

**EXTROM**

**ELECTRONIC KEY TELEPHONE SYSTEM**

**HMS-1032**

**INSTALLATION MANUAL**

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434-1200

10M HEAD TP

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## 1. INTRODUCTION

### I. SUMMARY

This manual covers the information necessary to install the EXTROM HMS-1032 Electronic Key Telephone System. Each installer is required to read this manual carefully and familiarize himself with the system and its installation procedures before going on installation of the system.

### II. GENERAL SPECIFICATION OF THE HMS-1032 KEY TELEPHONE SYSTEM

- (1) The HMS-1032 KSU specifications are as follows:

Size: 25.7"high 15.7"wide 3.35"deep  
(653mmHx398mmWx85mmD)

Weight: 19.8 pounds(9.0Kg)

Power: 117VAC Input  
24VDC Output at 6A, 5VDC Output at 1.2A

Fuse: 5AAC

Card arrangements: in layers

Basic: COMU Common unit  
16STU 16-station unit  
POWU Power supply unit  
Option: 4COU 4-C.O. line unit  
8STU 8-station unit  
MISCU Music/page unit  
DB INFU DSS/BLF interface unit

Terminals:

Amphenol connector: C.O.Lines (One for 10 C.O.Lines)  
Telephone Lines

Screws: External music source and paging system

- (2) The HMS-1032 telephone specifications are provided below.

Size: 3.3"high, 7.5"wide, 8.9"deep  
(85mmHx190mmWx225mmD)

Weight: 2.2 pounds (1Kg.)

Card: Basic: TELU Option: HFU

Handset: K-1 handset (U.S.Standard)

Color: Cream (case)

Connection:

-4 conductor modular cable for telephone

Cabling: -4 conductor, non-shielded, twisted pair cable  
-50 conductor, non-shielded, twisted pair cable

Maximum cable run:

500 feet for 26 gauge(AWG) cable  
700 feet for 24 gauge(AWG) cable  
900 feet for 22 gauge(AWG) cable

## 2. UNPACK AND INSPECT EQUIPMENT

STEP	PROCEDURE
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### A. Delivery Inspection

- 1 Check if all items have been received against the order form and packing slip. Submit the report on all errors and missing parts to the supplier at once.

### B. KSU Cabinet

- 2 Unpack and remove the KSU cabinet from the carton. Do not destroy the shipping carton until the KSU has been installed and fully tested.
- 3 Inspect the KSU for:
  - damaged or loose connectors,
  - broken or loose circuit cards,
  - broken wires, flat cables and power cord,
  - broken or bent connector pins,
  - scratches or dents in the cabinet,
  - loose screws on the KSU covers.
- 4 Check if the accessories are included with the KSU package, as shown in List A of this section.

### C. Telephone Set

- 5 Unpack and remove telephone set and the handset from the shipping carton. Inspect for:
  - damaged keyboard or dial pad,
  - damaged molded parts,
  - damaged handset curled cord and modular cord,
  - damaged modular connectors and jacks.
- 6 Check if the accessories are included with the telephone set package. See List A.

### D. Circuit Cards

- 7 Following the instruction of the circuit card handling listed in Section 3.3, remove each circuit card from the shipping carton and inspect for:
  - damaged printed circuit boards,
  - damaged components,
  - broken flat cables,
  - alien substance in connectors or damaged connectors.

To prevent damage to the circuit card, DO NOT REMOVE EACH CARD FROM ITS ANTI-STATIC BAG until it is ready to be installed into the KSU cabinet.

List A ACCESORIES OF HMS-1032 KEY TELEPHONE SYSTEM

ITEM	EQUIPMENT	PART NO.	DESCRIPTION	QTY
1	HMS-1032 KSU	228007A1 705132G1 991040A1 914218A1	Fuse: 5A Woodscrew: +M5.1x32S SKB-2M cable tie HMS-1032 Installation Manual	1 4 4 1
2	HMS-1032 TEL	917522A1 997302A1 997304A1 914219A1	Directory card Directory tray Function overlay plate HMS-1032 User's Guide	1 1 1 1
3	HMS-1032 DSS TEL	917522A1 997302A1 997304A1 914185A1	Directory card Directory tray Function overlay plate HMS-1032DSS User's Guide	1 1 1 1
4	4COU(10A)	819527A1 819505A1 993215J1	S/C34X110BD flat cable S/C10X110BD flat cable LCBS-16N spacer	1 1 5
5	8STU(10A)	819526A1 763111B1 703006A1 991040A1	S/C30X90BD flat cable Stand-off B +M3X6S screw SKB-2M cable tie	2 5 5 1
6	MISCU(6A)	819505A1 993215J1	S/C10x110BD flat cable LCBS-16N spacer	1 4
7	DB INFU(10A)	819404A1 763111B1 703006A1 991040A1	S/C30X110BD flat cable Stand-off B +M3X6S screw SKB-2M cable tie	1 4 4 1
8	PFU	819495B1 827183B1 703116G1	PFU cable 3-pair modular cable +M3.1x16S wood screw	1 1 2
9	HFU(6B)	819490A1 703010B2	S/C17x110BD flat cable +M3x10S tapping screw	1 2
10	WMK	937495A1 937494A1 827231A1 703008B2 704116G1	Wall bracket Handset hook Adapter cord +M3x8S screw +M4.1x16S wood screw	1 1 1 2 4
11	AB	937496A1 703012B2	Bracket +M3x12S tapping screw	1 1

### 3. INSTALL KEY SERVICE UNIT (KSU)

The HMS-1032 KSU is mounted only on the wall. Consider the factors listed below and select a suitable site for installation of the KSU.

#### LOCATION OF KSU CABINET

- a) AC power outlet should be located near the KSU.
- b) Within 25 feet (7.6m) from the Telco terminal block.
- c) Locations of stations installed, considering the maximum cable run is 900 feet for 22 gauge cable.
- d) There is enough space to allow for accessing and servicing the KSU.
- e) A well ventilated area having a temperature range of from 32° F to 104° F (0° C to 40° C).

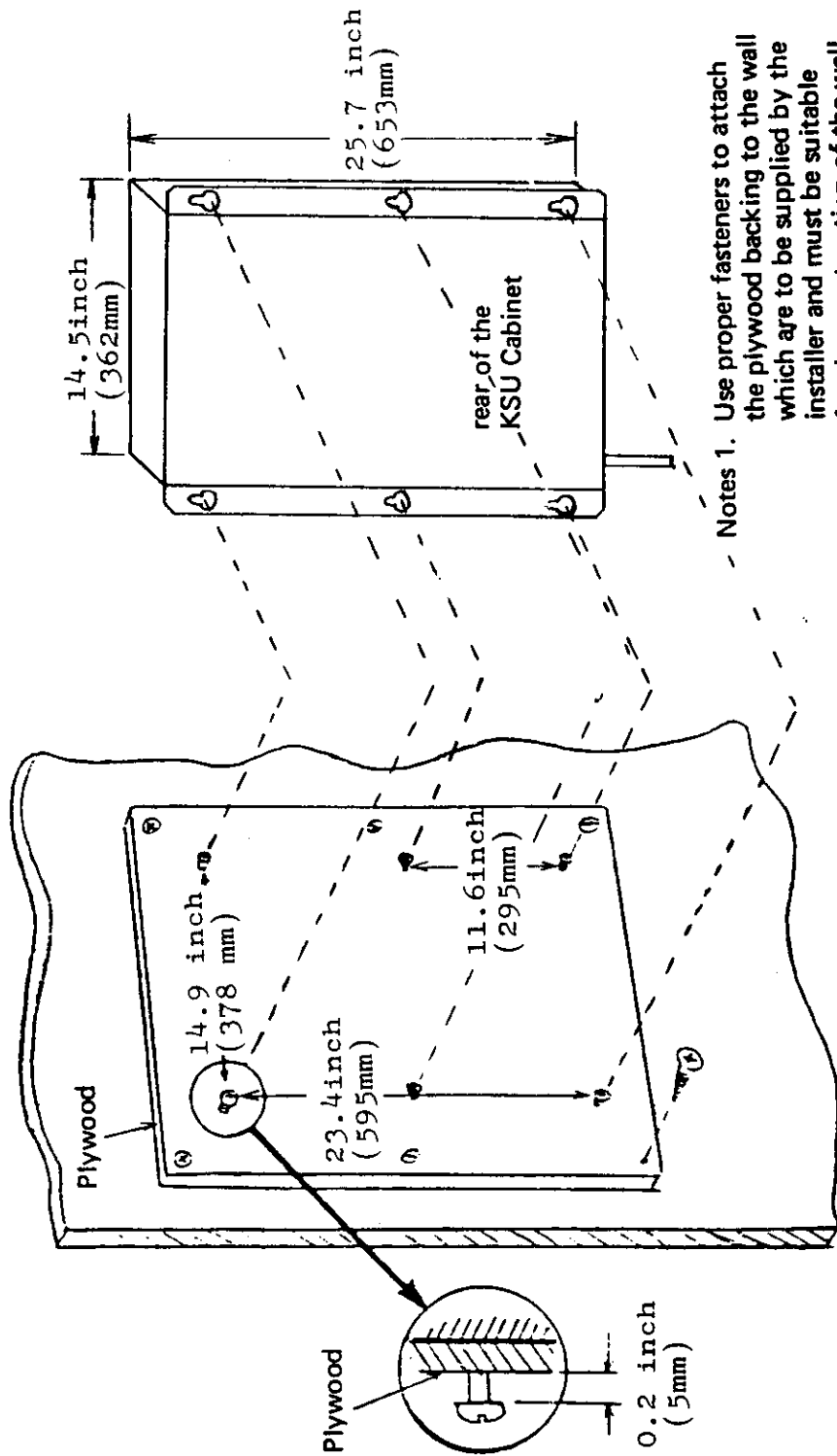
#### 3.1 MOUNT KSU CABINET ON THE WALL

STEP	PROCEDURE
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For STEPS 1 to 5, refer to Figure 1.

- |   |   |
|---|---|
| 1 | Attach a piece of 3/4 inch (20mm) plywood to the wall.  |
| 2 | Using the template, mark the location of the four wood-screws to support the cabinet on the plywood backing.  |
| 3 | Screw the woodscrews into the plywood at the upper side locations marked in STEP 2 and leave a 0.2 inch (5mm) gap between the screw head and the plywood. |
| 4 | Mount the cabinet onto the plywood backing by the keyhole slots on the rear of the cabinet over the heads of the woodscrews, then screw the woodscrews.   |
| 5 | Insert the woodscrews through holes on the rear of the cabinet, then screw them into the plywood backing at the lower side locations marked in STEP 2.    |

Note: Any four of six holes must be used for wall mounting.



Notes 1. Use proper fasteners to attach the plywood backing to the wall which are to be supplied by the installer and must be suitable for the construction of the wall.

2. The plywood backing used for mounting of the cabinet to the wall is supplied by the installer.
3. To mount KSU on concrete wall, use appropriate anchor bolts.

Fig. 1 Wall Mounting of KSU Cabinet

### 3.2 GROUND KSU CABINET

Proper grounding must be provided to protect the HMS-1032 system.

STEP	PROCEDURE
1	Use a 12 AWG or larger copper wire, which should be as short as possible.
2	Screw one end of the ground wire at the ground terminal provided on the lower right in the rear of the KSU cabinet (see Fig.2 below) and bind tightly the other end around a metal cold water pipe or a ground stake which needs to be grounded. The cold water pipe should not contain PLASTIC JOINTS OR COMPOUNDS.

CAUTION: DO NOT USE THE THIRD WIRE (GREEN) OF THE AC CORD FOR THE GROUNDING OF THE SYSTEM.

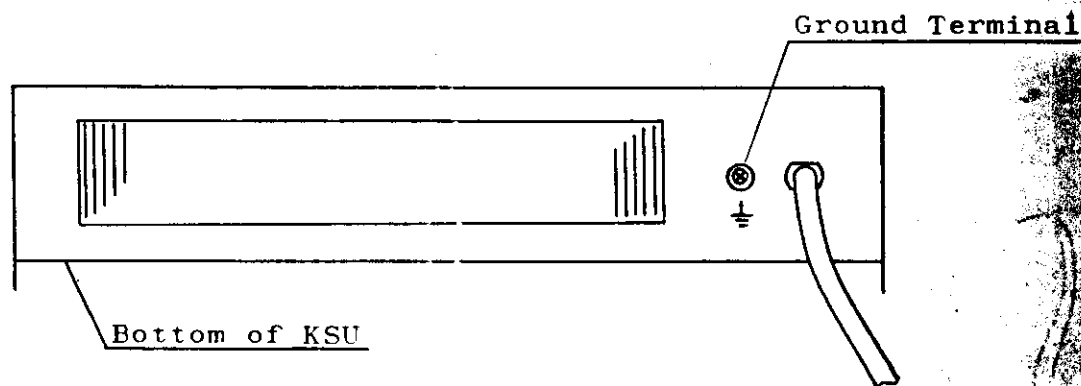


Fig.2 Location of Cabinet Grounding Screw



### 3.3 INSTALL CIRCUIT CARDS

ENSURE THE POWER OF THE SYSTEM IS TURNED OFF BEFORE INSTALLING EACH CIRCUIT CARD.

Circuit cards must be stored in their anti-static bags when not in use. The installer should discharge any static buildup on his body by touching the frame of the KSU cabinet before removing the circuit card from the anti-static bag, or installing the card into the cabinet.

STEP	PROCEDURE
1	Unplug the power cord from the AC socket.
2	Unpack the circuit card from its shipping carton.
3	Holding the circuit card by edges of the card, install it in the assigned position in the KSU cabinet. Refer to Fig.3.

NOTE: TO HANDLE CIRCUIT CARDS, SPECIAL ATTENTION MUST BE PAID ACCORDING TO THE LIST BELOW.

#### CAUTION IN CIRCUIT CARD HANDLING

THE FOLLOWING CARES MUST BE TAKEN WHEN HANDLING CIRCUIT CARDS.

- Do not drop or rattle the circuit card.
- Do not stack the circuit cards directly on top of each other.
- Do not handle the cards by the components.
- Do not touch the wiring of the components. Handle the cards by the edges of the card.
- Do not handle or unpack the cards near electrical machines such as facsimile machines.
- Do not remove the circuit card from its container until ready to be installed into the KSU cabinet.
- Do not install and remove the circuit card from the KSU cabinet unnecessarily.
- Do not attempt field repairs.
- Do not expose or store the unit in high humidity or temperature.

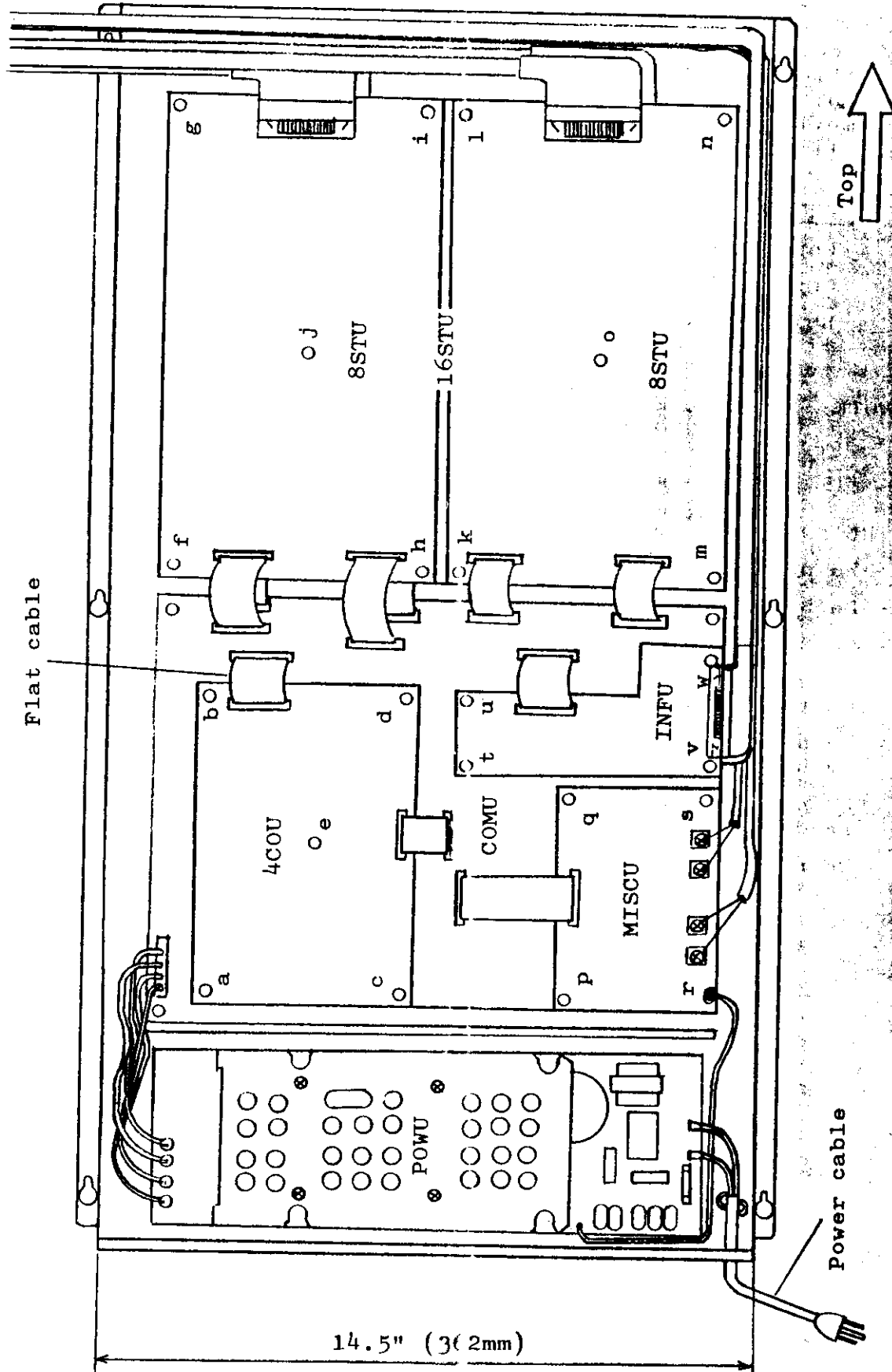


Fig. 3 Circuit Card Installation

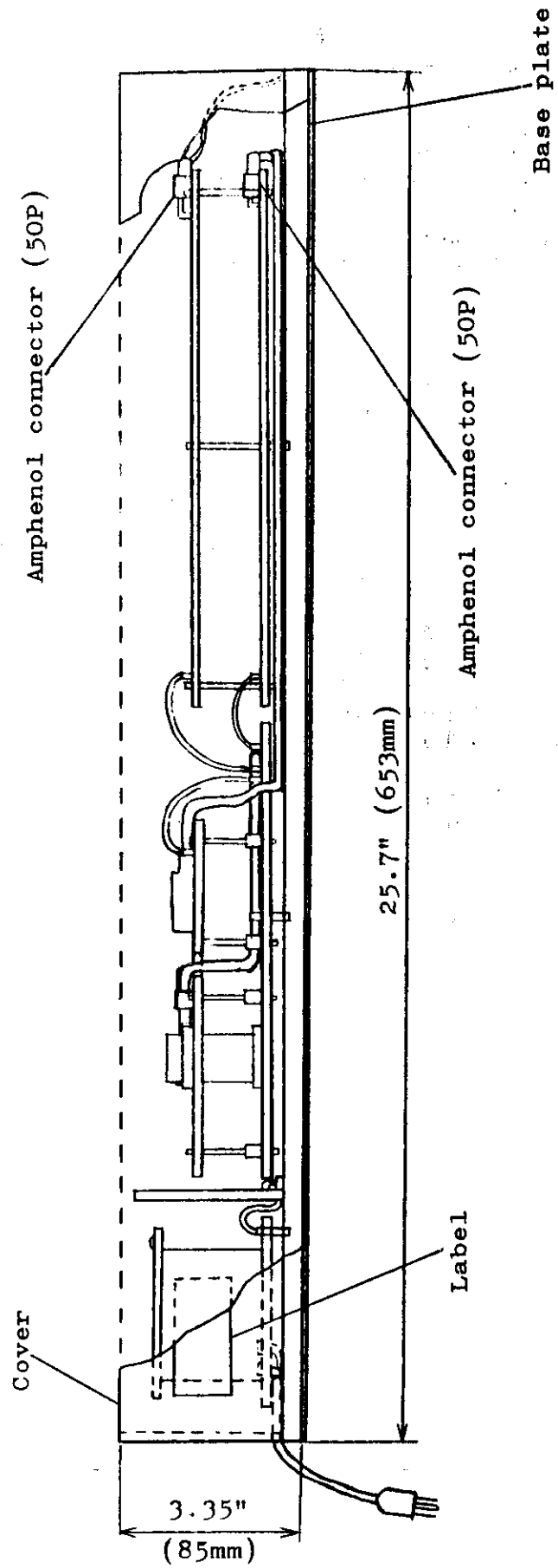


Fig. 4 Circuit Card Installation (Side View)

### 3.3.1 INSTALL 4COU CARD (optional)

Note: The basic HMS-1032 KSU is shipped from the factory with COMU card which contains 6 C.O.line circuits and the 16STU card which contains 16 station interface circuits.

To expand the system up to 10 C.O.line capacity, one optional 4COU card must be added to the KSU.

STEP	PROCEDURE
------	-----------

- |   |   |
|---|---|
| 1 | Unplug the AC cord from the AC socket.  |
| 2 | Insert five(5) LCBS-16N spacers into the appropriate holes a, b, c, d and e through the COMU card (Fig.3).        |
| 3 | Insert one end of the 34x110BD flat cable furnished with the 4COU card into the connector "CND" on the 4COU card. |
| 4 | Insert one end of the 10x110BD flat cable furnished with the 4COU card into the connector "CNQ" on the 4COU card. |
| 5 | Mount the 4COU card in its position as shown in Fig.3 and secure by above spacers.                                |
| 6 | Insert the other ends of two flat cables into the connector "CND" and "CNQ" on the COMU card.                     |

### 3.3.2 INSTALL 8STU CARD (optional)

Note: The basic HMS-1032 KSU is shipped from the factory with 16 station interface circuit. To expand the system up to 24 extensions capacity, one optional 8STU card, (up to 32 extensions capacity, two optional 8STU cards) must be added to the KSU.

STEP	PROCEDURE
------	-----------

- |   |   |
|---|---|
| 1 | Unplug the AC cord from the AC socket.  |
| 2 | Insert five(5) stand-offs into the appropriate holes, f, g, h, i and j through the 16STU card (Fig.3).              |
| 3 | Insert one end of two flat cables furnished with the 8STU card into the connector "CNH" and "CNI" on the 8STU card. |
| 4 | Mount the 8STU card in its position as shown in Fig.3 and fasten it with M3x6S screws provided.                     |
| 5 | Insert the other end of the flat cables into the connector "CNH" and "CNI" on the COMU card.                        |

CNH to CNH }  
CNI to CNI } 30x110BD flat cable

If it is need to install 2nd 8STU card, follow the procedures below.

- |   |  |
|---|--|
| 1 | Insert five(5) stand-offs into the appropriate holes, k, l, m, n and o through the 16STU card (Fig.3).               |
| 2 | Insert one end of two flat cables furnished with the 8STU card into the connectors "CNK" and "CNL" on the 8STU card. |
| 3 | Mount the 8STU card in its position as shown in Fig.3 and fasten it with M3x6S screws provided.                      |
| 4 | Insert the other end of the flat cables into the connector "CNK" and "CNL" on the COMU card.                         |

CNK to CNK }  
CNL to CNL } 30x110BD flat cable

### 3.3.3 INSTALL MISCU CARD (optional)

- Notes:
1. The Music-on-hold is provided by installing one optional MISCUCARD.
  2. This card provides the screw terminals to connect external Music Source for Music-on-hold and B.G.M. and to connect the external amplifier for external paging.

STEP	PROCEDURE
1	Unplug the AC cord from the AC socket.
2	Insert four (4) LCBS-16N spacers into the appropriate holes, p,q,r and s on the COMUCARD (Fig.3).
3	Remove the shorted flat cable from the connector "CNG" provided on the COMUCARD.

**CAUTION!**

If, for any reason, the installed MISCUCARD needs to be removed from the system, the flat cable must be replaced in the connector "CNG" on the COMUCARD, to short its Pins 1 and 2.

Failure in installing the shorted flat cable will adversely affect C.O.lines hold function.

4. Insert one end of the flat cable furnished with the MISCUCARD into the connector "CNG" on the MISCUCARD (Fig.8).
5. Mount the MISCUCARD in its position as shown in Figure 3 and secure by four spacers stated in STEP 2 above.
6. Insert the other end of the flat cable into the connector "CNG" on the COMUCARD (Fig.3).  
CNG to CNG 10x110ED flat cable
7. Select the desired tune using the short-connector "MJ" as shown in Figure 9 below.

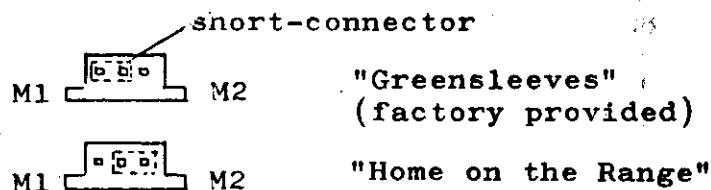


Fig.9 Selection of Tune

### 3.3.4 INSTALL DB INFU CARD (optional)

Note: In order to operate the DSS/BLF telephone set and DSS/BLF console, the optional DB INFU card must be installed in the KSU.

STEP	PROCEDURE
1	Unplug the AC cord from the AC socket.
2	Insert four(4) stand-offs into the appropriate holes t, u, v and w through the COMU card (Fig.3).
3	Insert one end of the flat cable furnished with the INFU card into the connector "CNC" on the DB INFU card.
4	Mount the DB INFU card in its position as shown in Fig:3 and secure by above stand-offs.
5	Insert the other end of the flat cable into the connector "CNC" on the COMU card.

CNC to CNC: 30x110BD flat cable

### 3.4 CONNECT CUSTOMER-PROVIDED EQUIPMENT

#### 3.4.1 CONNECT EXTERNAL MUSIC SOURCE EQUIPMENT

Note: The music-on-hold and background music features are provided by the connection of customer-provided music source to the MISCUC card in the KSU.

STEP	PROCEDURE
1	Unplug the AC cord from the AC socket.
2	Pass a 2-conductor cable from the customer-provided music source through the cable entrance located on the top of the KSU.
3	Connect the cable to the terminals TE1 and TE2 on the MISCUC card (Fig.8).
4	Secure the cable in the wiring strap.
5	Cut two wires marked "S0" and "S1" on the MISCUC card apart from each other (Fig.8).

Note: Input voltage = 100mV

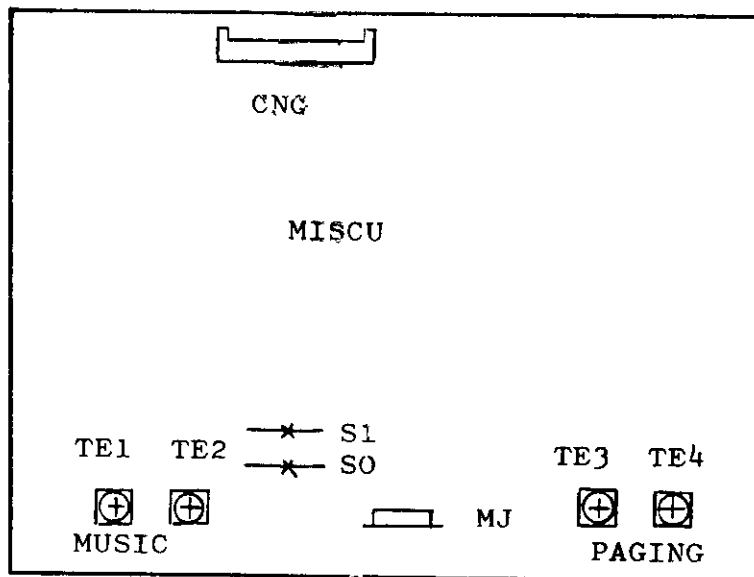


Fig.8 MISCUC Card