TECHNICAL PRACTICE

KX-30 490003 FEBRUARY 1985 REV B

KX-30[™] INTERCOM EXPANDER KEY TELEPHONE UNIT

1. GENERAL

1.01 The KX-30 Intercom Expander provides a transfer function for expanding a tenstation intercom system. No additional intercom is necessary to provide for expansion. The KX-30 expands an intercom system in 30 station increments up to 90 stations. One KX-30 expands a ten-station system up to 30 stations, two expand it up to 60 stations and three expand it up to 90.

2. DESIGN FEATURES

2.01 The KX-30 was designed to expand a Melco KT-10X Tone Intercom, a KC-10X Combination Intercom or a KR-10X Rotary Intercom. Units issued after January 1978 have the capability of expanding a Western Electric 424-B or 424-C KTU Rotary Dialing Intercom in the Western Electric 641A Panel. In this application, the addition of a 624A Panel and 444A Expansion Unit is not required.

NOTE: Units with the capability described above have side labels dated 1-78 and/or cable plugs with yellow and green markings. Units issued previous to this change have labels dated 9-76 or earlier and cable plugs marked only with yellow.

2.02 The KX-30:

- is used to expand Melco KT-10X, KR-10X or KC-10X or W.E. Co. 424-C intercoms.
- mounts adjacent to 200-series panelmounted key telephone equipment or on a wall adjacent to the equipment cabinet.
- connects through its plug with a standard A25B or equivalent 25 pair connector cable.
- operates from a standard key system power supply.
- utilizes two-digit codes.
- 2.03 Any three of digits 1 9 may be assigned as transfer; that is, as first digits of twodigit numbers.

3. INSTALLATION

3.01 Mount the KX-30 in an apparatus cabinet equipped with 7" x 1.5" mounting space, in a relay rack or on a wall.

3.02 Attach an A25B or equivalent 25-pair connector cable to the KX-30 plug with the clamp provided. Terminate cable on a 66-type connecting block.



Fig. 1

3.03 Cross-connect R0-R9 and XL from the intercom to the KX-30 as shown in Figure 2. Transfer leads A, B and C XFR of the KX-30 may be

connected to any R()X leads of the intercom to become first digits of two-digit numbers.3.04 Connect A0-A9, B0-B9 and C0-C9 to station

R leads to agree with station number assignments. Connect ground to all B or RG leads KX-30 490003 FEBRUARY 1985 REV B

on station blocks. Verify that there are no R leads shorted to ground.

3.05 When the KX-30 is used to expand a Western Electric 424-B or 424-C in the 641A panel, make the following connections in addition to those described above (see Fig. 4).

- a. connect KX-30 lead XL to 641A lead J.
- b. connect KX-30 lead TD to 641A lead TD.
- c. connect KX-30 B BAT to 641A lead BR.
- 3.06 Connect B BAT to unfiltered key telephone power supply.
- 3.07 Test for lamp and bell or buzzer signaling to all stations.
- 3.08 Transfer groups are designated as Group A, Group B and Group C. When activated by a directing digit, a group will remain operated by the externally controlled latch circuit. Momentary interruption of the latch circuit by means of the hook switch or an end of the signal function will restore the operated group to a normal or a disconnect condition.

NOTE: 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.

4. MAINTENANCE

4.01 If the KX-30 does not function, check R leads to bells or buzzers for opens or shorts to ground.

- 4.02 Test the system by substituting another KX-30.
- 4.03 No provision is made for field adjustment or repair. If defective return unit to supplier.

4.04 The KX-30 is warranted against manufacturing and material defects. If it becomes defective within the warranty period it will be repaired or replaced at no charge. See the Melco Warranty Service Policy for return and repair details.

5. SPECIFICATIONS

Operating voltage range, A and B BAT-18 to -28V DC -24V DC nom Current (-24V DC).....0 ma idle 90 ma operated Relay contact ratings lamp2 amps at 10V DC P.C.2 amps at 28V DC ringing signal0.5 amp at 10V AC to 105V AC ringing (Protection provided by intercom.) Operating temperature0° to 55°C 32° to 122°F Operating humidity0 to 95% MountingApparatus cabinet or wall Connections A25B or equivalent 25 pair connector cable Housing Epoxy coated aluminum

6. ORDERING GUIDE

- 6.01 Order the KX-30 as follows: (QTY) KX-30 120039 UNIT TEL KEY from your local supplier or distributor.
- 6.02 For technical information on the KX-30 or any Melco product call or write: MELCO LABS, INC. P.O. Box 6909 Bellevue, Washington 98008-0909 (206) 643-3400 TWX: 910-443-3040

KX-30 490003 FEBRUARY 1985 REV B

N/C: No Connections

		Connector
/	R0	w-bl 26
KR-10X,	R1	bl-w 1
	R2	<u>w-o</u> 27
KC-10X	R3	<u>0-w</u> 2
KT-10X	R4	w-g 28
OR -	R5	<u>g-w</u> 3
641A PANEL	R6	w-br 29
(424-B or 424-C	R7	br-w 4
INTERCOM)	R8	w-s 30
	R9	<u>s-w</u> 5
>	A0	r-bl 31
	A1	bl-r 6
	A2	r-0 32
	A3	<u> </u>
	A4	<u>r-g</u> 33
	A5	g-r 8
	A6	r-br 34
	A7	br-r 9
	A8	r-s 35
	A9	<u>s-r</u> 10
	B0	bk-bl 36
	B1	<u>bl-bk</u> 11
	B2	8 11 0 37
	B3	0-bk0 12
	B4	hk a
	B5	o 38 o 13
BELLS OR BUZZERS	B6	bk-br 39
	B7	الما سمار
	B8	<u></u> ⊕ 14 bk-s € 40
	B9	s-bk e 15
	CO	y-bl 41
	C1	bl-y 16
	C2	<u>y-0</u> 42
	C3	<u> </u>
	C4	<u>y-g</u> 43
	C5	<u>g-y</u> 18
	C6	y-br 44
	C7	br-y 19
	C8	<u>y-s</u> 45
	C9	<u>s-y</u> 0 20
```		
		·o 46
(	A XFR	bl-v e 21
	N/C	<b>9</b> 47
	B XFR	0-1
KR-10X, KC-10X		22
KT-10X, or		o 48
641A PANEL (424-B OR 424-C INTERCOM)	CXFR	<b>g</b> 23
	, vi	<b>0</b> 49
l	XL	br-v 24
(	TD	<u>v-s</u> 50
641A PANEL	B BAT	<u>s-v</u> 25
POWER SUPPLY		~ 20

NOTES:

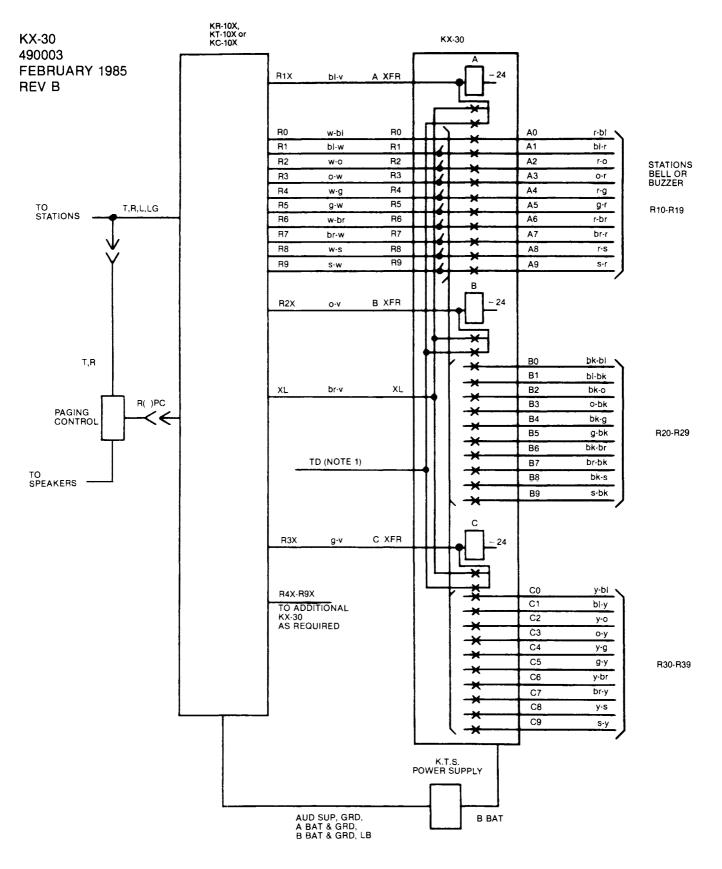
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1. LEAD TD USED WHEN EXPANDING ELECTRIC 424-B OR 424-C IN THE 641A PANEL (SEE PARA. 3.05).

Fig. 2 — Connections for KX-30 with Intercom.

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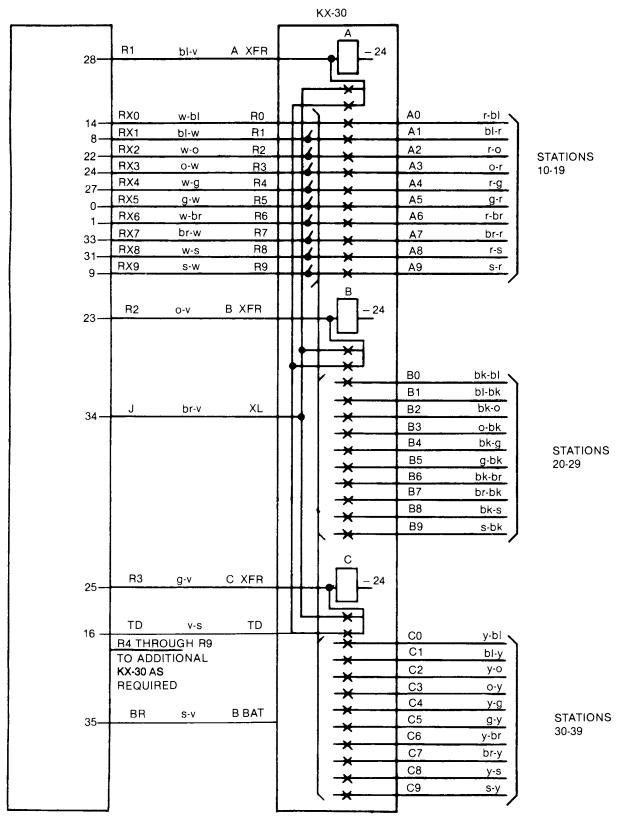
NOTES:

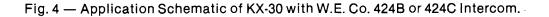
1. LEAD TO IS NOT USED WITH MELCO INTERCOMS.

Fig. 3 — Application Schematic of KX-30 with Intercom.

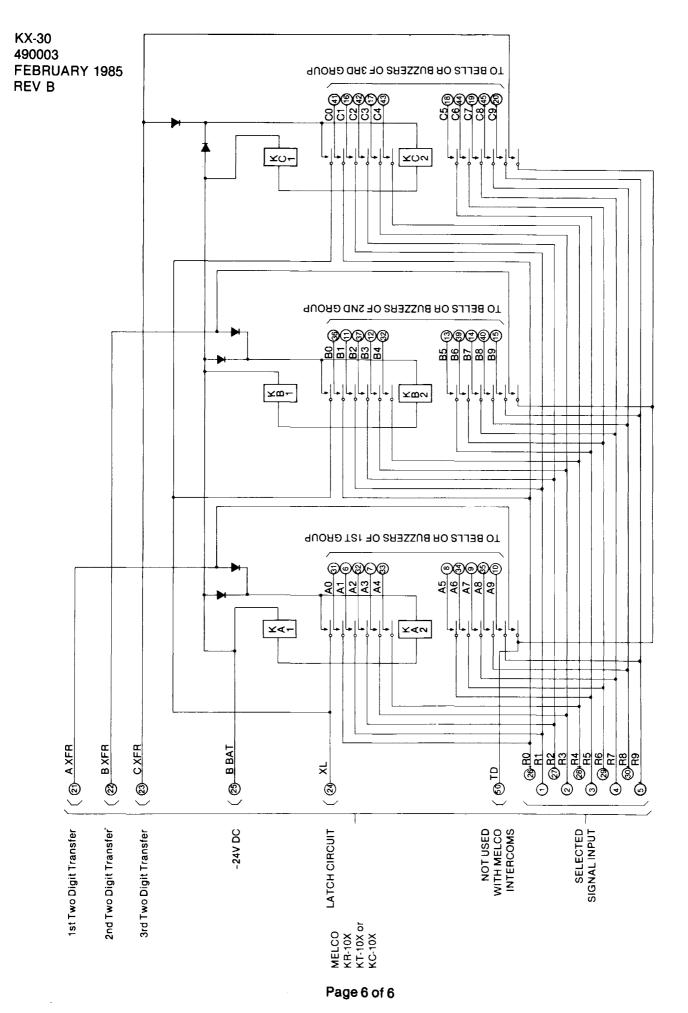
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W.E. Co. 641 PANEL E/W 424B OR C INTERCOM





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Fig. 5 — Functional Schematic of KX-30.

**TECHNICAL PRACTICE** 

## KX-38™ INTERCOM EXPANSION UNIT — KTU FOR USE WITH KL-19A TWO-LINK INTERCOM

### 1. GENERAL

**MELCO** 

1.01 The KX-38 expands the KL-19A Two Link Intercom for key telephone systems from
19 to 38 stations. All stations of the expansion unit operate in the same manner as stations of the KL-19A.

1.02 The KL-19A/KX-38 combination provides up to 38 intercom stations. It has two talking paths, one private and one common. It furnishes dial tone, busy tone, ringback tone, interrupted ringing and flashing lamps. Station signaling is fully selective and local conferencing is dial accessed.

1.03 Paging is available with the addition of one or more paging access or paging amplifier circuits. All stations, both links, conferencing and paging are available from every telephone through a single pick-up button of the key telephone.

1.04 This device has received Registration Number AQT9PZ-68321-KX-N under Part 68 of FCC Rules and Regulations.

## 2. DESIGN FEATURES

2.01 The KX-38:

- adds 19 intercom stations to the KL-19A.
- provides the same station features as the KL-19A.
- connects to the KL-19A with one B25A or equivalent 25-pair expansion cable.
- utilizes power from the KL-19A through the expansion cable.
- connects to the additional 19 stations with two single A25B or equivalent 25-pair connector cables.
- mounts in a relay rack, in an equipment cabinet or on a backboard.

## 3. OPERATION OF THE KL-19A/KX-38

### FIRST CALL

3.01 A call can be placed whenever the intercom pick-up button is not lighted. To place a call, a station user presses the intercom button, comes off-hook and hears dial tone through the first talking link. All station lamps light and auxiliary contacts EC1–EC3 operate. After the station number is dialed, the caller hears ringback tone and the called station receives interrupted ringing and flashing lamp. When the called station or any other station answers, the call is switched to the second, private link. All intercom station lamps go dark indicating that another call can be made and contacts EC1–EC3 restore.

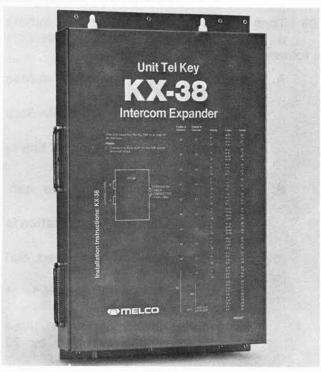


Fig. 1

## SECOND CALL

3.02 Operation for the second call is the same as for the first, except that the call stays on the first link and is not private. Intercom station lamps remain on, indicating the system is busy, and contacts EC1-EC3 remain operated. The second call remains on the first link until the second link becomes idle. If the second link becomes idle before the first, the call on the first link switches to the second link. All lamps go out and contacts EC1-EC3 restore. If the first link becomes idle before the second link, all lamps go out and contacts EC1-EC3 restore. Whenever the lamps are out, a call can be made.

#### **BUSY TONE**

3.03 When a station is talking on the second link and a second intercom call to that station is attempted, the KL-19A will furnish busy tone to the second caller.

#### ANSWERING

3.04 An intercom call may be answered by any telephone connected to the KL-19A or KX-38.

#### LOCAL CONFERENCE (5 stations max)

3.05 Tone or rotary dialing stations may initiate a local conference with the intercom as follows:

- A. Dial 60, the local conference access number.
  - Receive dial tone. Proceed with Step B.
  - Receive busy tone . . . second link is busy. Try later.
- B. Dial each station to be in the conference.
  - Receive dial tone after each station is dialed.
  - If less than 4 stations are called, dial 60 again.
  - Originator will hear three periods of ringback tone.
  - Called stations will receive three periods of ringing followed by 20 seconds of flashing lamp.
  - If all called stations answer, all will switch to the second link when the last one answers.
  - If all called stations do not answer, there will be a 20-second waiting period. Then all off-hook stations will switch to the second link.
- C. Proceed with the conference.

#### PAGING

3.06 To access paging, the originator presses the intercom pick-up button, comes offhook and dials the access code for the paging area desired. The page is made and the originator replaces the handset.

#### 4. INSTALLATION

**NOTE:** Disconnect the power from the KL-19A before the expansion cable is connected or removed.

- 4.01 Mount the KX-38.
- 4.02 Disconnect the power from the KL-19A.
- 4.03 Connect the KL-19A to the KX-38 with the expansion cable. It should not be longer than 5 feet.

4.04 Connect the KX-38 cables A and B to the connecting blocks for the additional sta-

tions.

- 4.05 Make the station and audible signal supply connections.
- 4.06 Test each station for off-hook functions and signaling.

#### 5. MAINTENANCE

5.01 If the KX-38 does not function properly, verify all connections. Examine the cable connectors and plugs for corrosion, dirt or inadequate contact pressure. Test the system by replacing the KX-38 with another of known serviceability.

5.02 The KX-38 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 information.

#### 6. SPECIFICATIONS

Operating temperature	
	32° to 122°F
Operating humidity	0 to 95%
	noncondensing
Housinge	poxy coated aluminum
Weight	
Connector cables	
(not furnished)	and one B25A

## 7. ORDERING GUIDE

7.01 Order as follows:

(QTY) 120249 KX-38 INTERCOM EXPANDER

from your local supplier or distributor.

7.02 For further information or assistance on the KX-38 or the KL-19A, call or write: MELCO
P.O. Box 6909
Bellevue, WA 98008-0909
(206) 643-3400
TWX: 910-443-3040

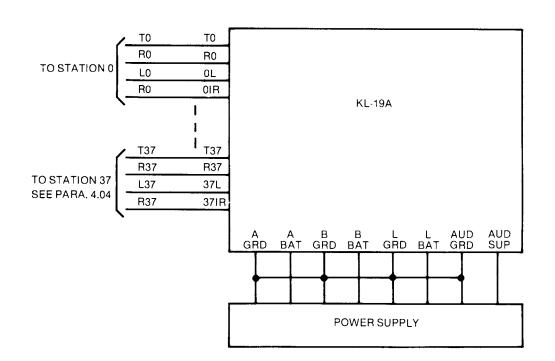


Fig. 2 — KL-19A Station Connections.

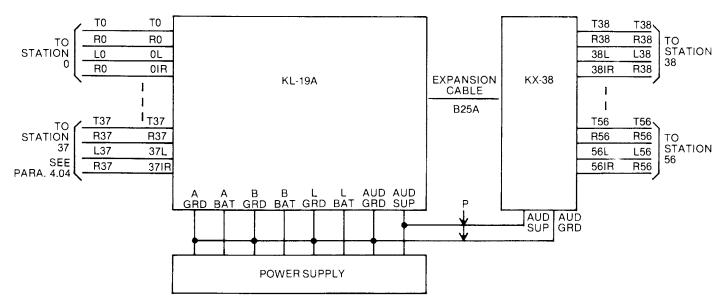
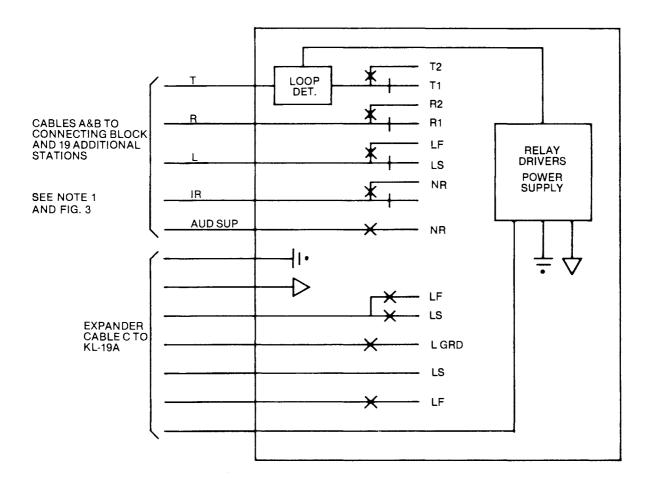


Fig. 3 — KL-19A Connections for KL-19A with KX-38 Expansion Unit.

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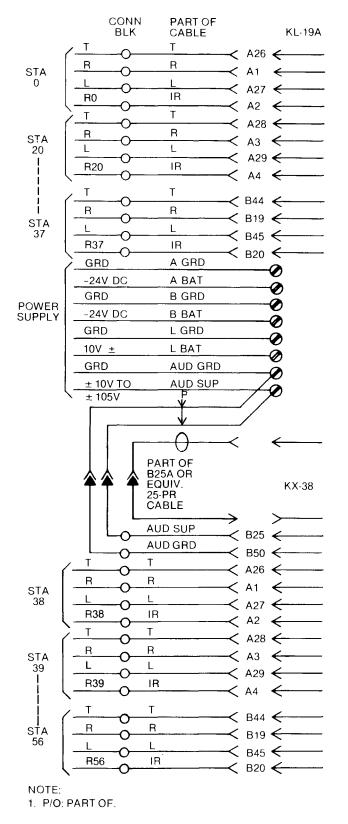


NOTES:

1. AUDIBLE SUPPLY TO AUD SUP TERMINAL OF KL-19A.

Fig. 4 — Condensed Functional Schematic of KX-38.

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				CABLE A			CABLEE	3		
,	Т38 г		W-BL	<u> </u>			W-BL		т47 ч	
{	R38	1	BL-W	<b>√</b> 26 <b>€</b>		<b>→</b> 26 <b>〉</b>	BLW	1		)
STA 38	38L	2	W-0				W-0	2	47L	STA 47
—	38IR	3	0-W	<u></u> 27 <b>{</b>		_ <u>→</u> 27,	0-W -	3	47IR	f
5-	T39	4	W-G	2		$\rightarrow 2$	W-G	4	T48 -	,
[=	R39 -	5	G-W			$\xrightarrow{28}_{3}$	G-W	5	R48	)
STA 39 🛛	39L -	7	W-BR			$_{29}$	W-BR	6	48L	STA 48
	39IR	- 8	BR-W			4	BR-W	8	48IR	
2	T40 -	9	W-S			<u></u> 30	W-S	9	T49 <	
	R40 -	10	S-W			$\rightarrow 5$	S-W	10	R49	
STA 40		11	R-BL	<b>`</b> 31ĭ <b>}</b>		<u></u> 31Š	R-BL	11	49L	STA 49
ι	40IR -	12	BL-R			$\overbrace{6}^{\prime}$	BL-R	12	49IR	J
· · · · · · · · · · · · · · · · · · ·	<u>T41</u>	13	R-O	32		<u>→</u> 32́>	R-O	13	<u></u> 50:	, }
GTA 41 -	R41	14	O-R R-G	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		$\rightarrow$ 75	O-R	14	R50	074.50
STA 41	41L	15	G-R	₹33€		<u> </u>	R-G	15	50L	STA 50
ζ_	41IR	16	R-BR	<b>→</b> 8		→ s≻—	G-R R-BR	16	50IR	J
(-	H42	17	BR-R	(34(		<u>→</u> 345́—	BR-R	17	T51 = 1 R51	١
	-42L	18	R-S	<b>→</b> ? 9 <b>←</b> →		$\rightarrow$ $\rightarrow$	R-S	18	51L	
STA 42	70ID	19	S-R	(35€		→35>	S-R	19	51IR	STA 51
ζ_	1/2	20	BK-BL	(10€		<u>→</u> 10>	BK-BL	20		)
(-	R43	21	BL-BK	<36<		<del>_}</del> 36≻	BL-BK	21		٢
	121	22	BK-O			<u>}11</u> >	BK-O	22	52L	07
STA 43	7210	23	O-BK	{37€		<u>→</u> 37 <u>&gt;</u>	O-BK	23	52IR	STA 52
ς_		24	BK-G	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>		<u> </u>	BK-G	24	153	)
(-	- 247	25	G-BK			$\xrightarrow{38}$	G-BK	25	R53	
STA 44	7/1-	26	BK-BR	(13 <b>{</b>			BK-BR	26	531.	STA 53
1-		27 28	BR-BK				BR-BK	27 28	53IR	
>=	T 4 E I	29	BK-S				BK-S	29	T54 :	
	D/6 I	30	S-BK				S-BK	30	R54	)
STA 45	451 1	31	Y-BL			41	Y-BL	31	54L	STA 54
ι	<u>451R</u>	32	BL-Y			16	BL-Y	32	54IR	]
		33	Y-0	42		425	Y-0	33	T55 :	
	<u></u>	34	0-Y	<u></u>		<u></u> 175	0-Y	34	R55	
STA 46	46L -	35	Y-G	<u> </u>		<u> </u>	Y-G	35	<u>55L</u>	STA 55
ι		36	G-Y	<u></u>		<u> </u>	G-Y	36	<u>55IR</u>	J
ż-		37	Y-BR	<u> </u>		<u> </u>	Y-BR	37	T56 (	
		38	BR-Y Y-S	₹19₹		ز19	BR-Y	38	R56	07.0
—		39	S-Y	{45} <u>(</u>		<u> </u>	Y-S	39	56L	STA 56
ζ_		40	V-BL	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		<u> </u>	S-Y V-BL	40	56IR	
1-		41	BL-V	<b>`</b> (46 <b>そ</b>		<u> </u>	BL-V	41		
———		42	V-0	~~~		<u> </u>	V-0	42		
NO CONNECTIONS		43	0-V	<b>`</b> (47 <b>`}</b>		<u>→</u> 47≻	0-V	43		1
	L	44	- V.G	$-\dot{\zeta}^{22}$		$\xrightarrow{22}$	V-G	44		
		45	G.V			<u></u> 485	G·V	45		1
		46	V-BR	49 49	1	$\xrightarrow{23}_{49}$	V-BR	46		
<u>`</u>		47	BR-V				BR-V	47		[
{		48 49	V.S	$50^{24}$			V-S	48	AUD GRD	NOTE
		49 50	S-V	25			S-V	49	AUD SUP	NOTE 1
ζ-	L	50		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		<del>-</del>	I	1.00	· ,	/

NOTES:

1. CONNECT V-S/S-V PAIR OF CABLE B FROM TERMINALS OF KX-38 CONNECTING BLOCK TO AUD SUP AND AUD GRD SCREW TERMINALS OF KL-19A.

Fig. 6 — KX-38 Connections. Additional Stations 38 Through 56 and Audlble Supply.

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KL-19A	CABL	E C		KX-38
	AB0	26	W-BL	-
	AB1	1	BL-W	$\prec$
	AB2	27		
	AB3	2	O-W	
	AB4	- 28	W-G	
	AB5	3	G-W	
	AB6	29	W-BR	
	AB7	4	BR-W	$\rightarrow$
	AB8	30	W-S	
	AB9	5	S-W	
INTERMEDIATE CONTROL	2000	31	R-BL	
SIGNALS	2400	6	BL-R	$\supset$
	2800	32	R-0	
	2C00	7	O-R	
	DB0	33	R-G	
	DB1	8	G-R	
	DB2	34	R-BR	
	DB3	9	BR-R	$\prec$
	DB4	35	R-S	
	DB5	- 10	S-R	<b>—</b> <
	DB6	36	BK-BL	~
	DB7	11	BL-BK	$\prec$
	EXPAND	37	BK-O	$\prec$
	N/C	12	O-BK	$\prec$
	В	- 38	BK-G	<u> </u>
		13	G-BK	~
	B GRD	39	BK-BR	
POWER	BGRD	14	BR-BK	
	T1	40	BK-S	
TIP AND RING	R1	15	S-BK	$\prec$
LINK 1	B GRD	41	Y-BL	<u> </u>
POWER	BGRD	16	BL-Y	
	Τ2	42	Y-0	
TIP AND RING	R2	- 17	0-Y	
LINK 2	B GRD	43	Y-G	
POWER	B GRD	- 18	G-Y	_
	~	44	Y-BR	
NO CONNECTIONS		- 19	BR-Y	
CONTECTIONS	B GRD	45	Y-S	
POWER	BGRD	20	S-Y	
	LB	46	V-BL	
	LB	21	BL-V	
	AUD GRD	- 47	V-0	~
	AUD GRD	22	0-V	~
	+ 12V	48	V-G	$\rightarrow$
	+ 12V	23	G-V	
	+ 12V	49	V-BR	
	+ 12V	24	BR-V	$\rightarrow$
	BBAT	50	V·S	$\geq$
	B BAT	25	S-V	
	·/	-		

Fig. 7 — A25A Connecting Cable KL-19A Intercom to KX-38 Expander.

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