



MT-16H INSTALLATION MANUAL



MACROTEL

MACROTEL INTERNATIONAL CORPORATION

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MACROTEL INTERNATIONAL CORPORATION
6001 Park of Commerce Boulevard
Boca Raton, Florida 33487 USA
Phone: (561) 997-5500 • Fax: (561) 997-9922
<http://www.macrotel.com>

MACROTEL INTERNATIONAL CORPORATION

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CUSTOMER INFORMATION SHEET

CUSTOMER NAME: _____

MAIN TELEPHONE NUMBER OF CUSTOMER: () _____

MANUFACTURER: MacroTel International Corporation

MODEL: MT-16H

FCC: #E4KUSA-61239-KF-E
#E4KUSA-61228-MF-E

REN: 1.3B

FACILITY INTERFACE CODES: E&M Tie Line - TL11E

SERVICE ORDER CODE: 9.0F

REQUIRED NETWORK INTERFACE JACK: C.O. Lines - RJ14C
E&M Tie Lines - RJ2EX

MODEL #: _____

SERIAL #: _____



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IMPORTANT SAFETY INSTRUCTIONS

1. Read and understand all instructions.
2. Follow all warnings and instructions marked on the product.
Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaner. Use a damp cloth for cleaning.
3. Do not use this product near water, for example, near a bathtub, wash bowl, kitchen sink, laundry tub or in a wet basement.
4. Do not place this product on an unstable cart, stand or table. The product may fall and be seriously damaged.
5. Slots and openings in the cabinet and the back or bottom are provided for ventilation and to protect it from overheating. These openings must not be blocked or covered. Do not block openings by placing the product on a bed, sofa, rug or similar surface. This product should never be placed near or over a radiator or heat register, nor in a built-in installation, unless properly ventilated.
6. This product should be operated only from the type of power source indicated on the marking level. If you are not sure of the type of power supply to your home, consult your dealer or local power company.
7. If provided with a grounded-type attachment plug, this product is equipped with a three-wire grounding type plug, a plug having a third grounding pin. This plug will only fit into a grounding type power outlet. Do not defeat the safety purposes of the grounding type plug. If provided with a polarized attachment plug, this product is equipped with a polarized line plug (a plug having one blade wider than the other). As a safety feature, this plug will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still does not fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purposes of the polarized plug.
8. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by people walking on it.
9. Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.
10. Never push objects of any kind into the product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
11. To reduce the risk of electric shock, do not disassemble this product. When service or repair work is required, take it to a qualified serviceman. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock when the appliance is subsequently used.
12. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - A. When the power supply cord or plug is damaged or frayed.
 - B. If liquid has been spilled into the product.
 - C. If the product has been exposed to rain or water.
 - D. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
 - E. If the product has been dropped or the cabinet has been damaged.
 - F. If the product exhibits a distinct change in performance.
13. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
14. Do not use the telephone to report a gas leak in the vicinity of the leak.
15. Never install telephone wiring during a lightning storm.
16. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
17. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
18. Use caution when installing or modifying telephone lines. The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product. The installation instructions provided with equipment intended to be locally powered over telecommunications wiring systems shall include all of the following:
 - A. The current limitations and maximum overcurrent protection for Level C circuits.
 - B. Reference to the specific power supply or current limiting device provided with the product and.
 - C. Detailed instructions showing the proper method of installation and connections to the telecommunications wiring system.

To reduce the risk of fire or injury, read and follow these instructions:

1. Use only the battery backup kit as provided by MacroTel.
2. In case of fire, do not dispose of the battery(ies). The cell may explode. Check with local codes for possible special disposal instructions.
3. Do not open or mutilate battery(ies). Released electrolyte is corrosive and may cause damage to the eyes or skin. It may be toxic if swallowed.
4. Exercise care in handling batteries in order not to short the battery with conducting materials such as rings, bracelets and keys. The battery or conductor may overheat and cause burns.
5. Charge the battery(ies) provided with or identified for use with this product only in accordance with instructions and limitations specified in this manual.
6. Observe proper polarity orientation between the battery(ies) and battery chargers.
7. Do not mix old and new batteries in this product (applies to products employing more than one user-replaceable secondary battery).
8. Do not mix batteries of different sizes or from different manufacturers in this product (applies to products employing more than one user-replaceable secondary battery).

Section 1

ICON KEY

! Warning

⚠ Danger

✍ Important Notes

PURPOSE OF MANUAL

This manual details the instructions and procedures required to install, program and maintain the MT-16H Electronic Key Telephone System. For convenience, the manual has been written in separate sections. They are as follows:

GENERAL DESCRIPTION:

Provides an overview of the system operation, capacities and physical characteristics.

INSTALLATION:

Detailed installation instructions to enable the installer to complete the installation of the KSU and associated equipment.

PROGRAMMING:

Step by step procedures are provided that allow the installer to program the customer database. Programming sheets can be left onsite.

TROUBLESHOOTING:

The last section covers troubleshooting procedures to be followed should the installer encounter any difficulties.

Section 2

TELEPHONE COMPANY AND FCC REQUIREMENTS AND RESPONSIBILITIES

In compliance with the requirements of Part 68 of the FCC Rules and Regulations for the connection of a terminal system (this device is classified as a terminal system) to the telephone network and for your convenience, the following information is presented:

1. Notification to the Telephone Company

Customers connecting terminal equipment to the telephone network shall, upon request of the telephone company, inform the telephone company of the particular line(s) to which such connection is made, the FCC registration number (see the label on the side of unit) and ringer equivalence number (REN) of the registered terminal equipment.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the RENs of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

2. Direct connection to a party line or coin-operated telephone line is prohibited.

3. Incidence of Harm to the Telephone Lines

Should terminal equipment cause harm to the telephone network, the telephone company shall, where practical, notify the customer that service may be temporarily discontinued. However, where prior notice is not practical, the telephone company may temporarily discontinue service forthwith, if such action is reasonable in the circumstances. In case of such unnotified temporary discontinuance of service, the telephone company shall:

- a) Promptly notify the customer of such temporary discontinuance of service.
 - b) Afford the customer the opportunity to correct the situation which gave rise to the temporary discontinuance.
 - c) Inform the customer of the right to bring a complaint to the Commission pursuant to the procedures set out in Subpart E of Part 68 of FCC Telephone Equipment Rules.
-

4. Compatibility of the Telephone Network and Terminal Equipment

a) Availability of Telephone Interface Information

Technical information concerning interface parameters and specifications not specified in FCC Rules, including the number of Ringers which may be connected to a particular line, which is needed to permit Terminal Equipment to operate in a manner compatible with the Telephone Company communications facilities, shall be provided by the Telephone Company upon customer's request.

b) Changes in Telephone Company Communications Facilities, Equipment, Operations and Procedures

The Telephone Company may make changes in its communications facilities, equipment, operations or procedures, where such action is reasonable required in the operation of its business and is not inconsistent with the rules and regulations in FCC Part 68 of the FCC Rules and Regulations. If such changes can be reasonable expected to render any customer's Terminal Equipment incompatible with Telephone Company Communications Facilities, or require modification or alteration of such Terminal Equipment, or otherwise materially affect its use or performance, the customer shall be given adequate notice in writing to allow the customer an opportunity to maintain uninterrupted service.

5. Dual Registration Notification

When the MT-16H is installed and programmed to have manual and automatic selection of outgoing lines, it is considered to be a hybrid system. Therefore, it must be registered as such. Because of this duality, the FCC has granted the MT-16H system a dual registration. The installer is required to notify the telephone operating company of the correct registration number that reflects the configuration of the installation. The installer may be required to certify in writing to the telephone company how the system is configured.

RADIO FREQUENCY INTERFERENCE

This equipment generates and uses radio frequency energy and if not installed and used properly, that is in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type-tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna
- Relocate the equipment with respect to the receiver
- Move the equipment away from the receiver
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

Section 3

GENERAL DESCRIPTION

OVERVIEW

The general description section provides detailed information of the operation of the MT-16H Electronic Key Telephone System. The CPU, network interface and system components are described in order to provide a working knowledge of the equipment and its operation.

GENERAL DESCRIPTION OF THE KSU

The system architecture of the MT-16H is designed with "state of the art" components and high quality design criteria. The system is organized into three major sections: The Central Processing Unit, the Speech Path Network and Interface, and the Power Supply section.

CPU PROCESSOR UNIT

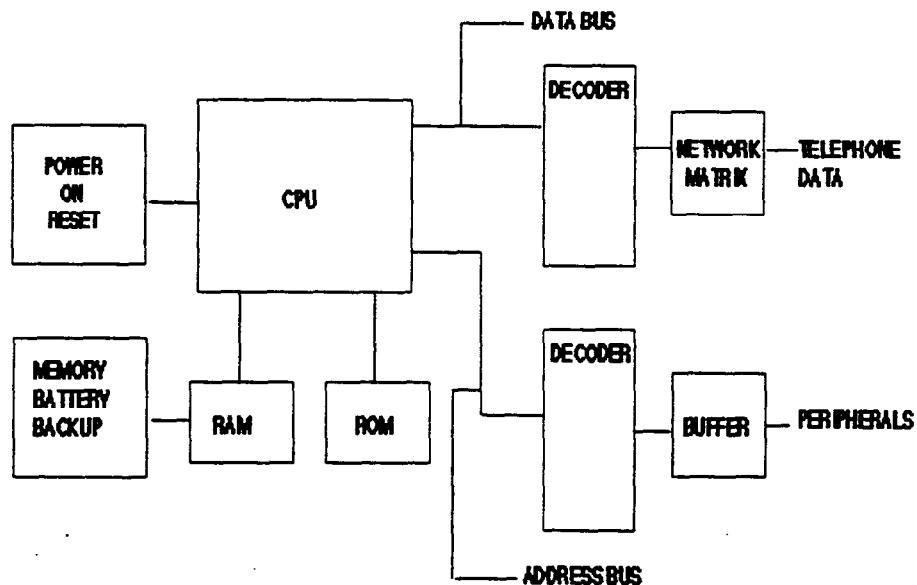


Figure 1

The heart of the system is controlled by a Z80-A microprocessor. When the AC power is turned on, the power-on reset initializes the CPU. The CPU, in turn, requests instructions from the ROM to start call detection and processing. Temporary data is stored in the RAM alongside user programmed data.

The user programmed data is backed up by a 3.7 volt NICAD battery that is under constant trickle charged by the KSU power supply. The NICAD is also used to provide backup voltage for the real time clock. The NICAD battery will protect the speed dial numbers and customer database until the power outage exceeds approximately 40 hours. When the AC power is turned ON, the NICAD recharges. Memory power backup circuitry is monitored by voltage detecting circuitry controlled by the CPU and, in turn, works with the power supply circuitry, which monitors the DC output of the power supply.

NETWORK CONTROL

The network is designed using a solid state, space division architecture to insure low loss and channel flexibility.

Audio Channels

Common Path	10
Doorphone	1
DTMF	1
MOH	1
Internal tones	1
External page	1

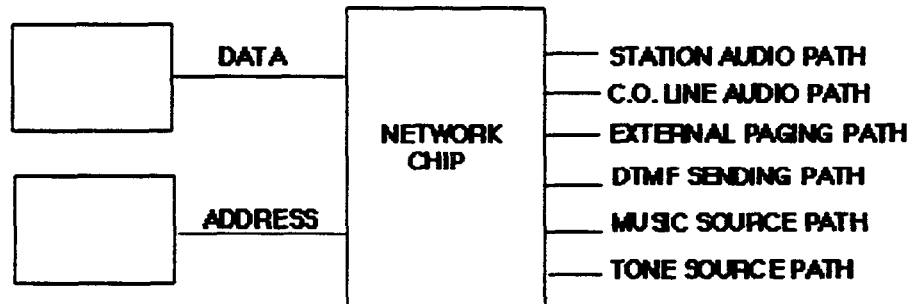


Figure 2

The 12 x 8 cross point supports common audio channels, a DTMF sending channel, a music source channel, and an external paging source channel. In the event that all common channels are busy and an incoming call is ringing, the system will select the external page channel and ring the appropriate phone(s). If that channel is busy, the system will notify the operator via the alarm tone. When the power-on sequence takes place, the matrix is instructed to connect all stations with a tone. This checks the data connection, ensuring that digital communication is working between the KSU microprocessor and the telephone microprocessor. It also checks that the audio path from the KSU network is communicating with the telephone network.

POWER SUPPLY

The power supply section consists of components which change 110/220 AC voltage into the DC voltage which the integrated circuits use. Working in conjunction with this circuitry, the MT-16H employs an on-line monitoring circuit which detects under-voltage and over-voltage.

In the event the system loses AC voltage and the system battery backup has been installed, the system detects when the batteries have discharged to such a rate that the KSU is no longer usable. Instead of allowing the batteries to completely discharge and become damaged, the system disconnects the batteries.

When AC voltage is restored to the KSU, the circuitry also monitors the charging of the batteries. Charging will take place until the monitor circuit detects that the batteries are in a charged state; which, in turn, turns off the charging circuit thereby preventing the batteries from being overcharged.

SYSTEM COMPONENTS

The basic MT-16H cabinet is a 408 configuration expandable to a 612 and 816 configuration. The 408 cabinet provides for 4 central office lines, 1 doorphone and 8 electronic telephones. Two (2) of the 8 telephones are optionally selectable as keyphones or single line telephones. Included in the cabinet is a ring generator for single line telephones, a power supply PCB and the main PCB. The following are also contained in the main PCB:

- Z80-A Microprocessor
- Associated logic and memory circuitry
- Real-time clock
- RAM Battery backup
- System timer
- Speech path network circuit
- External paging circuitry
- Music on hold circuitry

POWER SUPPLIES

- AC to DC rectification
- External system battery backup monitoring and control
- DC battery input fuse
- Battery backup
- Ring generator for single line telephones

DOORPHONE

The MT-16H main PCB contains circuitry for one doorphone. Calling to and from the KSU is standard. A door lock relay contact is also provided. The user, after answering the call, may press the door key (or dial 3) which, in turn, activates the relay. Database Programming activates the hardware.

EXPANSION CARDS

The MT-16H KSU supports the following three expansion cards:

MT-STU/A

Provides an additional capacity of 2 CO lines and 4 keysets. Programming activates the additional CO lines and keysets.

MT-STU/B

Provides an additional capacity of 2 CO lines and 4 single line telephone circuits. Programming activates the additional CO lines and single line telephones.

MT-STU/C

Provides an additional capacity of 2 CO lines or 2 E&M tie lines and 4 keysets. Programming activates the additional CO or E&M lines and keysets.

SMDR CARD

This card is used to record details for calls made to the public switch network. A printer or monitor is required.

LCD DISPLAY KIT

The LCD Display Kit is field installed and allows the user to upgrade to a display telephone without having to replace the original telephone. No programming is needed to enable this feature.

WALL MOUNT KIT

The WMK is a dual function kit which allows the phone to be attached to a wall in a vertical manner or by reversing the unit, provides a 28 degree elevation to the telephone.

BATTERY BACKUP

MacroTel provides an optional backup kit (PN # 2208037) for the MT-16H. This is to be used when commercial power has failed. When fully charged, the batteries will provide power for 6 to 8 hours, depending on usage.

SINGLE LINE TELEPHONES

Any industrial standard single line telephone may be installed on the MT-16H. The total ringer equivalency should not exceed 5.0B per single line port or damage to the system might result.

ELECTRONIC TELEPHONE SETS

The MT-16T telephones support 8 CO lines and 16 stations. It has a built-in speakerphone and an optional LCD unit which may be installed at a later date. Any phone location may be used to program the system database as long as the correct security code is entered. All phones support :

- Tri-color LEDs to distinguish active lines.
- Separate volume controls for CO line ringing and hands-free conversation.
- Magnetic receiver transducers compatible with most hearing aid pickup coils.

MT-16T TELEPHONE SET

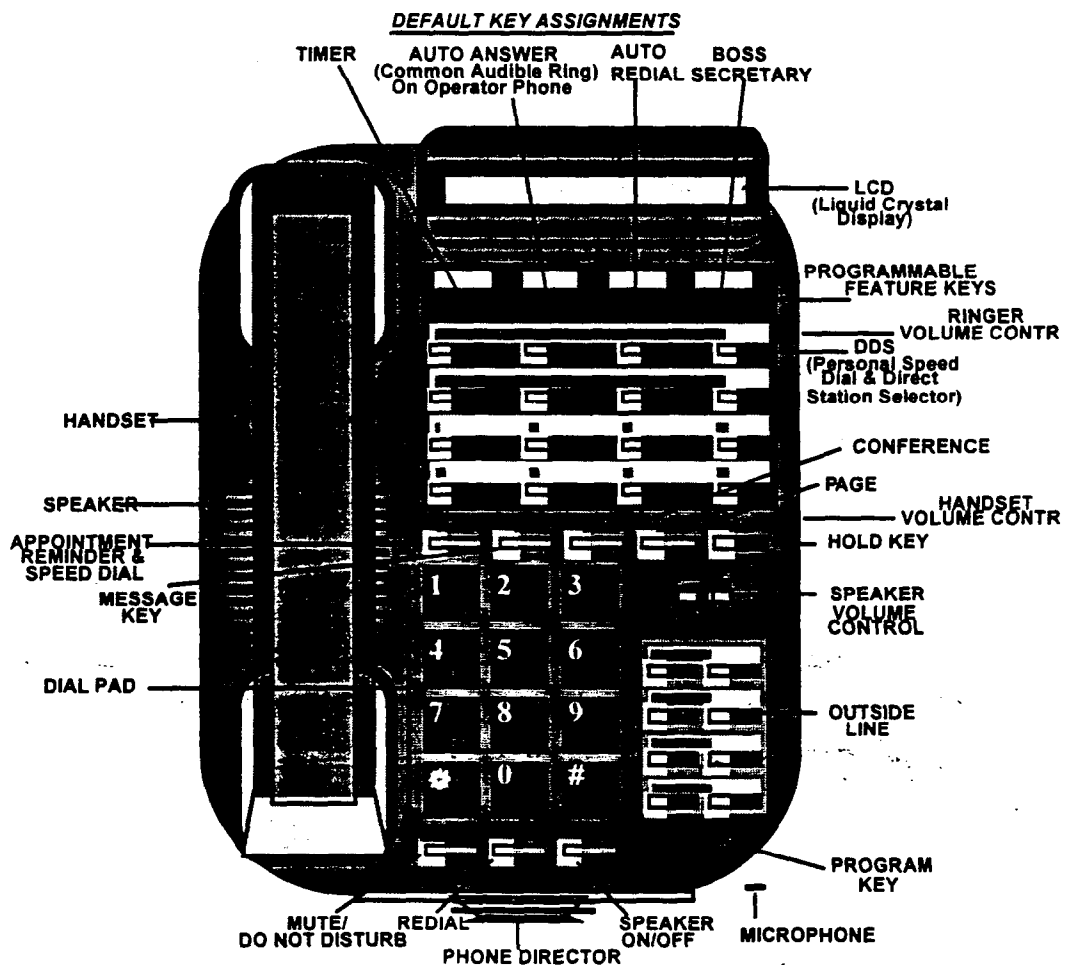


Figure 3

MAXIMUM SYSTEM CAPACITIES: MT-16H

• Key stations	16
• Single line telephones (rotary or DTMF)	10
• Central office lines	8
• Tie lines (2 wire E&M Type I)	4
• Speed dial numbers (up to 30 digits)	
System	90
Station	16
• Doorphone	1
• Conference	
Simultaneous parties	5
Simultaneous conferences	6
• Simultaneous call forwards	16
• Station status messages	20
• Toll restriction (5 classes)	
Class 0 is unrestricted.	
Class 1 follows a programmable allow/deny table.	
Class 2 follows another programmable allow/deny table.	
Class 3 follows an allow table.	
Class 4 restricts station to internal calls only	
Digits monitored: Up to 10	
• Page zones	
External	1
Internal	4
• Boss/Secretary station assignment	1
• Ringing stations	
Day	8
Night	8
• Automatic power failure transfer circuits	6
• DTMF Receiver	6
• DTMF Sender	1

ELECTRICAL SPECIFICATIONS

INPUT

• AC Input	115/220 VAC at 60/50Hz
• Power consumption	60.5 watts maximum
• Current draw	1.0 AMP maximum

ALLOWABLE VARIANCES

• 115 VAC	110-130 VAC
• 220 VAC	210-230 VAC
• 60Hz	50-65Hz

OUTPUTS

- Main Power Supply 5V +-5%@1.0A DC
 12V +-10%@1.0A DC
 -12V +-10%@0.2A DC
 30V max @ 1.0A DC
 24V min @ 1.0A DC
- Ring Generator 80V +- 10% @ 0.06A AC (20 Hz)

MUSIC ON HOLD SPECIFICATIONS

- Input level 600 Ohms
- Input Voltage Maximum 250 mV (Nominal) @ - 10dbm
- Output Maximum 1 Volt RMS
- Use Johnson Plug Miniature 1/8" (3.5mm)

EXTERNAL PAGING SPECIFICATIONS

- Output level 250 mV (Nominal) @ - 10dbm
- Output maximum 400 mVRMS

HANDSET

Dynamic transducers

KSU PHYSICAL CHARACTERISTICS

- Weight 22.5 lbs (10.2Kg)
- Dimensions 20.75" (527 mm) H
 x 13.56" (344.4mm) W
 x 3.44" (87.4mm) D

ENVIRONMENTAL SPECIFICATIONS

For optimal equipment performance, the following guidelines should be followed:

- KSU - operating range 41° F (5° C) - 104° F (40° C)
- Relative humidity Not more than 90% non-condensing.

VENTILATION

This equipment uses state-of-the-art components which generate very little heat. Although it does not require strict environmental conditions, it is strongly suggested that the equipment (mainly the KSU) be in a controlled environmental area. Places such as garages, cleaning rooms, etc. have high heat, dust and/or corrosive air which reduces the life of any equipment.

ELECTRONIC KEY PHONE AUDIBLE AND VISUAL INDICATIONS

LED	STATUS	LINE STATUS
INTERCOM LED	OFF 360 IPM 0.5 sec ON/0.5 sec OFF ON	- Idle - Placing an ICM Call. - Station is on HOLD. - Busy
CO LINE LED	OFF 360 IPM(GREEN) 0.5 sec ON/0.5 sec OFF(GREEN) ON (RED)	- Idle - Receiving an outside line call. - Outside Line is on Hold. - Other station is using the outside line.
PRIVACY RELEASE	3 Flashes @ 360 IPM/0.5 ON	- Outside line is available for other users to join in on a conversation.
HOLD RECALL	0.5 sec ON/0.5 sec OFF(AMBER)	- Outside Line is on Hold.
TRANSFER RECALL	0.5 sec ON/0.5 sec OFF(AMBER)	- Outside Line is on Transfer.

STONE	STATUS	LINE STATUS
DIAL TONE	Steady	When the handset is lifted or the SPK button is pressed - HOLD button is pressed while talking to a station or CO line.
BUSY TONE	0.5 SEC ON/ 0.5 SEC OFF	Selected outside line or ICM is busy.
RING BACK TONE	1 sec ON/2 sec OFF	When calling another station on an intercom.
TRANSFER TONE	0.25 SEC ON/	
CONFERENCE TONE	0.25 SEC OFF	Conference button is pressed.
CONFIRMATION TONE		When a feature is confirmed.
NOT USED TONE		When a DSS key to which no keyset is connected is pressed. When an outside line key to which no outside line is connected to is pressed.
INCOMING LINE RING	1 sec ON/2 sec OFF	When an outside line is ringing.
STATION LINE RING	0.4 sec ON/0.2 sec OFF/ 0.4 sec OFF/2 sec OFF	When a station is receiving an ICM call.
DOORPHONE RING (ALARM RING)	0.5 sec ON/0.5 sec OFF	When a doorphone is ringing a station.

SINGLE LINE TELEPHONE AUDIBLE INDICATORS

TONE	STATUS	LINE STATUS
DIAL TONE	Steady	When the handset is lifted or when a call is put on hold.
BUSY TONE	0.5 sec ON/0.5 sec OFF	When a selected outside line or ICM is busy
RING BACK	1 sec ON/2 sec OFF	When calling another station on an intercom.
TRANSFER TONE	0.25 sec ON/ 0.25 sec OFF	When a station hook flashes to transfer a call.
INCOMING LINE RING	1 sec ON/3 sec OFF	When an outside line is ringing.
STATION LINE RING	1 sec ON/1 sec OFF	When a station is receiving an ICM.
DOORPHONE RING (ALARM RING)	0.5 sec ON/0.5 sec OFF	When a doorphone is ringing a station.

SYSTEM CONNECTION LAYOUT

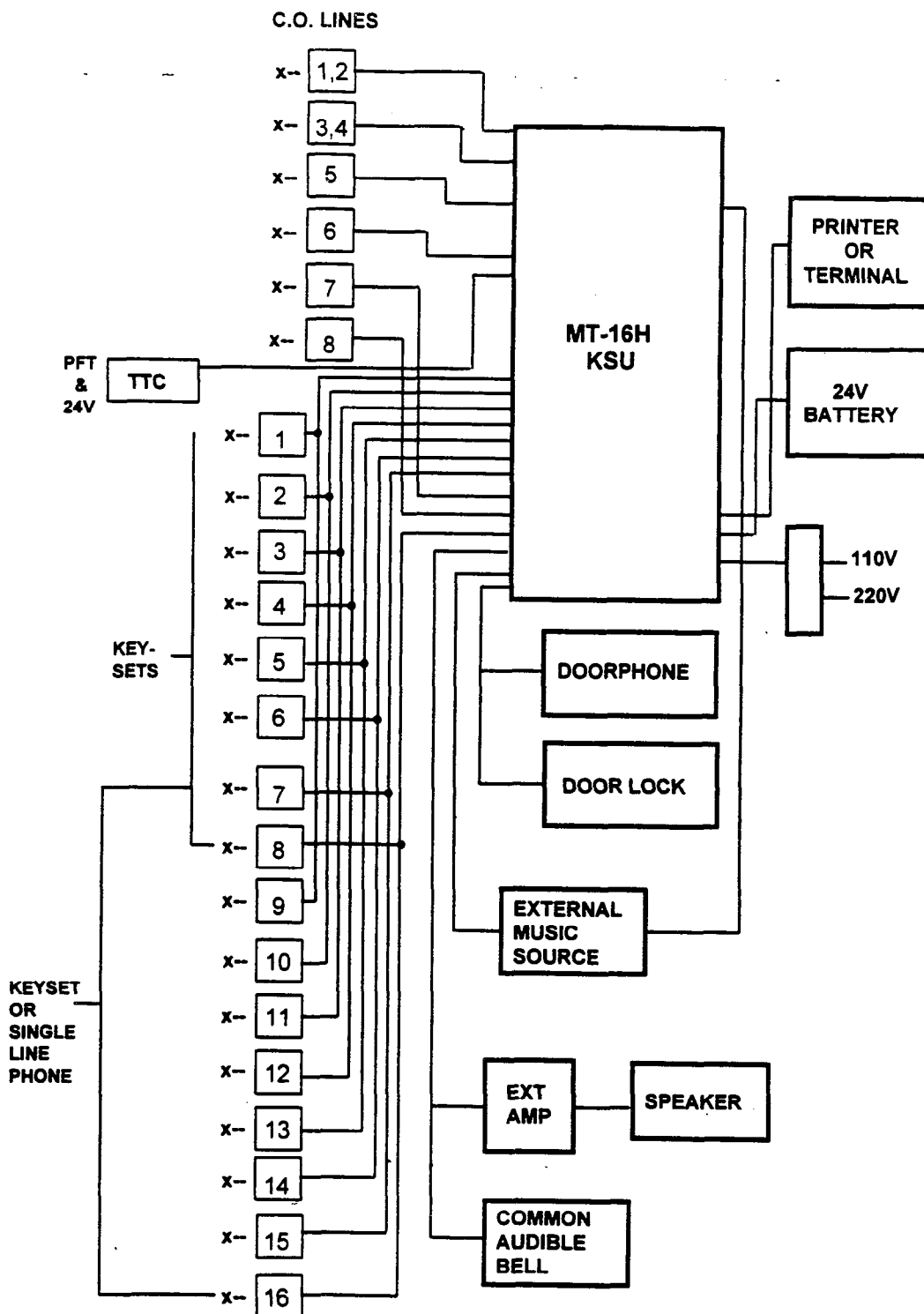


Figure 4

Section 4

MT-16H FEATURE DESCRIPTIONS

<u>Account Code ****</u>	Non-verifiable account codes can be entered while on an outside call. A maximum of 12 digits can be entered, including [*] and [#].
<u>All Call Paging</u>	A station user can page all stations simultaneously by pressing his or her own DSS key.
<u>Alphanumeric Display</u>	An LCD kit is available to be installed on a phone. The display is 16 characters.
<u>Appointment Alert</u>	The user can program his or her own phone to remind themselves of an event with a series of tones at a predetermined time.
<u>Assignable DND***</u>	The Do Not Disturb feature can be allowed or denied on a per station basis.
<u>Attendant Camp-On</u>	The attendant can camp a call on to a busy station.
<u>Attendant Direct Access</u>	Station users have direct access to the attendant simply by pressing a DSS key or dialing [0].
<u>Attendant Recall **</u>	When the hold/exclusive recall timer expires, the attendant recall timer will start and the user's phone will recall for 30 seconds before recalling to the operator.
<u>Automatic Hold</u>	While on an outside line, the user places it on hold automatically by pressing a DSS key or the PAGE key.
<u>Automatic Pause Insertion</u>	A pause is automatically inserted when using the redial feature to ensure that a dial tone is present before the system dials the telephone number.
<u>Automatic Privacy</u>	All outside line calls are private.
<u>Automatic Recall</u>	A transferred call automatically recalls the originating station after a period of time.
<u>Automatic Redial</u>	The system will automatically redial a busy telephone number up to 3 times at 45 second intervals (up to 99 attempts**).
<u>Automatic Trunk Queuing</u>	The system will automatically call a user's station when the line that he or she has queued on becomes free.

<u>Background Music</u>	Music can be played through the speaker of a user's phone while it's not in use.
<u>Battery Backup, Memory</u>	System and user programming is safe even during an extended power failure.
<u>Battery Backup, System</u>	The system can continue processing calls during a power failure (optional).
<u>Boss/Secretary Hotline</u>	A hotline can be set up between a boss and a secretary. If the boss activates the Do Not Disturb feature, all intercom-calls are forwarded to secretary.
<u>Built-in Directory</u>	A directory holder comes with each phone to display important numbers to the user.
<u>Busy Lamp Field</u>	A user can tell when another user is busy by observing the status of the LED on the DSS keys of his or her telephone.
<u>Busy Station Callback</u>	A user can queue onto a busy station and be called back when the station becomes available.
<u>Call Forwarding</u>	Users can forward their intercom calls to another station (ICM, line or both**).
<u>Call Pickup, ICM and CO</u>	A call can be picked up from your phone even though it may be ringing on someone else's phone.
<u>Call Offering</u>	Allows you to notify a busy station of another call.
<u>Call Offering Alert**</u>	After Call Offering has been activated, a repeated tone is provided to the called party each time the DSS key is pressed.
<u>Camp-on Busy/No Answer</u>	A station user can camp a call onto a station that is busy or does not answer. The user can also camp-on to the busy station so that when the called party hangs up or returns to his phone, the calling station is alerted.
<u>CO Flash Capability</u>	The system is capable of sending an adjustable flash for PBX and CENTREX features.
<u>CO Line Pickup</u>	An outside line can be picked up with a dial code, even if it doesn't appear on your phone.

<u>Common Audible Ring**</u>	This feature allows the system to direct incoming calls to a bell, in addition to their normal day/night ring assignments.
<u>Conference Calls, 5 Party</u>	Up to 5 parties can be conferenced together in any combination of outside lines and inside parties.
<u>Conference Rejoin***</u>	The originator of an unsupervised conference can rejoin the conference.
<u>Date/Time Display*</u>	The optional LCD kit displays time and date when the phone is not in use.
<u>Dial Pulse or DTMF Selection</u>	The system will operate with dial, pulse or DTMF lines.
<u>Dial 9 Group</u>	Outside lines to be accessed by dialing 9 can be specified.
<u>Dial 7 Group**</u>	Outside lines to be accessed by dialing 7 can be specified.
<u>Display Dialing Number*</u>	The LCD displays the telephone number you have dialed, even speed dial numbers.
<u>Display Calling Intercom*</u>	The LCD displays the intercom number and name of the station that is calling you.
<u>Display Message</u>	The LCD will display the station number that left you a message waiting.
<u>Caller Number*</u>	Wait indication.
<u>Direct Station Selection</u>	You may place an intercom call with the touch of one button (DSS) or by dialing extension 21 - 36.
<u>DISA***</u>	An outside caller can talk to an internal party or, with a password, access an outside line to place a call.
<u>Disconnect Warning Tone****</u>	During external call forward, unsupervised conference and DISA calls, a warning tone is heard 15 seconds before the line is disconnected. At that time, the user can override the disconnection.
<u>Discriminating Ringing</u>	Intercom ringing and outside line ringing are different for ease of identification.
<u>Doorphone</u>	The MT-16H system has one doorphone circuit (standard on the main PCB).
<u>Door Release Relay</u>	Allows the user to open a door lock.

Do Not Disturb

A user may stop intercom calls to his or her station with the do not disturb feature.

DTMF Muting

The system can be programmed so the user does not have to hear the DTMF tones.

DTMF on Transfer**

Keyset users may now perform a screened transfer into a voice messaging system and enter the required digits for a specific mailbox's personal greeting before hanging up.

DTMF Over Page***

A DTMF tone can be sent over the page circuit for special paging applications.

Tri-color CO LEDs****

Tri-color LED's help the user keep track of calls.

Dual Level Passwords***

Two passwords are available, one for system programming and one for user programming.

E&M Trunks

The system supports 2-wire E&M Type 1 Tie lines (up to 4 max).

Exclusive Hold

A call can be put on exclusive hold so that only the station that put the call on hold can retrieve it.

Executive Priority (Override)

Specially classed stations are able to intrude into existing telephone conversations.

External Call Forwarding

The system can be programmed to forward incoming calls to another outside location.

Flexible Ringing Assignment

Outside lines can be programmed to ring at different phones in the system.

Group Listening ***

While on an outside call, the outside party's voice can be heard from the speaker of the telephone.

Hands-free Answerback

A user can respond to an intercom call without touching his phone.

Headset Hookswitch Control

Through programming, the speaker key operates the hookswitch control when a headset is installed.

I Hold and I Use Indications

Distinctive LED flash rates make it easy to see which lines are in use and which ones are holding.

Incoming Call Distribution

Multiple stations arranged to receive incoming calls may be programmed to allow the distribution of inbound calls in a circular hunt fashion.

<u>Interface for External</u>	A music source may be installed for music on hold and background music.
<u>Music Source</u>	An internal music source is standard. External music requires a customer supplied music source.
<u>Interface for External Paging</u>	An external page network can be set up for areas such as large warehouses.
<u>Internal Page Zones***</u>	A station can be a member of one of three page zones and all call pages.
<u>Last Number Redial, 1-Button</u>	The last number dialed may be redialed with the press of one button.
<u>Line Queuing Callback</u>	A user can queue onto a busy outside line and then be called back when it becomes available.
<u>MacroVoice MVX Compatible</u>	The MT-16H was designed to work with the MacroVoice MVX Series.
<u>Meet Me Page***</u>	The paged party may answer the caller from any phone by dialing a code. An outside line may be processed with the Meet Me Page feature.
<u>Message Waiting</u>	A station may leave an indication on another station's phone to alert the user that they need to speak with them.
<u>Music On Hold (Internal)</u>	An internal music source is provided for music on hold.
<u>Music on Hold (External)</u>	With an external music source, callers placed on hold can listen to either radio or taped music.
<u>Microphone Mute</u>	The speakerphone microphone can be muted so the calling party cannot hear the user.
<u>Night/Day Ringing Assignment</u>	Different stations can be programmed to ring in day and night mode.
<u>Night Transfer</u>	The attendant can redirect ringing assignments by activating night transfer.
<u>Non-Private Line Application***</u>	The MT-16H can be configured with or without privacy on the CO lines to meet the customer's needs.
<u>Off-Hook Signaling</u>	While busy on another call, a tone alerts the user of another call ringing in.

<u>Optional Class of Service</u>	After normal business hours, the operator may set a master instruction which reassigns all stations into a toll-restricted class of service. (Stations are unaffected**)
<u>Outgoing call restriction by station class</u>	Various levels of outgoing call restrictions are programmable on a per station basis
<u>Pre-selection</u>	A user may select an outgoing line before lifting the handset and the speaker turns on automatically.
<u>Prime Line</u>	The user can choose between either an automatic outside line or an ICM when the handset is lifted.
<u>Privacy Release</u>	Privacy on outside lines may be released to allow other users to join your conversation.
<u>Private CO line</u>	An outside line may be made private by denying all other users access to it.
<u>Processing Second Call**</u>	This feature allows a station to more efficiently process calls by eliminating the need to go on hook to complete a transfer.
<u>Programmable Function Keys</u>	Many features may be programmed under the DSS keys.
<u>Programmable Timing Parameters</u>	Many timers, such as the hold recall timer, are programmable to meet the user's particular needs.
<u>Recall Display ****</u>	Recalls to display the station users, identified as H RECALL and T RECALL.
<u>Recall Identification*</u>	From a display set, any returning calls from the transfer condition will indicate the type of call and station involved in the original transfer, such as a hold recall and a transfer recall.
<u>Ringling Line Preference***</u>	A user can choose between having to press the line key to answer a ringing line or answer simply by lifting the handset.
<u>Rotary Dialing to DTMF Tone Sender Changeover</u>	This feature enables the user to change from pulse dialing to DTMF tone sending while dialing a telephone number. (Very important for voice mail applications).
<u>Save Last Number Dial</u>	This feature enables the user to store a number, which may be frequently dialed within the course of a day, and retrieve this number for dialing at any time.

<u>Single Line Station Compatibility</u>	Up to 10 single line telephones may be installed on the MT-16H (DTMF or rotary).
<u>Single Line Transfer (Recall to Operator)**</u>	When a single line station user transfers a CO line to an unanswered destination, after the transfer recall timer times out, the call will return to the originator or operator (programmable).
<u>Speakerphone</u>	All telephones incorporate standard speakerphones for both inside and outside calls.
<u>Speakerphone Volume Control</u>	The volume of the voice emitting from the speakerphone is changeable with a slide control located on the face of the telephone.
<u>Speed Dial Privacy</u>	Ten bins of the system speed dial and 2 bins of a user's personal speed dial will not display the number programmed. This prevents users from seeing the programmed number.
<u>Splash Tone</u>	The user is warned with a splash tone when an intercom call arrives.
<u>Speed Dial, Station and System</u>	The system has 90 system speed dial numbers and each user has up to 16 personal speed dial numbers.
<u>Speed Dial, Chain Dialing</u>	You may manually dial an additional telephone number after a speed dial. You may also access more than one speed dial number.
<u>SMDR</u>	Station Message Detail Reporting is standard.
<u>Station Hunt Group ***</u>	Three Station Hunt Groups can be created. A Hunt group can have a maximum of 8 stations. A station can be in only one group.
<u>Status Message Display*</u>	A user leaving their telephone may select a message to be displayed to a calling intercom user. Ten (10) messages are pre-programmed and 10 more are programmable.
<u>Station Name Display*</u>	The user's name can be displayed on the LCD.
<u>Stop Watch Timer*</u>	The LCD may be used as a stop watch on an idle phone.
<u>System Hold</u>	A call placed on system hold may be retrieved from any phone.

**System Programming
with Password**

For security, a password is required to enter into system programming.

Timer*

The call timer will automatically begin in a predetermined amount of time after the outside line is seized. The timer information can be displayed on your phone.

Tone Ringer Control

A 3-position switch is located on the base of the telephone to control the volume of all tones emitted from the phone.

Toll Restriction

Multi-level toll restriction is programmable on a per station basis.

Traveling Class of Service

The system will permit an override of toll restrictions for a toll-barred phone through the use of a special security code (single line phones included**).

**Unsupervised Trunk
Conference**

A conference established with one or more trunks will be permitted to remain engaged without the presence of an internal station on the circuit.

Voice Signaling

A voice announcement may be made to an idle station.

- * = MV1
- ** = MV2
- *** = MV3
- **** = MV4

INSTALLATION

OVERVIEW

To complete the timely installation of the MT-16H and associated equipment, it is essential to establish a complete installation plan. Be sure to complete the customer data programming sheets before starting. The following sections offer a detailed documentary and pictorial view on the installation of the equipment with notes, as needed. Please read the Installation and Programming Sections completely before attempting to install the equipment.

INSTALLATION PRECAUTIONS

- DO NOT run cables parallel to fluorescent light fixtures or AC lines. If unavoidable, run the cables across at 90 degree (right) angles.
- DO NOT run station cables inside electrical conduit already occupied by an AC power cable. This will induce an AC voltage into the cable and is also in violation of the National Electrical Code.
- DO NOT exceed 66 OHMS or 1310' (400M) with AWG 24 cable on keysets. For single line telephones, DO NOT exceed 480 OHMS, including the telephone, or 5000' (1525M) with AWG 24 cable.
- Avoid installing in the following places (doing so may result in malfunction, noise or discoloration):
 - A. In direct sunlight and hot, cold or humid places (Temperature range: 41° F (5 ° C) - 104° F (40° C)
 - B. Damage to the equipment or contacts may occur in areas where there are thermal springs, etc., due to sulfuric gases.
 - C. Places in which shock or vibration are frequent or strong.
 - D. Dusty places, or areas where water or oil may come into contact with the unit..
 - E. Near high-frequency sewing machines, electric welders, copy machines or motors.
 - F. On or near computers, telexes, or other office equipment, as well as microwave ovens or air conditioners. (It is advisable not to install the unit in the same room with any of the above equipment).
 - G. Near radio broadcast antennas (including short wave).
 - H. Install at least 5 feet from radios and televisions.
- DO NOT OBSTRUCT THE AREA AROUND THE KSU FOR REASONS OF MAINTENANCE AND INSPECTION. (BE ESPECIALLY CAREFUL TO ALLOW SPACE FOR COOLING ABOVE AND AT EITHER SIDE OF THE KSU).



**See page 16
for more
information.**

EQUIPMENT VERIFICATION

Verify that all components on the packing slip are included in the boxes. For reference, utilize the chart below to assure that all components have been received. Any damaged material should immediately be reported to the carrier. Report any discrepancies of required equipment to MacroTel International Corporation.

SYSTEM COMPONENTS MT-16H

UNIT	PART #	DESCRIPTION
408 KSU	2609100	Electronic Switching System
MT-16T	2609102	8-Line/16 Station Speakerphone
LCD Display	2609105	LCD Display Module
WMK	2609113	Wall Mount Kit
Battery Backup Kit	2208037	Wall Mount Kit, associated cables
MT-STU/A	2609106	2 CO/4 keyphone expansion card
MT-STU/B	2609107	2 CO/4 SLT expansion card
MT-STU/C	2609108	2 CO or E&M/4 keyphone expansion card
SMDR	2609109	SMDR PCR
Doorphone	2609110	Doorphone Unit

INSTALLATION LOCATION CHECKLIST

- Select the KSU location to minimize station cable run lengths. DO NOT exceed measurements of 66 OHMS or 1310' (400M) using 24 AWG wire for keysets. Single line telephones should not exceed 480 OHMS, including the telephone, or 5000' (1525M) using 24 AWG wire. The OHM value is the loop measurement. The length is the maximum one way measurement from the KSU.
- Select a wall that is strong enough to support twice the weight of the equipment and plywood to be mounted.
- The main distribution frame (MDF) requires a maximum 3 x 4 foot, 3/4 inch plywood backboard. The KSU is mounted on this backboard, along with connecting block(s) and modular jack assemblies. Allow room near the KSU for the paging amplifier, battery backup equipment and the external music source, if used. To avoid interference, the music source should be placed a minimum of 5 feet away from the KSU.
- Place the KSU within 9 feet of an insulated, dedicated, 110/220 VAC, single-phase, commercial power source. DO NOT use an extension cord. This MUST be an isolated, dedicated, AC circuit for proper operation. The ground wire must be dedicated to this outlet. Run the power, neutral and ground wires directly from a separate circuit in the breaker box to the KSU outlet. DO NOT plug any other equipment into this outlet. Make sure there are AC outlets for a

music source and a paging amplifier, if they are to be installed. These outlets **MUST NOT** be on the same circuit as the outlet for the KSU.

- Prepare a floor plan for the keysets/SLT locations using a star (home-run) configuration. Include each keyset's intercom number 1 ~ 16. Intercom number 4 is assigned to the system attendant in default software programming.
- The system location should not be exposed to direct sunlight, high humidity, heat, dust or strong magnetic fields (such as heavy motors or large copy machines).
- Simple air space should be provided for the KSU since the power supply is convection cooled. **DO NOT** block the cooling vents located on the KSU. Never place anything on top of the KSU.

TOOLS CHECKLIST

1. A high-impedance, digital multimeter is required to ensure the correct wiring and voltage on the keyset modular jack assembly.
2. Standard telephone hand tools.
3. 2-pair (4 conductor) twisted cable to run from the MDF to each keyset/SLT location.
4. 4-conductor modular jack assemblies for terminating the station cables at keyset/SLT location.
5. Punch down tool, Phillips head screwdriver, flat head screwdrivers, and drill and bit set.

MT-16H FACILITIES LOCATION

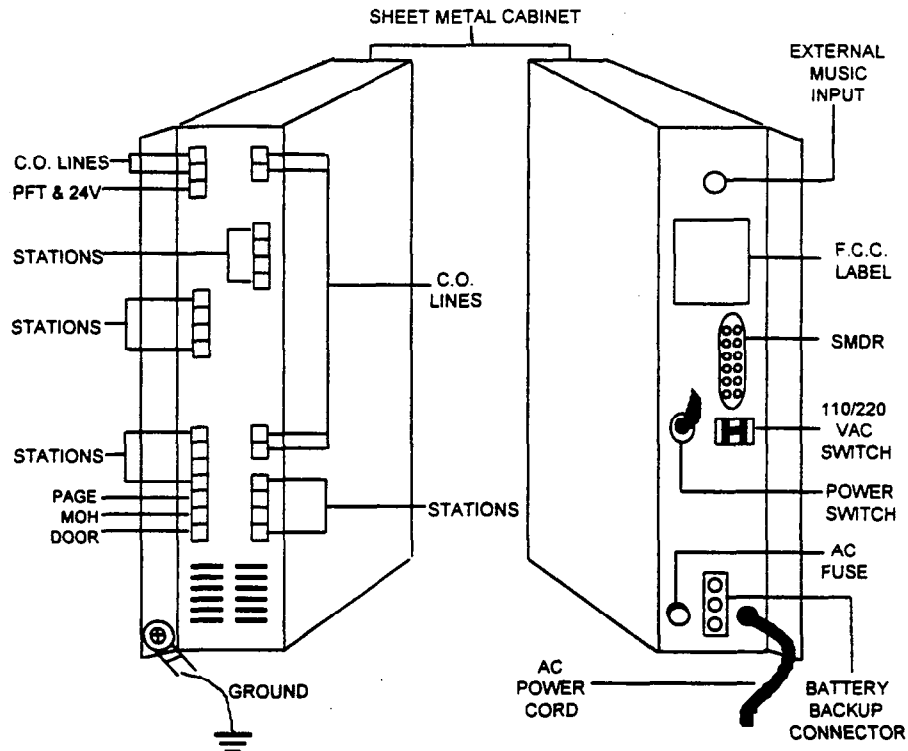


Figure 5

MAIN DISTRIBUTION FRAME (MDF)

- Plan the location for the 66 blocks, central office connectors, KSU and any other assemblies included in the installation.
- Using the floor plan developed in pre-installed planning, run 2-pair twisted cable (3 pair if installing off hook voice announce unit) from the MDF to each keyset/SLT location. Label both ends of every cable with the keyset/SLT intercom number (1~16).
- Avoid cable runs parallel to fluorescent light fixtures or AC lines not in conduit. If these obstacles are unavoidable, run the cable across them at right angles.
- DO NOT run station cables inside electrical conduit already occupied by the AC power cable. To do so is a violation of the National Electrical Code.
- DO NOT run station cables near equipment with electronic motors or past strong magnetic fields (copy machines, heavy motors, welding equipment, etc.)
- DO NOT place station cables where they can be rolled over by office furniture or stepped on.
- DO NOT allow the station cable length to exceed 66 OHMS or 1310' (400M) using 24 AWG wire. For single line telephone do not exceed 480 OHMS, including the telephone, or 5000' (1525M) using 24 AWG wire. The OHM value is the loop measurement; the foot (meter) length is the maximum one-way measurement from the KSU.

 **Be sure to connect the frame ground station cables.**

TERMINATING STATION CABLES AT THE MDF

- Terminate each station cable at the MDF as described below:
 1. Mount the station 66 block assembly on the MDF backboard.
 2. Ensure that each station cable is correctly labeled with the keyset/SLT intercom number.
 3. Using the punch down tool, terminate the cables for each set.

TERMINATING STATION CABLES AT KEYSSET/SLT LOCATIONS

- Terminate the keyset/SLT end of each station cable on a 4-conductor modular jack assembly as shown in Figure 10.

CENTRAL OFFICE LINE

- Assure that the central office lines have been installed on the backboard. These lines will be connected to the KSU with modular cords supplied with the KSU. Follow the diagram on Figure 11.

KEY SERVICE UNIT

- BEFORE MOUNTING THE KSU
 1. Unpack the KSU and lay it on a flat surface with the cover facing up. Open it by removing the four retaining screws and lifting off the cover. The PCBs contain static-sensitive components. Lift them only by the edges and carefully handle the components while inspecting them in the next step. Always use a static wrist strap for protection.

Note: You must activate the NICAD battery by setting the BACKUP switch (Dip Switch 2) to the "ON" position. Otherwise, the database memory will not be protected during a power outage. Refer to Figure 22 for location of backup switch.

2. Inspect the fuses for the correct voltage and current rating. The AC fuse (1A, 250V, fast-acting) is accessible from the outer right side of the KSU.
3. Ensure that the ROM integrated circuits are properly seated in their sockets.
4. If the KSU or any of its components are damaged, contact MacroTel International Corporation.

MOUNT THE KSU

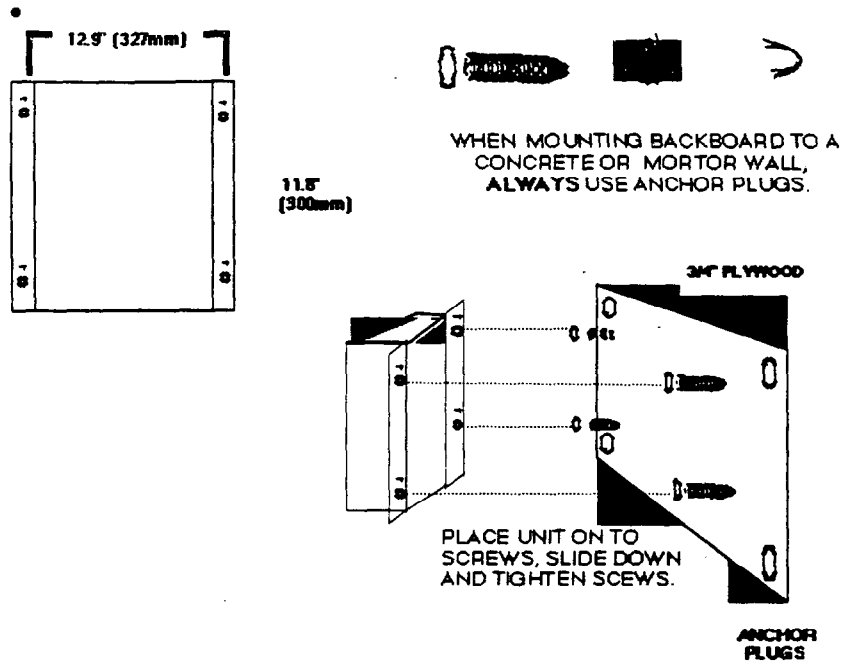


Figure 6

FRAME GROUND CONNECTIONS

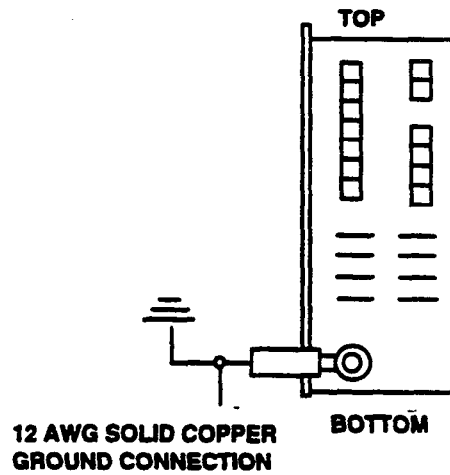


Figure 7

110/220 VOLTAGE CONNECTION

1. Determine the proper voltage of the AC wall receptacle using a meter, if necessary.
2. Move the switch on the side of the KSU to the proper voltage selection.

INSTALLING THE KEYSETS/SLT

Unpack and inspect each keyset for damage. Along with the keyset, the box should contain a 6-foot line cord, a coiled handset cord, a handset, and a plastic bag of key designation labels. With the KSU AC power "ON", check the voltage on each modular jack assembly as follows:

Keyphone


1. Measure the voltage on the YELLOW (+24) terminal with respect to the RED (GND) terminal. Place the common probe of the voltmeter on the RED terminal. It must measure +24V, +/- 5VDC. If -24 VDC is measured, check the cabling for a reversed pair.
2. Check the voltage on the BLACK (+24) and GREEN (GND). The voltage condition is the same.

Single Line Telephone

- Check the voltage on the RED and GREEN. The voltage should be +24VDC, +/-5VDC. If -24VDC is measured, check the cabling for a reversed pair. Connect all keysets to their respective connectors with the provided modular cord.

TO CONNECT EACH STATION TO KSU

1. Plug the modular cord supplied with the KSU into the modular plug labeled Station Number 1.
2. Connect the wires at the other end of the cord to a connecting block. See Figure 10.
3. Use the same procedure as described above for connection of Station Numbers 2 through 16.
4. As Station number 7 and 8 are available for keyset/SLT, make sure that the DIP switches located on the main PCB are set as shown in Figure 9.
5. In order to connect Station Numbers 9 through 16, expansion cards MT-STU-A, B or C must be installed. See Figure 13.

 **Program
Item 38 is also
required to
activate single line
telephones**

DIP SWITCH SETTING FOR STATIONS 7&8

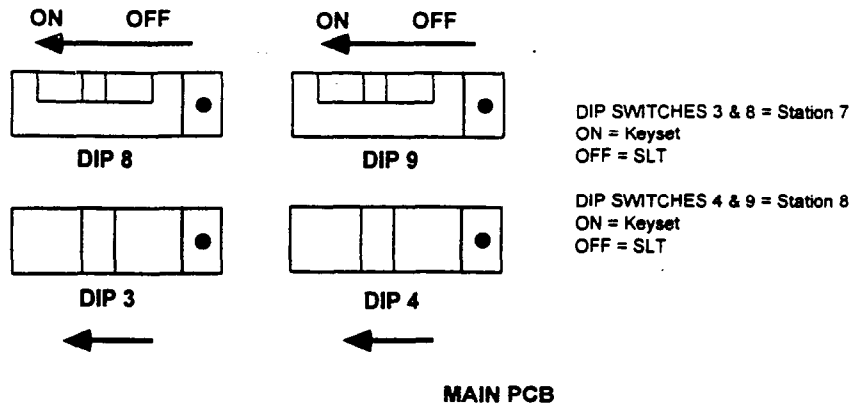


Figure 8

STATION CABLING FOR SINGLE LINE PHONE

Single line telephones should be wired exactly like the keysets to allow for easy upgrading to keysets.

CONNECTION OF KEYSETS AND SINGLE LINE TELEPHONES

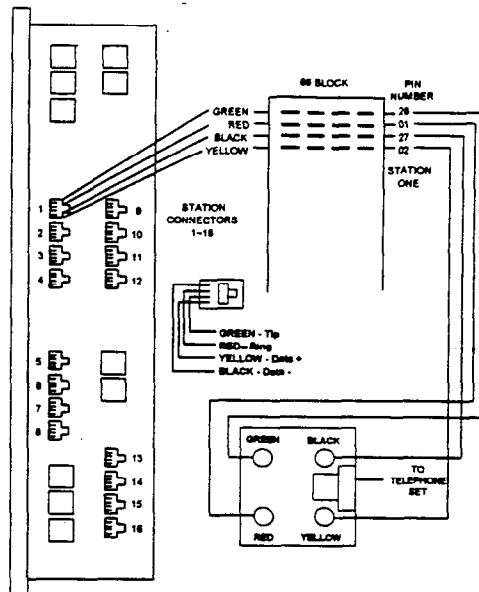


Figure 9

Notes:

1. Use 2 or 3 pair twisted wire to prevent the possibility of crosstalk.
2. Review Installation Precautions as listed on Page 15.
3. Stations 9~16 require the installation of MT-STUA/A,B or C. See Page 23~24.
4. Single line telephones require only tip and ring but it is recommended to wire single lines just like keyphones so that future upgrading is easier for the installer.

CONNECTING CENTRAL OFFICE LINES 1,2,3 AND 4

1. Plug the modular jack at one end of the 2-pair cable supplied with the KSU into the connector for lines 1 and 2.
2. Connect the other end to the outside lines through the connecting block according to Figure 11.
3. Use the same procedure for connection of CO lines 3 and 4.

TO CONNECT CO/E&M TIE LINES 5,6, 7 AND 8

(Expansion Card Required)

1. Plug the modular jack at one end of the 2-pair cable supplied with the expansion card into the connector for Line 5.
2. Connect the other end to the outside line through the connecting block according to Figure 11.
3. Use the same procedure for connection of CO lines 6,7 and 8 respectively.

 See
installation
expansion cards,
pages 23 - 24.

CONNECTION OF CENTRAL OFFICE LINES/ E&M TIE LINES

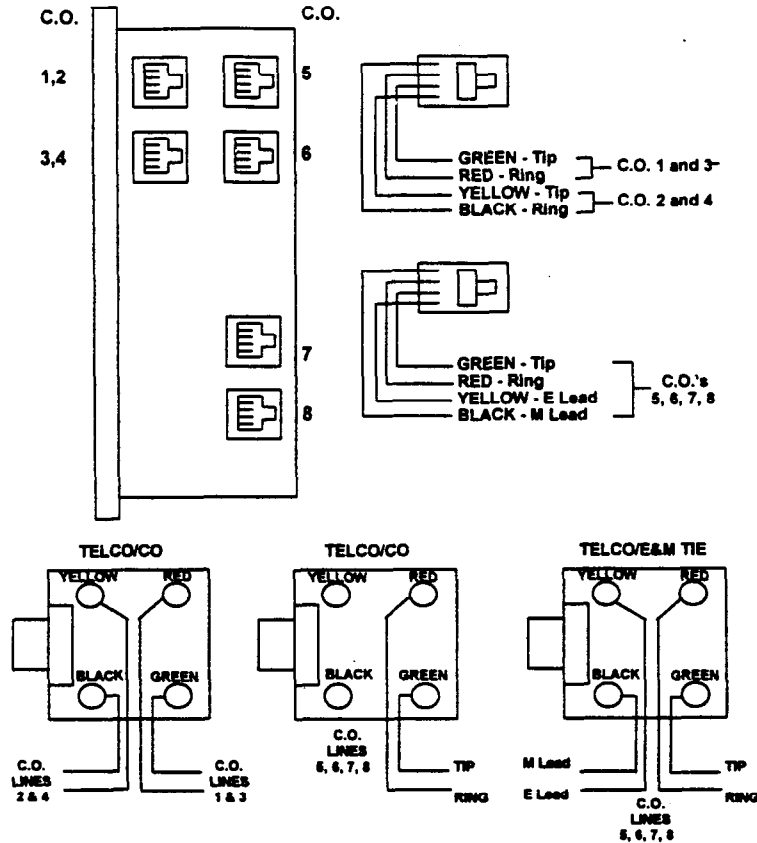


Figure 10

Notes:

1. For Central Office lines in positions 5,6,7 or 8, MT-STU/A, B or C must be installed. For E&M Tie lines in positions 5,6,7 or 8, MT-STU/C must be installed.
2. Incorrect wiring of CO may cause malfunction. If so refer to Troubleshooting Section. MT-STU/A provides 2 CO lines and 4 key telephone circuits.
 - MT-STU/A provides 2 CO lines and 4 key telephone circuits.
 - MT-STU/B provides 2 CO lines and 4 single line telephone circuits.
 - MT-STU/A provides 2 CO lines and 2 E&M tie lines and 4 key telephone circuits.
3. When connecting a 16H to another 16H, the single line port on one system connects to the C.O. line port on the other system. A 1-pair wire is needed for the connection.

SWITCH SETTINGS FOR MT-STU/C

DIP SWITCH	11	12	13	14	15	DIP SWITCH	21	22	23	24	25		
C.O.	} 5 or 7	0	1	0	0	ON	C.O.	} 6 or 8	0	1	0	0	ON
E&M		1	0	1	1	OFF	E&M		1	0	1	1	OFF

Figure 11

TO INSTALL EXPANSION CARDS

1. Remove the 4 screws from the main PCB and replace them with the standoffs supplied with the expansion board.
2. Position the expansion card so the modular jacks appear on the left side of the KSU.
3. Plug the ribbon cable into the proper connector on the main PCB.
4. Secure the expansion card with the 4 screws previously removed.
5. When installing the expansion card towards the top of the Main PCB, CO lines 5, 6 and Stations 9, 10, 11 and 12 are added. When installing the expansion card towards the bottom of the main PCB, CO lines 7, 8 and Stations 13, 14, 15 and 16 are added.

INSTALLATION OF EXPANSION CARDS

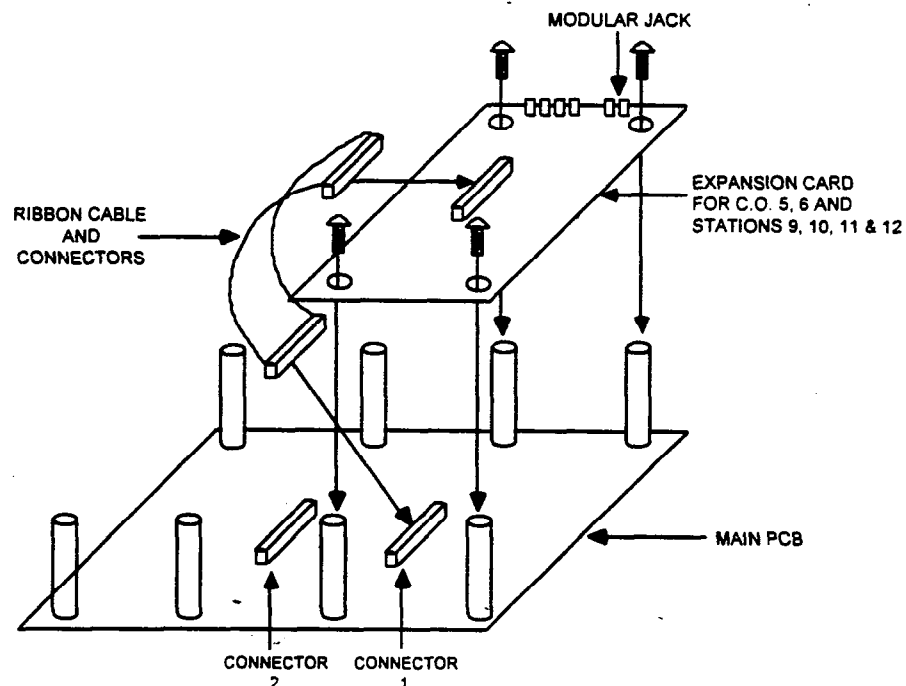


Figure 12

CONNECTING EXTERNAL PAGING SPEAKERS

1. Plug the 3-pair modular cord supplied with the KSU into the modular plug labeled PAGE.
2. Connect the Voice pair (blue & yellow wires) to the 600Ω input of the amplifier.
3. The black and white wires are dry contact points that can be used, for example, to mute background music over page. Connect the black and white wires to the mute terminals of the amplifier. (The relay can also be used to ring a bell during Common Audible Ring**)

CONNECTING THE DOORPHONE AND DOORLOCK CONTROL

1. Plug the 3-pair modular cord supplied with the KSU into the modular plug labeled DOOR.
2. Connect the Voice pair (blue & yellow wires) and the power pair (green & red wires) to the back of the doorphone.
3. The black and white wires are dry contacts used to operate customer provided electric door lock unit.

EXTERNAL PAGE AND DOORPHONE CONNECTIONS

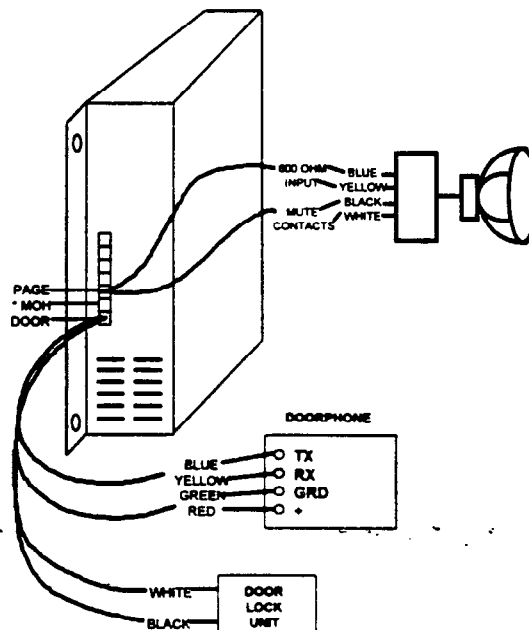


Figure 13

INTERNAL MUSIC SOURCE

The internal music source of the MT-16H has two selections. To change the internal music source refer to Figure 14.

CHANGE INTERNAL MUSIC SOURCE

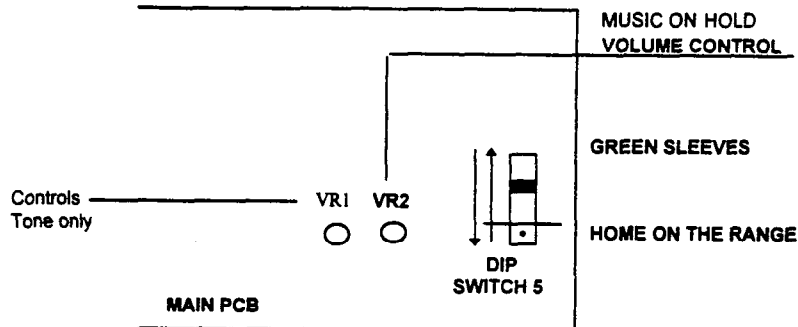


Figure 14

EXTERNAL MUSIC SOURCE

Although the MT-16H is provided with an internal music source, an external music source such as a radio or tape player can be connected to the system.

TO CONNECT TO AN EXTERNAL MUSIC SOURCE

1. Connect the external music source to the external music jack using a 1/8 in. (3.5 mm) mini photo plug. See Figure 15.
2. Impedance 600 OHMS. 250 mvolts maximum.

! **Over voltage
may cause
damage to MOH
circuit.**

MUSIC ON HOLD CONNECTIONS

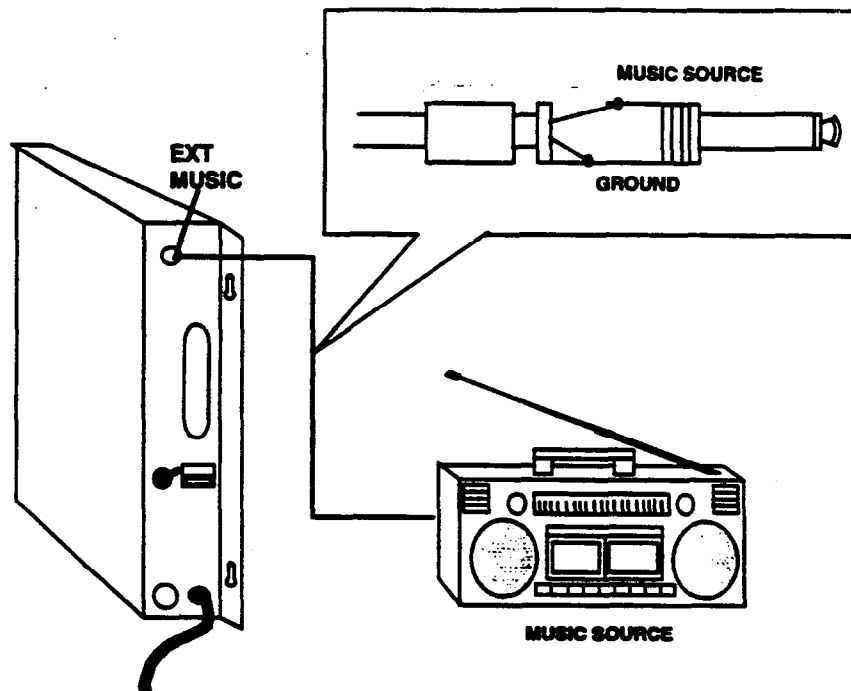


Figure 15

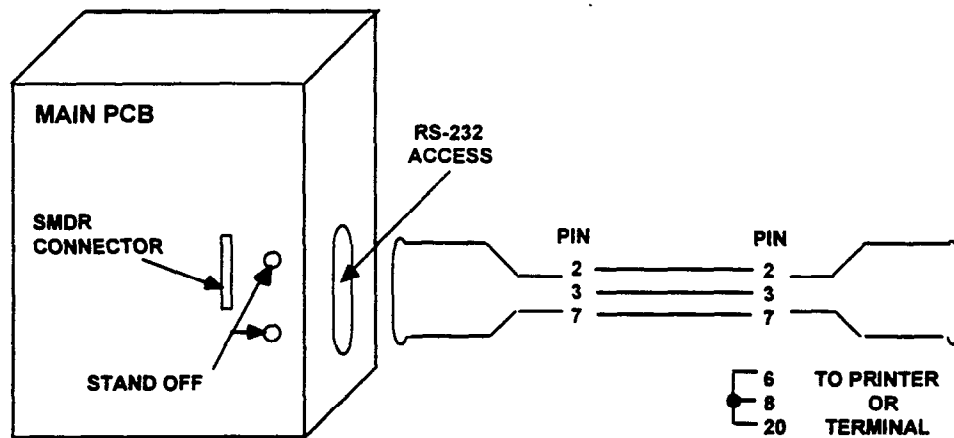
Note:

1. The MOH plug between the page and the doorphone modular plug (Figure 14) is used to turn the external music audio output on and off. The yellow/black wires perform this function. When no calls are on hold, the source is turned off. No AC voltage. DC voltage only with slave relay! KSU relay rating 24 vdc, .5 amp.
2. Always used shielded cable.
3. Do not connect radio source to same AC outlet as KSU.
4. Locate music source a minimum of five (5) feet away from KSU to prevent RFI interference.
5. For no music on hold or background music disconnect connector 5 from main PCB.

CONNECTING A PRINTER OR TERMINAL (SMDR)

A printer or terminal for the purpose of station message detailed recording can be connected to the MT-16H. To enable this feature, the optional SMDR card must be installed into the system. An RS-232C connector and cable are required for connection of the printer or terminal. -

1. Install the two plastic standoffs provided with the SMDR card into the KSU base.
2. Insert the RS-232C connector through the hole in the KSU labeled SMDR.
3. Align the SMDR card with the connector on the main PCB and the standoffs. Press card into place.



DIP SWITCH SETTINGS

		4800 bps	2400 bps	1200 bps	600 bps
DIP 1	2	ON	OFF	OFF	OFF
	1	OFF	ON	OFF	OFF
DIP 2	2	OFF	OFF	ON	ON
	1	OFF	OFF	OFF	ON

Serial collection device settings:

- * Even Parity
- * 8 bits
- * No start or stop bit

SMDR FORMAT

STN	CO	MM/DD	STT.TIME	DURATION	DIAL NUMBER	ACCOUNT
XX	X	XX:XX	HH:MM:SS	HH:MM:SS	18 Digits Max.	CODE

Figure 16

POWER FAILURE TRANSFER

The MT-16H provides up to 6 PFT circuits. On the main PCB, station 7 and 8 can be configured as PFT circuits.

1. If stations 7 and 8 are being used as single line stations on the system, they will automatically be connected to CO lines 1 and 2 respectively if dip switches 6 and 7 are set as follows:
 Dip 6 - ON = CO 1 to SLT 7
 Dip 7 - ON = CO 2 to SLT 8
2. If stations 7 and 8 are being used as key telephones on the system, CO lines 1 and 2 will be automatically connected to two single line telephones connected to the TTC plug on the left side of the KSU. For this scenario to operate, dip switches 6 and 7 are set as follows:
 Dip 6 - ON = CO 1 to Tip 1, Ring 1
 Dip 7 - ON = CO 2 to Tip 2, Ring 2

TTC CONNECTOR

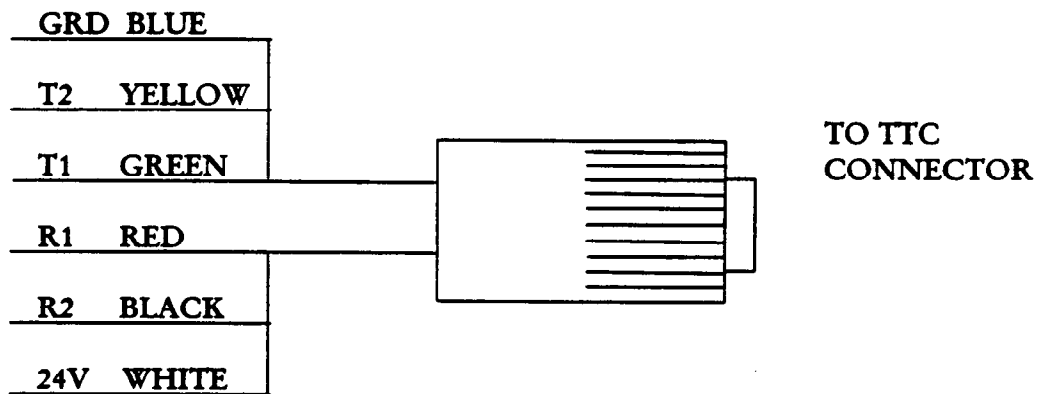


Figure 18

Note: In scenario 2, the SLT's do not operate until power has failed. Any device connected to the 24V power source must draw no more than 12.5 mA.

No dip switch settings are required for scenario three.

3. When using the MT-STU/B, the first two single line circuits are automatically connected to the CO lines served by the MT-STU/B. For example:
 MT-STU/B #1 MT-STU/B #2
 CO 5 goes to SLT 9 CO 7 goes to SLT 13
 CO 6 goes to SLT 10 CO 8 goes to SLT 14

BATTERY BACKUP

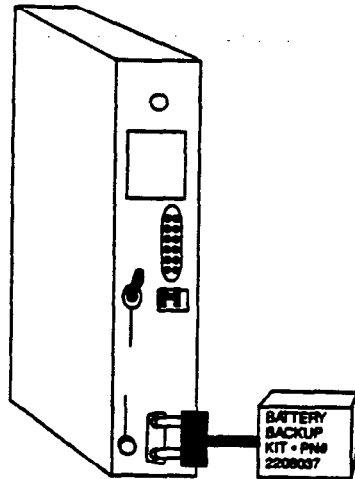


Figure 19

LCD DISPLAY KIT INSTALLATION

! Use an anti-static wrist strap when installing.

1. With thumbs on front of cover plate, press fingers gently on back of cover plate and lift.
2. Locate ribbon cable inside phone.
3. Being careful not to pull on ribbon cable, insert cable into the connector of the display kit. Ensure that the ribbon cable conductors are touching the connectors' conductors.
4. Gently 'snap' the display kit into the phone front part first, then back.

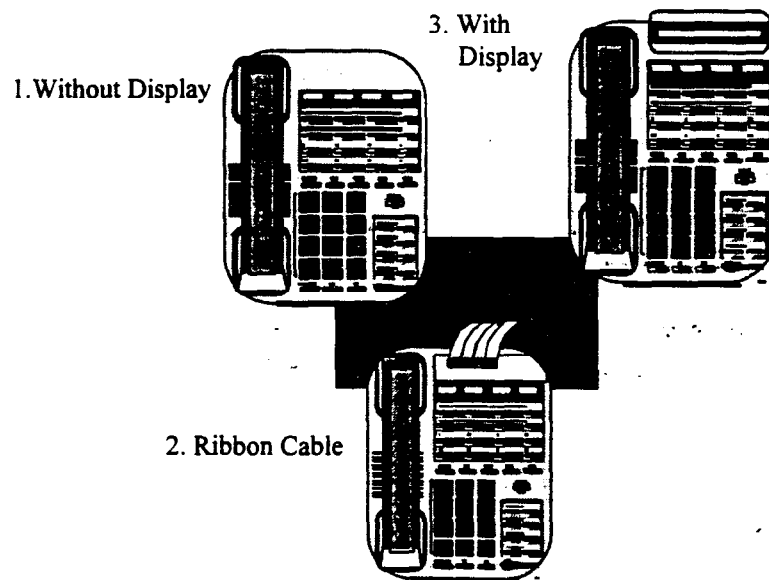


Figure 20

MEMORY BATTERY INITIALIZE

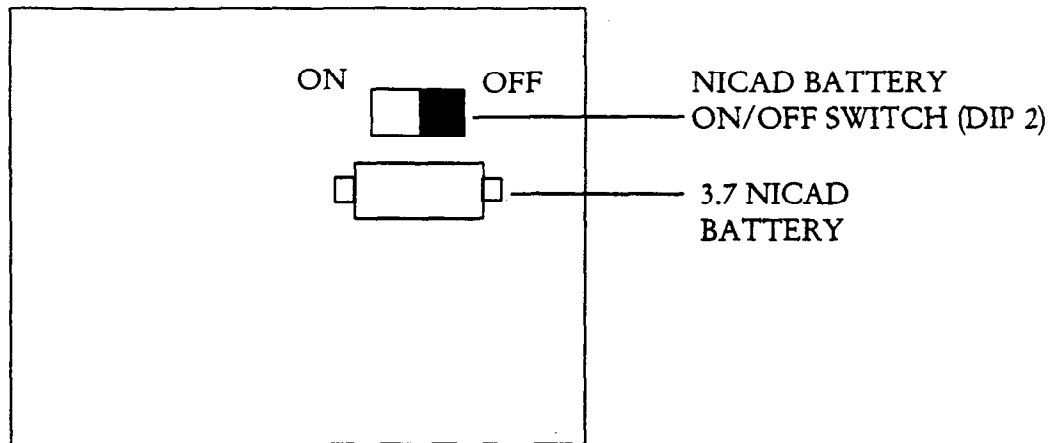



Figure 21

Note:

1. Remove the cover from the unit.
2. Locate the battery ON/OFF switch and turn the switch "ON". (Dip 2)
3. The battery will normally last approximately 40 hours during a power outage, if it is fully charged.

Section 6

CUSTOMER DATABASE PROGRAMMING SHEETS

 Upon installation, always initialize the system and set the memory back-up switch on.

CUSTOMER'S NAME _____
 ADDRESS _____
 CONTACT _____
 PHONE # _____

PRG #	TO SET	DATA	DEFAULT	NOTE
20	Programming Mode	<input type="checkbox"/>	0	Enables Programming Mode 0 = Disable 1 = Enable 4 = 12-hour clock mode 5 = 24-hour clock mode
21	Change Password	□□□□	1234	Must be 4 digit (0-9) and DSS keys (1-6)
05	User Password	□□□□	4321	Must be 4 digit (0-9) and DSS keys (1-6)***
18	Station Basis Key Assignment	STATION □□	BUTTONS □□□□	*** 38 - Attendant 39 - Doorphone 40 - Com. Aud. Ring 41 - Group Listen 42 - Account Code 43 - GRP 1 44 - GRP 2 45 - GRP 3 1 - Timer 2 - Auto Answer 3 - Auto Redial 4 - Boss/Sec 33 - Timer 34 - Auto Ans 35 - Auto Rdl 36 - Boss/Sec 37 - Int. Page
19	Station On & Off****	<input type="checkbox"/>	0	0 = ON 1 = OFF
22	Touch Tone Mute	<input type="checkbox"/>	1	1 = Disable 0 = Enable
23	Make/Break Ratio Toll Check Time		33/66 05.0 sec 10.0 sec**	Standard is 33/66 or 40/60 PPS is set at 10 pps 04.0~14.9 sec (10.0~99 sec)***

** = MV2
 *** = MV3
 **** = MV4

PRG #	TO SET	DATA	DEF	NOTE
24	System Version Display	<input type="checkbox"/>		Displays Current KSU and Keyset Software Version
25	System Enabled	<input type="checkbox"/>	0	0 = Do Not Initialize 1 = Initialize Memory 3 = Initialize System and Clear
26	Optional Class of Service Stations **Exception Stations 1 = Exception 0 = No Exception	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 0	0 = Day Toll (Program 30) 1 = All Stations Class B 2 = All Stations Class C 3 = All Stations Class D 4 = All Stations Class E
27	To turn ON and OFF External Call Forward	<input type="checkbox"/>	0	0 = Off 1 = On
29	Trunk Line Forward****	<input type="checkbox"/>		0 = Will not follow station call forwarding 1 = Will follow station call forwarding
30	Set Class of Service for Stations	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	0 = No Restriction 1 = Program 33/34 (Allow/Deny) 2 = Program 35/36 (Allow/Deny) 3 = Program 37 (Allow Only) 4 = Table E (ICM Only)
31	CO Line Access by Stations	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1	0 = Deny 1 = Allow
32	Internal Paging Station	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1	0 = Disable 1 = Enable Requires all fields to be entered
38	Station Type	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	N	0 = Keyphone 1 = SLT DTMF 2 = SLT DP
39	Trunk Names****	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		Ten characters maximum.
40	CO Lines Incoming/Outgoing	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	0 = Incoming and Outgoing 1 = Incoming Only
41	Assign Privacy	<input type="checkbox"/>	0	0 = Privacy Disabled 1 = Privacy Enabled ***

** = MV2
*** = MV3
**** = MV4

PRG #	TO SET	DATA	DEF	NOTE
42	Trunk Dial Type	□□□□□□□□	0	0 = Rotary Pulse 1 = Touch-tone
43	CO Lines Enabled	□□□□□□□□	1	0 = Disabled 1 = Enabled 3 = E/M Tie Line
44	CO Line Definition	□□□□□□□□	1	0 = PABX Line 1 = CO Line
45	External Call Forward Line Assignment	□□□□□□□□	DENY	0 = Deny 1 = Allow
46	Flash or Privacy Release	□□□□□□□□	FLASH	0 = Flash 1 = Privacy
47	Dial 9 Group	□□□□□□□□	0	0 = Accessed 1 = Not Accessed
48	Dial 7 Group**	□□□□□□□□	0	0 = Accessed 1 = Not Accessed
49	Common Audible Ring**	□□□□□□□□	0	0 = Not Assigned 1 = Assigned
50	CO Flash Timing	□□□□	0000	0000 - 5000 ms*
51	PABX Flash Timing	□□□□	0600	0000 - 5000 ms
52	Hold Recall Timing	□□□	030	000 sec - 200 sec 000 sec - 999 sec**
53	Transfer of Call Recall Timing	□□□	030	000 sec - 200 sec 000 = No Recall ***
54	Alarm Duration Timer	□□□	010	000 sec - 200 sec

*ms = millisecond

** = MV2

*** = MV3

PRG #	TO SET	DATA	DEF	NOTE
55	Time and Date Change			YY = Year MM = Month DD = Day W = Day of Week HH = Hour (Military Time) MM = Minute (Military Time)
56	Intrusion Tone Timer (Executive Priority)	□□	10 sec	00 ~ 99 Set to 00 for no tone.
57	CO to CO Call Duration Timer	□□□	150 sec	Used for external call forwarding and unsupervised conference calls. 010 ~ 99 sec
58	Automatic Timer	□□	10 sec	010 ~ 99 sec
59	Door Release Timer	□□□	03.0 sec	00.1 ~ 10.0 sec
60	CO Line Ringing Mode	□	0	0 = Individual Ring Mode: Stations to ring in order of Program 61 and 62. If all stations are busy, the 1 st station set to ring will ring. 1 = Conditional Ring Mode: Only stations that are idle will ring within a programmed group. 2 = Unconditional Ring Mode: All stations to ring whether idle or busy. 3 = Distributed Ring Mode: Stations ring in sequential order. Note: Per line basis**
61	Night Ringing Stations			See Page 91 Note: Use attendant DND key to put system in Night Mode.
62	Day Ringing Stations			See Page 92
63	Doorphone Ring Assignment	□□□□□□□□	1,2,3,4, 5,6,7,8	Up to 8 stations may be assigned to receive a doorphone ring.
64	Ring Over Page****	□□□□□□□□	0	0 = No ring over page. 1 = Ring over page.
65	DISA Security Code	□□□□	1234	4 digits 0 ~ 9***
66	DND Status	□□□□□□□□	1	1 = Allowed 2 = Denied Operator always denied.
67	Hunt Group Ring Mode	Group Mode □ □	No Group	Group # 1, 2, or 3 0 = Individual *** 1 = Distributed Individual 2 = Conditional

** = MV2

*** = MV3

**** = MV4

PRG #	TO SET	DATA	DEF	NOTE
68	Internal Page Zone	□□□□□□□□	0	0 = All Call 1 = Zone 1*** 2 = Zone 2 3 = Zone 3
69	Station Hunt Group	□ □□□□□□□	No Group	*** 3 Hunt Groups available 8 Stations per group Pilot # = *1, *2 and *3
70	Attendant Station Assignment	□	04	Attendant's DND key is used to put the system in Night Mode.
71	System Speed Dialing Override of Toll Restriction	□	0	0 = Disable 1 = Enable
72	Executive Priority	□	0	0 = Override disabled 1 = Override enabled without intrusion tone 2 = Override enabled with intrusion tone Item 56 must be addressed to disable tone.
73	Boss/Secretary Set		Boss Sec	Requires one Boss and one Secretary. Use Program 80 to set the Boss/Secretary Key.
74	Camp On Tone Timer	□□	00	00 = one tone only
75	Auto Redial Attempts	□□	03	10 ~ 99 = one tone every 10-99 sec 01 ~ 99
76	Transfer Recall Destination**	□	0	0 = Back to Station 1 = To Operator
77	Single Line Hook Flash Time **	□□□□ □□□□	0160 0600	Lower limit 0040 ~ 1980 Upper limit 0060 ~ 2000
78	DISA Line	□□□□□□□□		0 = Not DISA Line 1 = DISA Line ***
79	CENTREX/PBX Code****	□□□		0 ~ 9, *
80	Softkey Programming			(See below)
82	Status Messages	□□□□□□□□□□□□□□		10 programmable messages 16 characters each

** = MV2
*** = MV3
**** = MV4

PRG #	TO SET	DATA	DEF	NOTE
83	Off Hook Routing****			See Page 118
84	Hotline Delay Time****	□□	05	00 to 99 seconds
85	Delayed Ringing****	□□□	010	001 to 250 seconds
86	DTMF Duration****	□□□□	0100	0100 to 2500 msec
90	Unit Processing****	□	0	0 = Processing 1 = Halt

**** = MV4

SOFTWARE PROGRAMMING CODES

01 = STATION 1	02 = STATION 2
03 = STATION 3	04 = STATION 4
05 = STATION 5	06 = STATION 6
07 = STATION 7	08 = STATION 8
09 = STATION 9	10 = STATION 10
11 = STATION 11	12 = STATION 12
13 = STATION 13	14 = STATION 14
15 = STATION 15	16 = STATION 16
17 = CO LINE 1	18 = CO LINE 2
19 = CO LINE 3	20 = CO LINE 4
21 = CO LINE 5	22 = CO LINE 6
23 = CO LINE 7	24 = CO LINE 8
25 = HOLD	26 = SPK BUTTON
27 = REDIAL	28 = MUTE/DND BUTTON
29 = EXT PAGE	30 = CONFERENCE
31 = MESSAGE	32 = ALARM/SPEED DIAL
33 = TIMER BUTTON	34 = AUTO/ANSWER
35 = AUTO REDIAL	36 = BOSS/SECRETARY
37 = INTERNAL PAGE	38 = ATTENDANT
39 = DOORPHONE	40 = COMMON AUDIBLE RING***
41 = GROUP LISTENING***	42 = ACCOUNT CODE***
43 = GROUP 1***	44 = GROUP 2***
45 = GROUP 3***	

PROGRAM #33 CLASS B DENY

Line Entry	Dialed Digits												
	1	2	3	4	5	6	7	8	9	10	11	12	
0													
1													
2													
3													
4													
5													
6													
7													
8													
9													

PROGRAM #34 CLASS B ALLOW

Line Entry	Dialed Digits												
	1	2	3	4	5	6	7	8	9	10	11	12	
0													
1													
2													
3													
4													
5													
6													
7													
8													
9													

PROGRAM #35 CLASS C DENY

Line Entry	Dialed Digits											
	1	2	3	4	5	6	7	8	9	10	11	12
0												
1												
2												
3												
4												
5												
6												
7												
8												
9												

PROGRAM #36 CLASS C ALLOW

Line Entry	Dialed Digits											
	1	2	3	4	5	6	7	8	9	10	11	12
0												
1												
2												
3												
4												
5												
6												
7												
8												
9												

PROGRAM #37 CLASS D ALLOW

Line Entry	Dialed Digits											
	1	2	3	4	5	6	7	8	9	10	11	12
0												
1												
2												
3												
4												
5												
6												
7												
8												
9												

PROGRAM #61 NIGHT MODE RINGING

Line	Station															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LINE 1																
LINE 2																
LINE 3																
LINE 4																
LINE 5																
LINE 6																
LINE 7																
LINE 8																

PROGRAM #62 DAY MODE RINGING

Line	Station															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LINE 1																
LINE 2																
LINE 3																
LINE 4																
LINE 5																
LINE 6																
LINE 7																
LINE 8																

SYSTEM SPEED DIALING SHEET

10			55		
11			56		
12			57		
13			58		
14			59		
15			60		
16			61		
17			62		
18			63		
19			64		
20			65		
21			66		
22			67		
23			68		
24			69		
25			70		
26			71		
27			72		
28			73		
29			74		
30			75		
31			76		
32			77		
33			78		
34			79		
35			80		
36			81		
37			82		
38			83		
39			84		
40			85		
41			86		
42			87		
43			88		
44			89		
45			90		
46			91		
47			92		
48			93		
49			94		
50			95		
51			96		
52			97		
53			98		
54			99	*	

• *Used for external call forwarding.*

PROGRAMMING INSTRUCTIONS

OVERVIEW

Programming of the MT-16H is a simple and easy exercise which can be performed from any display set. This section describes all programming options available to the installer and includes applicable notes where required. The program is broken down into five basic categories:

1. System wide programming requiring the enabling of the system program mode.
2. User programming requiring the enabling of the system or user programming mode.
3. System wide programming requiring the entry of the system password during input.
4. User programming requiring the entry of the system or user password during input.
5. User programming requiring no password.

Before programming for the first time, you must initialize the system using Program 25, as shown below:

1. Press [#].
"Programming" is displayed.
2. Dial 25.
"Initial Sys?" is displayed.
3. Dial 1 2 3 4.
4. Dial 2.
5. Press [#] to save and exit. Wait approximately 10 seconds for the system to complete initialization. System is ready to program after the display returns to date and time.

Conditions:

- Entering [2] clears all "scratch-pad" RAM memory and battery backup RAM.
 - All programs are set to default values. Refer to the Customer Database Programming Sheets for values.
 - All call processing is reset to idle status.
-

ENTERING / EXITING SYSTEM PROGRAMMING MODE (PROGRAM 20)

Description:

Allows programmer to gain access to programming mode for system wide or individual software changes.

Programming:

1. Press [#].
"Programming" is displayed
2. Dial 20
"MMC Disabled" is displayed
3. Enter password (Default is 1234).
"MMC Disabled" is displayed
4. Dial 0 to Exit program mode.
Dial 1 to Enter program mode.
Dial 4 to set clock to 12 hour mode.
Dial 5 to set clock to 24 hour mode.
5. Press [#] to save and exit

If technician passcode is enabled (MMC20) [CODE DEFAULT ?] is displayed.
Press DSS button to change his/her station default passcode (e.g.. EXT02:
DEFAULT?) is displayed.

If you want the default passcode (1234) press {HOLD} button.

Conditions:

- Default value - "MMC Disabled" AND "Dial 9"
Disabled: ("Dial 9" enabled) **; 24 hour clock
 - The phone must be in the on-hook mode.
 - The unit will automatically go out of the programming mode if no data is entered in 4 minutes.
 - Data is entered into working memory after exiting the programming mode.
 - To verify that programming is possible, follow steps 1 and 2.
"MMC Enabled" is displayed.
 - ** = MV2
-

ENABLING USER PROGRAMMING MODE (PROGRAM 04)***

Description:

Allows user to gain access to user programming mode.

Programming:

1. Press [#]
"Programming" is displayed.
2. Dial 04
"MMC Disabled" is displayed.
3. Enter the user password (Default is 4321).
"MMC Disabled" is displayed.
4. Dial 1.
5. Press [#] to save and exit.

Conditions:

- The phone must be in the on-hook mode.
- Unit will automatically go out of programming mode if no data is entered in 4 minutes.

Note: If user password is unknown it can be viewed by enabling system programming, then proceeding with program 05 and entering system password in step 3.

*** = MV3

CHANGE USER PASSWORD (PROGRAM 05) ***

Description:

This item allows the system programmer or user to modify the user password.

Programming:

1. Press [#]
"Programming" is displayed.
2. Dial [05].
"Old Password" is displayed.
3. Enter OLD password
"New Password" is displayed.
4. Enter new password
5. Press [#] to save and exit.

Conditions:

- Default password is 4321.
- Password must be four digits.
- This program is available to the user, if desired by using the user password to enable user programming (Program 04).
- System password will enable all programming.
- User password will enable:
 1. Enable User Programming (MMC 04)
 2. User Password Change (MMC 05)
 3. Optional Class of Service (MMC 26)
 4. External Call Forward (MMC 27, 45)
 5. Common Audible Ring (MMC 28)
 6. Date and Time (MMC 55)
 7. DISA Code Change (MMC 65)
 8. Programmable Messages (MMC 82)
 9. System Speed Dial (SPD/PGM)
 10. DISA Line Assignment (MMC 78)

*** = MV3

STATION ON & OFF (PROGRAM 19) ****

Description:

This program allows the keyset user or technician to set the following features.

Camp-on tone - When on, this feature allows the user to hear camp-on reminder tones. The tone is heard repeatedly at pre-programmed intervals (MMC74: CAMP ON TONE)

Hot keypad - When on, this feature allows the user to dial directory numbers without having to first lift the handset or press the SPK button.

Programming:

1. Press [#]..
"Programming" is displayed.
2. Dial [19].
"STN ON & OFF" is displayed.
3. Press the DSS key of the station to be programmed, for example, DSS 02.
"02:CMP TONE:ON" is displayed.
4. Enter the new data (0 or 1) for on and off.
0 = ON
1 = OFF
5. Press the ALM/SD key to select other keyset features as described below.
"22:HOT KEY:ON" is displayed.
6. Repeat step three.
7. Press [#] to save and exit.

Conditions:

- Default: CAMP TONE - ON
HOT KEYPAD - ON
- Dial buttons - Used to select data.
- DSS - Used to select stations
- ALM/SD - Used to select features.

**** = MV4

MODIFICATION OF PASSWORD (PROGRAM 21)

Description:

This feature enables the system programmer the flexibility to modify the system password. This controls unauthorized entry into the database.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 21.
"Old Password" is displayed.
3. Enter in current password.
"New Password" is displayed.
4. Enter in new password.
5. Press [#] to save and exit.

Conditions:

- Default value is 1234.
 - Valid entries are 0 - 9 and the first 6 DSS keys. The DSS keys 1-6 represent the letters A, B, C, D, E and F.
 - If a valid 4 digit password is entered, the password will be changed.
 - Loss of RAM memory will initialize the password to default value (1234)
-

DTMF MUTING TO STATION USER (PROGRAM 22)

Description:

This feature enables the system to mute the DTMF tones to the station user that is dialing on a central office line.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 22.
"DTMF MUTED" or "DTMF-ON" is displayed.
3. Enter password.
4. Dial 0 to enable user to hear DTMF.
Dial 1 to deny user to hear DTMF.
5. Press [#] to save and exit.

Conditions:

- Default is "1" (DTMF muted).
- If the password is incorrect, the display will show "ERROR" and the system will exit the programming mode.
- DTMF level is not adjustable.
- DTMF mute on transfers. **

Note: See 5th condition below (toll check time).

** = MV2

DIAL PULSE MAKE/BREAK RATIO/TOLL CHECK TIMER (PROGRAM 23)

Description:

This feature enables the system programmer to define the dial pulse make/break ratio of a CO line circuit that is classed as a rotary line.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 23.
"Make Ratio" is displayed.
3. Enter password.
"Make xx" is displayed.
4. Enter time by 2 digits.
"Break: xx" is displayed.
5. Enter break time by 2 digits.
"Break 66: xx" is displayed.
6. Press [*].
7. Enter password.
"Toll check time" is displayed.
8. Enter time parameter from 04.0 sec to 14.9 sec (10 sec to 99 sec).***
05.5 sec is default .
10 sec is default.**
9. Press [#.]

Conditions:

- Default dial pulse make/break ratio is 33/66.
- x = any number.
- Make/break time standards are normally 33/66 or 40/60.
- Dial pulse (pps) is set at 10 pps.
- Toll check time is not a required entry. The installer may press # after Step 5.
Toll check time is used to extend the inter-digit toll checking time to beyond the point where the central office line goes to reorder tone.

** = MV2

*** = MV3

SOFTWARE VERSION OF SYSTEM AND TELEPHONE (PROGRAM 24)

Description:

This feature displays the current level of software being used in the main equipment. It also displays the version of current software in the telephone set.

Programming:

1. Depress “#”
“Programming” is displayed.
2. Dial 24
“Version” is displayed.
3. Enter password
“KSU: xx KTS: xx” is displayed (version of software)
4. Depress “*”
“Made 199x: xx: xx” is displayed
(copyright date of KSU software)
5. Depress “#”.

Conditions:

If the password is incorrect, the display will show “Error” and the system will exit the programming mode.

X = 0 thru 9, A thru Z.

Note: Maintain this data in your office for future reference.

SYSTEM INITIALIZATION (PROGRAM 25)

Description:

This enables the system programmer the ability to initialize the system without turning the system power off. There are 2 levels of initialization.

Level 1 initializes scratch pad data in RAM.

Level 2 initializes scratch pad data and battery backed-up data in RAM.

Programming:

1. Depress [#]
"Programming" is displayed.
2. Dial 25
"INITIAL SYS?" is displayed.
3. Enter password.
4. Enter 0: Do not initialize
Enter 1;
Enter 2;
5. Depress [#].

Conditions:

- All current data should be validate against programming sheets.
 - Programming 25 resets all RAM data and system database is restored to original default program.
-

OPTIONAL CLASS OF SERVICE (PROGRAM 26)

Description:

This enables the system user to change the toll class of service of all telephones in the system. Exceptions are allowed starting with MV2.

Programming:

1. Depress[#].
"Programming" is displayed.
2. Dial 26.
"NIGHT TOLL: X" is displayed.
3. Enter password.
4. Enter one of the following numbers on the dial pad to set night time toll restriction:

0 = Same as normal toll restriction (Program 30)
1 = For all stations to be Class B
2 = For all stations to be Class C
3 = For all stations to be Class D
4 = For all stations to be Class E

"Exception station" is displayed**
"0000000000000000" is displayed**
5. Enter [1] for exception station**
Enter [0] for non-exception station**
6. Depress [#]

Conditions:

Default data is Ø

- C.O. Lines class marked for PBX use are not subject to system changes to night mode class of service.
- Toll restriction override will still operate when the system changes to night mode class of service.
- Once data is entered in this program the new class of service is effected immediately regardless of day/night mode operation.

- Step 5 is only required one time. Press [#] after step 4, unless exception station status changes.
 - This program is accessible through user password. ***
 - ** = MV2
 - *** = MV3
-

EXTERNAL FORWARD (PROGRAM 27)

Description:

1. This enables the system user the ability to turn on and turn off External Call Forwarding.
2. Press [#].
"Programming" is displayed.
3. Dial 27
"EXTL FORWARD OFF (ON)" is displayed.
4. Enter password.
5. Enter [1] to turn external forwarding ON.
Enter [0] to turn external forwarding OFF.
6. Press [#] to save and exit.

Conditions:

- Default data is 0 (OFF).
- Program 45 must also be addressed before this feature will work.
- This program is accessible through user password. ***

*** = MV3

TRUNK LINE FORWARD (PROGRAM 29) ****

Description:

This program is used to set trunk lines to follow station call forwarding or not to follow station call forwarding.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 29
"CO Line Forward" is displayed.
3. Enter 0 or 1 for all eight lines.
 - 0 = Will not follow station call forwarding.
 - 1 = Will follow station call forwarding.
4. Press [#] to save and exit.

Note: Only internal calls will forward to a hunt group.

**** = MV4

STATION TOLL CLASS OF SERVICE (PROGRAM 30)

Description:

This enables the system user the flexibility to assign individual classes of service to each extension.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 30.
"STN Toll Class" is displayed.
"xxxxxxxxxxxxxxxxxxxx" is displayed.
3. Enter new toll class of service for each station.
4. Press [#] to save and exit.

Conditions:

There are 5 classes of service (0-4):

- 0 = unrestricted = Class A
 - 1 = Class B uses Program 33 and 34 (Deny/Allow)
 - 2 = Class C uses Program 35 and 36 (Deny/Allow)
 - 3 = Class D uses Program 37 (Allow only)
 - 4 = Class E Internal calls only
- Default data is 0.
 - **THIS PROGRAM REQUIRES THAT ALL DIGITS FOR THAT FIELD MUST BE ENTERED REGARDLESS IF THE DATA IS TO BE CHANGED . AN INCORRECT ENTRY WILL NOT CHANGE THE DATA: UPON EXITING THE PROGRAM, THE OLD DATA WILL NOT BE MODIFIED.**
 - System abbreviated dialing overrides toll restriction if Program # 71 is enabled.
 - If a line is programmed as a PABX line, no toll restriction is applied except for class 4.
 - Field definition:

Station Number

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COS Data	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CO LINE ACCESS BY STATION USER (PROGRAM 31)

Description:

This program defines what stations have access to CO lines on a station by station basis.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 31.
"Trunk Access" is displayed.
3. Press DSS key to be programmed.
"EXT yy: xxxxxx" is displayed.
4. Enter the new data for all eight trunks (1-8).
 - 0 = No direct access (can access from hold and transfer).
 - 1 = Answer only.
 - 2 = Dial only. ****
 - 3 = Answer and dial.. ****
5. Press [#] to save and exit.

Conditions:

- Default is set to [3].
- y = 1 through 16.
- **THIS PROGRAM REQUIRES THAT ALL DIGITS FOR THAT FIELD MUST BE ENTERED REGARDLESS IF THE DATA IS TO BE CHANGED. AN INCORRECT ENTRY WILL NOT CHANGE THE DATA; UPON EXITING THE PROGRAM, THE OLD DATA WILL NOT BE MODIFIED.**
- To assign a private line, also use program 61 and 62 for ringing assignment.
- Caution: A station that rings on incoming calls for a restricted line has the ability to pick up the line.
- Although a station may not have access to the line to dial out, if the line is put on hold, the "privacy" feature is canceled for that particular call. To override, use Executive Hold.
- Field definition:

Line Number

	1	2	3	4	5	6	7	8
Station Access Data	x	x	x	x	x	x	x	x

**** = MV4

INTERNAL PAGING - ALLOW OR DENY (PROGRAM 32)

Description:

This enables the system programmer to allow or deny a station from receiving an internal page.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 32.
"Enable Page Rcv" is displayed.
"xxxxxxxxxxxxxxxxxxxx" is displayed.
3. Enter [0] (Deny) or [1] (Allow) for each line station.
4. Press [#] to save and exit.

Conditions:

- Default value is 1.
- Any station user can make an internal page.
- Page overrides DND.
- **ENTRY INPUT MUST BE ALL 16, EVEN IF ONLY ONE STATION IS BEING CHANGED. AN INCORRECT ENTRY WILL NOT CHANGE THE STATION DATA. UPON EXITING THE PROGRAM, THE OLD DATA WILL NOT BE MODIFIED.**
- Field definition:

Station Number

Page Access Data

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CLASS OF SERVICE - TOLL RESTRICTION

Class 0 is non-restricted. Class of Service 1(B) and 2(C) are the primary toll restriction classes. Each class has a deny table and an allow table which provides for definition of the dial patterns to be restricted and allowed. Each table is comprised of ten entry lines having twelve digits per entry. Inserting the desired allow or deny codes in the appropriate table line entry defines the type of restriction. Here is a sample table:

DIALED DIGITS

ENTRY
LINES

	1	2	3	4	5	6	7	8	9	10	11	12
0												
1												
2												
3												
4												
5												
6												
7												
8												
9												

In this case, any number beginning with "976" or "0" will result in disconnection of the attempted call. An asterisk is programmed after the "1" in entry line 1 because the allow table may have exceptions such as 1 800 + numbers, 1-555-1212 or 1-800-555-1212. No asterisk is used after "976" and "0" as no exceptions are to be made with these prefixes being dialed. The asterisk used in a position allows for any number to be dialed in that digit. To limit the length of digits dialed, press the "hold" key (displays "E") after your numbers and asterisks in the digit, respective of the total digit length to be permitted.

Class 3(D) is used to fully restrict stations. If, however, there must be an allowed emergency code from this Class 3 station, Program 37 (allow table) defines the allowed codes desired (Example 911).

Class 4(E) only permits intercom calls; no trunk calls.

Note: See Program 33 through 37 for detailed information and examples.

DENY CODES FOR CLASS OF SERVICE 1(B) (PROGRAM 33)

Description:

This program defines what leading digits in a dialing plan are to be restricted. There are 10 line entries (0-9) which define up to 12 digits per entry.

1. Press [#].
"Programming" is displayed.
2. Dial 33.
"Deny in Class B" is displayed.
3. Enter [0] to [9] to select line entry.
"BD x" is displayed.
4. Enter the digit sequence to be toll restricted.
To erase existing digit sequence, press the "HOLD" key.
5. Press [#] to save and exit.

Conditions:

- x = line entries (0-9).
- Not all 12 digits in a line entry are required.
- Digit entries:
 - A. Numbers 0-9
 - B. [*] = allow any digit, subsequent digits to be restricted unless programmed in allow table.
 - C. "E" entry (caused by pressing "HOLD" key) means that no more digits can be dialed.
- If certain 1 + dialing is allowed, the [1] must be followed by a [*] and the allow Program 34 must define the sequence to be allowed.

Example: Deny 0+ and 1+ calls

Allow 1-800

Allow 1 + 7 digits

Enter Program 33

Line 0 = 1*

Line 1 = 0

Enter Program 34

Enter Lines

0 = 1800

1 = 1*****E

ALLOW CODES FOR CLASS OF SERVICE 1(B) (PROGRAM 34)

Description:

- This program defines what leading digits in a dialing plan are to be allowed. There are 10 line entries (0-9) which define up to 12 digits per entry.

Programming:

1. Press [#].
"Programmed" is displayed.
2. Dial 34.
"Allow in Class B" is displayed.
3. Enter [0] to [9] to select line entry.
"BA x" is displayed.
4. Enter allowed dialed digits.
To erase existing digit sequence, press "HOLD" key.
5. Press [#] to save and exit.

Conditions:

- x = line entries (0-9)
- Not all 12 digits in a line entry are required.
- Digit entries:
 - A. Numbers 0-9
 - B. [*] = allow any digit, subsequent digits will be restricted unless programmed in allow table.
 - C. "E" entry (caused by pressing the "HOLD" key) means that no more digits can be dialed.
- If certain 1 + dialing is allowed, the [1] must be followed by a [*] in Program 33 and the allow Program 34 must define the sequence to be allowed.

Example: Deny 0+ and 1+ calls

```
Allow 1-800
Allow 1 + 7 digits
Enter Program 33,      Line 0 = 0
                       Line 1 = 0

Enter Program 34
Enter Line             0 = 1800
                       1 = 1*****E
```

ALLOW CODES FOR CLASS OF SERVICE 2 (C) (PROGRAM 36)

Description:

This program defines what leading digits in a dialing plan are to be allowed. There are 10 line entries (0-9) which define up to 12 digits per entry.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 36.
"Allow in Class C" is displayed.
3. Enter [0] to [9] to select line entry.
"CA x" is displayed.
4. Enter allowed dialed digits. To erase existing digit sequence press "HOLD" key
5. Press [#] to save and exit.

Conditions:

- x = line entries (0-9)
- Not all 12 digits in a line entry are required.
- Digit entries:
 1. Numbers 0-9
 2. [*] = allow any digit, subsequent digits will be restricted unless programmed in allow table.
 3. "E" entry (caused by pressing "HOLD" key) means that no more digits can be dialed.
- If certain 1 + dialing is allowed, the "1" must be followed by a "*" in Program 35 and the allow Program 36 must define the sequence to be allowed.

Example : Deny 0+ and 1+ calls
 Allow 1-800
 Allow 1+ 7 digits
 Enter Program 35 Line 0 = 0
 Line 1 = 1*

 Enter Program 36
 Enter Line 0 = 1800
 1 = 1*****E

ALLOW CODES FOR CLASS OF SERVICE 3 (D) (PROGRAM 37)

Description:

This program defines what leading digits in a dialing plan are to be allowed. There are 10 line entries (0-9) which define up to 12 digits per entry.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 37.
"Allow in Class D" is displayed.
3. Enter [0] to [9] to select line entry.
"DA x" is displayed.
4. Enter allowed dialed digits.
5. To erase existing digit sequence press "HOLD" key.
6. Press [#].

Conditions:

- x = line entries (0-9)
- Not all 12 digits in a line entry are required
- Digit entries:
 1. Numbers 0-9
 2. [*] = allow any digit, subsequent digits will be restricted unless programmed in allow table.
 3. "E" entry (caused by pressing "HOLD" key) means that no more digits can be dialed.

Example:

All calls are to be restricted except 911. Enter Program 37. Select Line entry 0 and enter 911. Press [#].

TOLL RESTRICTION OVERRIDE (PROGRAM 01,02,03)

Description:

Allows the system programmer to assign specific passwords for each toll class of service. With these passwords the station users are permitted to place calls on a telephone set that is normally toll restricted. Also referred to a traveling class of service.

Programming:

1. Press [#]
"Programming" is displayed
2. Press 01 (A), 02 (B) or 03 (C)
"Class: x: xxxxx" is displayed
3. Enter new password for class of service
4. Press [#] to save and exit

Conditions:

- When using the feature, after entering password and [#], you must dial number within 60 seconds or the telephone reverts back to its original class of service.
 - Default value is as follows:
Class A (0) 00000
Class B (1) 11111
Class C (2) 22222
 - Password entry consists of five (5) digits.
-

TELEPHONE TYPE (PROGRAM 38)

Description:

Allows installer to define the type of telephone assigned to each port.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 38.
"SLT DIAL TYPE" is displayed, then "nnnnnnnnnnnnnnnn" is displayed.
3. Enter [0] for keyphone, "1" for DTMF SLT or "2" for dial pulse SLT
4. Press [#] to save and exit

Conditions:

- Default value for SLT ports is N
- System recognizes keyphone ports automatically
- Entry input must be all 16 digits even if only one station is being changed. An incorrect entry will not change the station data; upon exiting the program, the old data will not be modified.
- Field definition:

	Station Number															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
SLT Dial Data	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

TRUNK NAMES (PROGRAM 39) ****

Description:

This program is used to enter an identification or directory name for each CO line. The assigned trunk in the directory will be displayed during the incoming outside call.

Programming:

1. Press[#].
2. Press [39].
"Line Directory" is displayed.
3. Press the CO line button to be named, for example, CO line 1.
"Line 1:" and the current data is displayed.
4. Press the HOLD button to clear the old data.
5. Enter the name by using the method, such as MMC14 (ten characters maximum).
6. Press [#] to save and exit.

**** = MV4

ASSIGN PRIVACY (PROGRAM 41) ***

Description:

This enables the system programmer to assign privacy or remove privacy from all CO line.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 41.
"Privacy Enable" is displayed.
3. Enter password .
4. Enter 0 = Privacy Disable
Enter 1 = Privacy Enable
5. Press [#] to save and exit.

Conditions:

- Default is Ø (Privacy Enabled).

*** = MV3

CO LINE ENABLED FOR SERVICE (PROGRAM 43)

Description:

This enables the system programmer to define what lines are to be enabled in the system.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 43.
"Trunk Tie" is displayed.
0 = CO line is not connected.
1 = CO line is connected.
3 = E/M Tie line
3. Enter Data.
4. Press [#] to save and exit.

Conditions:

- Default value is 1.
- This program requires that all digits for that field must be entered regardless if the data is to be changed. An incorrect entry will not change the data; upon exiting the program, the old data will not be modified.
- Field definition:

Trunk Number

	1	2	3	4	5	6	7	8
CO Signaling Data	x	x	x	x	x	x	x	x

- Lines 5 to 8 can be used for E&M Tie Lines.
-

CO LINE DEFINITION (PROGRAM 44)

Description:

- This enables the system programmer to define which lines are directly connected to a CO line or to a PABX line. If a line is classed as a PABX line, no toll restriction will be activated.

Programming:

- Press [#].
"Programming" is displayed.
- Dial 44.
"PO CO TRUNK" is displayed.
0 = PABX line
1 = CO line
- Enter 0 or 1.
- Press [#] to save and exit.

Conditions:

- Default value = "1111111".
- This program requires that all digits for that field must be entered regardless if the data is to be changed. An incorrect entry will not change the data; upon exiting the program, the old data will not be modified.
- Any data entered other than 0 or 1 will cause "ERROR" to be displayed and the system will exit the programming mode.
- If a line is classed as a PABX line, no toll restriction is applied.
- Field definition:

Trunk Number

	1	2	3	4	5	6	7	8
CO Signaling Data	x	x	x	x	x	x	x	x

EXTERNAL CALL FORWARDING (PROGRAM 45)

Description:

Specific incoming CO lines can be externally call forwarded to an outside telephone number.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 45.
"Forward Line Set" is displayed.
3. Enter [0] (Deny) or [1] (ALLOW) for each incoming CO line to be forwarded.
4. Press [#].
5. Program system speed dial bin #99 with the appropriate telephone number.
6. Press ALM/SD
"Dial Memory" is displayed .
7. Enter [99].
8. Enter [09] followed by telephone number for random selection of outgoing CO line -or-
Enter [81-88] followed by telephone number for specific selection of outgoing CO line.

Conditions:

- The allowed CO line, upon incoming seizure, will dial the telephone number stored in bin #99 on one of the other available CO lines.
- The connection will automatically be dropped in accordance with the timer as defined in Program 57.

Line Number:

1	2	3	4	5	6	7	8
x	x	x	x	x	x	x	x

- This program is available to the user, if desired, by using the user password to enable user programming (Program 04).***

*** = MV3

PRIVACY RELEASE/FLASH (PROGRAM 46)

Description:

This enables the system programmer to define whether privacy release or flash is activated on each central office line.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 46 .
"FLASH OR PRIVACY" is displayed.
3. Enter:
0 = Flash
1 = Privacy Release
4. Press [#] to save and exit.

Conditions:

- Default value is "000000".
- Each CO line is programmed on an individual basis either for privacy release or flash operation.
- Single line telephone is always set to flash.
- Field definition:

Line Number:

1	2	3	4	5	6	7	8
x	x	x	x	x	x	x	x

DIAL 9 ACCESS (PROGRAM 47) DIAL ACCESS (PROGRAM 48) **

Description:

This allows or denies access to individual trunks when the digit 9 (7)** is dialed for pooled access.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 47.
"Access Line by 9" is displayed.
"ACCESS CO: 0 NO: 1" is displayed.
3. Enter [0] or [1] for each line.
4. Press [#] to save and exit.

Programming: **

1. Press [#].
2. Dial 48.
"Access Line by 7" is displayed.
"ACCESS CO: 0 NO:1" is displayed.
3. Enter {0} or ({1} for each line.
4. Press [#] to save and exit.

Conditions:

- Default is 00000000.
- Each CO is programmed individually to be allowed or denied access from a station by dialing 9 [7].**
- Lines assigned in program 47 are available for prime line select.
- Field definition:

Line Number:

1	2	3	4	5	6	7	8
x	x	x	x	x	x	x	x

** = MV2

COMMON AUDIBLE RING (PROGRAM 49) **

Description:

This enables the system programmer the ability to assign individual lines to common audible ringing.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 49.
"Com Audible Ring" is displayed.
"COMMON: 1 NON: 0" is displayed.
"XXXXXXXX" is displayed.
3. Enter 0 = not assigned
Enter 1 = Assigned Common Audible Ring
4. Press [#] to save and exit.

Conditions:

- Default is 0000000.
- Common audible key appears in default on the second round key from the left on the attendant phone regardless of Program 49.
- Common audible key can be assigned in Program 80.
- Page circuit is disabled during incoming common audible ring.
- Stations assigned to ring in Program 61 and 61 ring regardless of common audible state.
- Station assigned as Operator turns feature on and off.

Note: This program requires that all digits for that field must be entered regardless if the data is to be changed. an incorrect entry will not change the data; upon exiting the program, the old data will not be modified.

** = MV2

CO FLASH TIMING (PROGRAM 50)

Description:

This enables the system programmer to define the length of a flash for a line defined as a CO line.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial [50].
"CO Flash Time" is displayed.
"xxxx" msec is displayed.
3. Enter the new flash time.
4. Press [#] to save and exit.

Conditions:

- Default value is set at 0000 msec.
 - The CO line Flash Time may range from 0 msec to 5000 msec.
 - If timer is set to 0000, flash is disabled.
 - If the value entered is over 5000 msec, 5000 msec is entered into the memory.
 - If value is an odd value, the value will be rounded off to an even number.
 - To accomplish Hookflash, press CO line that is being used.
 - **THIS PROGRAM REQUIRES THAT ALL DIGITS FOR THAT FIELD MUST BE ENTERED REGARDLESS IF THE DATA IS TO BE CHANGED. AN INCORRECT ENTRY WILL NOT CHANGE THE DATA; UPON EXITING THE PROGRAM, THE OLD DATA WILL NOT BE MODIFIED.**
 - Verify Flash is enabled in Program 46.
-

PABX FLASH TIMING (PROGRAM 51)

Description:

This enables the system programmer to define the length of a flash for a line defined as a PABX line.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 51.
"PO Flash Time" is displayed.
"xxxx" msec is displayed.
3. Enter new flash time "xxxx"
4. Press [#] to save and exit.

Conditions:

- Default value is set at 0600 msec.
- The PABX line flash time may range from 0 msec to 5000 msec.
- If timer is set to Ø Ø Ø Ø., flash is disabled.
- If the value entered is over 5000 msec, 5000 msec is entered into the memory.
- If the value is an odd value, the value will be rounded off to an even number.
- Verify Flash is enabled in Program 46.

Note: This program requires that all digits for that field must be entered regardless if the data is to be changed. an incorrect entry will not change the data; upon exiting the program, the old data will not be modified.

HOLD RECALL TIMER (PROGRAM 52) **

Description:

This enables the system programmer to define the length of time a CO line is allowed to be on hold before it recalls the station user.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 52.
"Hold Recall Time" is displayed.
Current data is displayed.
3. Enter new Hold Recall Time "xxx".
4. Press [#] to save and exit.

Conditions:

- Default value is set at 030 seconds.
- The Hold Recall Time may range from 0 seconds to 200 seconds.
- If 000 is entered, then Hold Recall is disabled.
- If the value entered is over 200 seconds, 200 seconds is entered into the memory.
- If the telephone is off hook during recall mode, the telephone will ring as soon as the telephone goes on hook.

** = MV2

TRANSFER RECALL TIME (PROGRAM 53)

Definition:

This enables the system programmer to define the length of time a call may ring on a transferred station before a line reverts back to the original station.

Programming:

1. Press [#].
2. Dial 53.
"TRSF Recall Time" is displayed.
Current data is displayed.
3. Enter new Transfer Recall Time information "xxx".
4. Press [#] to save and exit.

Conditions:

- Default value is 30 seconds.
- The Transfer Recall Time may range from 0 seconds to 200 seconds.
- If the values entered are over 200 seconds, 200 seconds will be entered into the memory.
- If 000 is entered, no recall will occur.***

Note: This program requires that all digits for that field must be entered regardless if the data is to be changed. an incorrect entry will not change the data; upon exiting the program, the old data will not be modified.

*** = MV3

ALARM TIME DURATION (PROGRAM 54)

Definition:

This enables the system programming to define the length of time the alarm will ring the telephone.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 54.
"Alarm Ring Time" is displayed.
Current data is displayed.
3. Enter new Alarm Ring Time data "xxx".
4. Press [#] to save and exit.

Conditions:

1. Default value is 10 seconds.
 2. The Alarm Time Duration may range from 0 seconds to 200 seconds.
 3. If the value entered is over 200 seconds, 200 seconds will be entered into the memory.
 4. The alarm timing is not reset unless a new time is entered.
-

TIME & DATE DISPLAY (PROGRAM 55)

Description:

This enables the system programmer or user the ability to adjust the time of day or modify the date.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 55.
"YY MM DD W HH MM" is displayed.
Current data is displayed.
3. Input new data.

YY = lasts 2 digits of year
MM = month of year (01 to 12)
DD = day (01 to 31)
W = weekday
HH = Hour (24 mode)
MM = Minutes (00 to 60)

0 = Sunday	}	Weekdays
1 = Monday		
2 = Tuesday		
3 = Wednesday		
4 = Thursday		
5 = Friday		
6 = Saturday		

4. Press [#] to save and exit.

Conditions:

- When setting 12 hour mode in Program 20, HH-MM must be set in 24 hour mode.
- This program is available to the user, if desired, by using the user password to enable user programming (Program 04).***

*** = MV3

EXECUTIVE PRIORITY INTRUSION TONE INTERVAL TIMER (PROGRAM 56)

Description:

This timer defines the interval for intrusion tone when the executive priority feature is engaged.

Programming:

1. Press [#].
"Programming is displayed.
2. Dial 56.
"Override alarm" is displayed.
3. Enter intrusion tone interval.
00 sec to 99 sec
4. Press [#] to save and exit.

Conditions:

- Intrusion tone is heard by both parties in conversation.
 - Default is 10 seconds.
 - Duration tone is 250 msec.
 - Set data to 00 seconds if no intrusion tone is desired or enable "override enable without intrusion tone" in Program 72.
-

CO TO CO CALL DURATION TIMER (PROGRAM 57)

Description:

This parameter defines the length of time for an unsupervised conference, a DISA call or an external call forward connection. The connection will automatically be dropped when this timer expires. *See MV3 note.*

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 57.
"CO/CO call time" is displayed.
3. Enter number of seconds.
Example: XXXSEC
4. Press [#] to save and exit.

Conditions:

- Default is 150 sec.
- Allowable time is 010 sec to 999 sec.
- MV3 allows users to extend talk time after hearing a disconnect warning tone.

*** = MV3

AUTO TIMER (PROGRAM 58)

Description:

On outgoing calls, display sets will automatically change to the start of the call timer. The timer will appear in accordance with this timer.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 58.
"Timer Delay Time" is displayed.
3. Enter xx (seconds) for the start of the automatic timer function.
4. Press [#] to save and exit.

Conditions:

- Default for the start of timer is 10 seconds.
 - After user has placed an outside call, the user may start the timer sooner by pressing the programmable timer key.
 - User may alternate between timer display and dialed number by successively pressing the timer key.
 - Auto timer operates with user's timer feature.
-

DOOR RELEASE TIMER (PROGRAM 59)**

Description:

This allows the programmer to select the duration of door lock release timer.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 59.
"Door Release TM" is displayed.
"XX.X SEC:" is displayed.
3. Enter XX.X seconds (00.1 to 10.0 seconds).
4. Press [#] to save and exit.

Conditions:

Default value is 03.0 seconds.

Door key may be assigned in Program 80 or (Program 18).**

** = MV2

C.O. LINE RINGING MODE (PROGRAM 60)

Description:

This feature enables the system programmer the flexibility to designate how C.O. lines ring to keysets on a system-wide basis.

Programming:

1. Depress [#]
"Programming" is displayed
2. Dial 60
3. "Incoming Ring Mode" is displayed. Press C.O. line.
4. Enter new data
0 = Individual ring mode
1 = Conditional ring mode
2 = Unconditional ring mode
3 = Distributed ring
5. Depress [#]

Programming:**

1. Depress "#"
"Programming" is displayed
2. Dial 60
"Trunk Ring Type" is displayed
3. Depress line key 1-8
Ring mode for each line is displayed
4. Enter new data per line
0 = Individual Ring
1 = Conditional ring mode
2 = Unconditional ring mode
3 = Distributed ring mode
New ring mode is displayed
5. Depress "#"

Conditions:

- Default value is "0"
- Individual ring mode: An incoming line will ring the first non-busy station in the order defined in Program 61 for night mode. If all stations are busy, off-hook ringing is sent to the 1st station programmed for the line ringing group (refer to Program 61 & 62)
- If individual ring is programmed, a phone can transfer its C.O. ringing to another phone by using call forwarding
- Conditional ring mode: An incoming line will ring all station(s) that are idle for that line ringing group (refer to Program 61 & 62)
- Unconditional ring mode: An incoming line will ring station(s) as defined in a line ringing group whether they are active or idle
- Distributed ring mode: an incoming C.O. line will ring all station(s) as defined in a line ringing group (refer to Program 61 & 62)
- To remove a station from the ring group, place their set in "do not disturb"
- ** = MV2

NIGHT MODE RINGING (PROGRAM 61) **

Description:

This feature enables the system programmer the flexibility to define which phone(s) ring on a per-line basis when the system is in the night mode.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 61.
"Night Ring Assign" is displayed.
3. Press the CO line key to be programmed Current data is displayed.
4. Press the DSS key of each phone that is to ring.
5. Press [#] to save and exit.

Conditions:

Default value has all CO lines ring station 4.

A CO line may have a maximum of 8 stations assigned to ring.

To modify ringing program, enter new ringing program sequence.

Stations 10 to 16 are displayed as A to G, respectively.

Field Definition:

Line Number:

1	2	3	4	5	6	7	8
x	x	x	x	x	x	x	x

** = MV2

DAY MODE RINGING (PROGRAM 62)

Description:

This feature enables the system programmer the flexibility to define which phone(s) ring on a per-line basis when the system is in the day mode.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 62.
"Day Ring Assign" is displayed.
3. Press the CO line key to be programmed Current data is displayed.
4. Press the DSS key of each phone that is to ring.
5. Press [#] to save and exit.

Conditions:

- Default value has all CO lines ring to station 4.
- A CO line may have a maximum of 8 stations assigned to ring.
- To modify ringing program, enter new ringing program sequence.
- Stations 10 to 16 are displayed as A to G, respectively.
- Field Definition:

Line Number:

1	2	3	4	5	6	7	8
x	x	x	x	x	x	x	x

DOORPHONE RING ASSIGNMENT (PROGRAM 63)

Description:

This feature enables the system programmer the flexibility to define which telephones are called by the doorphone.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 63.
"Door ring assign" is displayed.
3. Press the DSS key of each phone that is to ring.
4. Press [#] to save and exit.

Conditions:

- Default value is 1,2,3,4,5,6,7,8.
- A doorphone may ring a maximum of 8 stations.
- Stations 10-16 are displayed as A to G respectively.
- Field Definition:

Station Number:

1	2	3	4	5	6	7	8	A	B	C	D	E	F	G
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

RING OVER PAGE (PROGRAM 64) ****

Description:

This program enables the incoming trunk calls and door call to ring over an externally provided speaker when in the night service mode. The assigned CO lines will send a ring tone to the external page voice pair and ring the stations assigned in MMC #61.

Programming:

1. Press [#].
 "Programming" is displayed.
2. Dial [64].
 "Ring Over Page" is displayed momentarily, then the current data for all eight CO lines is displayed.
3. Enter the new data for the eight CO lines as follows:
 - 0 = No ring over page.
 - 1 = Ring over page.
4. Press [#] to save and exit.

Conditions:

- Default is 0.

**** = MV4

DISA SECURITY CODE (PROGRAM 65) ***

Description:

- This item allows the system programmer or user to modify the DISA security code.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 65.
"DISA Secu Code" is displayed.
"XXXX" Current Code is displayed.
3. Enter new password.
4. Press [#] to save and exit.

Conditions:

- Default password is 1234.
- Password must be four (4) digits.
- * and # are not allowed.
- Assign DISA lines in program 78.
- This program is available to users, if desired, by using user password to enable user programming. (Program 04)

*** = MV3

DO NOT DISTURB STATUS (PROGRAM 66) ***

Description:

This allows the system programmer, on a per station basis, to allow or deny the DND feature.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 66.
"Set DND status" is displayed.
"XXXXXXXXXXXXXXXXXXXX" is displayed.
3. Enter 0 = DND Disabled
Enter 1 = DND Enabled
4. Press [#] to save and exit.

Conditions:

- Default value is 111011111111111.
- Denying DND will disable status message function.
- Denying DND will not affect the MUTE function.
- DND is not available on the operator station.
- This program requires that all digits for that field must be entered regardless if the data is to be changed. an incorrect entry will not change the data; upon exiting the program, the old data will not be modified.

*** = MV3

HUNT GROUP RING MODE (PROGRAM 67) ***

Description:

This feature enables the system programmer the flexibility to designate how intercom calls ring to telephones in a hunt group.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 67.
"HNTGRP RING MODE" is displayed.
3. Dial group number (1,2 or 3).
Current ring mode is displayed.
4. Enter 0 = Individual
Enter 1 = Distributed individual
Enter 2 = Conditional
5. Press [#] to save and exit.

Conditions:

- Default value is Individual.
- Assign hunt group members in program 69.
- INDIVIDUAL RING - Calls will ring the lowest station number first. Caller will receive busy signal if all members are busy.
- DISTRIBUTED INDIVIDUAL - Calls will be distributed among all members of the group. A busy member will lose its turn in hunt sequence. Caller will receive a busy signal if all members are busy.
- CONDITIONAL - Calls will ring all members at the same time. If all members are busy, ringing is applied to the lowest station number if it is a keyset.
- CAMP-ON AND CALLBACK - Features cannot be applied to groups *1, *2 and *3.

*** = MV3

INTERNAL PAGE ZONE ASSIGNMENTS (PROGRAM 68) ***

Description:

- This program is used to assign telephones to one of three internal page zones or all call page.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 68.
"ASSIGN PAGE ZONE" is displayed.
"XXXXXXXXXXXXXXXXXXXXXXX" is displayed.
3. Enter new data for all stations:
 - 0 = Included in all page only
 - 1 = Zone 1
 - 2 = Zone 2
 - 3 = Zone 3
4. Press [#] to save and exit.

Conditions:

- Default value is 0000000000000000.
- Program 32 can disable internal paging regardless of status in this program.
- Station can be in only one zone.
- This program requires that all digits for that field must be entered regardless if the data is to be changed. an incorrect entry will not change the data; upon exiting the program, the old data will not be modified.

*** = MV3

STATION HUNT GROUPS (PROGRAM 69) ***

Description:

This program is used to assign a station to one of three (3) hunt groups.

Programming:

1. Press [#].
 "Programming" is displayed.
2. Dial 69.
 "STN HUNT GROUPS" is displayed.
3. Dial group number (1,2 or 3)
 "Group X:" is displayed.
4. Press DSS of up to 8 stations to be assigned to the hunt group.
5. Press [#] to save and exit.

Conditions:

- Default values are no stations assigned to hunt groups
- Press hold key to erase hunt group in step 4
- A station can be assigned to only one hunt group
- Stations 10-16 are displayed as A-G
- Hunt Group pilot numbers are *1, *2 and *3
- Set ring mode in program 67

Note: Only internal calls can be forwarded to a hunt group.

*** = MV3

ATTENDANT KEYSSET DESIGNATION (PROGRAM 70)

Description:

This feature enables the system user to define which keyset is to act as the Operator's station.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 70.
"Attend: Ext. 04" is displayed.
3. Input new data by pressing the new station's DSS key.
4. Press [#] to save and exit.

Conditions:

- Default operator station is station 4.
 - Operator places system into night mode by pressing DND key.
 - DND feature is not allowed on the attendant keyset.
 - If DND is flashing at a rate of 250 ms on/off, this signifies the system is in the night mode.
 - Dialing "0" on a station set will ring this designated attendant station.
 - Unsupervised recalls will return to this station.
-

SYSTEM SPEED DIAL PROGRAMMING

Description:

The MT-16H can have 90 System Speed Dial Numbers programmed. They are numbers 10-99. Each Speed Dial Number may have 30 digits.

Programming:

1. Press [ALM/SD] key (ALM/SD).
"Dial Memory" is displayed.
2. Select a number 10-99 to store your Speed Dial Number.
3. Dial the phone number to be stored.
4. Press the [ALM/SD]key to finish.

Note: Only speed dial numbers 90-99 require the programmer to enable MMC.*

Note: System speed dial bins 90-99 require the programmer to enable user MMC or system MMC. Bin 10-89 require user MMC to be enabled.***

Conditions:

- System speed dial overrides station toll restriction classes 1, 2 and 3 (If allowed in Program 71) Station toll restriction class 4 is not overridden.
- Each pause entered takes the place of a programmed digit.
- To clear a number, press [Hold] key after entering memory location.
- To insert a 3 second pause, use the [Hold] key. This can be inserted after the first digit has been entered or any time thereafter.
- This program is available to the user, if desired by using the user password to enable user programming (Program 04). ***
- To insert a hookflash (F), use the MSG button. ****
- To insert a pulse to tone changeover (C), use, the CONF button. ****

* = MV1

*** = MV3

**** = MV4

SYSTEM SPEED DIAL TOLL RESTRICTION (PROGRAM 71)

Description:

This feature enables the system programmer the ability to define whether the system allows or denies long distance numbers in system speed dialing to override toll restriction.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 71.
"Allow Toll" is displayed.
3. 0 = Allow speed dialing to override toll restriction.
4. 1 = Deny speed dialing to override toll restriction.
5. Press [#] to save and exit.

Conditions:

- Default is "0".
 - Will not override Class 4 restriction.
-

EXECUTIVE PRIORITY (PROGRAM 72)

Description:

Executive priority allows a station user to override an existing conversation based on class of service.

Programming:

1. Press[1].
"Programming" is displayed.
2. Dial 72.
"Override status" is displayed.
3. Enter Executive Override option:
0 = Override disable
1 = Override enable without intrusion tone
2 = Override enable with intrusion tone
4. Press [#] to save and exit.

Conditions:

- Default is 0.
- To define the interval of intrusion tones, refer to program 56.
- The following matrix defines possible override combinations:

		Called Station Toll COS					
		0	1	2	3	4	
Calling Station COS	0						Y = YES
	1						N = NO
	2						
	3						
	4						

- Override is permitted on both station to station and station to CO line connections. During dial tone, busy tone, etc., override is not permitted.
 - If overriding a station to station conversation, the COs of both parties are considered.
-

BOSS/SECRETARY COMBINATION (PROGRAM 73)

Description:

This feature identifies which station is defined as boss and which station is defined as secretary.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 73.
"Boss" is displayed.
3. Press the DSS key which is to be the Boss.
"Boss xx Sec." is displayed.
4. Press the DSS key which is to be the Secretary.
"Box xx Sec xx" is displayed.
5. Press [#] to save and exit.

Conditions:

- There is only one Box/Secretary group
 - If the Boss enables DND, all ICM calls are transferred to the Secretary, CO calls do not forward
 - Use Program 80 to define Boss/Secretary key. On all other key sets, this key is disabled.
-

CAMP ON TONE TIMER (PROGRAM 74)**

Description:

- This enables the programmer to select the interval of camp on tones to a station.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 74.
"Camp on Tone" is displayed.
XX: (current data is displayed)
3. Input new data.
XX: NN (new data is displayed)
4. Press [#] to save and exit.

Conditions:

- Default value is 00.
- Data range 00, 10-99
00 = 1 tone only
10 = 1 tone every second

** = MV2

AUTO REDIAL ATTEMPTS (PROGRAM 75) **

Description:

This enables the programmer to choose the number of times the system will attempt an auto redial.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 75.
"Repeat No. of ARD" is displayed.
XX: (current data is displayed)
3. Input new data.
XX:NN (new data is displayed)
4. Press [#] to save and exit.

Conditions:

- Default value is 03.
- Data range is 01 to 99 times.
- Auto redial key must be assigned in Program 80.

** - MV2

TRANSFER RECALL DESTINATION (PROGRAM 76) **

Description:

In the case where a single line telephone transfers a call, this program will enable the programmer to assign whether the call will recall to the single line telephone or the Operator. Valuable for automated attendant applications.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 76.
"TRSF TO XX" is displayed.
3. Input new data.
0 = transfer recall back to station
1 = transfer recall to operator
4. Press [#] to save and exit.

Conditions:

Default value is 0.

** = MV2

SINGLE LINE HOOKFLASH TIME (PROGRAM 77) **

Description:

This item allows the programmer to define the parameters of a valid hookflash from a single line telephone

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 77.
"SLT FLASH TIME" is displayed.
"LOWER LIMIT:XXXX" is displayed.
3. Input 4 digits (0040-1980 msec).
"UPPER LIMIT: XXXX" is displayed.
4. Input 4 digits (0060-2000).
5. Press [#] to save and exit.

Conditions:

- Default is 0160 msec lower limit, 0600 msec upper limit
- Lower and upper limit cannot match
- Entries must be in 20 msec increments
- To assign only lower limit, press [#] after step 3
- To assign only upper limit, press (*) after step 2

** = MV2

DISA LINE ASSIGNMENT PROGRAM (PROGRAM 78) ***

Description:

This program is used to assign lines to be used for the DISA feature.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 78.
"ASSIGN DISA" is displayed.
"XXXXXXXXXX" is displayed.
3. Enter
0 = NOT DISA
1 = DISA
4. Press [#] to save and exit.

Conditions:

- Default value is 0000000000.
- DISA password is assigned in program 65.
- The program requires that all digits for that field must be entered regardless if the data is to be changed. An incorrect entry will not change the data; upon exiting the program, the old data will not be modified.
- This program is available to the user, if desired by using the user password to enable user programming (Program 04).

*** = MV3

CENTREX/PBX CODE (PROGRAM 79) ****

Description:

This program enables you to inform the system of any PBX access codes (Max. 5 tables). The system will ignore these codes and apply toll restriction to the following digit as programmed.

Programming:

1. Press [#].
"Programming" is displayed.
2. Enter [79].
"PABX Access Code" is displayed.
3. Dial access code table 1 - 5.
4. Enter the PBX or CENTREX access code (maximum of three digits).
The access code may include 0 - 9 and *.
5. If you want to go to the next access code entry, press ALM/SD button.
6. Press [#] to save and exit.

Conditions:

- Dial buttons - Enter 1-5 for the dial access code cable number and then a maximum of three digits for the PBX or CENTREX access code.
- No default.
- Three digits for the PBX or CENTREX access code.
- ALM/SD button - Used to go to the next access code entry.
- HOLD - To clear data.

**** = MV4

STATION BASIS KEY ASSIGNMENT (PROGRAM 18) ***

Description

This program allows the system programmer or user to assign functions to the four (4) round buttons on an individual station basis.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 18.
"STN KEY PROGRAM" is displayed.
3. Press round button to be programmed. The default function key followed by the current function key is displayed.
4. Dial the selected code from table to change function of round button.

CODES

33 TIMER	34 AUTO ANSWER
35 AUTO REDIAL	36 BOSS/SECRETARY
37 INTERNAL PAGE	38 ATTENDANT
39 DOOR PHONE	40 COMMON AUDIBLE RING
41 GROUP LISTENING	42 ACCOUNT CODE
43 GROUP 1	44 GROUP 2
45 GROUP 3	

Conditions:

- Each key is programmed on an individual station basis
- If program 80 is used to assign a function to the four (4) round keys then it is on a system-wide basis
- See default keys, Figure 3
- This is a user program and is described in the user guide

*** = MV3

SOFT KEY PROGRAMMING (PROGRAM 80)

Description:

This feature defines what each soft key (all keys except key pad) is assigned as a function.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 80.
3. Press key to be programmed The default function of the key followed by the current function is displayed.
4. Dial selected code from table to change function of soft key.

CODES

01 - STATION 1	02 - STATION 2
03 - STATION 3	04 - STATION 4
05 - STATION 5	02 - STATION 6
07 - STATION 7	04 - STATION 8
09 - STATION 9	10 - STATION 10
11 - STATION 11	12 - STATION 12
13 - STATION 13	14 - STATION 14
15 - STATION 15	16 - STATION 16
17 - CO LINE 1	18 - CO LINE 2
19 - CO LINE 3	20 - CO LINE 4
21 - CO LINE 5	22 - CO LINE 6
23 - CO LINE 7	24 - CO LINE 8
25 - HOLD	26 - SPK BUTTON
27 - REDIAL	28 - MUTE/DND BUTTON
29 - EXT PAGE	30 - CONFERENCE
31 - MESSAGE	32 - ALARM/SPEED DIAL
33 - TIMER BUTTON	34 - AUTO ANSWER
35 - AUTO REDIAL	36 - BOSS SECRETARY
37 - INTERNAL PAGE	38 - AUTO ATTENDANT
39 - DOORPHONE	40 - COMMON AUDIBLE RING***
41 - GROUP LISTENING	42 - ACCOUNT CODE ***
43 - GROUP 1***	44 - GROUP 2***
45 - GROUP 3***	

Conditions:

- Each key programmed is a system-wide function.
- Boss/Secretary Key only operates on the Boss Secretary station. This key is disabled on all other sets.
- To assign four (4) round buttons on station by station basis see program 18.***
- See default keys, Figure 3.

** = MV2

*** = MV3

KEY TEST (PROGRAM 81)

Description:

This program item allows the installer to test all the LEDs and keys on a telephone set.

Programming:

1. Press [#].
 2. Dial 81 "Key Test" is displayed All LED's light and the telephone rings.
 3. Press all the keys on the telephone one-by-one to test the LEDs and determine their function.
 4. Lift handset from cradle then replace it to end the test.
-

STATUS MESSAGE DISPLAY (PROGRAM 82)

Description:

Station users are provided with up to 20 status messages that can be engaged from their telephone when leaving the office. Once activated, other users calling will receive a display of the status message (i.e., OUT TO LUNCH, IN A MEETING).

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial 82.
"Message Writing" is displayed.
"MSGX:" is displayed.
3. Program desired message using keypad and CO Line keys 1, 2 and 3. For example:
A = 2 + CO1
C = 2 + C.0.3
Press [Message Key] to insert space between words.
Press [Hold Key] to clear message.
Press [#] when finished.
4. To scroll through messages:
Press [*] to advance.
Press [O] to review.
Press [#] when finished.

Programming**

1. Press [#].
"Programming" is displayed.
2. Dial 82.
"Message Writing" is displayed.
"MSGX:" is displayed.
3. Program desired message using keypad. For example, each press of the [2] key displays A, B, C, 2 respectively.
4. Press [#] to save and exit.

Conditions:

- Up to 10 standard messages and 10 programmable messages are allowed.
- Standard messages included:
 1. DO NOT DISTURB
 2. IN A MEETING
 3. OUT OF TOWN
 4. ON VACATION
 5. OUT ON CALL
 6. OUT TO LUNCH
 7. IN TOMORROW
 8. PAGE ME
 9. RETURN AFTERNOON
 10. GONE HOME

• Dial pad function: **

0 = :, ., !, Ø	5 = J, K, L, 5	* = Display Set
1 = Q, Z, k, 1	6 = M, N, O, 6	ALM/SD = Backspace
2 = A, B, C, 2	7 = P, R, S, 7	MSG = Space
3 = D, E, F, 3	8 = T, U, V, 8	DSS = Message Location (DSS1-DSS10)
4 = G, H, I, 4	9 = W, X, Y, 9	HOLD = Erase

- This program is available to the user, if desired by using the user password to enable user programming (Program 04).

** = MV2

*** = MV3

OFF HOOK ROUTING (PROGRAM 83) ****

Description:

This program is used to assign a hotline/primetime destination for each station. The destination may be one of the following:

- Station
- Station Group
- Trunk
- Trunk Group
- System Speed Dial Number

Programming:

1. Press [#].
2. "Programming" is displayed.
3. Dial [83].
"Hot and Warm Line" is displayed.
4. Press the DSS key of the station to be programmed, for example, DSS 02 "EXT02:" and the current date is displayed.
5. Enter the new data for the desired hot/warm line destination as follows:
 - For a station, press the associated DSS button.
 - For a station group, press * plus 1 - 3 (* + 1,2,3).
 - For a trunk, press the associated CO line button.
 - For a trunk group, dial 9 for trunk group 9 or 7 for trunk group 7.
 - For a system speed dial, dial 10 - 99.
 - To clear the data, press your own DSS button.

**** = MV4

HOTLINE DELAY TIME (PROGRAM 84) ****

Description:

This program is used to set the amount of time for the hotline delay. Station users with hotline-delay will be connected to their hotline destination after this timer has expired.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial [84].
"Warm Line Display" is displayed.
3. Press the DSS key of the station to be programmed, for example, DSS 02.
"Ext02: xx sec" and the current time is displayed.
4. Enter the new data (00 - 99 sec).
5. Press [#] to save and exit.

Conditions:

- Default = 05

**** = MV4

DELAYED RINGING (PROGRAM 85) ****

Description:

If you select "individual Ring Mode" in MMC 60, the first station will ring until the hunt delay time (MMC85). After the delay time, a second station begins to ring, then the next one, and so on.

@ Hunt delay time:

1. Press [#].
"Programming" is displayed.
2. Dial [85].
"Hunt Dly:010S" is displayed.
3. Enter the hunt delay time (3 digits) from 001 to 250 seconds.
4. Press [#] to save and exit.

Conditions:

- Default = 010

**** = MV4

DTMF DURATION (PROGRAM 86) ****

Description:

This program is used to change the DTMF duration.

Programming:

1. Press [#].
"Programming" is displayed.
2. Dial [86].
"DTMF DUR: 0100MS" is displayed.
3. Enter the DTMF duration time (4 digits) from 0100 to 2500 msec.
4. Press [#] to save and exit.

Conditions:

- Default = 0100

**** = MV4

HALT PROCESSING (PROGRAM 90) ****

Description:

This program is used to reduce the call activity to zero, so that the system may be powered down without disconnecting any calls in progress. The technician level password is needed for this MMC.

Programming:

1. Press [#].
 "Programming:" is displayed.
2. Press [90].
 "Passcode" is displayed.
3. Enter the technician passcode.
4. Using the keypad, dial 0 or 1 for halt and processing.
 0 = Processing
 1 = Halt
5. Press [#] to save and exit.

Conditions:

- Default = 0

**** = MV4

Section 8

TROUBLESHOOTING DURING INSTALLATION

System does not operate.	No AC input from wall socket	Meter Verify 110VAC at outlet.
	Red LED on Main Equipment	<ul style="list-style-type: none"> • Check Battery power fuse. • Check battery connection for correct polarity. • Power supply unit is not working properly.
Extension does not operate properly.	No LEDs or display	<ul style="list-style-type: none"> • Bad or open connection to the telephone. • Data pair is reversed. • Phone is bad; very phone on another working extension port.
External Paging	No Page Noise over Page	<ul style="list-style-type: none"> • Verify audio contacts are correct. • Use shielded cable to amplifier input. • Verify input matches amplifier. • A short, shielded input cable is recommended.
Music on Hold	No Music	<ul style="list-style-type: none"> • Disconnect external MOH source from KSU and Verify internal MOH works. • Verify no loose connections.
No one can make or receive CO calls.		<ul style="list-style-type: none"> • Verify dial tone at the DEMARC. • Replace connecting cords. • Verify programming.
Function Buttons	Functions not working properly	<ul style="list-style-type: none"> • Verify soft key programming. • Refer to users guide for complete description of function.
Extension does not operate.	One extension	<ul style="list-style-type: none"> • Check line and handset cord. • Unplug the extension and plug it again. • Verify at working port.
Phone does not ring.		<ul style="list-style-type: none"> • Check volume control on side of telephone.
System does not operate.	Re-initialize	<ul style="list-style-type: none"> • Soft Initialize - Use Program 25-1 to reset the system. Turning off the AC power does the same. Clears: calls on hold, camps. • Check ring Program of #60, #61 and #62. • Hard initialize - Program 25-2 to reset the system. Turning off the power and removing the RAM battery does the same. Clears: All call processing, all data stored in RAM Memory.

DIP SWITCHES

Main PCB Dip Switches

Dip 2	RAM Battery	Page 30
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SMDR Dip Switches

Dip 1, 2	Page 27
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Expansion Card Dip Settings

MT/STU/C Dip Switch (E&M Tie Lines)	Page 23
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