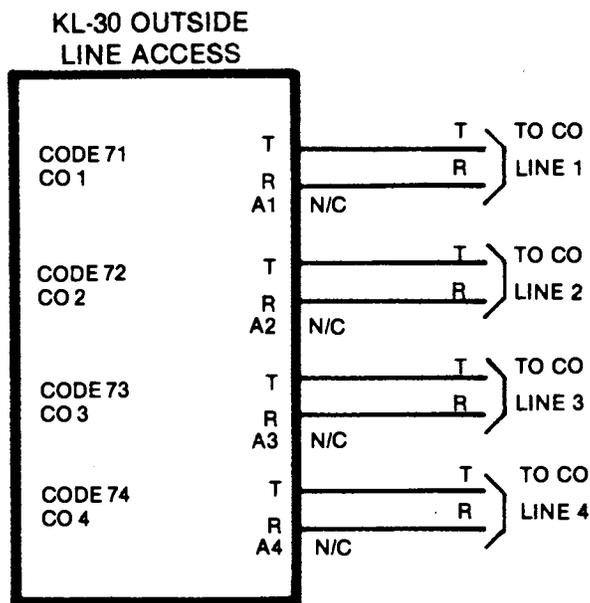


Fig. 7 — KL-30 Outside Line Access Connection without Line Cards.

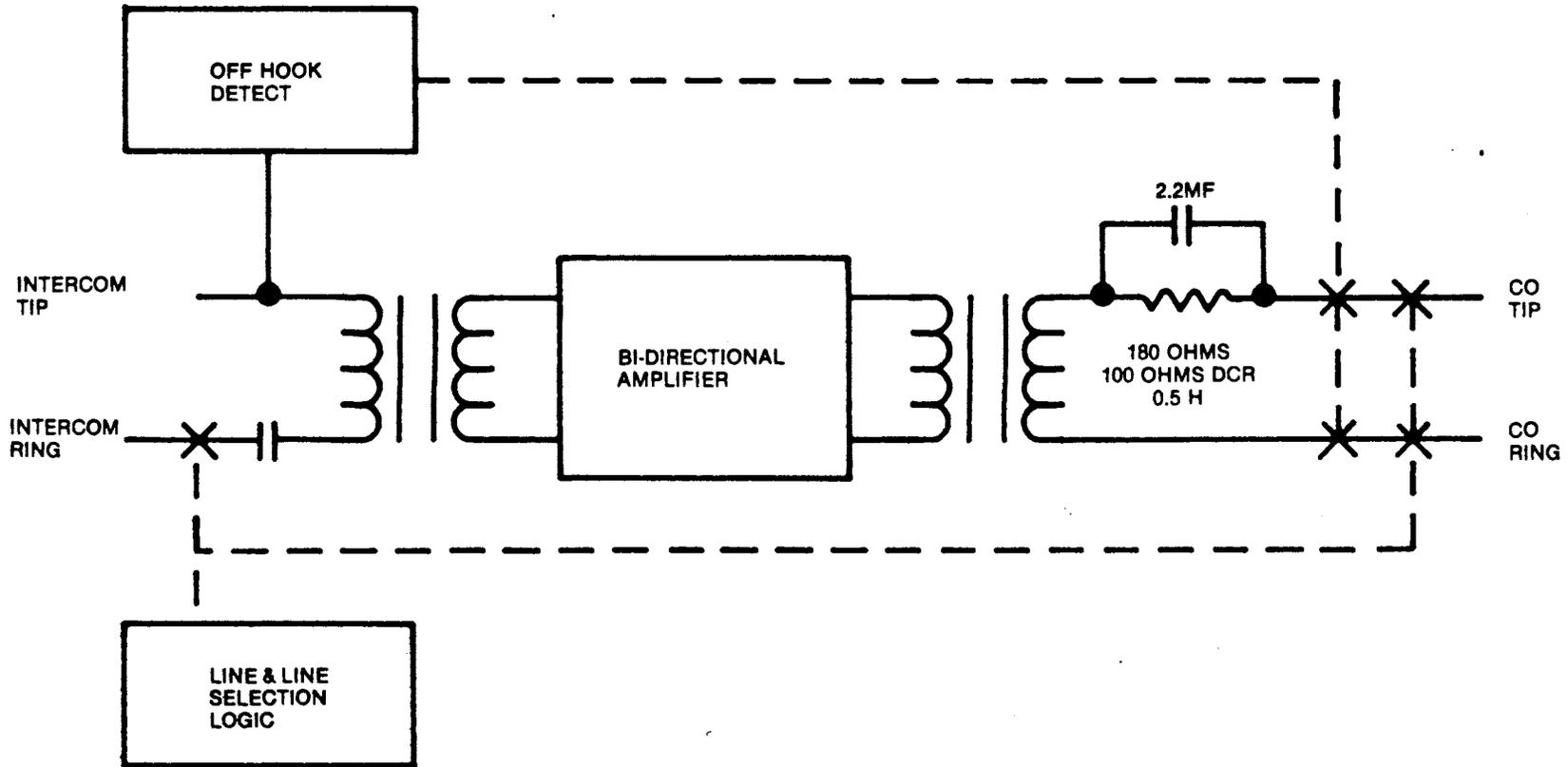


Fig. 8 — KL-30 Outside Line Access Typical Signal Path.

PAGING ACCESS FOR KL-30™ INTERCOM (CIRCUIT PACK NO. 120185)

1. GENERAL

1.01 The KL-30 Paging Access Circuit Pack is an option for the KL-30 Two Link Intercom. It provides paging capability to four areas without reducing station capacity. It also provides for background music to the four areas. The KL-30 Paging Access is for use as a preamplifier only.

2. DESIGN FEATURES

2.01 The Paging Access Circuit Pack:

- provides two-digit dial access to any one of four areas or to all four areas simultaneously.
- provides for background music.
- provides additional paging capability for attendant on separate key even if both links are busy.
- has visual indicators to show which areas are being paged.
- provides pager busy lamp lead for attendant and any other station requiring it.
- provides optional attention tone at start of page.
- provides transformer coupled outputs for driving external amplifiers.

3. INSTALLATION

3.01 Disconnect power to the KL-30 intercom and remove the cover.

CAUTION: *Static charges can damage circuit packs. Do not handle unnecessarily. Keep in protective packing when not in use. Be certain that your body is discharged of static charge before handling a circuit pack and then handle only by the plastic ejectors. Do not walk about with unpackaged circuit packs. Do not insert or remove circuit packs with the power on.*

3.02 Insert the Paging Access Circuit Pack into position 3 of the KL-30 (components to the left). See Fig. 2.

3.03 Connect the external amplifier inputs to connecting block terminals labeled AREA 1,

AREA 2, AREA 3, and AREA 4. Note that two wires are necessary; the outputs are transformer coupled. See Fig. 3.

3.04 Connect wires from background music source to terminals labeled BGM. See Fig. 3.

3.05 Connect special page tip and ring terminals (PT and PR) to attendant's phone using a key other than the intercom key. This allows the attendant to page on another key when both intercom links are busy with conversations.

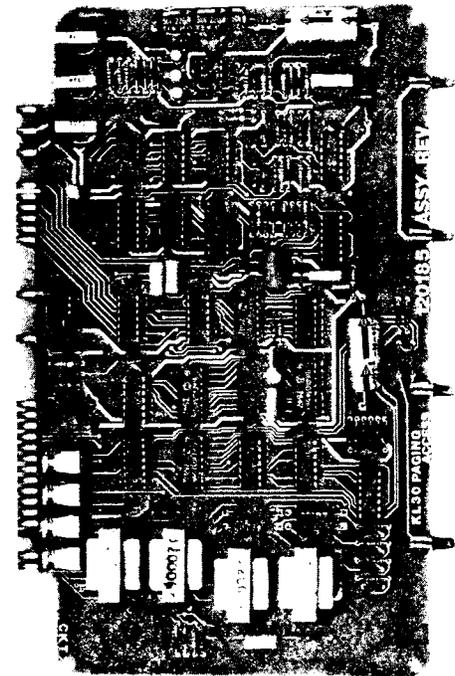


Fig. 1

3.06 Connect attendant's pager key lamp (and any other lamps desired) across pager lamp and pager lamp ground terminals (PL and PLG). This lamp indicates when the pager is in use.

3.07 Connect a strap from terminal ATN 1 to ATN 2 if attention tone before paging is desired.

KL-30 PAGING ACCESS

490072

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3.08 Connect paging contact closure common (PCC) and paging contact closure outputs (PC1, PC2, PC3, PC4) to auxiliary equipment as required.

3.09 Replace the cover and restore power to the KL-30.

3.10 Adjust volume controls on external amplifiers as desired for paging and background music for each area.

4. OPERATION

4.01 To access an area on the intercom key, a station user dials the access number for the desired paging area: 61 for Area 1, 62 for Area 2, 63 for Area 3, 64 for Area 4, and 60 for all areas. Paging in one area does not disrupt background music in other areas. Only one page at a time may be made. The talking link not being used for the page is still available for conversation. When a page to an area is in progress, the lamp for that area is lighted.

4.02 The attendant can page by dialing area numbers in the same manner as station users or, can access all areas by using the special paging key. The purpose for this feature is to allow the attendant to page even when both links on the intercom key are busy with conversations. If the pager busy lamp is not lit, the attendant simply comes off hook on the paging key without dialing and pages.

4.03 Table A clarifies what occurs when two people try to page at the same time.

5. MAINTENANCE

5.01 Provisions are made for field replacement of defective circuit packs. Before removing turn off the power. Replace the pack with another and restore power.

5.02 The Paging Access Circuit Pack is warranted against manufacturing and material defects for two years. If it fails within that time, it will be repaired or replaced at no charge.

6. SPECIFICATIONS

Current at -24V DC 50 ma
(with 600 ohm loads, idle or paging)

Operating temperature range 0° to 50°C
32° to 122°F

Operating humidity 0 to 95%

Paging Area Load 100 ohms min.
recommended

Frequency response ± 2 dB
(station input to pre-amp output
300 Hz to 3500 Hz)

Crosstalk between areas -60 dB
(300 Hz to 3500 Hz)

Maximum input without clipping + 10 dBm

Attention tone amplitude
at output -20 dBm nom.

Attention tone frequency 583 Hz nom.

Attention tone duration 0.4 sec. nom.

Pager lamp voltage 50 V peak max.

Pager lamp current 4 A max.

Contact closure voltage 100 V max.

Contact closure current 1 A max.

Contact closure power 20 W max.

Background music
input impedance 130 Kohms nom.

Output impedance 150 ohms nom.

7. ORDERING GUIDE

7.01 Order as follows:
(QTY) 120185 PAGING ACCESS
CIRCUIT PACK
from your supplier or distributor.

7.02 For further information or assistance with the KL-30 Paging Access or any Melco product, call or write:

MELCO LABS
14408 N.E. 20th St.
P.O. Box 4026
Bellevue, WA 98009
(206) 643-3400

ON INTERCOM KEY		ON PAGING KEY	INDICATION
Station User A	Station User B	Attendant Only	
PAGING	WANTS TO PAGE	—	Station User B gets busy signal after dialing paging access code.
PAGING	—	WANTS TO PAGE	If Attendant ignores pager busy lamp and comes off hook on paging key, the attendant <i>will not</i> get a busy signal and will not be able to page.
WANTS TO PAGE	—	PAGING ALL AREAS	If Station User A cannot hear any paging area and dial accesses the pager, the user <i>will not</i> get a busy signal and will not be able to page.

Table A. Indication when two users try to page at same time.

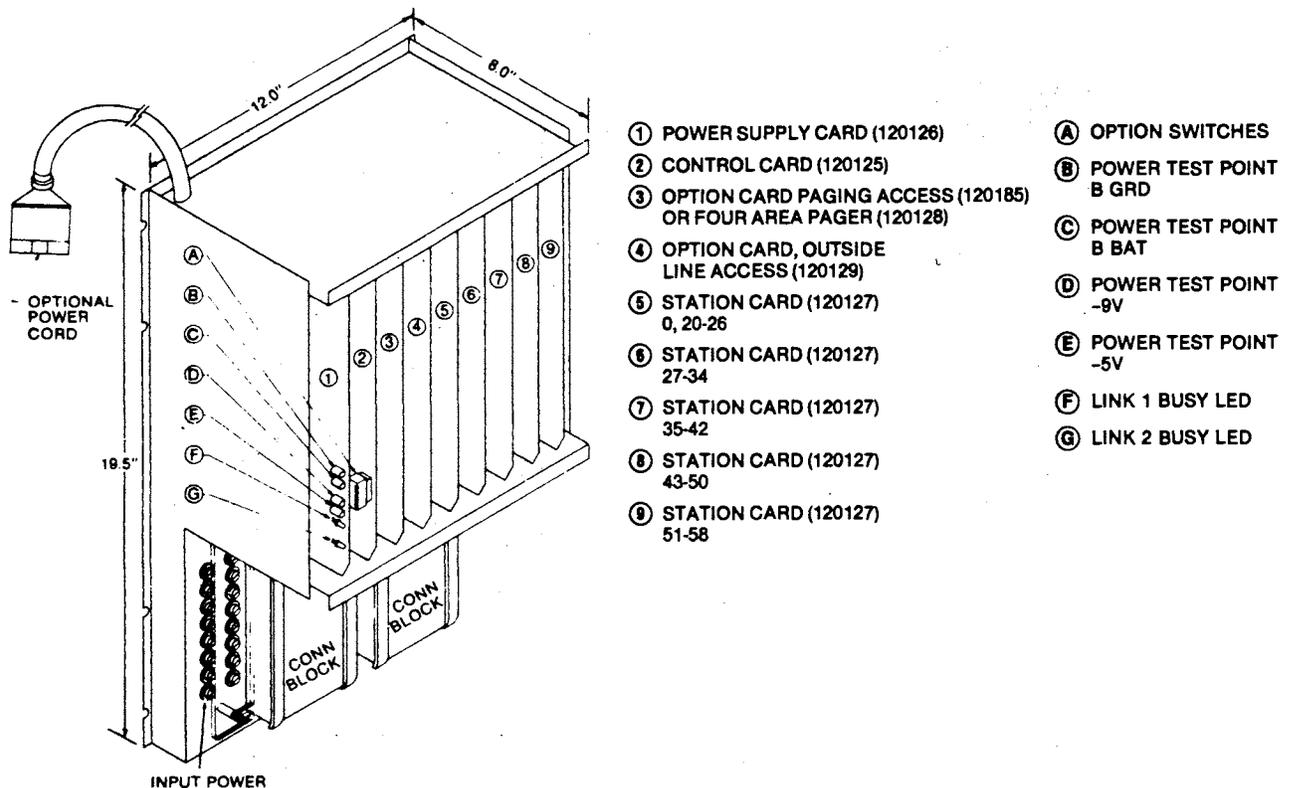


Fig. 2 — Front of KL-30 Showing Circuit Pack and Miscellaneous Component Locations.

KL-30 TWO-LINK INTERCOM SYSTEM

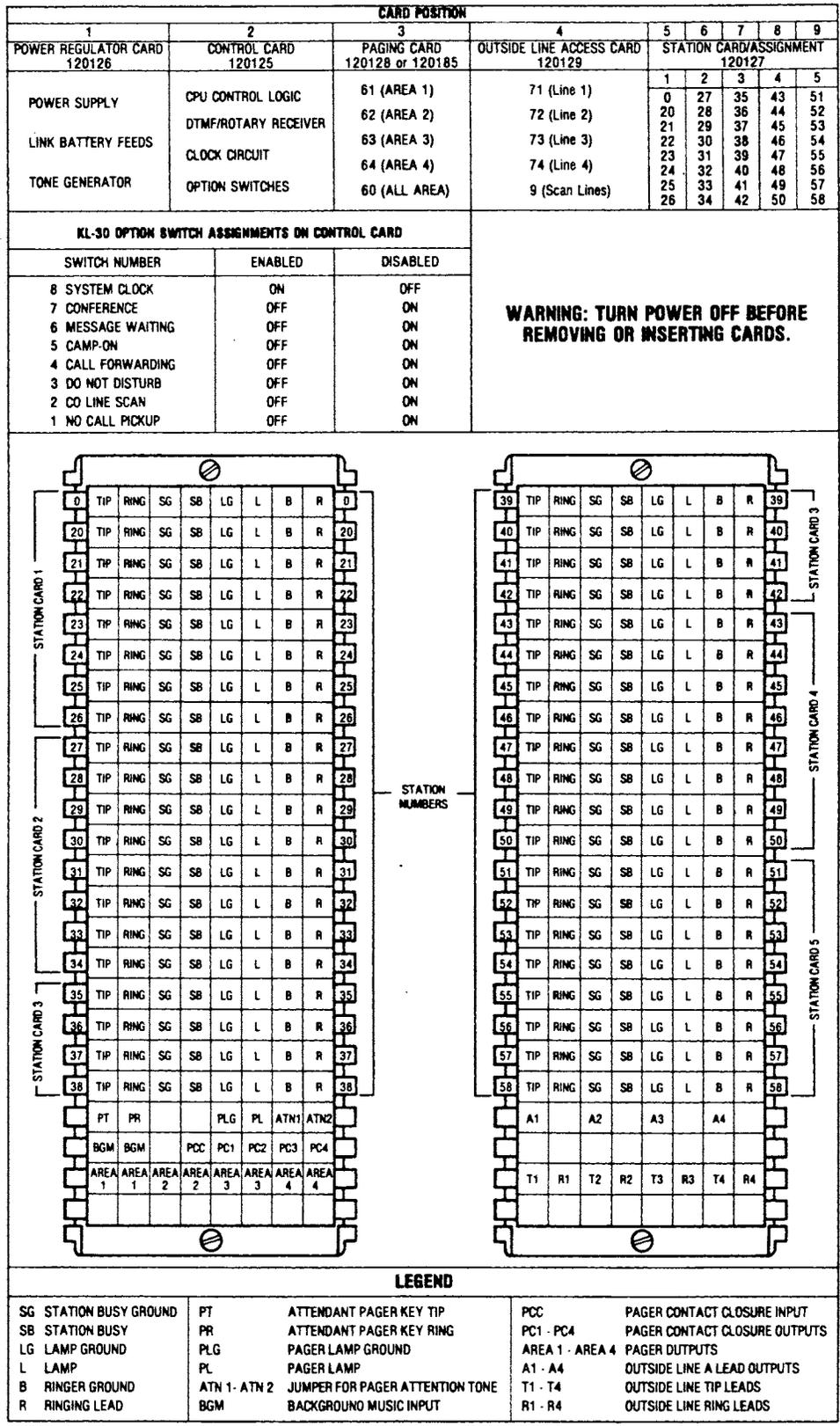


Fig. 3 — Option Switch, Function, Station, and Punch Block Pin Assignments.

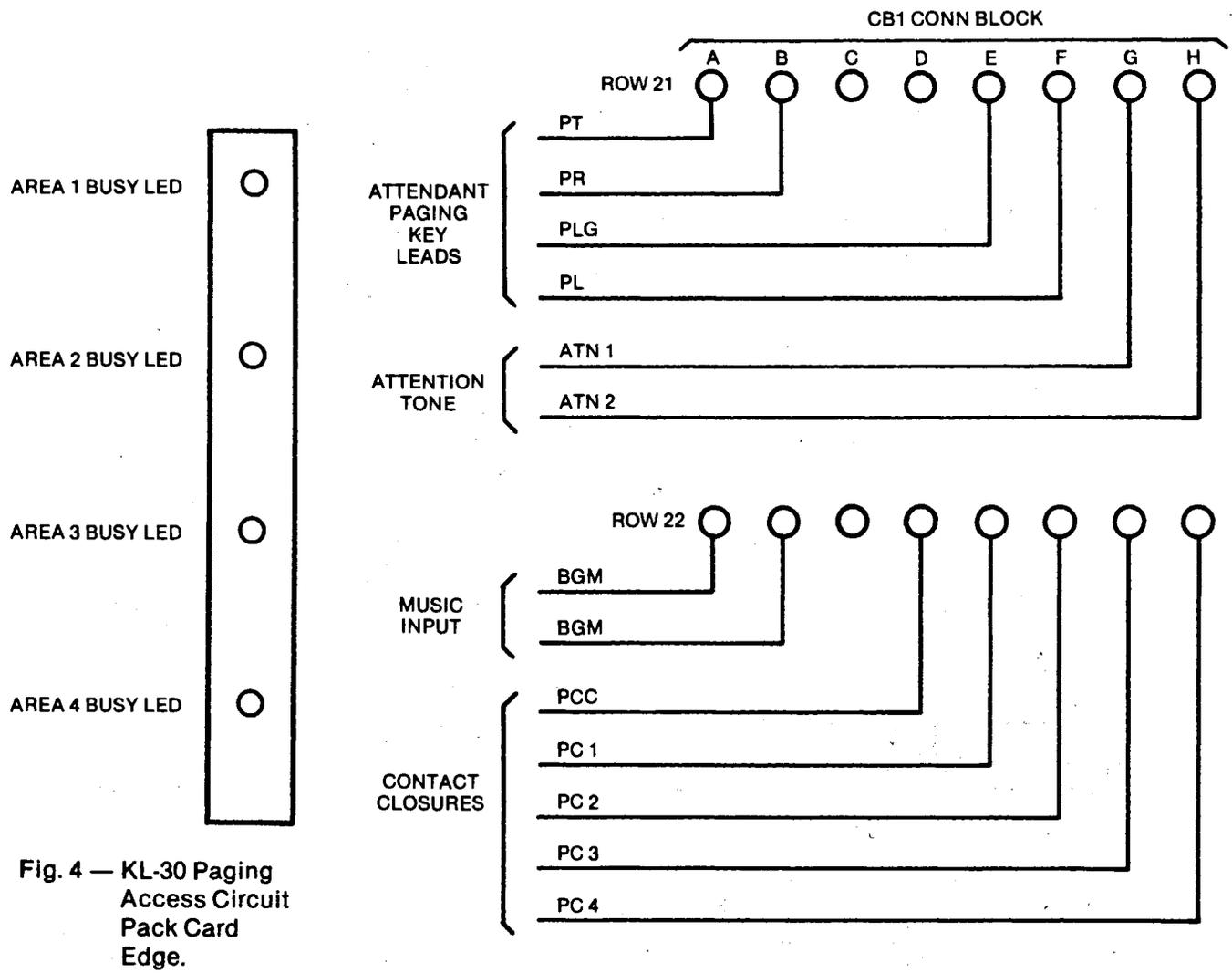


Fig. 4 — KL-30 Paging Access Circuit Pack Card Edge.

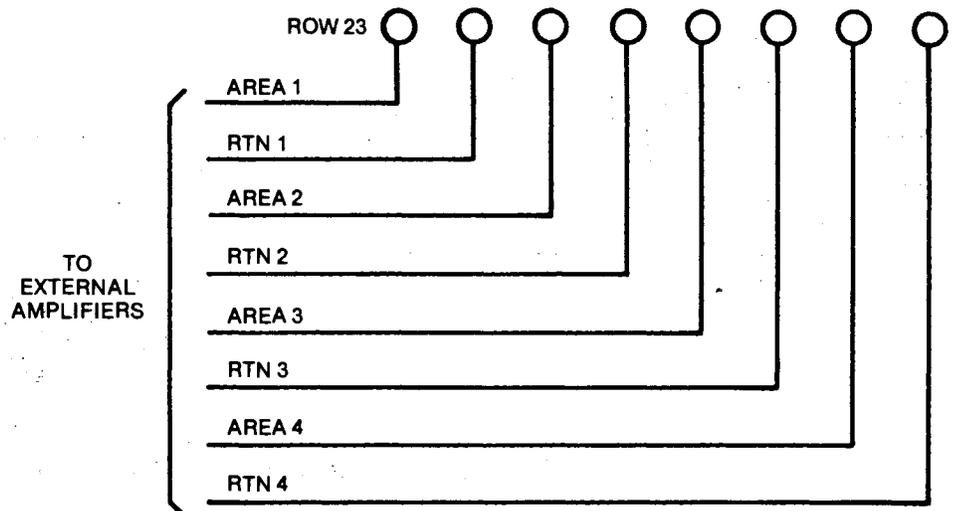


Fig. 5 — Connecting Block Terminal Assignments, Background Music and Paging.

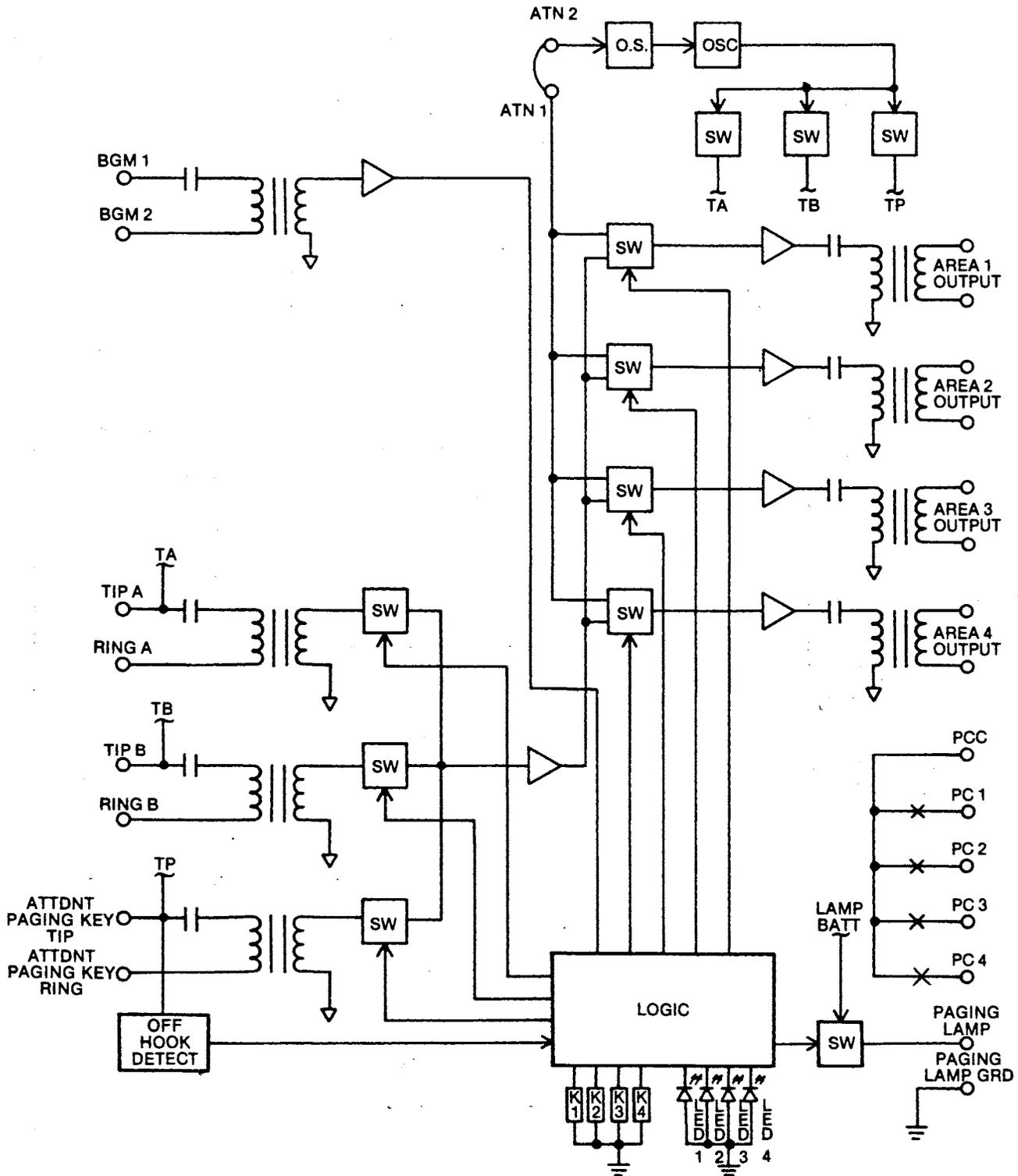


Fig. 6 — Functional Schematic of KL-30 Paging Access.