

MELCO PRODUCT BULLETIN . . .

M-19, M-37 & M-20 Modular Panels



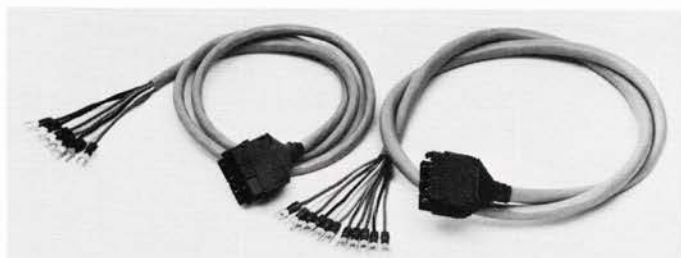
DESCRIPTION

Melco's modular panels are designed for rapid installation of key system intercoms. Each is equipped with connecting blocks, ribbon connectors, prewired printed circuit boards and optional power cords for easy connections. The M-19 is made for 19-station intercoms and the M-37 for 10, 19 or 37-station intercoms. The M-20 is for use with systems comprised of a Melco 37-station intercom and a Melco KL-20 Two-Link Adapter.

DESIGN FEATURES

- can be used for tone, rotary or combination tone/rotary intercom installations.
- designed for Melco or similar 1A1 and 1A2 type key system intercoms.
- can be mounted easily on a relay rack or backboard.
- pin designations are clearly labeled on connecting blocks. Connecting pins provide for testing or expanding the system.

- provisions are made on the connecting blocks for adding auxiliary equipment to the intercom system as desired.
- power connections can be made to screw terminals provided or with an optional plug-ended power cable which connects to a modular power supply. The Melco CA7 Power Cable Assembly is for use with the M-19, and the CA12 for the M-20 or M-37.



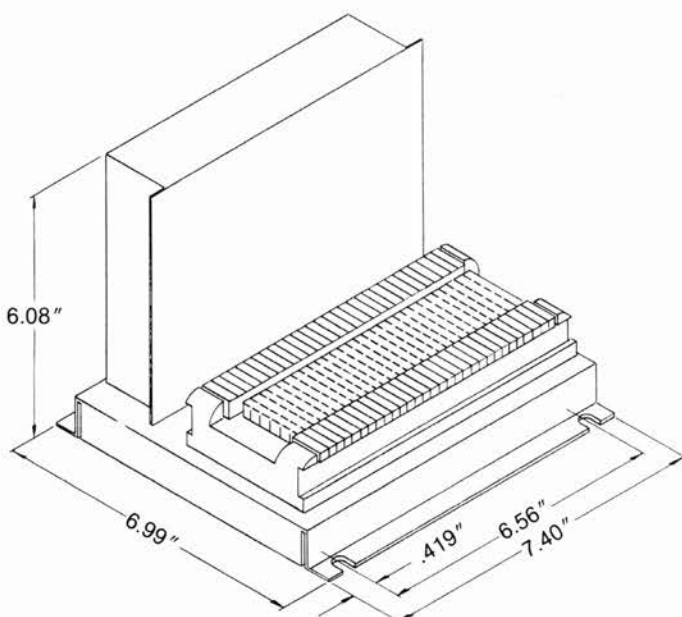
Melco CA7 and CA12 Power Cable Assemblies.

- four standard fuses are provided on the M-37 and M-20 front panel for A and B 24 volt power, lamp power and audible signal supply.
- a light emitting diode (LED) on the face of the M-37 panel indicates when the intercom is busy.

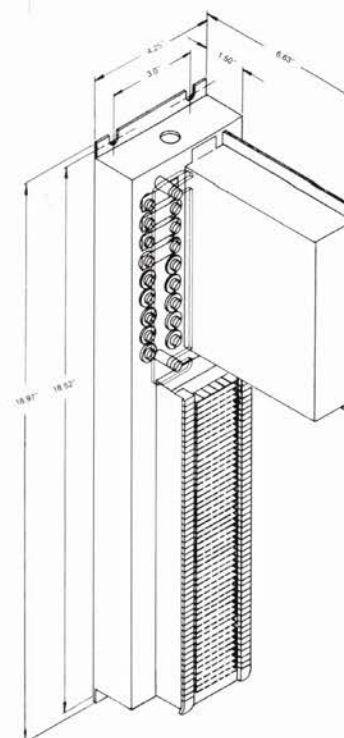
MAINTENANCE

All Melco modular panels are covered by a two-year warranty against manufacturing and material defects.

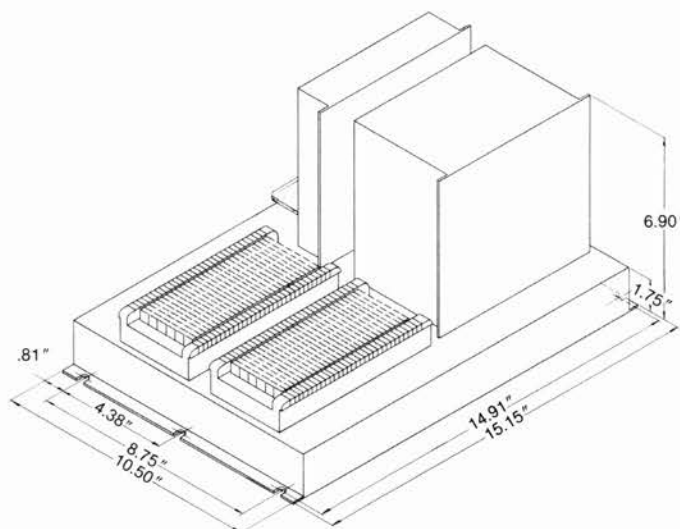
DIMENSIONS:



M-19—For 19-Station Intercoms.



M-37—For 10, 19, or 37-Station Intercoms.



M-20—For a Melco 37-Station Intercom and a Melco KL-20.

HOW TO ORDER

Order the M-19, M-37 or M-20 Modular Panel through your local supplier or distributor. For more information call or write:

MELCO LABS
14408 N.E. 20th
Bellevue, WA 98007
206/643-3400

MP-409 Key System Panel

1. GENERAL

1.01 The MP-409 Key System Panel allows for quick and convenient installation of a 4-line, 9-station key system in an area of 9-1/2 x 11-1/2 inches. The MP-409 is completely prewired and provides mounting capability for up to four 400-type key system line cards, an interrupter and an optional 9-station intercom. The power supply and interrupter for 10V AC buzzer operation are furnished. Telephone sets may be connected in series through the 25-pair output connector on the face of the panel.

1.02 The panel allows for direct plug-in connection of 400-type line circuit packs, typical of those used in LA2 type key systems.

1.03 An intercom connector is provided for plug-in connection of a Melco LMC-9 Combination 9-station intercom or a 401-type manual intercom. The LMC-9 provides combination tone or rotary dialing intercom functions. Station ringing is fully selective and may be repeated without on-hook, off-hook operation. Provisions are made for adding paging equipment to an MP-409 installation through an intercom station if desired.

1.04 C.O. connections can be made through a connector on the front of the panel which allows for direct plug-in connection of either an RJ-21 cable or a modular adapter for RJ-11 plugs. In addition, a 2 x 10 connecting block is provided on the MP-409 as an alternate method of terminating C.O. lines.

1.05 Melco MT-600 Six-Button Telephones are recommended for use with the MP-409. Most other six-button telephones are also compatible with modifications to the audible signaling devices (see Paragraph 3.08). Either tone or rotary dialing sets, or a combination of both, may be used.

2. DESIGN FEATURES

2.01 The MP-409 Key System Panel:

- * provides a variety of options for station and C.O. connections, and does not require connecting blocks for either station or C.O. connections.

- * allows telephone sets to be connected in series, eliminating cable redundancy from wiring telephone sets in parallel.

- * is furnished with a solid state interrupter (Melco KI-409).

- * is available with an optional locking panel cover.

- * when used with the LMC-9 intercom, provides output connections for a paging amplifier or paging access unit.

- * is compatible with most standard line cards. Refer to Figure 2 for Line Card terminal assignments.

3. INSTALLATION

3.01 Mount the MP-409 on the wall, on a plywood backboard or on a standard equipment rack. Select a location within three feet of a standard 120 volt AC power outlet. Secure the unit in place with the screws provided.

GROUNDING

NOTE: A good grounding system which allows desirable voltages and currents to be held safely constant while destructive power surges, commercial power imbalances and lightning strikes are carried off to earth ground is a necessary part of the installation of a good communications system.

3.02 To provide an adequate grounding system connect the screw terminal on the front panel (chassis ground) and the protectors for any line entering the system in common with at least a Number 10 AWG copper wire. The internal ground can be connected to the common ground either at the power supply or by strapping any one of the screw terminal grounds to chassis ground. Continue the common ground to a metal cold water pipe. Connect with clamps to a clean area of the pipe. The pipe should run underground for at least 10 feet in earth damp enough to maintain a zero or near zero earth potential. If there is any doubt, bonding should be installed around the water meter to allow the street main to be part of the ground system. Be certain there are no plastic sections in the pipe between the ground connection and the water main.

3.03 Several types of line protectors are available. Gas protectors with tip and ring in a common envelope allowing both sides of the line to discharge at once are recommended. Power supply grounds are connected in common in the MP-409 panel.

3.04 Insert the Melco KI-409 Interrupter into the MP-409 connector labeled "INTERRUPTER".

3.05 Insert the Melco LMC-9 Intercom or a 401 type manual intercom into the MP-409 INTERCOM connector. If a manual intercom is used, a bridging clip must be installed on the 2 x 10 connecting block between GRD and R(4) (see Fig. 3).

3.06 Insert one to four 400-type line cards into the appropriate MP-409 LINE CARD connectors as required.

3.07 Make station connections using one of the following three methods:

1. If the Melco LMC-9 Intercom is not used, telephone sets may be connected in series using standard three-plug bridging adapters such as an Amphenol No. 283-105-01: Insert a standard 25-pair connector cable into the MP-409 "STATIONS" connector, route the cable to the first telephone set, and plug it into the first connector on the bridging adapter. Plug the telephone cable into the middle connector, then plug another length of cable into the third connector. Connect that cable to the next bridging adapter and telephone set and continue in the same manner until all telephone sets are connected. (See Figure 4.)

2. If the Melco LMC-9 Intercom is used, connect telephone sets in series using Melco S-77 Bridging Adapters. Follow the same procedure as described in Paragraph 2, above (see Figure 4). Assign intercom station numbers at each telephone and determine whether the telephone will ring for incoming calls by selecting the options on the S-77 as shown in Figure 5. (Refer also to the S-77 Installation Instructions.)

3. In some installations it may not be desirable to connect all telephone sets in series using one cable. For these locations, wire a 25-pair connector cable from the MP-409 STATIONS connector to a 66-type connecting block, and route separate cables to each telephone.

3.08 If the Melco MT-600 Telephones are used in the system installation, they may be plugged directly into a standard bridging adapter or into the Melco S-77 Bridging Adapter with no modifications. To allow for the two 10-volt buzzers which the MT-600 uses for signaling, install bridging clips on the MP-409 connecting block between 10V AC and AUD SUP 1, and between 10V AC and AUD SUP2 (See Figure 3).

NOTE: Although the MT-600 is the recommended telephone set for use with MP-409 installations, most other standard six-button tone or rotary dialing telephones may also be used. However, some minor changes may be required to configure the audible signaling devices. The MP-409 uses separate signaling devices for the

common audible signal and for the intercom. A 10V AC ringing generator is provided to operate these buzzers. Provision is made for other ringing voltages to be substituted from an external source if required for the telephone instruments to be installed. If the system is to be installed without the LMC-9 Intercom, only one signaling device is required.

3.09 Make C.O. connections using one of the following three methods:

1. Insert an RJ-21 cable into the LINES connector on the MP-409.

2. Insert a Melco S-76 Modular Adapter, which provides 4 modular jacks for RJ-11 plugs, into the MP-409 LINES connector.

3. Insert a 25-pair connector cable into the MP-409 LINES connector and wire the cable to a 66-type connecting block referring to Figure 7.

3.10 If paging capability is desired, a paging amplifier or paging access unit may be added to the installation providing the system is used in conjunction with a Melco LMC-9 intercom. The MP-409 connecting block brings out the lines required to access paging equipment from the R0, R4 or R8 station lead on the LMC-9 intercom (refer to Figures 3 and 8a & 8b). Paging is connected as shown in the appropriate Melco Technical Practice for the paging equipment installed. Compatible Melco paging equipment is listed in Section 5.

4. MAINTENANCE

4.01 If the equipment fails to function properly, verify that all connections are secure and correct. The MP-409 is warranted to be free of defects in material and workmanship. If failure occurs within the warranty period, it will be repaired or replaced without cost. See the Melco Warranty Service Policy for further details.

5.03 Further information on the MP-409 or any Melco product is available from:

MELCO LABS, INC
14408 N.E. 20th Street
Bellevue, WA 98007

(206) 643-3400

TWX: 910-443-3040

5. ORDERING INFORMATION

5.01 Order the MP-409 as follows:

(QTY) 120322 MP-409 KEY SYSTEM
PANEL

OPTIONAL:

(QTY) 120328 MP-409 COVER
(QTY) 120324 S-76 MODULAR ADAPTER
(QTY) 120323 S-77 BRIDGING ADAPTER
(QTY) MT-600 SIX-BUTTON TELEPHONE

from your local supplier or distributor.

5.02 Compatible Melco equipment includes the following:

LMC-9 COMBINATION DIALING
INTERCOM, 9 STATIONS
KA-380 PAGING ACCESS UNIT
KA-384 FOUR AREA PAGING ACCESS UNIT
KA-390 DIRECT PAGING ACCESS UNIT
KT-363 PAGING AMPLIFIER
KT-364 FOUR AREA PAGING SYSTEM

1	R LEAD
2	LAMP WINK
3	GROUND
4	LAMP BATTERY, 10V AC
5	ST
6	LAMP GROUND
7	LAMP FLASH
8	LAMP
9	CO RING
10	RING BATTERY (FROM AUD SUP 1)
11	RN INTERRUPTER AUD
12	STATION TIP
13	STATION RING
14	CO TIP
15	B GRD
16	A GRD
17	B BATTERY
18	A BATTERY

Fig. 2 -- Line Card Connectors.

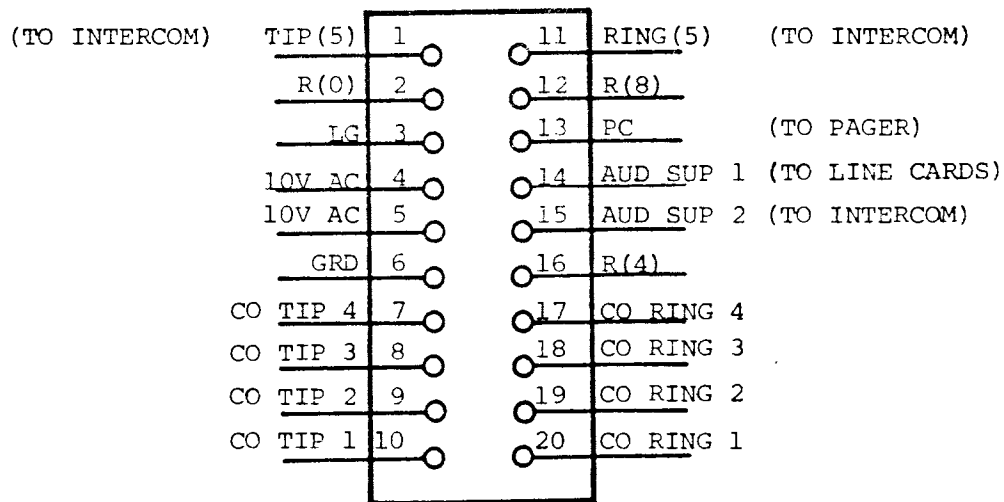
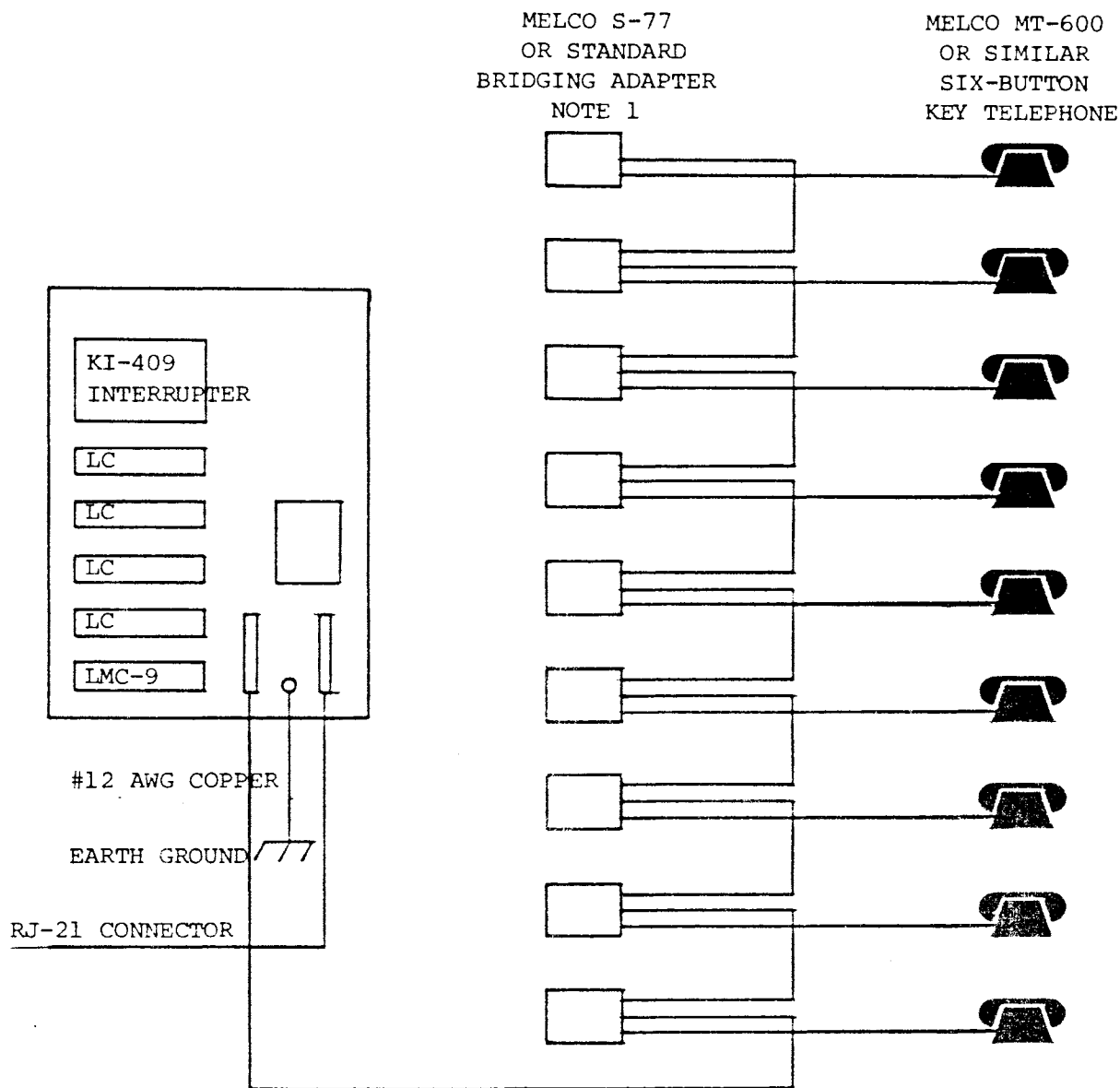


Fig. 3 -- MP-409 Connecting Block Terminal Assignments.



NOTE:

1. IN AN INSTALLATION OPERATING WITH THE MELCO LMC-9 INTERCOM, USE THE MELCO S-77 BRIDGING ADAPTER WHICH ALLOWS FOR THE SELECTION OF INTERCOM STATION NUMBERS AND FOR THE ASSIGNMENT OF INCOMING CALL SIGNALING. IN OTHER INSTALLATIONS, USE STANDARD BRIDGING ADAPTERS.

Fig. 4 -- MP-409 Station Connections Showing Telephone Sets Connected in Series.

(Not available at this time.)

Fig. 5 -- S-77 Assignments for Intercom Station Numbers and Incoming Call Signaling.

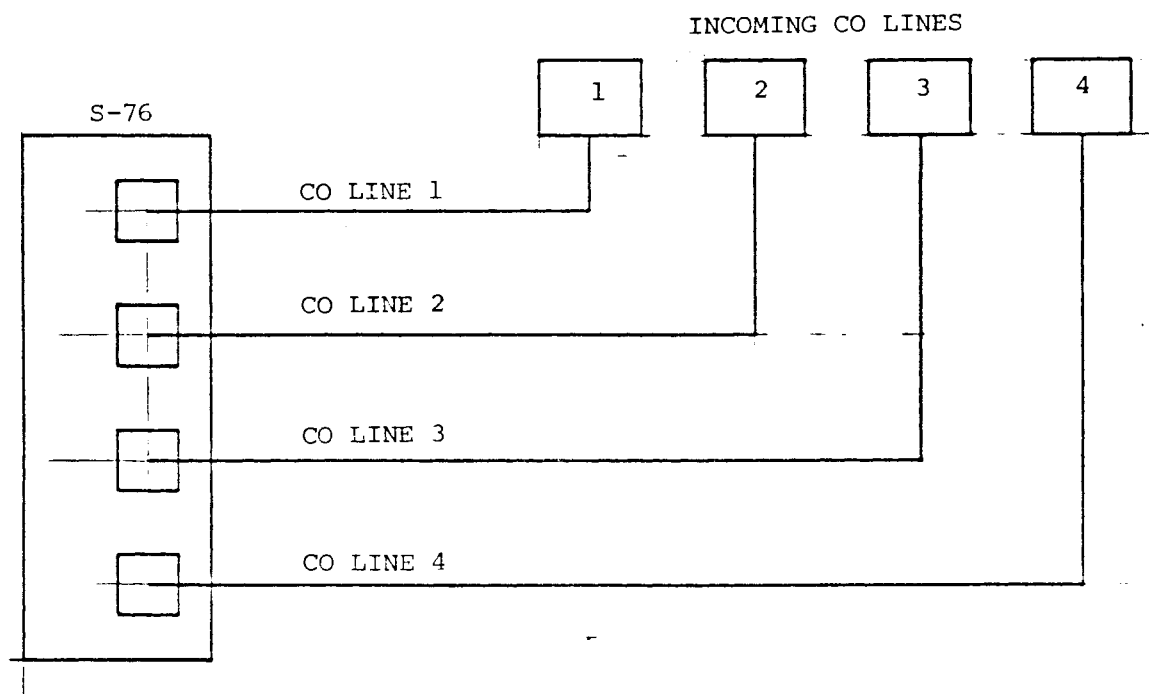


Fig. 6 -- CO Line Connections Using Melco S-76 Modular Adapter.

CABLE CONNECTOR PIN NO.	WIRE COLOR	66 BLOCK	FUNCTION	
26	w-bl	1	T(1)	
1	bl-w	2	R(1)	
27	w-o	3	A(1)	
2	o-w	4	A1	LINE 1
28	w-g	5	LG	
3	g-w	6	L(1)	
29	w-br	7	T(2)	
4	br-w	8	R(2)	
30	w-s	9	A(2)	LINE 2
5	s-w	10	N/C	
31	r-bl	11	LG	
6	bl-r	12	L(2)	
32	r-o	13	L(3)	
7	o-r	14	R(3)	
33	r-g	15	A(3)	LINE 3
8	g-r	16	N/C	
34	r-br	17	LG	
9	br-r	18	L(3)	
35	r-s	19	T(4)	
10	s-r	20	R(4)	
36	bk-bl	21	A(4)	LINE 4
11	bl-bk	22	N/C	
37	bk-o	23	LG	
12	o-bk	24	L(4)	
38	bk-g	25	T(5)	
13	g-bk	26	R(5)	
39	bk-br	27	PC	
14	br-bk	28	N/C	INTERCOM
40	bk-s	29	LG	
15	s-bk	30	L(5)	
41	y-bl	31	N/C	
16	bl-y	32	N/C	
42	y-o	33	LG	
17	o-y	34	N/C	LMC-9 B-LEAD
43	y-g	35	LG	
18	g-y	36	N/C	
44	y-br	37	N/C	
19	br-y	38	B GRD	
45	y-s	39	B	
20	s-y	40	R	COM AUD
46	v-bl	41	R6	
21	bl-v	42	N/C	
47	v-o	43	R7	
22	o-v	44	R2	LMC-9 INTERCOM
48	v-g	45	R8	
23	g-v	46	R3	R LEADS
49	v-br	47	R9	
24	br-v	48	R4	
50	v-s	49	R0	
25	s-v	50	R5	

NOTE:
1 N/C: NO CONNECTION

Fig. 7 -- Connections for A25B Connector Cables to Connecting Blocks.

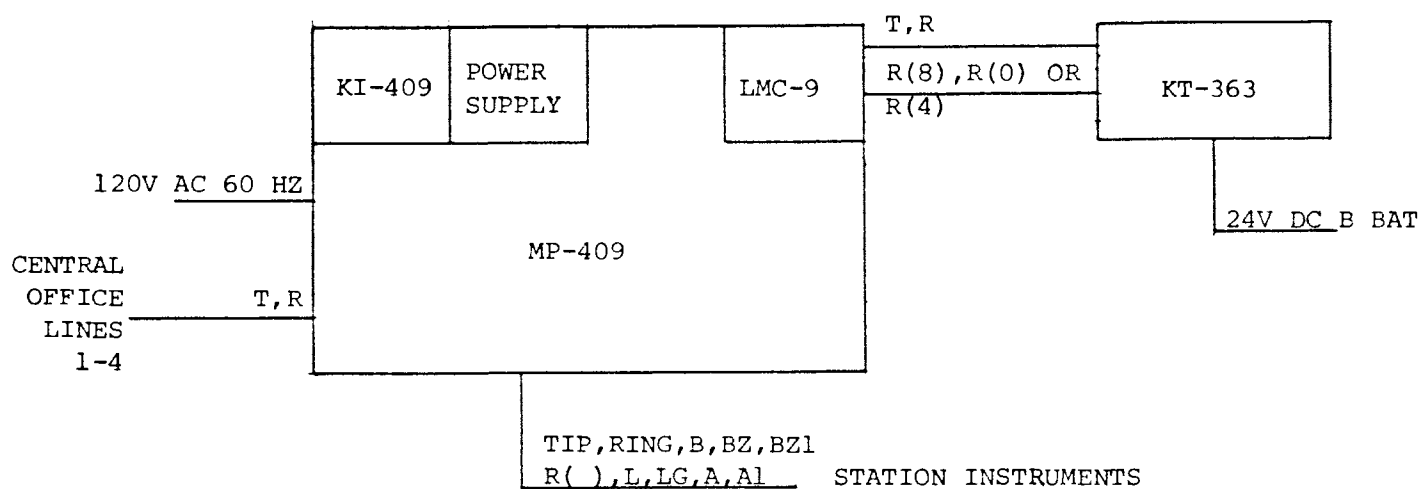


Fig. 8a -- MP-409 Connections with Melco KT-363 Paging Amplifier.

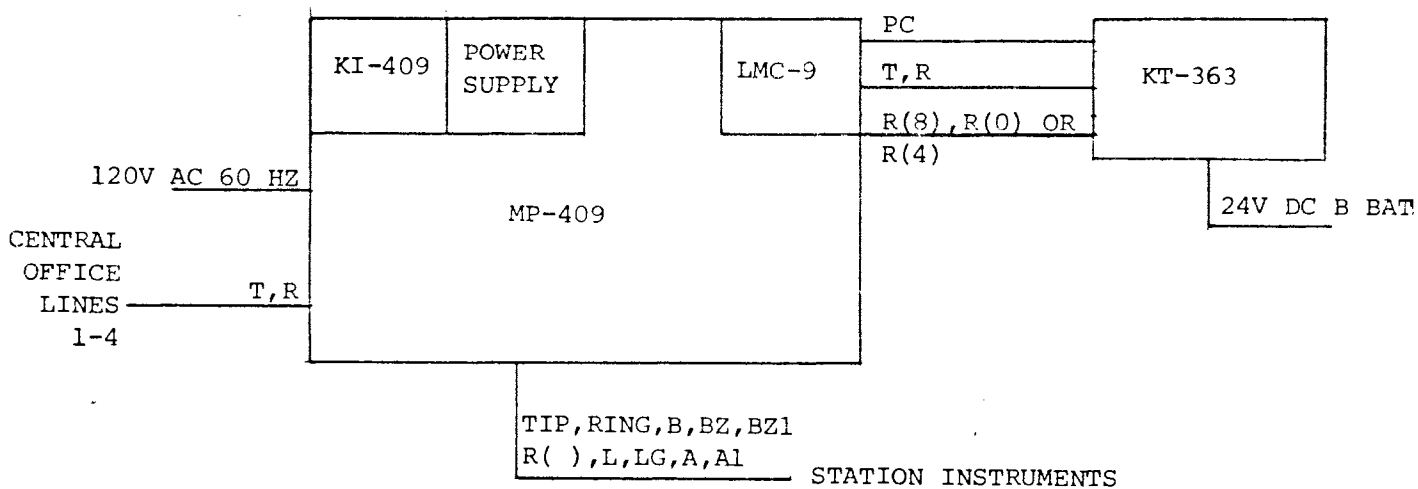


Fig. 8b -- MP-409 Connections with Melco KA-380 Paging Access Unit.

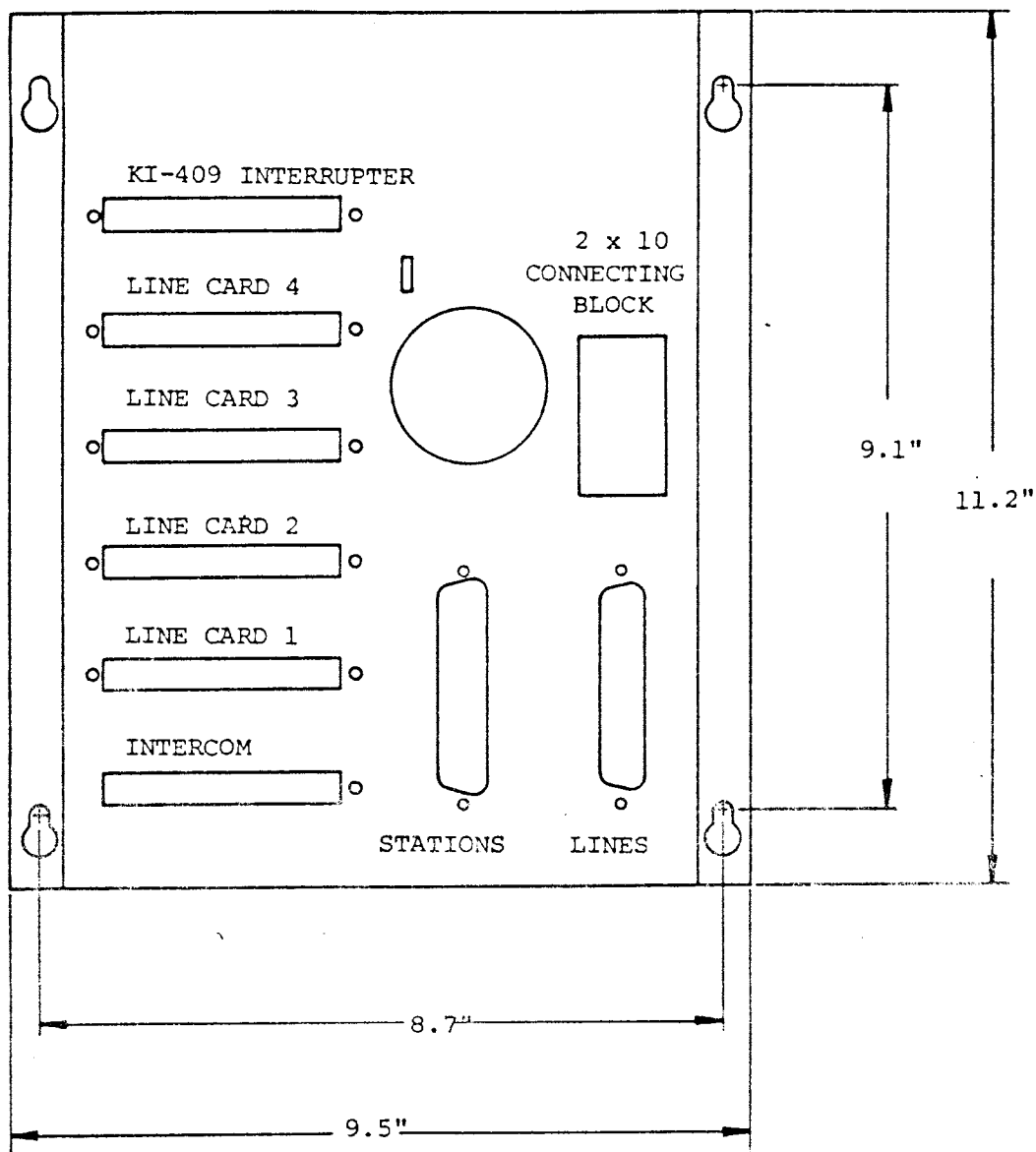


Fig. 9 -- MP-409 Panel and Equipment Layout.

MP-610™ KEY SYSTEM PANEL

1. GENERAL

1.01 The Melco MP-610 Key System Panel provides mounting capability for up to eight 400-type key telephone system line circuits and one Melco intercom of 10, 19 or 37 stations. The panel uses a Melco interrupter listed in Paragraph 4.02, a Western Electric Company KS-15900, L1, an ITT Part No. 190478-101 or equivalent. When the panel is fully equipped and connected, an eight-line key system with an intercom and other features is installed in an area of 8½ x 21 inches.

1.02 Line circuit packs are 400 type, typical of those used in 1A2 type key systems. Applicable intercom systems are Melco single path type, capable of receiving either tone or rotary dialing or a combination of both. Melco intercom station ringing is fully selective and may be repeated without on-hook, off-hook operation.

1.03 The intercom inserts into a 50-pin connector at the top of the panel. Up to eight line KTU's may be added below them. Fuses for power input and for individual line lamp leads are located below the line circuits. The interrupter plugs in next to them. Connections from the MP-610 circuits to connecting blocks, are made with A25B or equivalent 25-pair connector cables joined at the bottom of the panel. Connections include the interrupter start lead (ST) for auxiliary equipment and direct ring leads (DR) for line circuits with the E option. The cable connector and plugs J1 and J4 will serve any one of the three sizes of intercoms mentioned. Connections from the power supply are made to screw terminals on the power strip. Where a power supply of the W.E. Co. 79 or 90 series or similar modular power supply is installed, the Melco CA-7 cable assembly can be used to make rapid power connections. See Figure 6. Where power supplies have screw terminals, the CA-7A power cable can be an advantage.

1.04 Music on hold, paging and most other functions of key systems are available.

1.05 On the connecting block, two sources of power for audible signaling for the intercom and the lines are available. Thus, either audible supply (AUD SUP 1, 105V AC) or lamp battery (L BAT, 10V AC) may be strapped at the connecting

block to the interrupter (AUD SUP 2) or to the intercom (AUD SUP 3). See Figure 5. If different ringing power is used, it can be connected to the AUD SUP power input screw terminal and strapped, using "a" wiring, as shown in the above figure.

1.06 A screw terminal on the front panel enables connection of the chassis to an approved ground. Power supply grounds are connected in

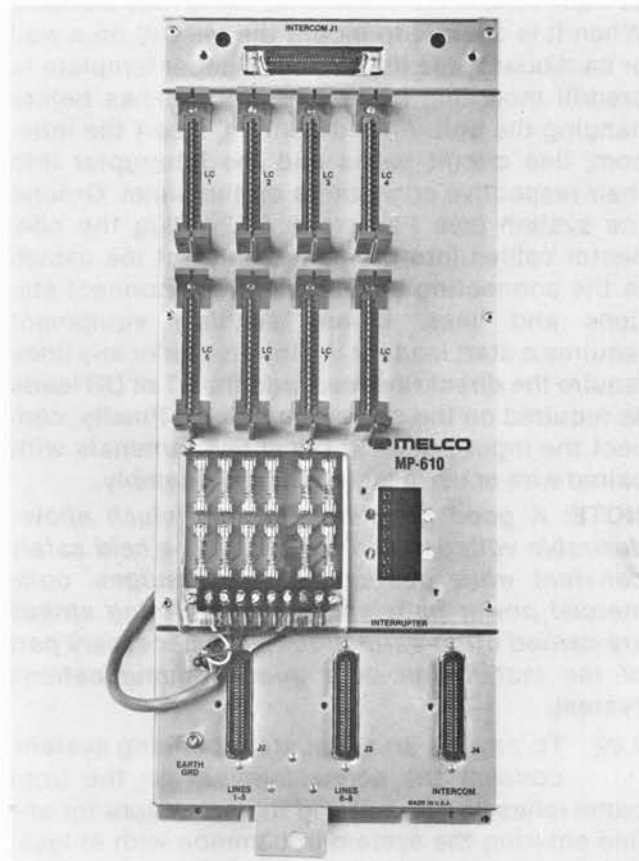


Fig. 1

common with the MP-610, but not to the chassis ground. See Section 2, INSTALLATION.

1.07 The front panel is equipped with fuses as listed below:

F1-F8	Line lamps	2 amp SB
F9	Intercom lamps	2 amp SB
F10	Audible Supply	1 amp SB
F11	B battery	2 amp SB
F12	A battery	1 amp SB

1.08 The MP-610 comes completely wired and with fuses furnished. A cover for the panel,

the CA-7 Power Cable and the inserted equipment are not furnished. Optional equipment available from Melco is listed in Paragraph 4.02.

1.09 This device has received Registration Number AQT9PZ-12111-KN-E under Part 68 of FCC Rules and Regulations.

2. INSTALLATION

2.01 The panel may be mounted on a backboard or in a relay rack. Screw holes are provided for mounting either in an apparatus cabinet with 19-inch mounting centers or on a flat surface. When it is desired to mount the MP-610 on a wall or backboard, use the enclosed paper template to predrill mounting holes and start screws before hanging the unit. After mounting, insert the intercom, line circuit packs and the interrupter into their respective connectors on the panel. Ground the system (see Paragraph 2.02). Plug the connector cables into the panel, connect the cables to the connecting blocks and cross connect stations and lines. If any auxiliary equipment requires a start lead for the interrupter or any lines require the direct ring lead, add the ST or DR leads as required on the connecting block. Finally, connect the input power to the screw terminals with paired wire or use a Melco Cable Assembly.

NOTE: *A good grounding system which allows desirable voltages and currents to be held safely constant while destructive power surges, commercial power imbalances and lightning strikes are carried off to earth ground is a necessary part of the installation of a good communications system.*

2.02 To provide an adequate grounding system, connect the screw terminal on the front panel (chassis ground) and the protectors for any line entering the system in common with at least a Number 10 AWG copper wire. The internal ground can be connected to the common ground either at the power supply or by strapping any one of the screw terminal grounds to chassis ground. Continue the common ground to a metal cold water pipe. Connect with clamps to a clean area of the pipe. The pipe should run underground for at least 10 feet in earth damp enough to maintain a zero or near zero earth potential. If there is any doubt, bonding should be installed around the water meter to allow the street main to be part of the ground system. Be certain there are no plastic sections in the pipe between the ground connection and the water main.

2.03 Several types of line protectors are available. Gas protectors with tip and ring in a common envelope allowing both sides of the line to discharge at once are recommended. Power supply grounds are connected in common in the MP-610 panel. When auxiliary circuits are associated with the MP-610, they must use the MP-610 power supply and all grounds must be connected in common.

2.04 Music during hold is connected through the MOH lead, just as with other key system line circuits.

2.05 When the MP-610 is used with KTU cards requiring A battery on pin 18, the following jumper will be required: Strap the Music on Hold [MOH] input to A battery. Strap the Direct Ring [DR()] inputs to B ground. The following cards require this strapping: 401 A, B, 414 A, 415 A, B, 416 A, 418 A, 461 A.

2.06 Paging is connected as shown in the appropriate practice for the paging and intercom equipment. See the ordering information at the end of this text.

3. DRAWINGS FURNISHED

3.01 For this publication, drawings of the panel and connections for a 19-station intercom are furnished. Further information for 19, 10 and 37-station intercoms can be found in the Technical Practices for that equipment. Copies are available on request.

4. ORDERING INFORMATION

4.01 Order as follows:

(QTY) MP-610 KEY SYSTEM PANEL

4.02 Order the line circuit packs, the intercom and the interrupter from your supplier or distributor. Compatible Melco intercoms and paging systems are:

KR-10 ROTARY DIALING INTERCOM, 10 STATIONS

KR-19 ROTARY DIALING INTERCOM, 19 STATIONS

KR-37 ROTARY DIALING INTERCOM, 37 STATIONS

KT-19 TONE DIALING INTERCOM, 19 STATIONS

KT-37 TONE DIALING INTERCOM, 37 STATIONS

KC-19 TONE AND ROTARY DIALING
INTERCOM, 19 STATIONS

KC-37 TONE AND ROTARY DIALING
INTERCOM, 37 STATIONS

KA-380 PAGING ACCESS

KA-384 FOUR AREA ACCESS UNIT

KA-390 DIRECT PAGING ACCESS

KT-363 PAGING AMPLIFIER

KT-364 FOUR AREA PAGING SYSTEM

Additional optional equipment:

CA-7 POWER CABLE ASSEMBLY

CA-7A POWER CABLE ASSEMBLY

120304 KTU INTERRUPTER

120305 MP-610 COVER

4.03 Further information on the MP-610, the intercoms and paging circuits can be found in the Melco catalog and the Technical Practice for any individual unit. Copies are available on request.

5. MAINTENANCE

5.01 If the equipment fails to function properly, verify the correctness and security of all connections including those of the power supply.

5.02 Fuses should be replaced with ones of same type and value. It is good practice to turn the system power off before replacing fuses or circuit packs.

5.03 The MP-610 Key System Panel and Melco paging equipment are warranted to be free of defects in material and workmanship. If failure occurs within the warranty period, the defective unit will be repaired or replaced without cost. See the Melco Warranty Service Policy for further details.

5.04 For further MP-610 information consult your Melco field representative or contact:

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

ABBREVIATIONS

A	Ground or positive "battery" from a telephone line pick-up key to a line KTU.	AUD SUP 3	Ringing power to intercom at J3 connecting block; cross connects to AUD SUP 1 or L BAT.
A1	Telephone ground source for A leads to line KTU's	B()	Ringing power return from a designated station bell; ground connected.
A BAT	Negative side of filtered 24 volt d.c. power; used for talk battery.	B BAT	Negative side of unfiltered 24 volts d.c.
A GRD	Return or positive side of filtered 24 volts d.c.	B GRD	Return or positive side of B BAT.
AUD GRD	Return of ringing power.	DR	Direct ring; a signal to line KTU to apply steady ring to station bell; an option of the 400E line KTU.
AUD SUP	Ringing power.	EARTH GRD	An electrical connection to earth potential, commonly to a buried water pipe.
AUD SUP 1	Ringing power at J3 connecting block; cross-connects to AUD SUP 2 and/or AUD SUP 3.	L	A conductor from line or station circuit to a telephone line lamp.
AUD SUP 2	Ringing power to line KTU at J3 connecting block; cross connects to AUD SUP 1 or L BAT		

ABBREVIATIONS (continued)

KTU	Key telephone unit.	RB	Continuous ringing power input to line KTU.
L BAT	Lamp power; also LP BAT or 10V AC.	RC	Ringing circuit at the telephone.
LF	Lamp flash; interrupted lamp power.	RG	Ground side of the ringing circuit at the telephone.
L GRD	Return side of lamp power; ground connected.	RN	Intermittent ringing power to the station bell.
LW	Lamp wink; interrupted lamp power.	SB	Slow blow; a fuse which does not open its circuit from instantaneous overload current.
MOH	Music on hold.	ST	Start signal from a line KTU or auxiliary equipment to the interrupter.
PC	Paging control; a locking ground to hold auxiliary equipment first seized by ringing power.	T	Tip; the positive side of a talking path.
R	Ring; the negative side of a talking path.		
R()	Ringing power lead from intercom to a designated station.		

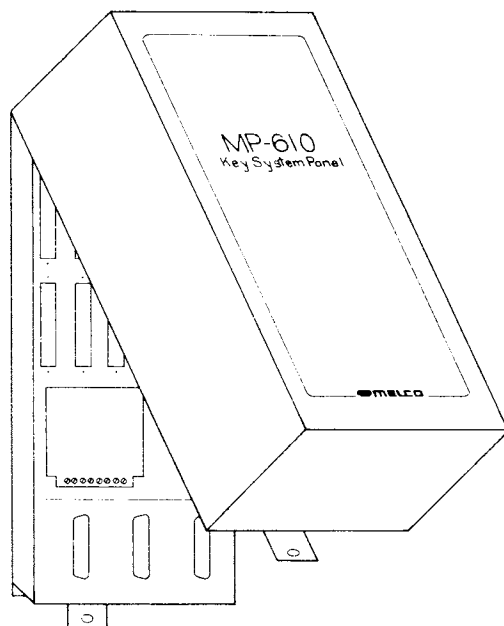


Fig. 2 — MP-610 with cover.

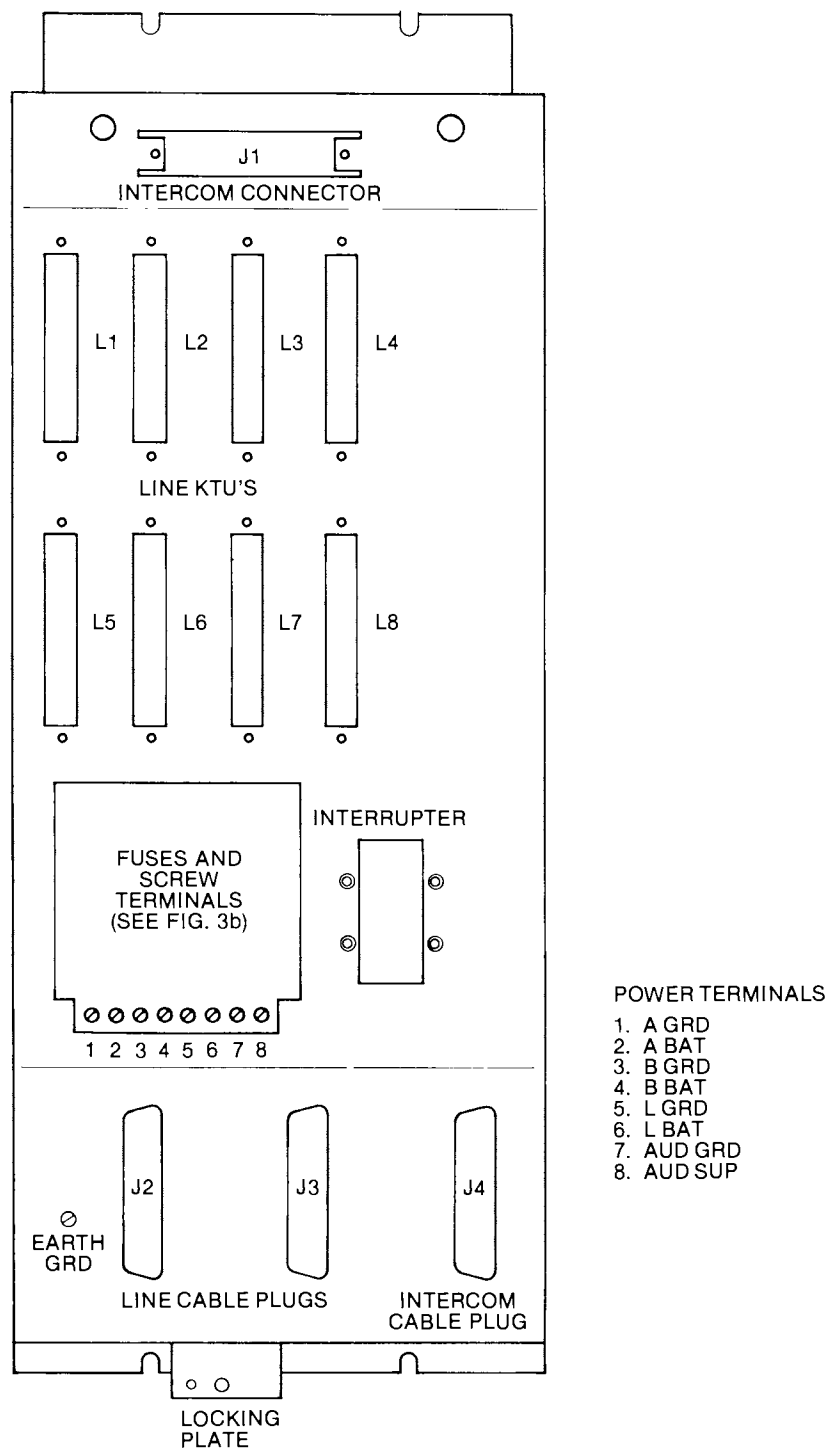


Fig. 3a — Panel and Equipment Layout.

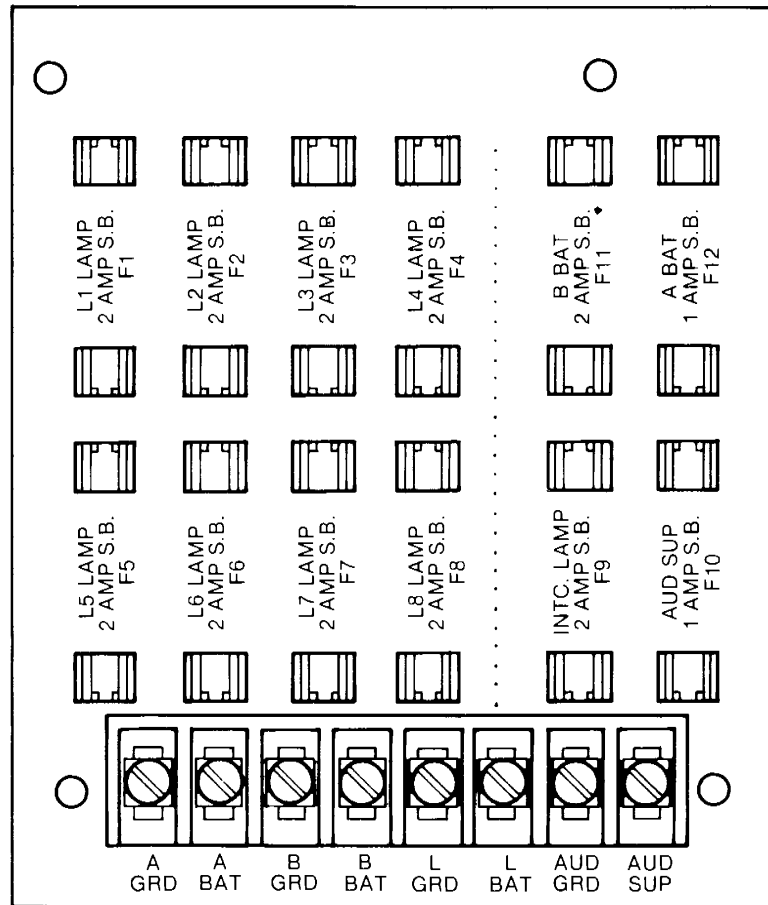


Fig. 3b — Detail of Power Connections and Fuses.

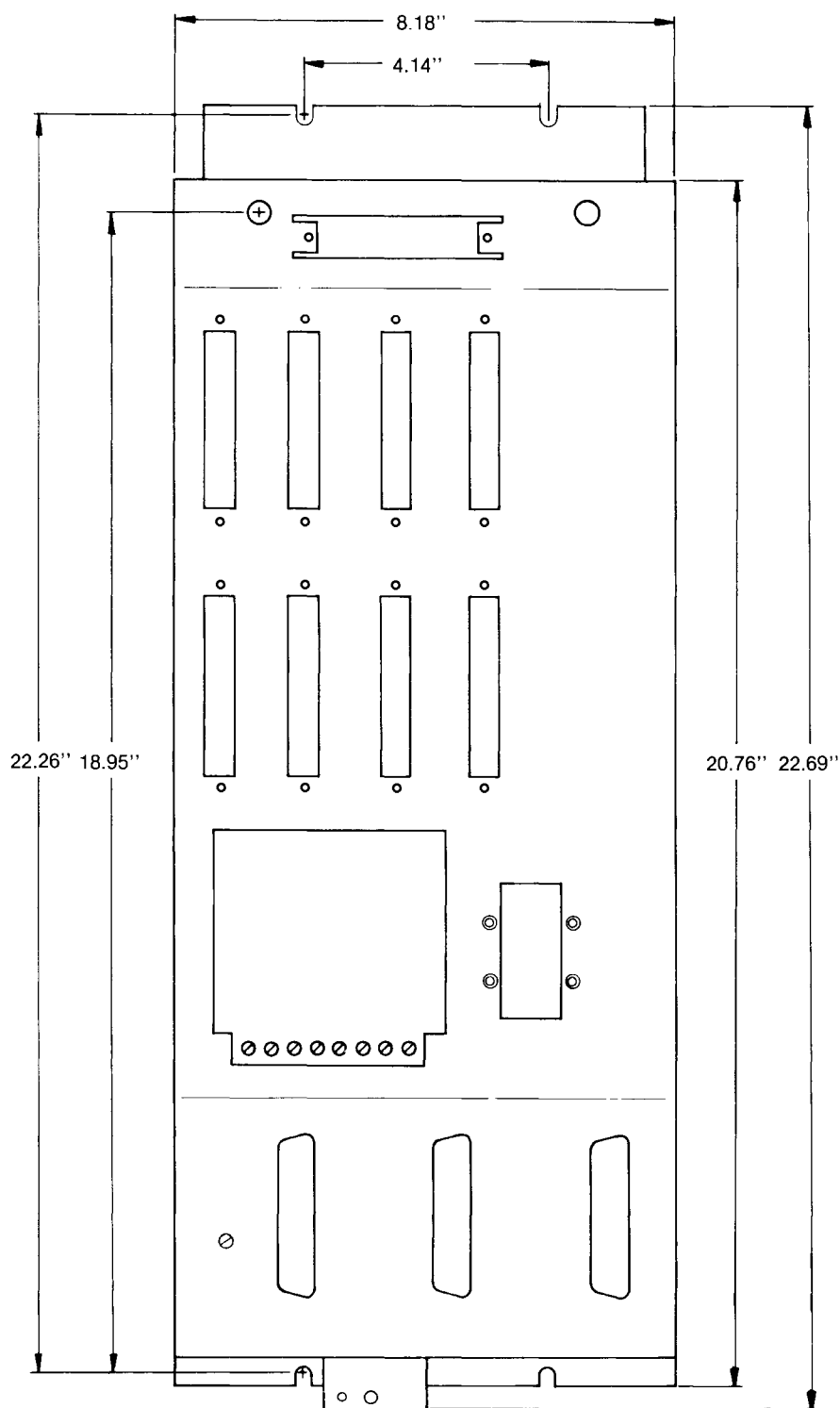
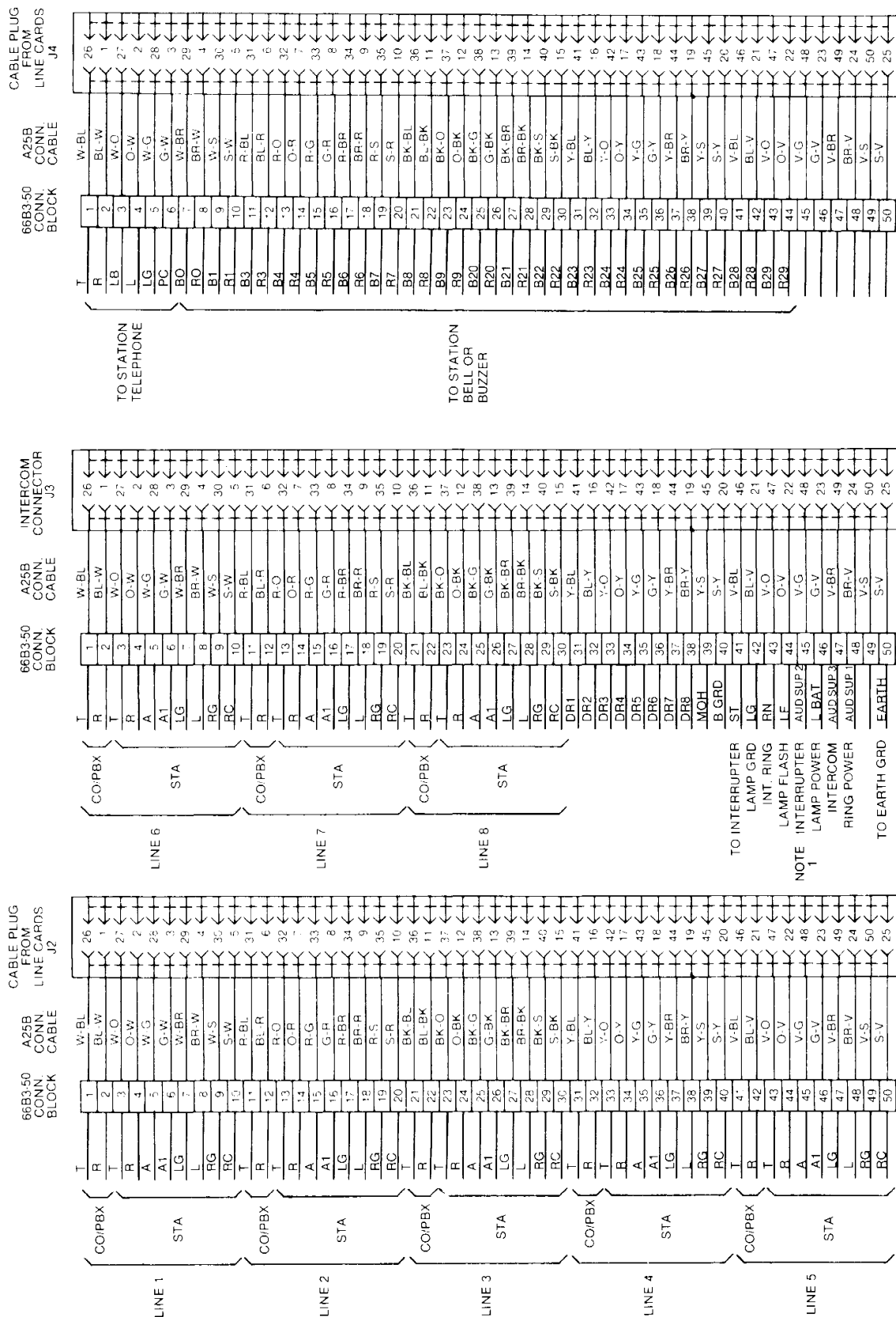


Fig. 4 — Panel Dimensions.

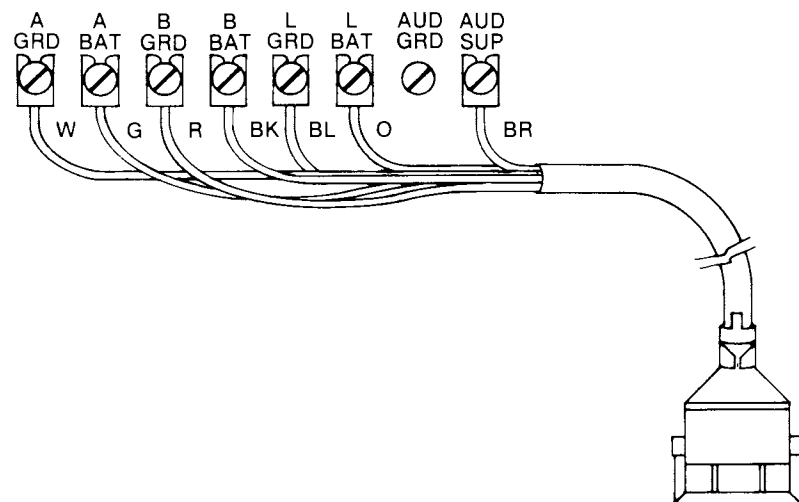


NOTES:
1. REFER TO APPROPRIATE PRACTICE OR INSTRUCTION FOR INSTALLATION INFORMATION.

NOTES:
1. CONNECT LAMP POWER (LP BAT) OR RING POWER (AUD SUP 1) TO INTERRUPTER (AUD SUP 2) AND TO INTERCOM (AUD SUP 3) AS REQUIRED. IF ANOTHER SOURCE OF AUDIBLE SIGNAL SUPPLY IS USED, CONNECT IT TO AUD SUP SCREW TERMINAL AND USE "a" WIRING (FIG. 8).

Fig. 6 — Cable and Connector for 19 Station Intercom.

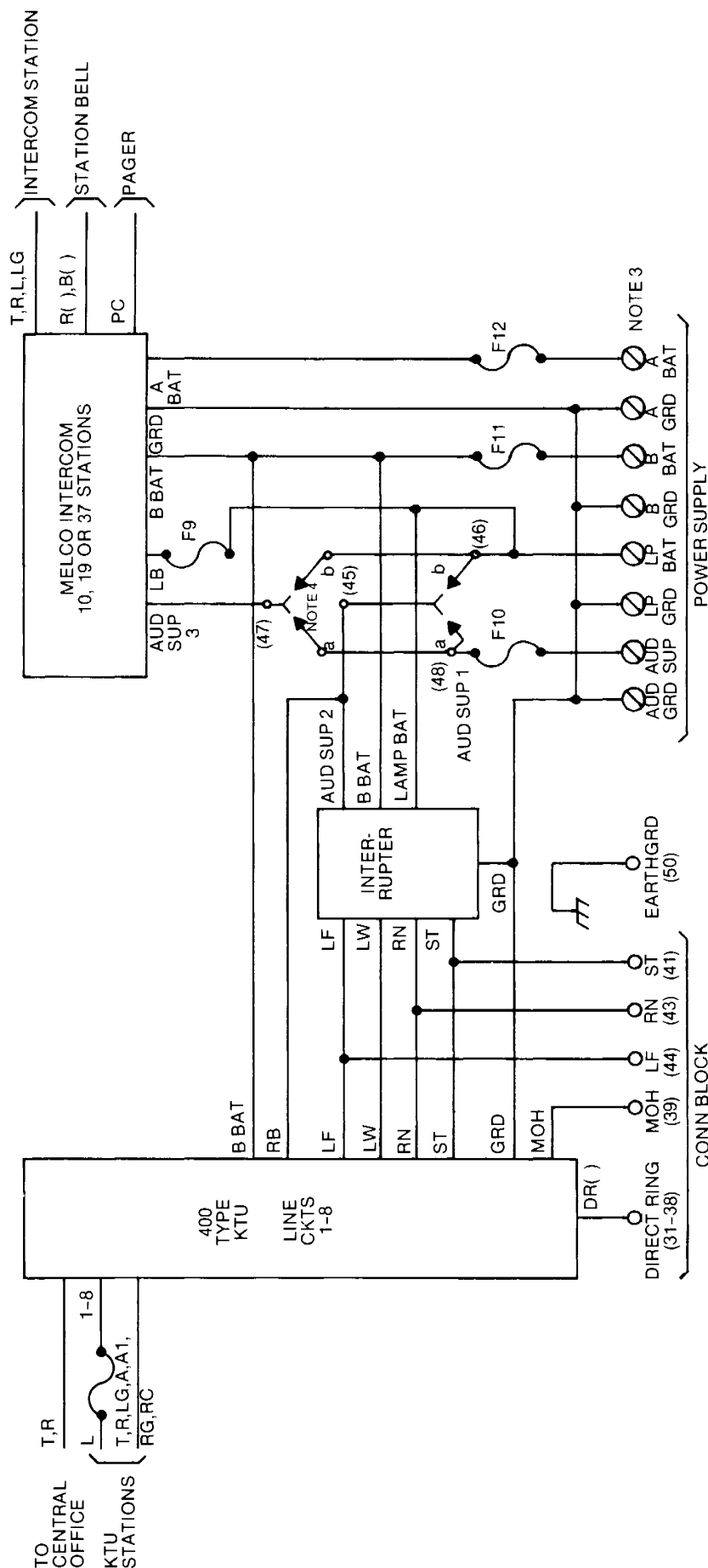
Fig. 5 — Connections for A25B Connector Cables to Connecting Blocks for Line Cards 1-8.



NOTES:

1. ALL GROUNDS ARE CONNECTED INTERNALLY. IF CA-7 CABLE IS USED, OMIT AUD GRD CONNECTION.
2. THE CA-7 CABLE IS 4 FEET LONG.

Fig. 7 — Power Terminals and Connections with CA-7 Power Cable.



NOTES:

1. REFER TO APPROPRIATE PRACTICE FOR DETAILED COMPONENT INFORMATION.
2. USE "a" WIRING TO CONNECT 105V AC TO INTERCOM OR LINES FOR RINGING. USE "b" WIRING TO CONNECT 10V AC TO INTERCOM OR LINES FOR RINGING.
3. POWER TERMINALS ON THIS DRAWING ARE NOT IN ORDER AS ACTUALLY ASSIGNED ON TERMINAL STRIP.
4. WIRING OPTIONS "a" AND "b" ARE MADE AT CONNECTING BLOCK.
5. CONNECTING TERMINAL BLOCK NUMBERS ARE SHOWN ADJACENT TO LEAD DESIGNATION.

Fig. 8 — Connections, MP-610 Panel with Line Circuits, Intercom and Interrupter.

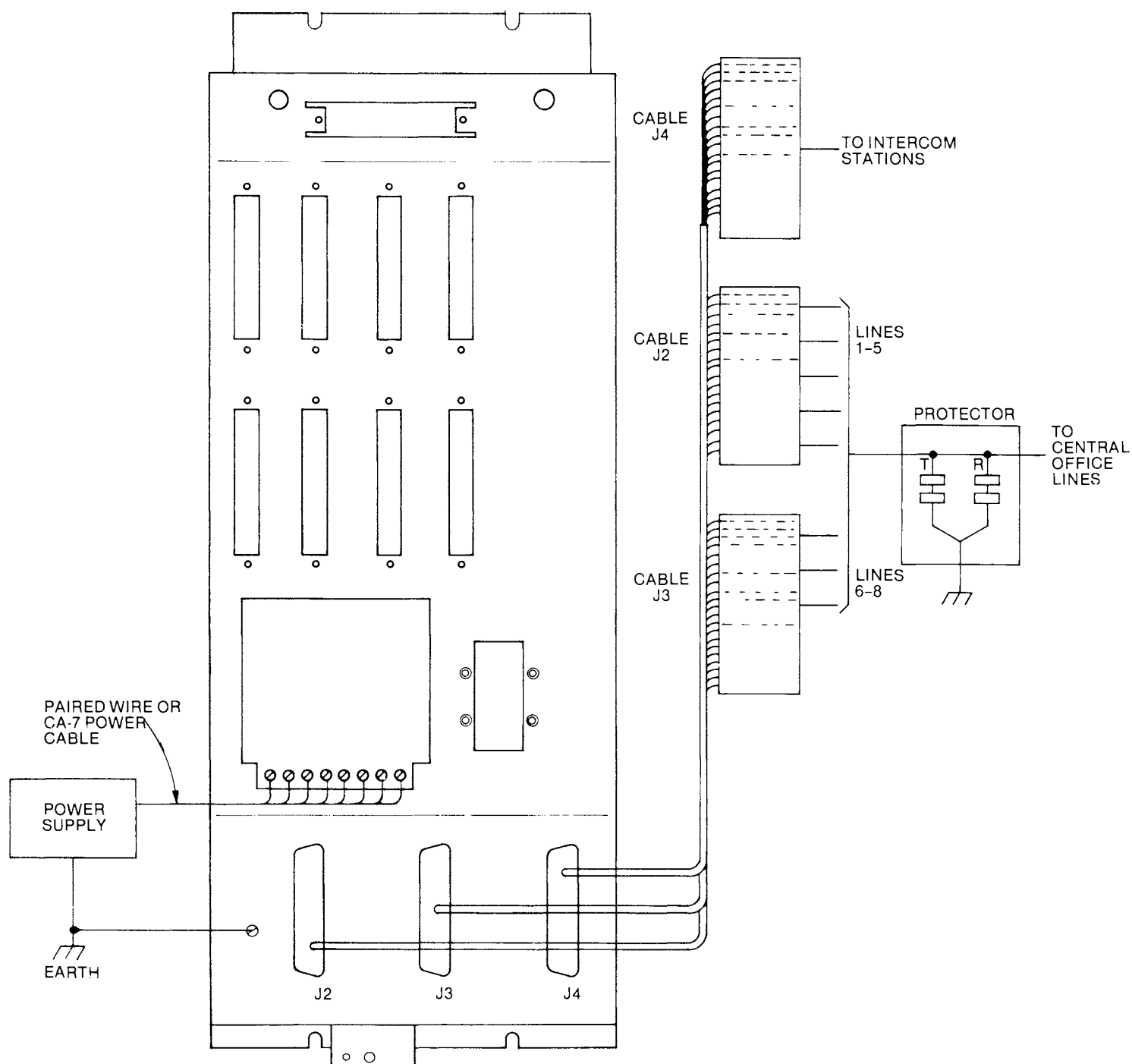


Fig. 9 — Illustration of MP-610 Installation.

M-19™ MODULAR PANEL FOR KEY SYSTEM INTERCOMS

1. GENERAL

1.01 The M-19 is a wired connecting block and mounting panel. It is designed for rapid installation of Melco tone, rotary or combination tone/rotary 19-station or 10-station expandable intercoms. M-19 units are furnished with screw terminals on the underside for use with a Melco CA-7 optional power cable assembly. The CA-7 provides convenient plug-in connection to a W.E. Co. 79B, 90B or a similar modular power supply using connectors and plugs.

2. DESIGN FEATURES

2.01 The M-19 mounts on a backboard or relay rack.
2.02 Connections to an intercom from the M-19 connecting block to the 50-pin ribbon connector are permanently provided through a printed circuit board.
2.03 The labeled connecting block terminals are used for station and battery connections, expansion, and testing.

3. INSTALLATION

→ 3.01 When the CA-7 Power Cable Assembly is used for power connections, connect the CA-7 conductors to screw terminals on the underside of the M-19 panel as shown in Figures 4 and 5.

3.02 Mount the M-19 on a backboard or relay rack.

→ 3.03 Cross-connect T, R, L, LG, R() and B() of the M-19 to the station blocks. See Figures 6 and 7 and refer to the applicable Melco Technical Practice of the intercom to be installed.

3.04 Lead PC of the M-19 can be used as a locking path for an auxiliary circuit such as paging. PC is closed to LG which is factory wired to AUD GRD (and the AC GRD screw terminal). Either the LG or AUD GRD lead must be connected to the external lamp supply ground except when the CA-7 Power Cable Assembly is used. (The AC GRD screw terminal is connected to the power supply when the CA-7 is used.)

3.05 When a second intercom is used for expansion with a Melco KC-1018 Expansion Unit, remove the bridging clips over T IN & T OUT and R IN & R OUT on the M-19 connecting block. (T IN and R IN are factory wired to the M-19 cable connector. T OUT and R OUT are factory wired to station tip and ring connecting block terminals.) See Figure 3 and the Melco KC-1018 Technical Practice for connections.

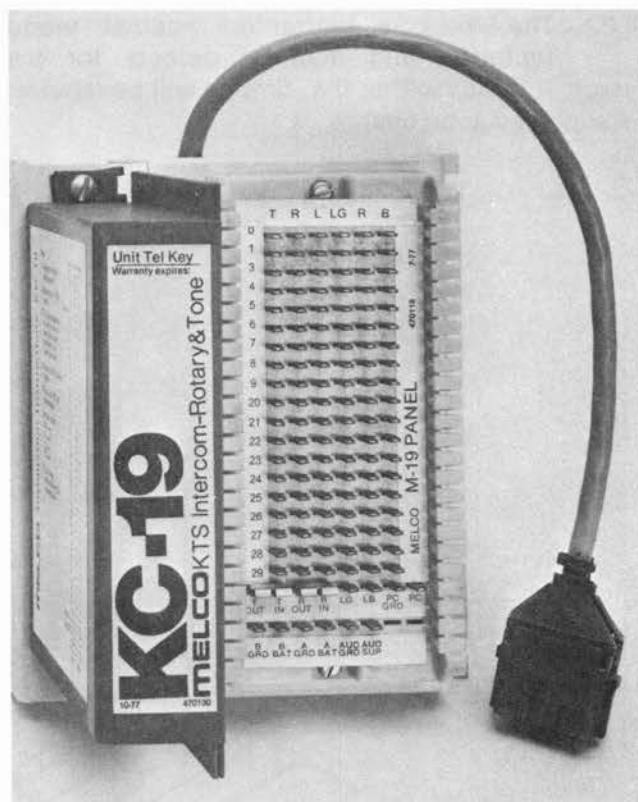


Fig. 1 — M-19 with Intercom and Power Cable Installed.

3.06 When the CA-7 is not used, connect LB, LG (or AUD GRD), AUD SUP, A GRD, A BAT, B GRD and B BAT from the M-19 to the key system power supply. Conductors can be wired either to the screw terminals or to the appropriate terminals on the M-19 connecting block.

3.07 Plug the intercom into the M-19 connector and secure it with the screws furnished.

- 3.08 Test the lamp and signaling operations for all intercom stations.

4. MAINTENANCE

- 4.01 No provisions are made for field maintenance or repair. If defective, return the unit to the supplier for servicing.

- 4.02 The M-19 is warranted against manufacturing and material defects for five years. If it fails within that time, it will be repaired or replaced at no charge.

5. ORDERING GUIDE

- 5.01 Order as follows:
(QTY M-19 MODULAR PANEL
Optional:
(QTY) CA-7 — POWER CABLE ASSEMBLY
from your local supplier or distributor.
- 5.02 Technical assistance on the M-19, or any Melco product is available from:

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

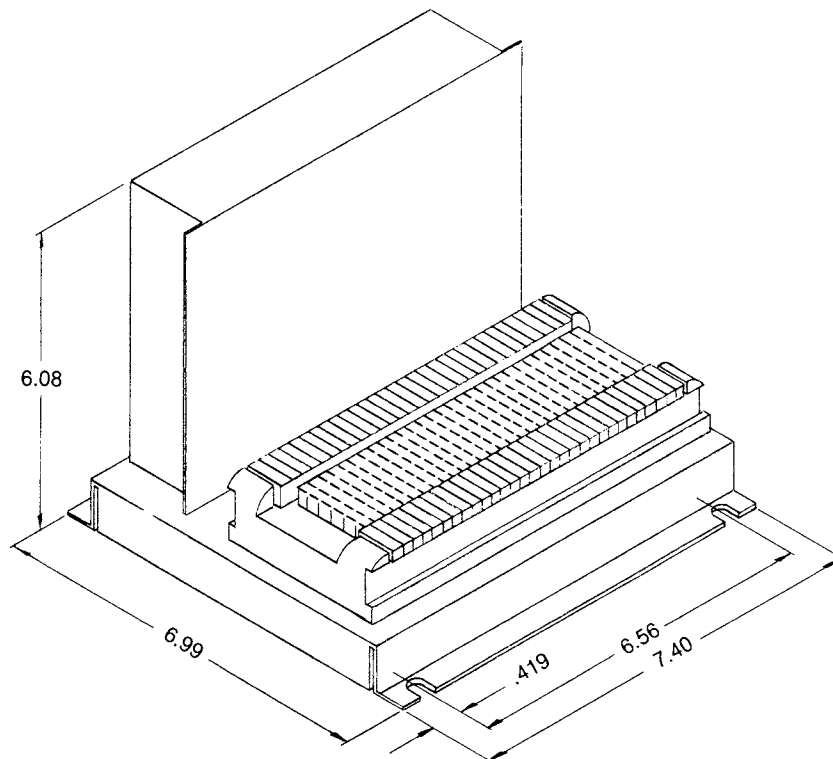
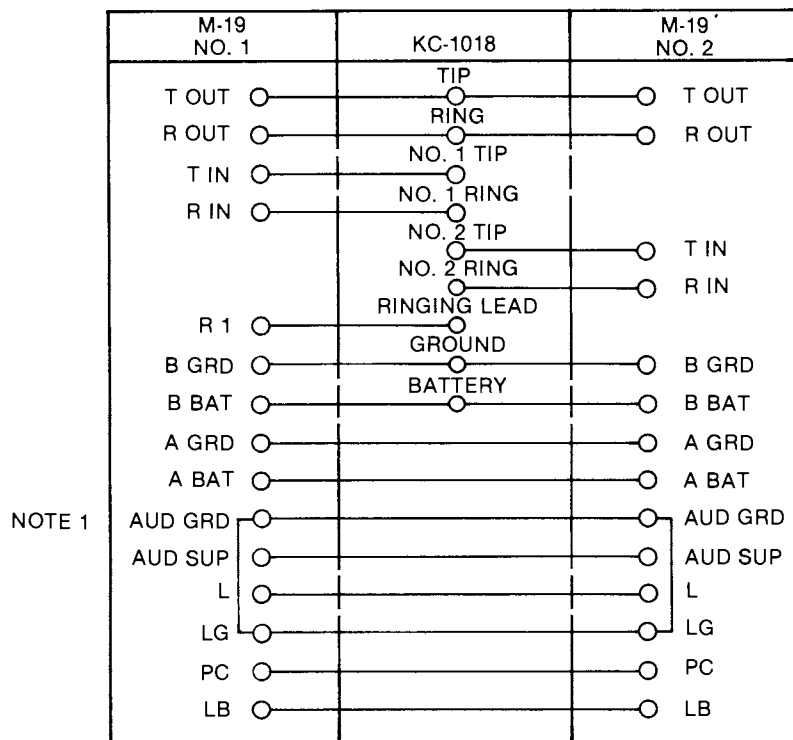


Fig. 2 — M-19 Dimensions (intercom in place).



NOTE:

1. AUD GRD IS FACTORY WIRED TO LG (AND THE AC GRD SCREW TERMINAL).

Fig. 3 — Connections for Systems Expanded to Two Intercoms with a KC-1018 Intercom Expander.

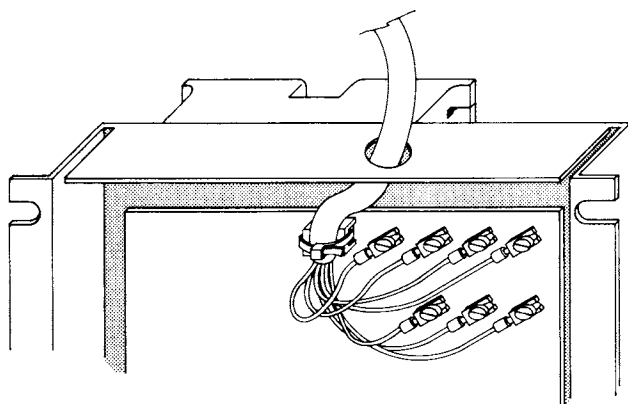


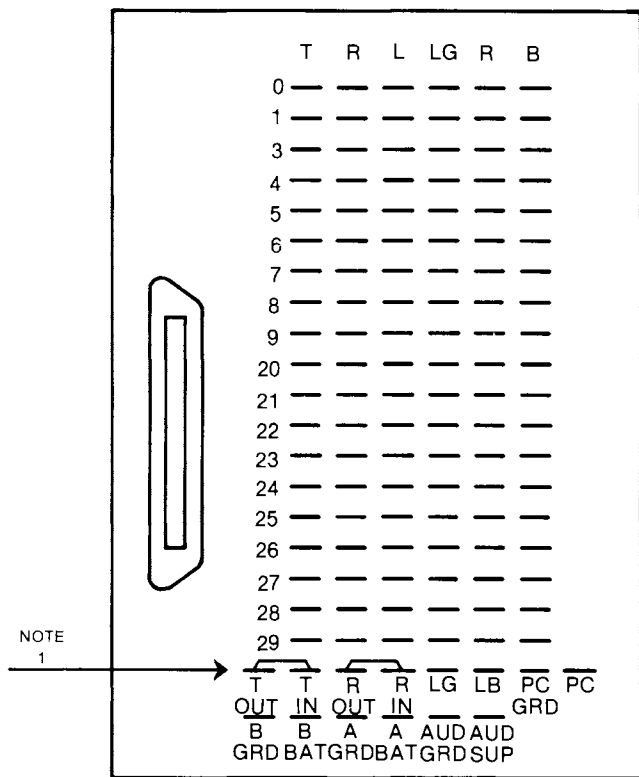
Fig. 4 — Underside of M-19 Showing Printed Circuit Board and Screw Connections for Power Cable.

PLUG PIN 4 ORN LB	PLUG PIN 9 BRN 105VAC AUD SUP NOTE 1	PLUG PIN 12 GRN A BAT	PLUG PIN 8 BLK B BAT
	PLUG PIN 24 BLU AC GRD	PLUG PIN 16 WHT A GRD	PLUG PIN 20 RED B GRD

NOTES:

1. **CAUTION**—THIS SYSTEM IS INTERNALLY WIRED FOR 105V AC AUDIBLE SUPPLY. IF ANY OTHER AUDIBLE SUPPLY IS USED, INSULATE AND FOLD BACK THE BROWN AUDIBLE SUPPLY CONDUCTOR OF THE CA-7 CABLE. IF 10V AC IS USED, STRAP TERMINALS AUD SUP AND LB ON THE M-19 CONNECTING BLOCK.

Fig. 5 — Underside of M-19 Showing Screw Terminal Positions and Designations of Power Cable by Wire Color and Plug Pin.



NOTES:

1. BRIDGING CLIPS CONNECT T IN & T OUT, AND R IN & R OUT. REMOVE WHEN KC-1018 EXPANSION UNIT IS USED.

Fig. 6 — M-19 Terminal Block Assignments and Connector for 19-Station Intercom.

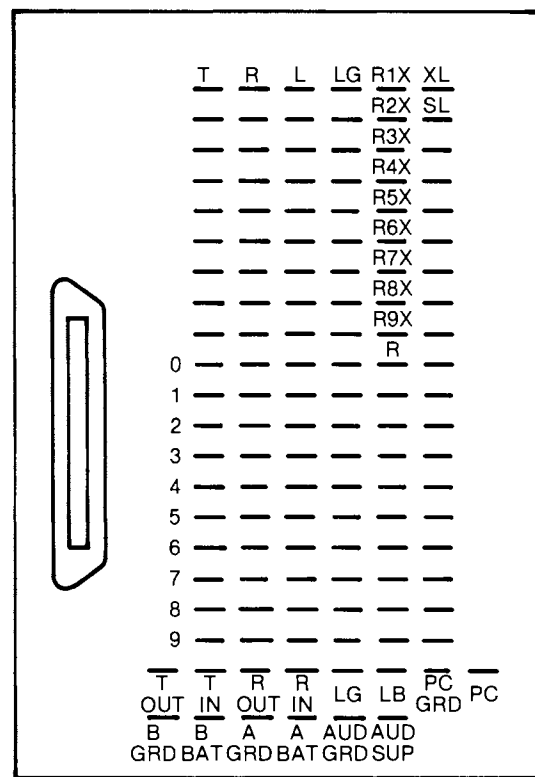


Fig. 7 — M-19 Terminal Block Assignments for KC-10X.

M-37™ MODULAR BACK PANEL

1. GENERAL

1.01 The M-37 is a wired terminal block and mounting panel for Melco or similar 1A1 and 1A2 type key system intercoms. The M-37 provides for rapid installation of Melco tone, rotary or combination tone and rotary systems of 10, 19 and 37 stations.

2. DESIGN FEATURES

2.01 The M-37 mounts on a backboard.

2.02 Connections to the intercom from a quick-connect block to a 50-pin ribbon connector are permanently provided through a printed circuit board. A busy lamp and fuse strip are on the face of the panel. Standard fuses are provided for "A" and "B" 24-volt power, lamps and audible signal supply.

2.03 The Melco CA12 Power Cable Assembly or the W.E.Co. P12D Power Cord can be used for plug-in connection to a Western Electric 79B1, 90B1 or a similar modular power supply. When a power cable assembly is used, power connections are made to the screw terminals on the underside of the M-37. When a power cable assembly is not used, power connections are made to screw terminals on the face of the panel.

2.04 A light-emitting diode provides intercom busy indication.

2.05 The M-37 is equipped with bridging clips on the Tip and Ring of the connecting block. They can be removed to provide for testing or expanding the intercom system. See Fig. 8.

2.06 Lead PC provides a locking ground for an auxiliary circuit such as paging.

3. INSTALLATION

3.01 Connect lamp, audible signal supply, and 24 volt "A" and "B" key system power to the M-37. Use conductors to screw terminals or use a power cable and a power supply appropriately equipped as indicated in Paragraph 2.03. If the cable is not long enough to reach the power supply, use W.E. Co. Cord Panel Extender P12D, 8 foot, or P12D, 12 foot. If a tone dialing in-

tercom is used with a rotary dialing intercom or with another KTU supplying line battery, do not connect "A" BAT and "A" GRD to the tone intercom system. Insulate and store any power conductors not connected to the screw terminals.

3.02 Mount the M-37 on a backboard.

3.03 Cross connect station wiring. Refer to the applicable Melco Technical Practice of the intercom to be installed. Lead PC, which is closed to ground when the intercom is seized, can be used as a locking path for an auxiliary intercom circuit such as a paging system.

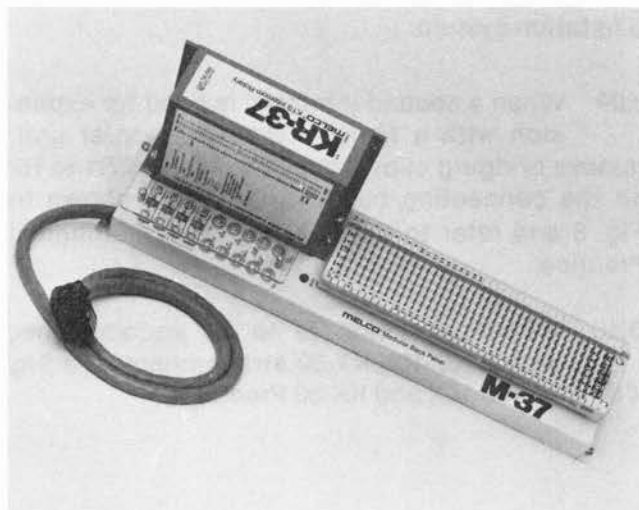


Fig. 1

3.04 Screw terminals LF, MS, 10V INT and 105 INT on the underside of the M-37 panel are for use with a power cable and plug assembly. When connected as shown in Figs. 5 and 7, corresponding pins on the M-37 connecting block become available to provide power for the Melco M-266A Flashing Lamp Unit. (The M-266A provides flashing lamp and repeated ringing for an intercom system.) To derive power, cross connect from the connecting block (Fig. 3) to the M-266A as shown in the M-266A Melco Technical Practice.

3.05 If 105V is to be used for audible supply, connect it to M-37 screw terminals 105V and 105 GRD. LAMP GRD is factory wired to 105 GRD and AC GRD. The M-37 is equipped with

jumper cables between AUD SUP and 105V, and AUD GRD and 105 GRD. If 10V is to be used for audible supply, remove jumper from AUD SUP and connect it to LB. (See Fig. 6)

3.06 Plug the intercom into the M-37 connector and secure it with the screws furnished.

3.07 Test for talking and signaling at all stations.

3.08 When changing a 19-station system to a 37-station system, delete digits 3 and 4 as station numbers and assign new numbers of the 37-station system to those stations. Digits 3 and 4 are first digits of two-digit numbers of the new 37-station system.

3.09 When a second intercom is used for expansion with a Melco KC-1018 Transfer unit, remove bridging clips from T1 to T2, and R1 to R2 on the connecting block. Connect as shown in Fig. 8 and refer to the KC-1018 Melco Technical Practice.

3.10 When expansion is to be accomplished with a KC-10X/KX-30 arrangement, see Fig. 4 and the KC-10X and KX-30 Practices.

4. MAINTENANCE

4.01 No provisions are made for field maintenance or repair. If defective, return unit to the supplier for servicing.

4.02 The M-37 is warranted against manufacturing and material defects for five years. If it fails within that time, it will be repaired or replaced at no charge. See the Melco Warranty Service Policy for repair and return details.

5. ORDERING GUIDE

5.01 Order the M-37 as follows:

(QTY) M-37 MODULAR BACK PANEL

Optional:

(QTY) CA12 — 12 CONDUCTOR POWER CABLE ASSEMBLY

from your local supplier or distributor.

5.02 Further information and assistance on the M-37 or any Melco product is available from:

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

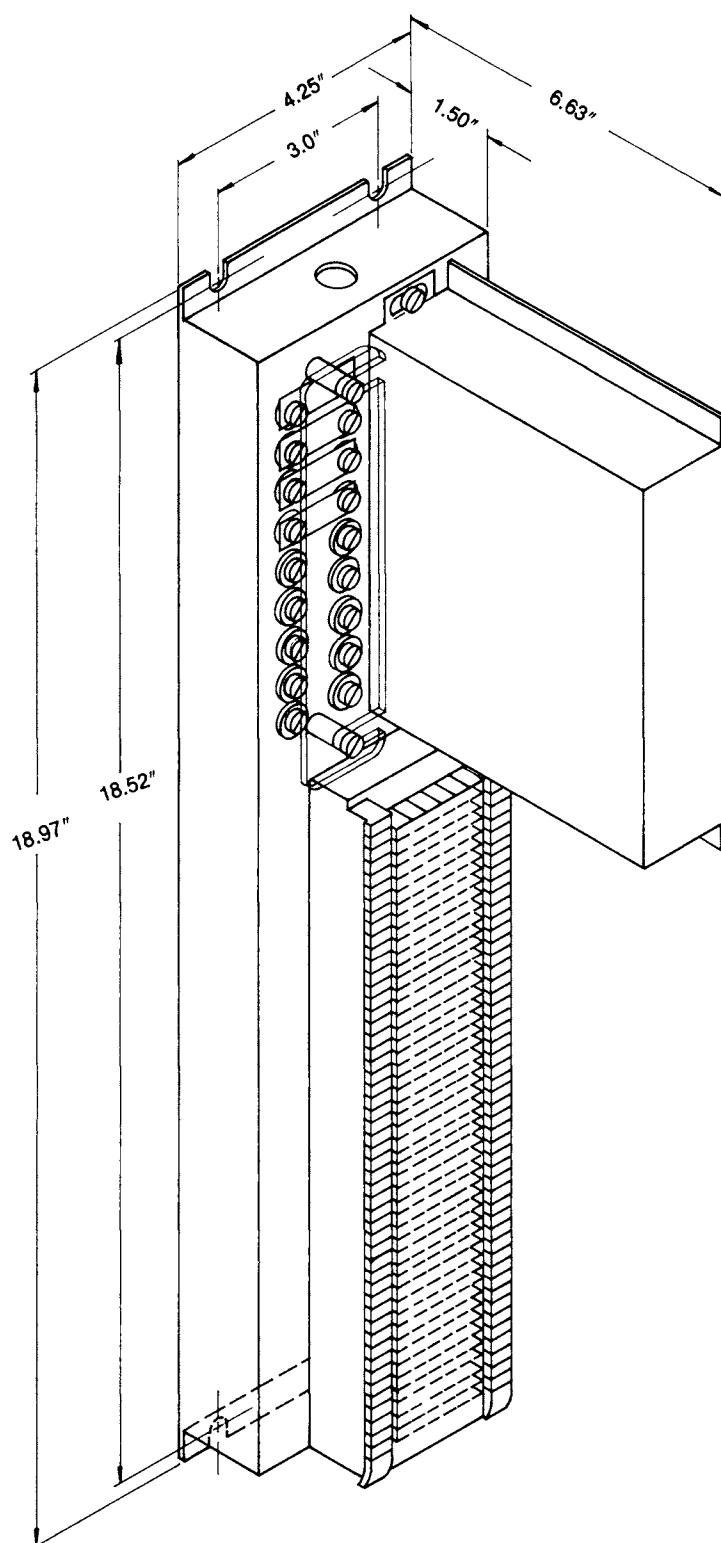
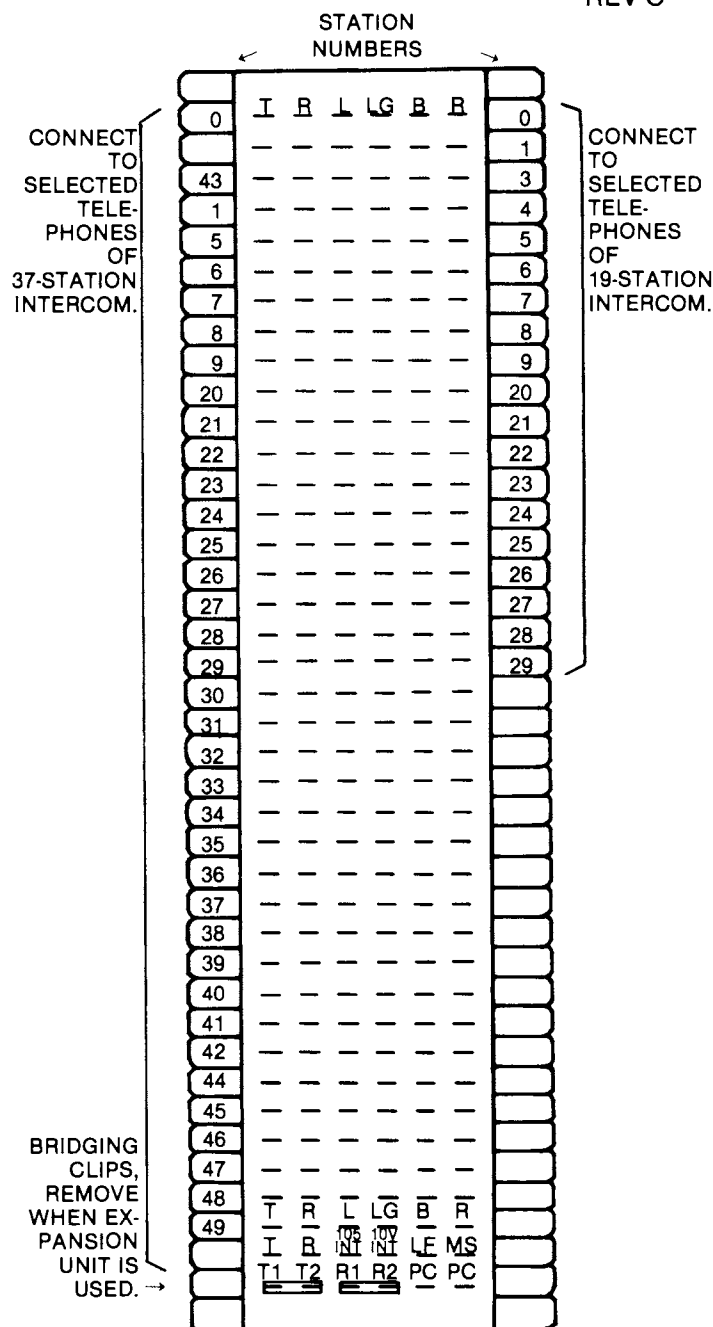


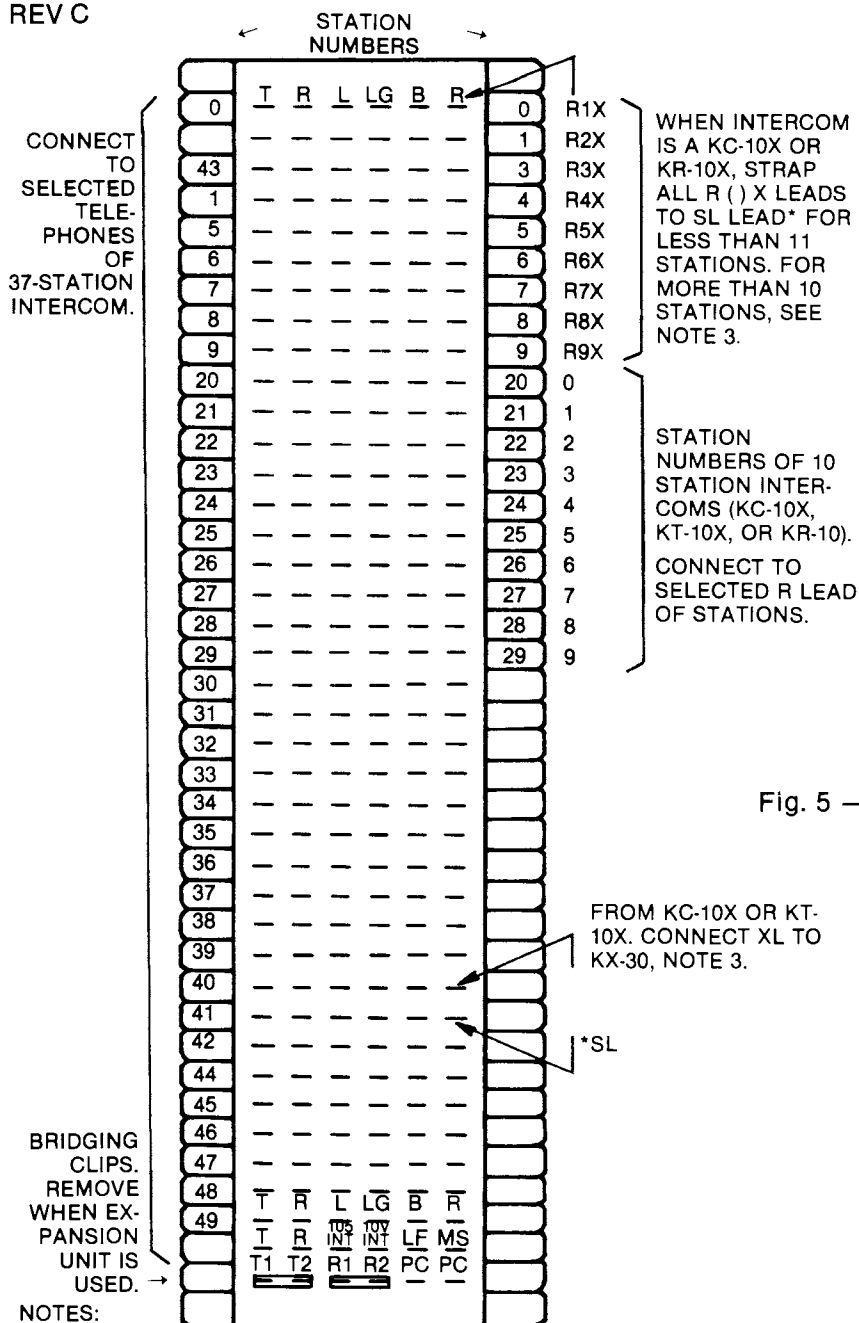
Fig. 2 — Modular Panel Dimensions.



NOTES:

- PIN DESIGNATIONS ARE AS FOLLOWS:
T — TIP
R — RING
L — LAMP
LG — LAMP GROUND
B — RING RETURN
R () — RINGING CONTROL
PC — PAGING CONTROL
LF — FLASHING LAMP
MS — MOTOR START (OR IST)
10V } ± 10V LAMP
INT } INTERRUPTED
105V } ± 105V RINGING
INT } INTERRUPTED
- PINS LF, MS, 10V INT AND 105V ARE APPLICABLE ONLY WHEN THE OPTIONAL POWER CABLE AND PLUG IS USED (SEE PARA. 3.04).

Fig. 3 — M-37 Connecting Block Terminal Assignments for 19 and 37 Station Intercoms.



NOTES:

- PIN DESIGNATIONS ARE AS FOLLOWS:
T — TIP
R — RING
L — LAMP
LG — LAMP GROUND
B — RING RETURN
R () — RINGING CONTROL 105V
PC — PAGING CONTROL
LF — FLASHING LAMP
MS — MOTOR START (OR IST)
10V } ± 10V LAMP
INT } INTERRUPTED
R () } ± 105V RINGING
INT } INTERRUPTED
- PINS LF, MS, 10V INT AND 105V ARE APPLICABLE ONLY WHEN THE OPTIONAL POWER CABLE AND PLUG IS USED (SEE PARA. 3.04).
- USE MELCO KX-30 TO EXPAND KC-10X TO 30, 60 OR 90 STATIONS. SEE KC-10X AND KX-30 PRACTICES.

Fig. 4 — M-37 Connecting Block Terminal Assignment — 10-Station Intercoms and KC-10X/KX-30 Intercom Expander.

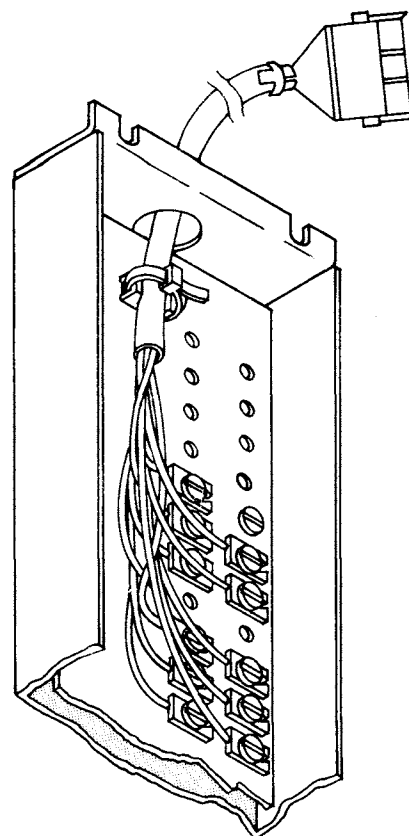
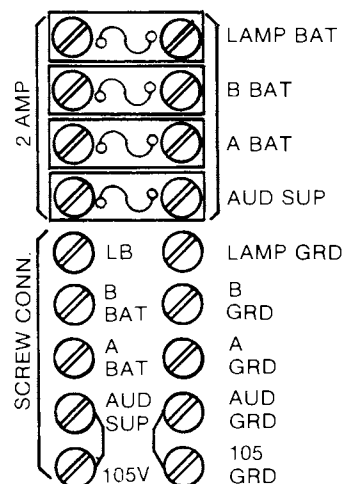


Fig. 5 — Underside of M-37 Showing Printed Circuit Board and Screw Connections for Power Cable.



NOTE:

- THE M-37 IS EQUIPPED WITH JUMPERS BETWEEN AUD SUP AND 105V, AND AUD GRD AND 105 GRD. LAMP GRD IS FACTORY WIRED TO AC GRD AND 105 GRD. SEE PARA. 3.05 FOR AUDIBLE SIGNAL SUPPLY OPTIONS.

Fig. 6 — M-37 Connecting Block Terminal Assignments for 19 and 37 Station Intercoms.

PLUG PIN	CA12 WIRE COLOR NOTE 1	SCREW POSITION & DESIGNATION ON UNDERSIDE OF M-37 PANEL	CA12 WIRE COLOR NOTE 1	PLUG PIN
NO CONNECTION		○ LB ○ ○ B BAT ○ ○ A BAT ○ ○ AUD SUP ○	NO CONNECTION	
NOTE 3		⊗ LG ⊗ LB ⊗ B GRD ⊗ B BAT ⊗ A GRD ⊗ A BAT ○ AUD GRD ○ AUD SUP	WHT/BLK (RED/BLK)	4
20	WHT (WHT)		BLK (GRN/BLK)	8
16	GRN (ORN/BLK)		RED (BLK)	12
NC (NOTE 4)			NC (NOTE 4)	
24	BLU (BLK/WHT)		ORN (BLU)	9
17	ORN/BLK (RED)		GRN/BLK (BLU/BLK)	19
22	BLK/WHT (GRN)		RED/BLK (WHT/BLK)	1
		⊗ AC GRD ⊗ 105V ⊗ LAMP FLASH ⊗ 10V INT ⊗ MOTOR START ⊗ 105 INT		

NOTES:

1. P12D WIRE COLORS ARE IN PARENTHESIS.
2. WIRE COLOR "BLUE/BLACK", PLUG PIN "21" IS NOT USED.
3. LG (LAMP GROUND) IS FACTORY WIRED TO AC GRD AND 105 GRD. WIRE COLOR "BLU" MAY BE CONNECTED TO EITHER TERMINAL.
4. THE M-37 IS EQUIPPED WITH JUMPER CABLES BETWEEN AUD GRD AND 105 GRD AND BETWEEN AUD SUP AND 105V.

Fig. 7 — Screw Terminal Positions and Designations Showing Connection to Power Cable by Wire Color and Plug Pin.

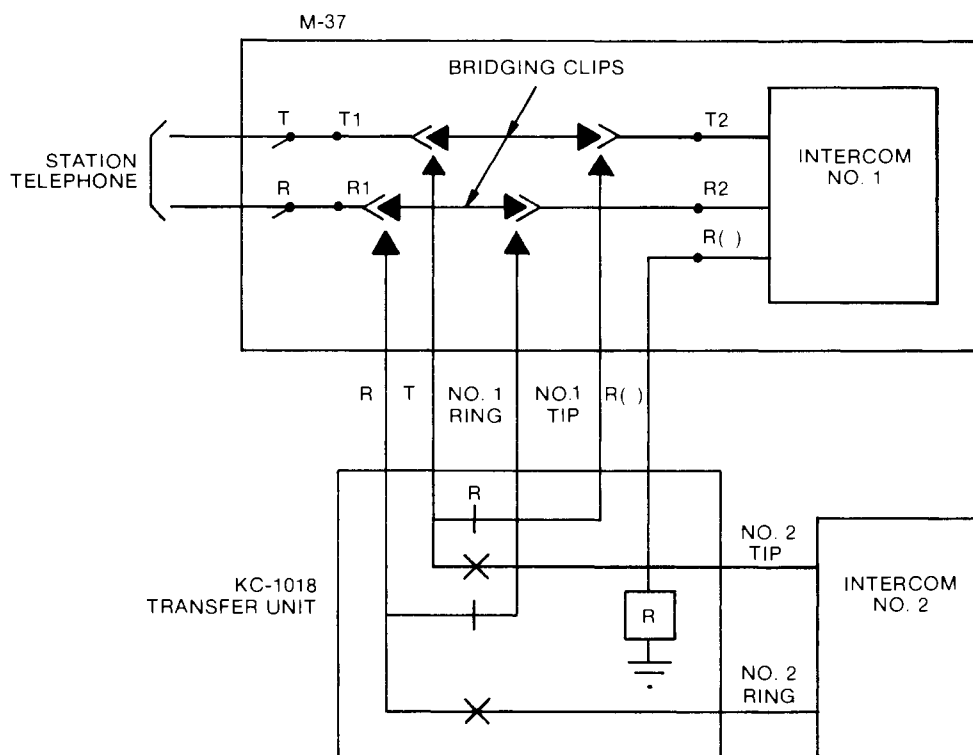


Fig. 8 — Application Schematic of M-37 with Expander and Second Intercom.