

TOSHIBA SYSTEM PRACTICES  
ELECTRONIC KEY TELEPHONE SYSTEM

SECTION 100-006-200  
INSTALLATION

***StrataVI***<sup>®</sup>

INSTALLATION INSTRUCTIONS

# StrataVI

## INSTALLATION INSTRUCTIONS

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## 01 GENERAL

**01.01** This section describes the installation procedures necessary to ensure proper operation of the STRATA VI system.

## 02 PACKING

**02.01** When a STRATA VI system is received, examine all packages and make careful note of any visible damage. If any damage is found, bring it to the attention of the delivery carrier and make the proper claims.

**02.02** Check the STRATA VI system against the purchase order and packing slip. If it is determined that equipment is missing, contact your supplier immediately.

**02.03** After unpacking (before the installation is started), inspect all equipment for damage. If any damage is detected, contact your supplier immediately.

**02.04** When packing or storing the CRDU and/or MCCU, ensure the following:

- Do not use plastic or any type of conductive material for packing either the CRDU or the MCCU.
- Use plain paper.

**NOTE:**  
*Conductive packing material may cause the internal back-up battery to discharge and damage the system.*

**02.05** When installing or removing the CRDU PCB from the MCCU PCB, do not touch the back side (soldered side) of either PCB. Hold the PCB by the edge whenever handling it.

**02.06** Whenever storing or shipping

the MCCU and/or CRDU, always ensure that the battery strap is in the OFF position (Figure 1).

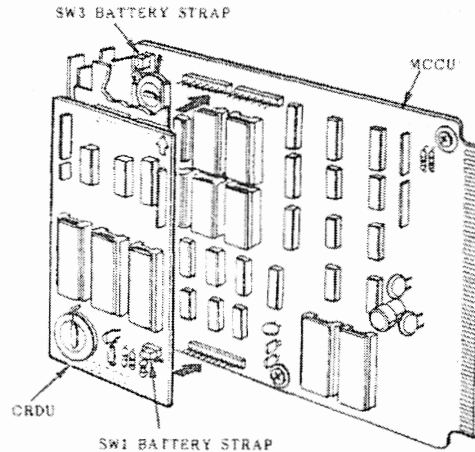


FIGURE 1

**NOTE:**  
*Always make sure the battery strap(s) on the MCCU and/or CRDU is in the "ON" position just prior to installation. If not, the SET LED on the MCCU will not operate.*

## 03 MKSU LOCATION REQUIREMENTS

### 03.01 Power Requirements

**03.02** The STRATA VI MKSU requires 24 VDC. This is provided by the EPSA, which in turn requires power from a grounded 115 VAC outlet. The outlet should be separately fused and rated at 15 amps.

**03.03** The 54-inch cord provided to connect the EPSA to the MKSU dictates the relative location of the EPSA. The EPSA is also equipped with a 10-ft. AC power cord.

### 03.10 Ventilation Requirements

**03.11** Sufficient ventilation should

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exist to allow the dissipation of heat generated by the power supply and MKSU.

**03.20 Environmental Factors**

**03.21** Humidity at the MKSU location should be within 20-80% (without condensation), and the temperature should be relatively constant within a range of 0-50° C. Exposure to dust and airborne chemicals should also be taken into consideration.

**03.30 Cabling Considerations**

**03.31** The MKSU must be located so that all stations are within 1000 cable feet of it. Acceptable cable is 22 or 24 AWG inside telephone station cable, jacketed but not shielded, having two or more wire pairs.

**04 MKSU MOUNTING**

**04.01** The MKSU is designed for either table or wall mounting, but comes from the factory configured for table mounting. For wall mounting instructions, refer to Paragraph **04.20**.

**04.10 Table Mounting the MKSU**

**04.11** Since the MKSU is already configured for table mounting, the only requirement is to choose a suitable location and proceed to Section 100-006-250, Power Supply Installation.

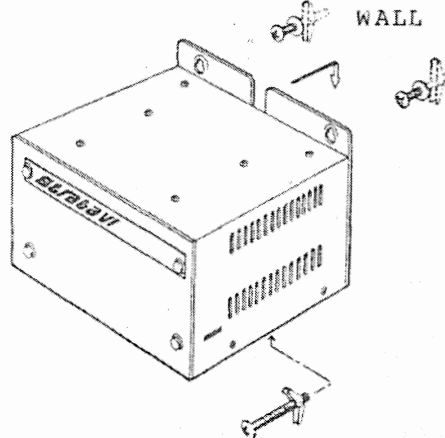
**04.20 Wall Mounting the MKSU**

**04.21** Prepare the MKSU for wall mounting by reversing the back cover to expose the two top mounting holes. Proceed as follows:

- Remove and save the five screws securing the back cover.
- Rotate the back cover 180°, and realign it so the flanges with the two mounting holes project above

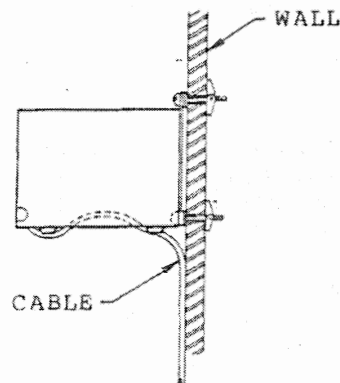
the top of the MKSU, as shown in Figure 2.

- Reinstall the back cover, and secure it with the five screws that were removed earlier.



**FIGURE 2**

**04.22** Secure the MKSU, as shown in Figures 2 and 3, with fasteners through the upper two holes and the single lower hole in the backplate. The fasteners should be either 1/4-inch molly screws, toggle bolts, or lag screws, depending upon the type of wall surface being used.



**FIGURE 3**

### 05 MTOU PCB OPTIONS

**05.01** The MTOU houses several options that must be considered before it is installed in the MKSU, they are:

- Background music relay service—the optional BR relay, if installed, provides a dry contact at the BR terminals on the front of the MTOU to control cut-off of BGM during an external page. The relay operates whenever an external page occurs.
- Night relay service—the optional NR relay, if installed, will provide a dry contact at the NR terminals on the front of the MTOU PCB. The W3 strap option (Figure 4) on the MTOU allows the NR relay to function in one of two modes.

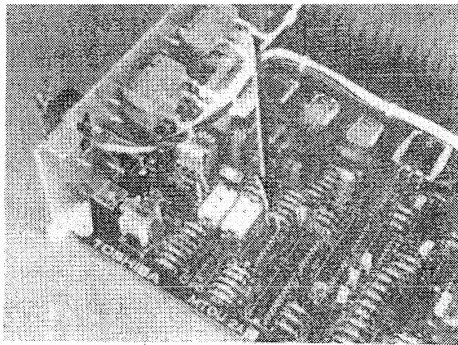


FIGURE 4

- a) Answering Machine Control—if the W3 strap is not cut, the relay is operated continuously when the system is in night service. This mode is intended for indirect control of an answering machine.
- b) Night Bell Control—if the W3 strap is cut, the relay pulses at a 1-sec. on, 3-sec. off rate when the system is in

night service and an incoming call is ringing the system. The mode is intended to be used for indirect control of an external night bell.

- External page impedance selection—the external page output appears at the terminals labeled 3/600 on the front of the MTOU. The output impedance can be selected to be 8 ohms or 600 ohms. If 8 ohms is selected, the output will be via a 3-watt amplifier on the MTOU, and the voice path will be one way. If 600 ohms is selected, an external PA amplifier or talk-back amplifier is required and the internal voice path will be two way.

**05.02** To equip either of the two relay service functions; obtain the optional relay from your Toshiba supplier and install it in the proper location on the MTOU, per Figure 5.

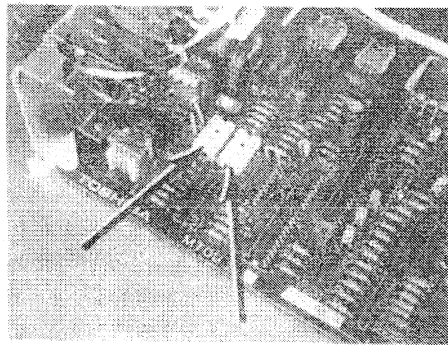


FIGURE 5

**05.03** External page impedance is selected with the SW2 switch located adjacent to the relay sockets on the MTOU PCB (Figure 5). Decide if 8- or 600-ohm impedance is required, then make the selection by positioning the SW2 switch to "8" or "600", whichever is required. Figure 5 shows the switch in the 8-ohm position.



### 05 MTOU PCB OPTIONS

**05.01** The MTOU houses several options that must be considered before it is installed in the MKSU, they are:

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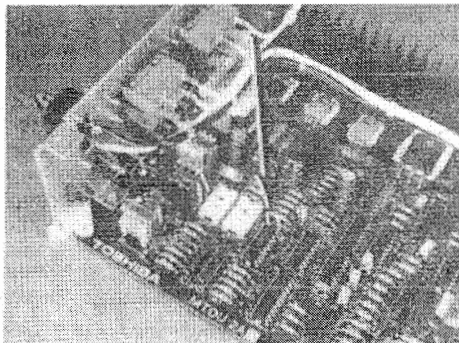


FIGURE 4

- a) Answering Machine Control--if the W3 strap is not cut, the relay is operated continuously when the system is in night service. This mode is intended for indirect control of an answering machine.
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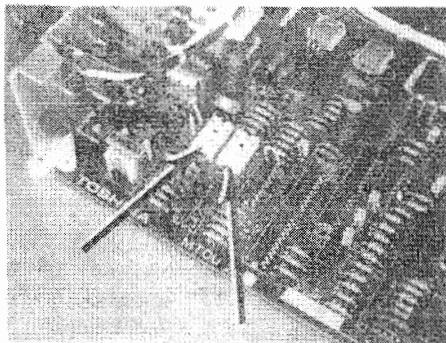


FIGURE 5

**05.03** External page impedance is selected with the SW2 switch located adjacent to the relay sockets on the MTOU PCB (Figure 5). Decide if 8- or 600-ohm impedance is required, then make the selection by positioning the SW2 switch to "8" or "600", whichever is required. Figure 5 shows the switch in the 8-ohm position.



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**06 PRINTED CIRCUIT BOARDS**

**06.01** A maximum of seven PCBs can be installed in the MKSU. They are:

- MTOU (Tone Unit)—one per system.
- CRDU (Repertory Dial Unit)—one per system, to be installed on the MCCU PCB when the Automatic Dialing-Station option is required.
- MCCU (Central Control Unit)—one per system.
- MSTU (Station Interface Unit)—install one for each group of eight stations. System maximum is two (16 stations).
- MCOU (Central Office Unit)—install one for each group of three CO/PBX lines. System maximum is two (six lines). Two types of MCOU are available.
  - a) MF—to be used when DTMF outpulsing is required.
  - b) DP—to be used when rotary dial outpulsing is required.

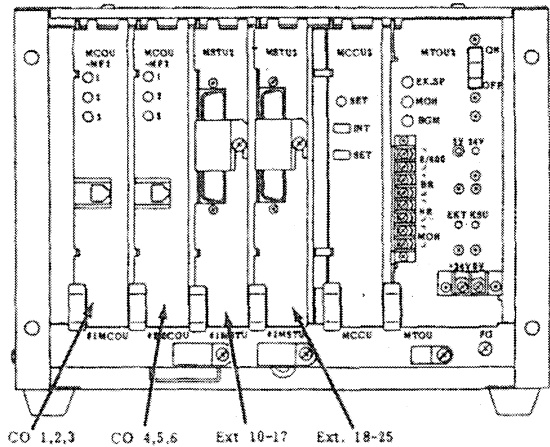
**06.10 MTOU PCB Installation**

**06.11** The MTOU front panel provides the connection point for the 24 VDC input from the external power supply (EPSA). Therefore, it must be installed first.

**06.12** Install the MTOU PCB in the MKSU as shown in Figure 6.

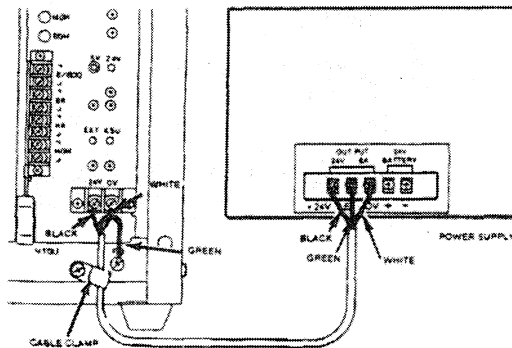
**06.20 Power Connection**

**06.21** Plug the EPSA into a 115 VAC outlet and check its output voltage to be sure it is 23.2-28.2 volts. If the voltage is not within these limits, repair or replace the EPSA before proceeding.



**FIGURE 6**

**06.22** Disconnect the EPSA from the 115 VAC outlet. With the supplied cord, connect the EPSA to the MTOU PCB and MKSU ground (see Figure 7). Secure the power cord to the MTOU with the plastic cable clamp provided.



**FIGURE 7**

**06.23** Ensure that the power switch on the MTOU is **OFF**, then plug the EPSA into the 115 VAC outlet and measure the voltage at the MTOU input terminals. Correct any problems, if necessary, before proceeding. Unplug the EPSA.

**06.30 PCB Installation**

**06.31** Mount the CRDU on the MCCU if required (see Figure 8).

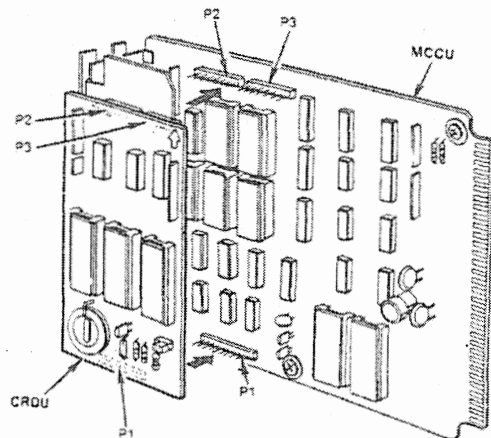


FIGURE 8

**06.32** Connect the memory back-up battery on the MCCU (and on the CRDU if the system is so equipped). Refer to Figure 9, locate the SW1 battery strap on the CRDU, and the SW3 battery strap on the MCCU; the plugs are shown in the off or disconnected position. To connect each battery, remove and reinstall the strapping plugs so that they bridge the center pin with the pin labeled **ON**.

**06.33** Install the MCCU in the correct MKSU position (Figure 6).

**06.34** Follow the position arrangement in Figure 6, and install the required MSTU PCB(s).

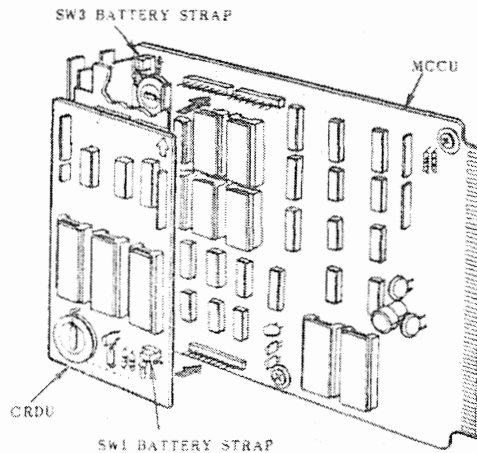


FIGURE 9

- #1 MSTU serves extensions 10-17.
- #2 MSTU serves extensions 18-25.

**06.35** Select the proper type of MCOU PCB (MF or DPU) and install the required number in the position(s) shown in Figure 6.

- #1 MCOU serves CO lines 1-3.
- #2 MCOU serves CO lines 4-6.

**07 CABLE CONNECTIONS**

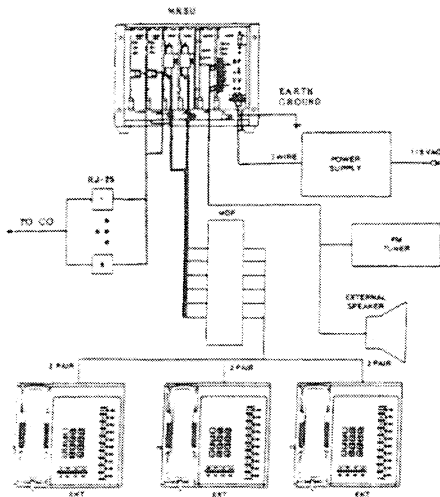
**07.01 Main Distribution Frame (MDF) Configuration**

**07.02** Two 66MI-50 split connection blocks (Figure 10) are recommended as the STRATA VI Main Distribution Frame (MDF).

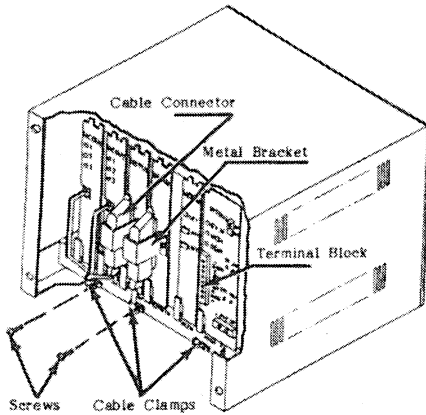
**07.03** A 25-pair male-amphenol-ended cable is connected directly to the front of each MSTU PCB and fastened with the metal bracket that is provided (Figure 11).

**07.04** Secure the cables to the bottom of the MKSU shelf (Figure 11)

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**FIGURE 10**



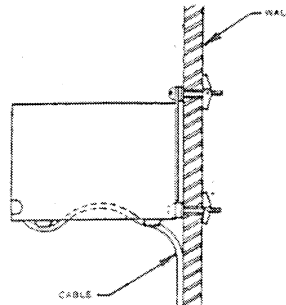
**FIGURE 11**

using the plastic cable clamps that are provided. Run the cable under the MSTU and toward the rear, as shown in Figure 12.

**07.05** Route the cable from #1 MSTU (Ext. 10-17) to Block A and the cable from #2 MSTU (Ext. 18-25) to Block B.

**07.06** Use the standard color code sequence and terminate the cables from

the MSTU PCBs on the MDF blocks as shown in Figures 13 and 14. (Use one side of each block for each cable.)



**FIGURE 12**

**07.10 Station Cable Connections**

**07.11** Terminate the individual 2-pair station cables consecutively on each MDF block; attach them to the side opposite the MSTU cable. Use bridging clips to connect the MSTU cable pairs to the station cable pairs.

**07.12** The cables used for station wiring should be industry standard quad or twisted pair.

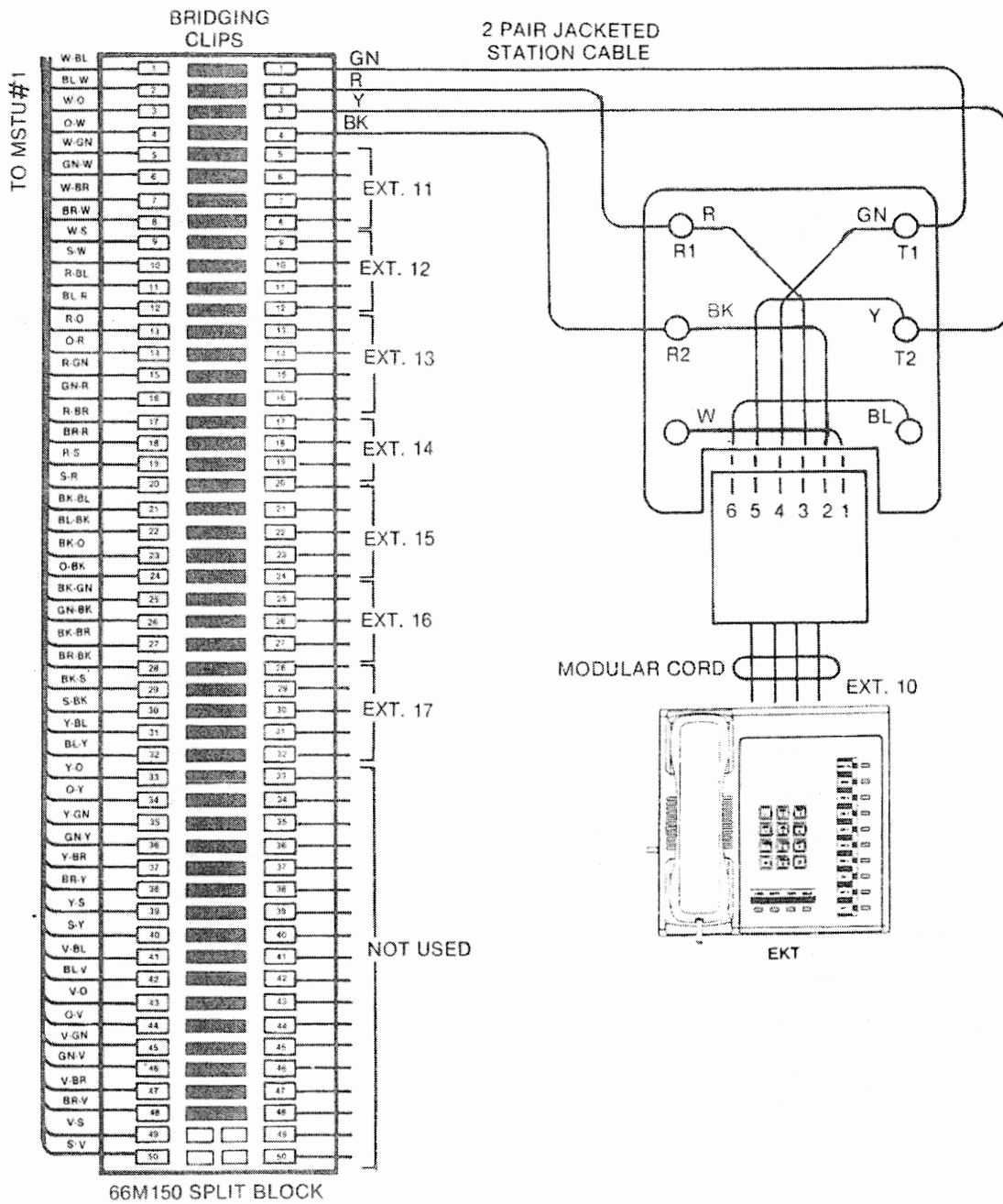
**07.13** The overall length of the cable run must not exceed 1000 ft. for 24 AWG wire.

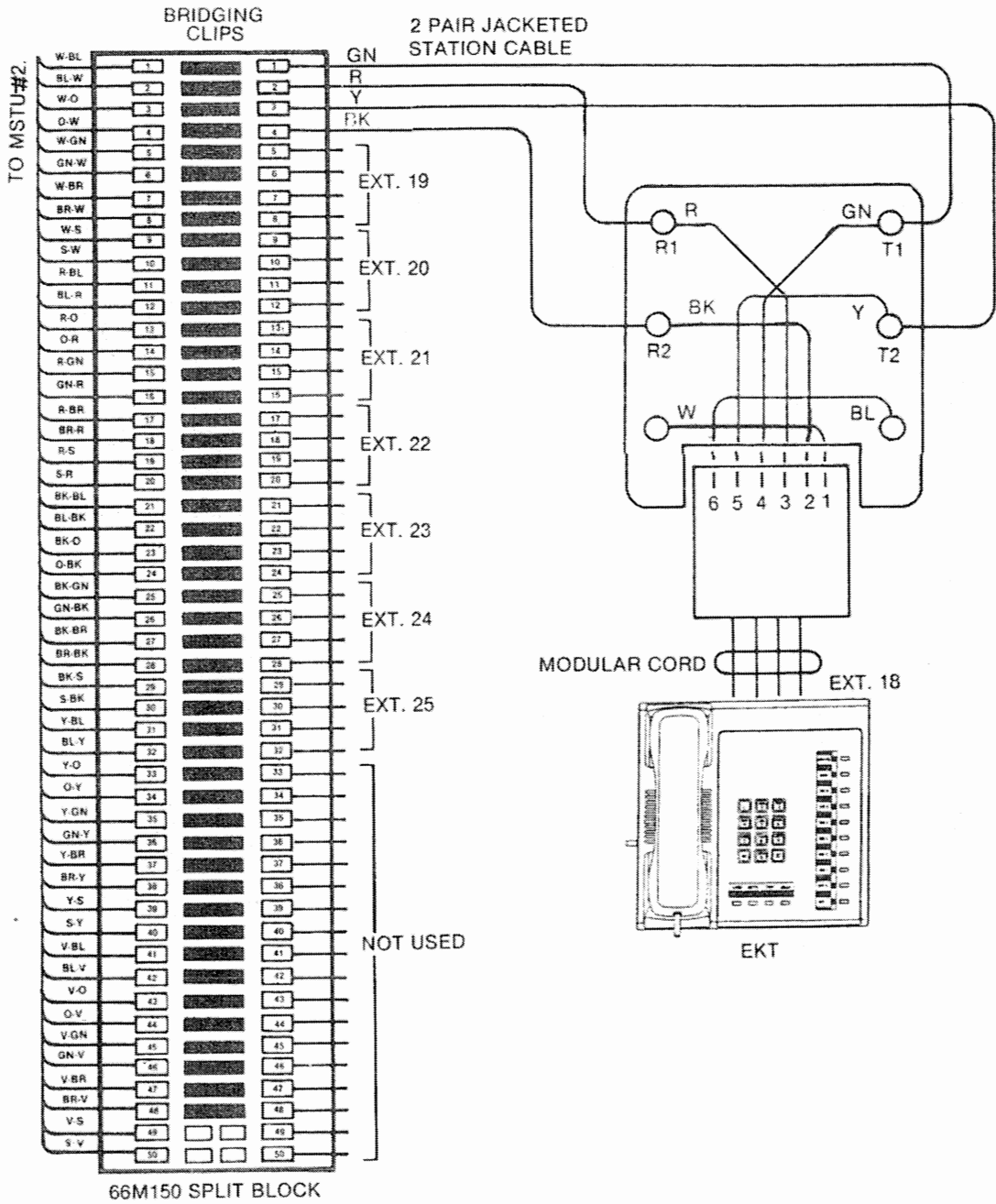
**WARNING:**

*When installing station cable, do not run parallel to and within 3 ft. of an AC power line. Such power lines should be crossed at right angles (90°) only.*

**07.14** At the station locations, terminate the station cable in a conventional 4- or 6-conductor modular station connector to accommodate the modular line cord from the EKT. The standard modular EKT cord length is 7 ft., while the maximum allowed length is 25 ft.

**07.15** Figures 13 and 14 show the EKT wiring arrangement.





**07.16** The various manufacturers of modular station blocks have employed different color codes to indicate the sequence of pairs in their blocks. However, the color code most commonly used is shown in Figure 15. Verify the configuration of your modular blocks before connecting the station cables.

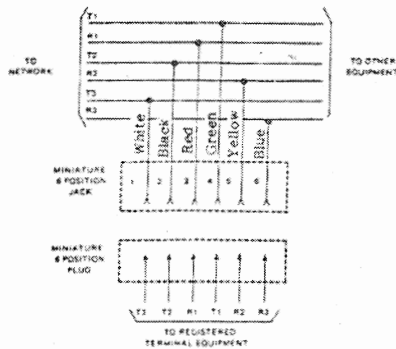


FIGURE 15

**07.20 Intercom Code Assignment**

**07.21** Intercom codes are assigned permanently to specific MSTU cable appearances in STRATA VI. Make sure the station cables are connected to the proper terminals (Figure 15).

**07.30 CO Line Connection**

**07.31** The CO/PBX lines are introduced into the STRATA VI system via modular line cords (no longer than 25 ft.) connected directly to a jack on the MCOU PCB. Each modular cord contains three lines. The opposite end of each cord then terminates directly into an RJ-25 jack provided by the telephone company.

- #1 MCOU serves CO lines 1-3.
- #2 MCOU serves CO lines 4-6.

**07.32** Secure the modular cords to the MKSU shelf (Figure 16) using the plastic cable clamps that are provided.

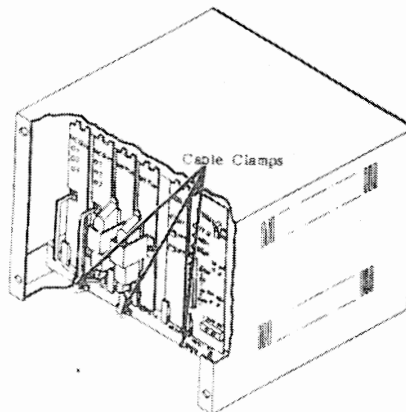


FIGURE 16

**08 ELECTRONIC KEY TELEPHONE INFORMATION**

**08.01 General**

**08.02** All STRATA VI EKTs may be used as desk units or wall-mounted telephones. Each one measures:

- Width 8.8 inches (224 mm)
- Depth 9.1 inches (230 mm)
- Height 4.0 inches (102 mm)

and is equipped with 14 line and feature keys in addition to its push-button dial pad. Six of the keys are utilized for central office/PBX lines, two for intercom lines and the remaining six keys are used for feature operation (see Figure 17).

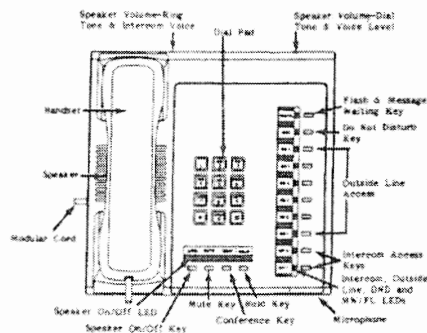


FIGURE 17

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**08.03** Each EKT features a modular handset cord and is connected to the system via a 4-conductor modular line cord.

**08.04** The 20-key EKT (Figure 18) has the same overall dimensions as the standard EKT, and is installed in exactly the same manner. See Program 5XX in Section 100-006-300, Programming, for inputting information concerning the 20-key. It is equipped with 10 additional feature keys—see Section 100-006-100, General Description, for additional information.

**FUTURE OPTION**

(20-key EKT)

**FIGURE 18**

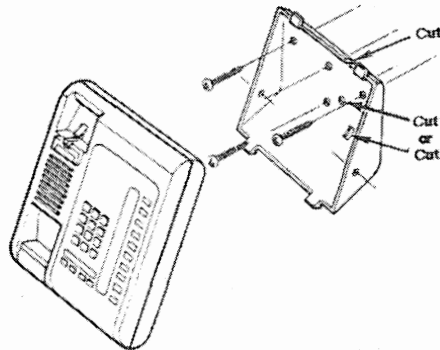
**08.10 EKT Wall Mounting**

**08.11** An optional handset hanger kit is required to convert either type of EKT for wall mounting. The EKT may be mounted on a wall or any other flat, vertical surface to which the base can be secured.

**08.12** When selecting the mounting site, consider the EKT weight and the additional stresses to which the mounting will be subjected.

**08.13** Mounting screws or mollies, appropriate for the surface on which the telephone is to be secured, must be provided by the installer.

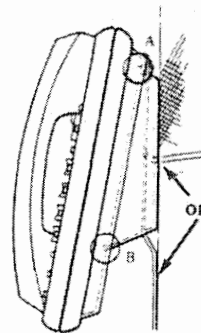
**08.14** Locking tabs secure the base to the EKT. The direction in which the base is attached to the EKT determines whether it will be used as a desk unit or wall unit (it is factory-configured as a desk unit). Disengage the locking tabs (A & B, Figure 20) by pushing downward on the base. Refer to Figure 19, choose which of the two lower choices is appropriate, and cut the holes through which the tail cord will be routed.



**FIGURE 19**

**08.15** Secure the base to the desired wall site. Use a spirit level and make certain the top of the base is level and that the deeper portion is down.

**08.16** Route the tail cord through the holes in the base and secure the EKT (Figure 20). Test the sturdiness of the EKT mounting.



**FIGURE 20**

**08.20 Converting the EKT**

**08.21** Refer to Figure 21, the optional handset hanger kit (available from Toshiba Telecom) must be used whenever the EKT is wall-mounted.

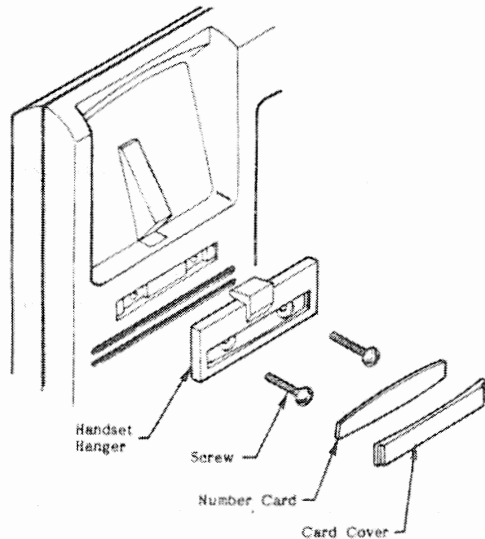


FIGURE 21

**08.22** Remove the card cover by inserting a paper clip in the hole at one end. Bend the cover up and remove it and the number card.

**08.23** Install the handset hanger into place and tighten the self-tapping screws. Reinstall the number card and card cover and connect the modular plug to the modular jack.

**09 SYSTEM POWER-UP INITIALIZE**

**09.01** The STRATA VI has a list of standard system data assignments stored in ROM that can be entered at any time by activating the **SET** switch on the MCCU PCB. The system must be initialized when it is first installed or whenever the MCCU PCB is changed. This will allow the system to be tested and any faults to be corrected before time is spent on programming.

**09.02** Plug in the EPSA and check the 24 VDC output. Make sure the voltage is within tolerances before proceeding.

- Refer to Figure 22 and verify that the battery on the MCCU (and CRDU, if equipped) is connected to ensure that data changes entered after initialization will not be lost due to power failure.

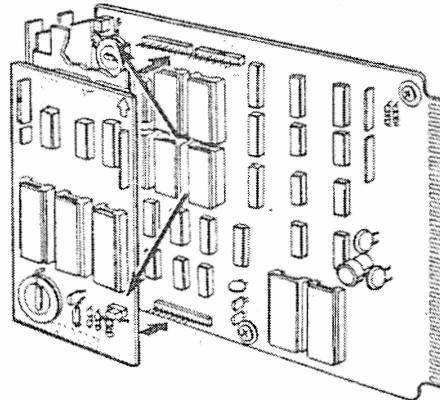


FIGURE 22

**NOTE:**

*The SET LED will not function if the MCCU battery is not connected.*

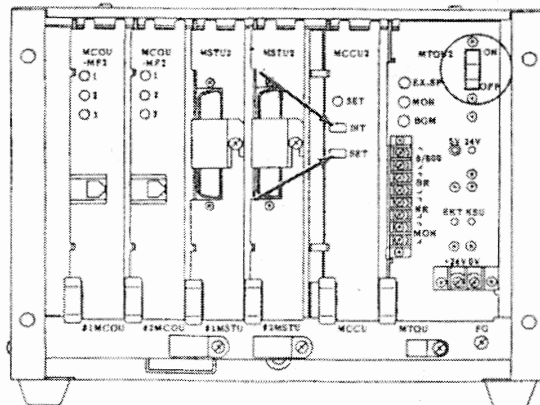


FIGURE 23



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**09.03** To initialize the system data memory, refer to Figure 23 and perform the following steps:

- a) Make sure the power switch on the MTOU PCB is in the **ON** position.
- b) Hold in the **INT** switch on the MCCU. Simultaneously depress the **SET** switch and allow it to lock. Depress and release the **SET** switch again.
- c) Release the **INT** switch.
- d) Cycle the MTOU power switch **OFF** and **ON**.
- e) System is initialized.

**09.10** The Automatic Dialing memory will contain random numbers when the system is powered up initially. To clear the memory; therefore, preventing meaningless numbers from being dialed, proceed as follows:

**09.11** To clear Automatic Dial-System memory (24 numbers):

- Lock in the **SET** switch on the MCCU—the MCCU LED and the MW/FL LED on Ext. 17 will be on.
- Operate the **[SPKR]** key on Ext. 17—SPKR LED will be on steadily.
- Dial **[#] [\*] [\*]** on the dial pad—the SPKR LED will flash continuously.
- Operate the following keys: **[INT 1] [CO 1] [CO 3] [CO 5]**—the corresponding LEDs will light steadily.
- Operate the **[HOLD]** key—all Ext. 17 LEDs (except MW/FL) will go off.
- Release the **SET** switch on the MCCU—the MCCU LED and the MW/FL LED on Ext. 17 will go off.

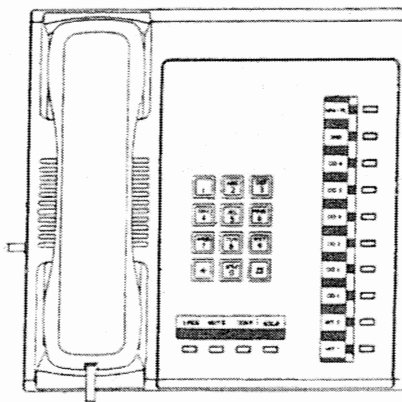
**09.12** To clear the optional Auto-

matic Dial-Station memory:

- Lock in the **SET** switch on the MCCU—the MCCU LED and the MW/FL LED on Ext. 17 will go on.
- Operate the **[SPKR]** key on Ext. 17—the SPKR LED will be on steadily.
- Dial **[#] [\*] [#]** on the dial pad—the SPKR LED will flash steadily.
- Operate the following keys: **[INT 2] [CO 2] [CO 4] [CO 6]**—the corresponding LEDs will light.
- Operate the **[HOLD]** key—all Ext. 17 LEDs (except MW/FL) will go off.
- Release the **SET** switch on the MCCU—the MCCU LED and the MW/FL LED on Ext. 17 will go off.

**09.13** If the appropriate sequence above fails, refer to Section 100-006-500, Troubleshooting, for assistance in locating the fault.

**09.14** If the appropriate initialization sequence above appears successful, proceed to test system.



**FIGURE 24**

## 10 SYSTEM TEST PROCEDURES

**10.01** EKT functional check—the following procedures verify the basic system functions and confirm the proper functioning of the EKT itself. Refer to Figure 24, and perform the following test procedure at each station. Begin with Ext. 10.

**10.02** With handset on-hook:

- Operate [INT 1] key  
INT 1 LED: I-use flash  
SPKR LED: on steady  
Listen for INT dial tone via EKT speaker
  - Adjust speaker volume with the volume control on the rear right side of the EKT.
  - Operate [INT 2] key  
INT 2 LED: I-use flash  
SPKR LED: on steady  
Listen for INT dial tone via EKT speaker
  - Operate [CO 1] key  
CO 1 LED: I-use flash  
SPKR LED: on steady  
Listen for CO/PBX dial tone via EKT speaker
  - Dial any digit on the dial pad and dial tone will stop.
  - Tap the EKT microphone and verify that the sound can be heard over the speaker.
  - Press the [MUTE] key while continuing to tap the microphone and verify that the sound cannot be heard via the speaker.
  - Operate [SPKR] key  
CO 1 LED: off  
SPKR LED: off
  - Operate [CO 2] key  
CO 1 LED: I-use flash  
SPKR LED: on steady  
Listen for CO/PBX dial tone via EKT speaker
  - Operate [MW/FL] key  
Listen for circuit break followed by dial tone after approximately 2 seconds.
- NOTE:**  
*If no CO/PBX facility is connected to a CO key, dial tone will not be heard but the LED is still functional.*
- Operate [CO 3] key  
CO 3 LED: I-use flash  
SPKR LED: on steady  
Listen for CO/PBX dial tone via EKT speaker
  - Operate [CO 4] key  
CO 4 LED: I-use flash  
SPKR LED: on steady  
Listen for CO/PBX dial tone via EKT speaker
  - Operate [CO 5] key  
CO 5 LED: I-use flash  
SPKR LED: on steady  
Listen for CO/PBX dial tone via EKT speaker
  - Operate [CO 6] key  
CO 6 LED: I-use flash  
SPKR LED: on steady  
Listen for CO/PBX dial tone via EKT speaker
  - Operate [SPKR] key  
SPKR LED: off  
EKT speaker: off
  - Operate [DND] key  
DND LED: on
  - Operate [DND] key  
DND LED: off
  - Operate [CO 1] key  
CO 1 LED: I-use flash  
SPKR LED: on  
Listen for CO/PBX dial tone via EKT speaker

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- Operate **[HOLD]** key  
CO 1 LED: I-hold flash  
Speaker off (no dial tone)  
SPKR LED: off
- Operate **[CO 1]** key  
CO 1 LED: I-use flash  
SPKR LED: on  
Listen for CO/PBX dial tone via EKT speaker
- Operate **[CONF]** key  
CO 1 LED: Conference call flash rate  
Dial tone continues
- Operate **[SPKR]** key  
CO 1 LED: off  
SPKR LED: off  
Dial tone: off
- Call EKT from another station  
Listen for caller's voice via speaker after warning tone  
INT LED at called station: I-called flash
- Dial **[1]** at calling station  
Tone signalling heard via speaker
- Adjust tone signalling volume with the volume control on the rear left-hand side of the EKT being tested.
- Operate **[INT 1]** key  
INT 1 LED: I-use flash  
SPKR LED: on  
Listen for INT dial tone via EKT speaker
- Lift handset  
SPKR LED: off  
Speaker: off  
Listen for dial tone via handset receiver
- Speak into handset transmitter  
Verify that side tone is present at a comfortable level

- Dial another station and talk into the handset transmitter  
Verify that your voice can be heard via the speaker on the called EKT.
- Set handset back on-hook  
INT 1 LED: off

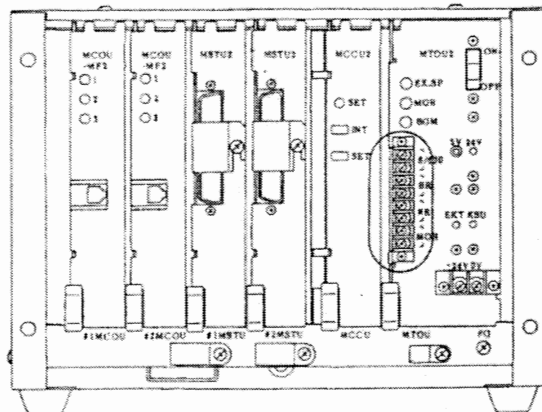
**10.03** This completes the station functional check; repeat the procedure for all stations in the system.

**10.10** Feature Check—verify that all system features function properly as instructed in the Operating Procedures.

**11 MISCELLANEOUS EQUIPMENT CONNECTIONS**

**11.01 Wiring Connections**

**11.02** All connections to the equipment (other than EKTs or CO/PBX lines) are made via the barrier strip mounted on the front of the MTOU PCB, as shown in Figure 25.



**FIGURE 25**

**11.10 Music-on-Hold/Background Music Source**

**11.11** Connect the customer-provided MOH/BGM program source (tape deck, tuner, or commercial source) via

the two MOH terminals on the MTOU barrier strip. Input impedance is 600 ohms.

#### 11.20 Music-On-Hold Volume Control

11.21 Adjust the MOH volume with the MOH volume control on the front of the MTOU. Maximum volume is limited by internal circuits in order to comply with FCC regulations. See Paragraph 11.80 for the correct volume setting sequence.

#### 11.30 External Paging Connections

11.31 The STRATA VI provides access to an external paging system by dialing a single digit (7). The single output connection is made via the 8/600 terminals on the front of the MTOU terminal, and can be used in one of three ways:

- To operate a customer-provided speaker directly, via an internal 3-watt amplifier located on the MTOU PCB.
- If more than 3 watts are required, an external customer-provided amplifier can be connected to operate the external speaker.
- If talk-back capability is required, a customer-provided talk-back amplifier/speaker can be connected.

**NOTE:**

See Paragraph 11.80 for the correct volume setting sequence.

#### 11.40 Direct External Speaker Connection

11.41 The exact number of speakers that may be connected to the 8-ohm, 3-watt output will depend on the type of speaker used, the conductor resistance, and the desired volume.

11.42 The 8-ohm output impedance must be selected with the SW2 switch on the MTOU (Figure 26). The switch must be on the side labeled "8".

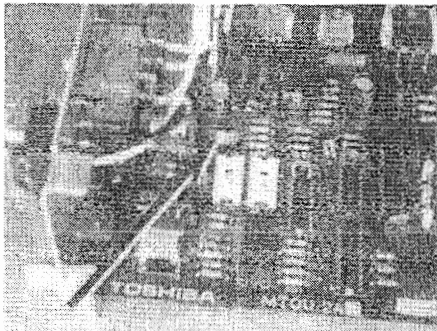


FIGURE 26

11.43 Connect the external speakers to the two 8/600 terminals on the MTOU PCB.

11.44 Adjust the speaker volume with the EX.SP volume control on the front of the MTOU. See Paragraph 11.80 for the correct volume setting sequence.

#### 11.50 External Amplifier Connection

11.51 If more power is required than the MTOU amplifier can deliver, a customer-provided external amplifier may be connected to the 8/600 terminals on the MTOU. The external speakers should then be connected to the external amplifier.

11.52 Determine which output impedance is most suitable for the amplifier being used, and make the selection with the SW2 switch on the MTOU (Figure 26).

11.53 If the 8-ohm impedance is chosen, the EX.SP volume control may be used to control the input level to the external amplifier. If the 600-ohm impedance is chosen, the level is fixed and the input must be controlled by the

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external amplifier itself. See Paragraph 11.80 for the correct volume setting sequence.

**11.60 Talk-back Amplifier**

**11.61** A customer-provided talk-back speaker/amplifier may be connected to the external page (8/600) terminals on the MTOU.

**11.62** For talk-back operation, the SW2 switch on the MTOU must be set to "600". The MTOU amplifier is not used for the 600-ohm mode in order to permit a 2-way voice path.

**11.63** The EX.SP volume control on the front of the MTOU will not function when the 600-ohm mode is selected.

**11.70 Background Music**

**11.71** Background music (BGM) can be provided in two ways through the STRATA VI system:

- Internal to the system using the MOH source.
- External to the system when an external amplifier is used on the External Page feature.

**11.72** Internal BGM uses the music-on-hold program source that is connected to the MOH input terminals on the MTOU. It is broadcast through all EKT speakers (under the individual control of each station user) and will be heard if the [SPKR] key is operated with the handset on-hook and no line selected.

**11.73** As a programmable option, the BGM from the MOH source can be heard via the external page (see Section 100-006-300, Programming).

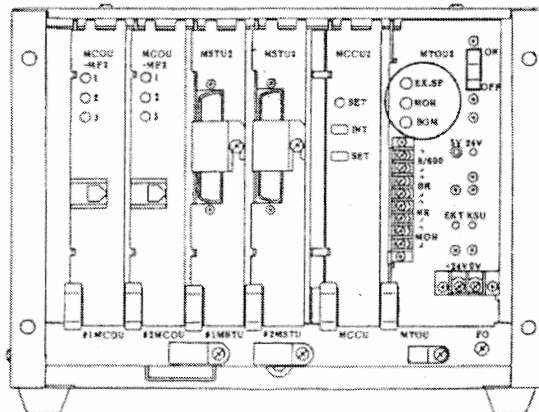
**11.74** The BGM is automatically preempted when a page or ringing

signal must be output from an EKT speaker or the external page.

**11.75** Overall system BGM volume is set with the BGM volume control on the front of the MTOU PCB (see Paragraph 11.80 for the correct volume setting sequence). The volume at individual stations is set with the volume control on the rear right-hand side of the EKT.

**11.76** If BGM is connected via an external amplifier on the external page, it can be heard from the external speakers only. The STRATA VI, if required, can provide a dry contact control signal for muting the BGM when a page is in progress.

**11.77** To provide BGM control, obtain and install the optional BR (K1) relay on the MTOU PCB, see Paragraph 05.02. Connect the BR terminals on the MTOU to the control terminals (mute, mike switch, etc.) on the amplifier.



**FIGURE 27**

**11.80 Volume Setting Sequence**

**11.81** Refer to Figure 27. Adjust the volume for MOH, BGM and Ext. Page with the following sequence:

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- 8-ohms:
  - a) Adjust external page level while talking over the intercom external page feature.
  - b) Adjust music source volume to a comfortable level (approximately -20 dbm).
  - c) Adjust the MOH level for maximum volume without clipping.
  - d) Adjust the BGM level to the desired volume using the music source.
- 600-ohms:
  - a) Set the external amplifier volume level to about one-half.
  - b) Adjust music source volume to a comfortable level (approximately -20 dbm).
  - c) Adjust the MOH level for maximum volume without clipping.
  - d) Adjust the BGM level to the desired volume using the music source.

**NOTE:**

*The EX.SP volume control will not function in the 600 ohm mode.*

**11.90 External Night Bell**

**11.91** As an option, the STRATA VI can provide a dry contact for the purpose of controlling an external loud

ringing bell (or similar device) when the system is in the "Nite" mode.

**11.92** To provide this service, obtain and install the optional NR (K2) relay on the MTOU PCB per Paragraph **05.02**. Connect the external device to the NR contacts on the front of the MTOU.

**IMPORTANT:**

*The NR relay contacts are rated at 24 VDC/1.0 Amp and are not intended to operate high power devices directly. If the power required for the device being controlled exceeds the contact ratings, an external slave relay must be used.*

**11.93** The W3 strap option on the MTOU allows the NR relay to function in one of two modes.

- a) Answering Machine Control—if the W3 strap is not cut, the relay is operated continuously when the system is in night service. This mode is intended for indirect control of an answering machine.
- b) Night Bell Control—if the W3 strap is cut, the relay pulses at a 1-sec. on, 3-sec. off rate when the system is in night service and an incoming call is ringing the system. The mode is intended to be used for indirect control of an external night bell.