NT 7M25 AA
B1C012
Rel 011

NT 7M26 AA-0A

FOUR CHANNEL BASIC PROGRAM (FOR USE WITH NT7M SERIES DIGITAL ANNOUNCERS)

OPERATION

CONTENTS PAGE

1. GENERAL INFORMATION

1.01 Each of the Digital Announcers has an EPROM (Erasable Program able Read Only Memory) Integrated Circuit which determines its functional operation. This is a fixed memory which is factory programmed to contain the control routines for each of the processor's tasks. Once an EPROM has been installed in a Digital Announcer, it always responds in the same manner to control signals or user inputs. A typical programmed EPROM (called Firmware) is show in figure 1.

1.02 The Four Channel Basic Program is included as original equipment in standard Four Channel Digital Announcer units. It may also be purchased separately (as a Firmware Kit) and installed in any other type of Digital Announcer if it is necessary to change the operating characteristics of a unit without returning it to the factory. Table 1 lists the Four Channel Basic Program specifications.

WARNING

This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with the instructions given in this manual, it may cause interference to radio communications. It has been tested for compliance within the limits for Class A computing devices persuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which a case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

If this equipment is to be connected to standard telephone lines through an interface circuit, or is to be operated as part of a PBX system, it must also comply with part 68 of the FCC regulations. The installation instructions included with each of the interface circuits covers the required cautions and user actions.

1.03 If this equipment is determined to cause electrical interference, which can be verified by turning the Digital Announcer on and off, please consult the Maintenance Section for troubleshooting tips.

1.04 References

60-NT7M-100 NT7M Series Digital Announcer Equipment Description

60-NT7M-200 NT7M Series Digital Announcer Installation Procedures

60-NT7M-400 NT7M Series Digital Announcer Maintenance Procedures

For additional information, contact:

Product Service (Dept. 306)
Northern Telecom
Cook Electric Division
6201 Oakton Street
Morton Grove, Illinois 60053
Telephone (312)-967-6600
Telex I 72-4472
Telex II 910-223-3654
Cable "Cookpro"

2. CONTROLS AND INDICATORS

2.01 The Digital Announcer has been designed with both microprocessor and memory located on a main circuit board in the Control Processor Chassis. The Controls and indicators (identified in figure 2) are designed to serve several functions in order to reduce the size and complexity of the front panel.

2.02 Power, Battery, and Option Switches are located on the rear panel of the chassis (figure 3). Feature selection (i.e., the user programmable choices) are covered elsewhere in text.

2.03 The Expansion Chassis holds the additional circuitry necessary for audio channels 2, 3, and 4 (there is also room for mounting interface circuits such as Ring Trip Access). Option switch and control locations for the Expansion Chassis are also shown in figures 2-3.

3. QUICK OPERATING REFERENCE

3.01 For those who are already familiar with the operating principals of the Digital Announcer, a quick operating reference is presented (see chart 1). First time or infrequent users should follow the more detailed steps found in the complete operating instructions. Supplemental features such as SIT and extra C/MC pulses is covered in the special features operating instructions.

4. COMPLETE OPERATING INSTRUCTIONS

INITIAL SET UP

4.01 Although the Digital Announcer may be set up in a temporary capacity to verify or demonstrate its operation, the Announcer should be located in its final operating position (permanently installed) and wired to power, telephone lines or audio circuits, and any other external equipment before it is put into active announcement service. Because the Announcer generates, uses, and can radiate radio frequency energy, proper installation and grounding are of prime importance in controlling radio frequency interference.

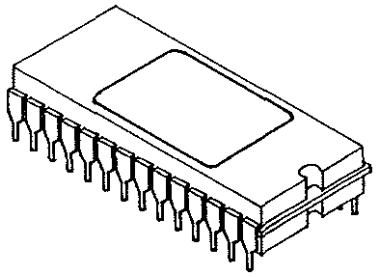
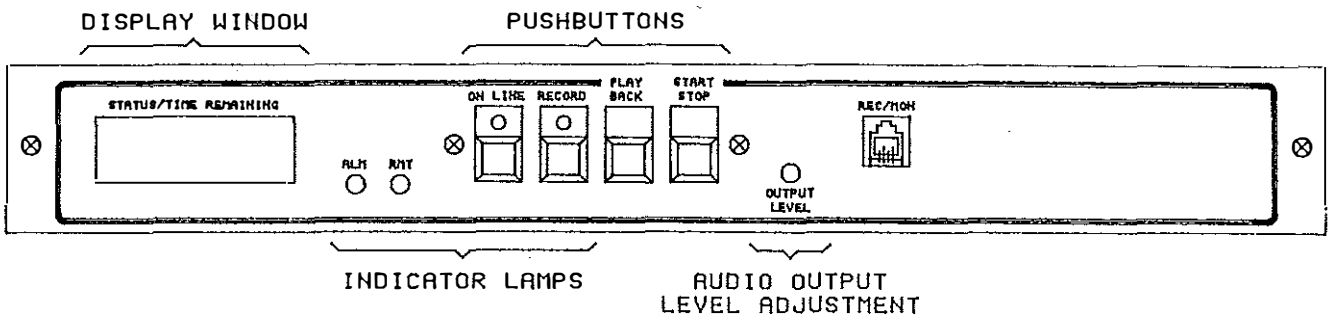
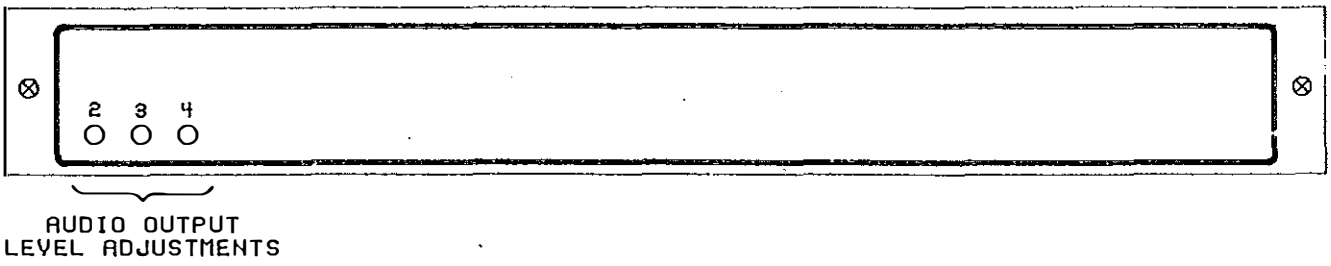


Fig. 1 - Programmed Firmware (EPROM IC)

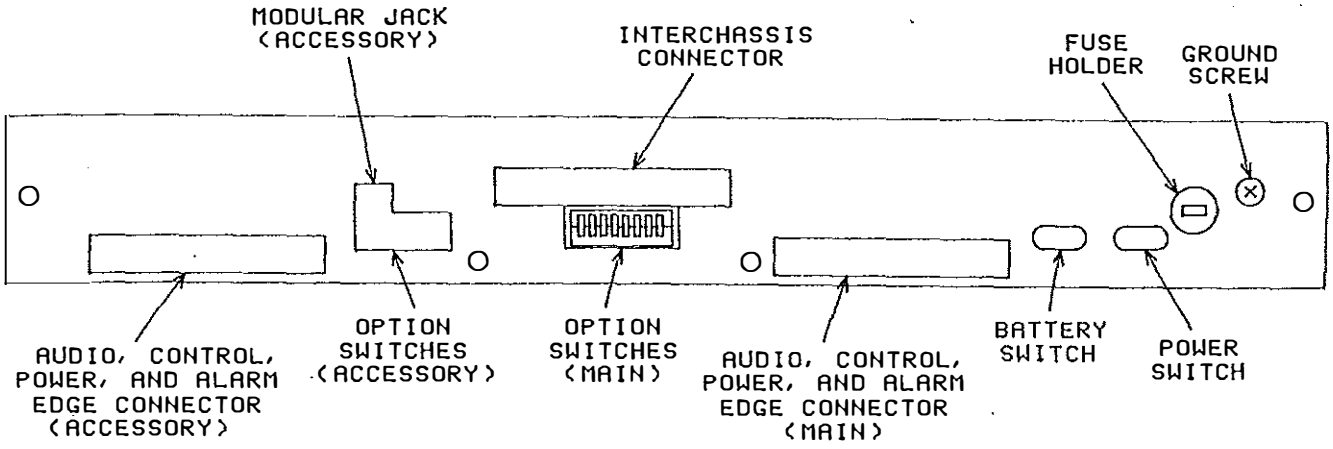


CONTROL PROCESSOR CHASSIS

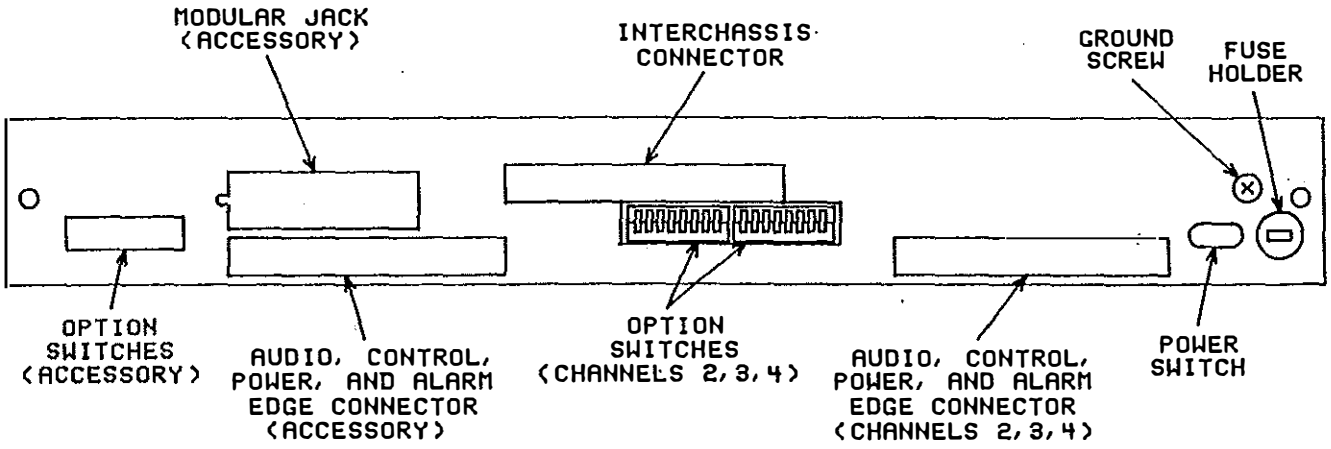


EXPANSION CHASSIS

Fig. 2 - Digital Announcer, Front Panel Layout



CONTROL PROCESSOR CHASSIS



EXPANSION CHASSIS

Fig. 3 - Digital Announcer, Rear Panel Layout

Table 1. Basic Four Channel Firmware Operating Specifications

CHARACTERISTIC	DESCRIPTION
Program Number	NT7M41AA Firmware
Audio Output	4 Independent Channels
Output Sequence	Message available immediately upon Start request; Configurable to Demand Start or Continuous Output
Message Quantity	4 Audio Announcements (message may have repeat directions, multiple language instructions, etc.)
Message Length	Variable (1 second to maximum memory capacity)
Announcement Start Options	4 Separate Start Inputs Pulse Start (250 ms minimum pulse width) Level Start (allows immediate output cancel) Continuous Run (hardwired; permits constant audio)
Message Counter	0 to 999,999 cumulative (Peg Count)
External Equipment Control Signals	2 Relay Switched Outputs (1 C Lead, 1 MC Lead) 250 millisecond control pulse duration Automatic Beginning- and End-of-Message signals Up to 20 user programmable intermediate signals
SIT Codes	32 combinations of 3 sequential tones (see Notes) (5 frequencies, 2 time periods) Individually Selectable for each Message
Function Alarms	8 error conditions detected AL-0 Power Failure (Initial) AL-1 Memory Failure (lnitial) AL-2 Audio Output Fault (Low Level) AL-3 No Message Recorded (Memory Empty) AL-4 Program Interrupt (Operating) AL-5 Processor Memory Fault (Operating) AL-6 Message Memory Fault (Operating) AL-7 Firmware Fault (Operating)
Compatible Accessories	Battery Backup Memory Expansion Ring Trip Access Remote Record / Ring Trip

Notes: 1. Not all of the 32 SIT Codes are assigned at this time.
2. Sample messages for some SIT Codes are not yet released.
3. SIT Codes can not be enabled if 22 kHz sampling rate is selected.

Chart 1. Quick Operating Reference for Four Channel Basic Digital Announcer

DIRECTIONS: Locate the desired operation and follow the steps in order. If any step is unclear or something is not covered, refer to the Complete Operating Instructions for a more thorough explanation.

IMPORTANT: The Digital Announcer must be put in ON LINE state after recording a new announcement; message start requests will be ignored in any other mode.

STEP	CONDITION	ACTION	RESULT
FIRST TIME TURN ON			
1	No Display No Lamps Lit	Turn POWER and BATTERY switches to ON position	Alarm condition detected and power fault indicated
2	AL-0 Displayed ALM Lamp Lit	Press START / STOP button once	Total memory capacity (in seconds) indicated
3	32 to 518 Displayed No Lamps Lit	Press START / STOP button once	Internal tests completed; unit is ready to record messages
RECORDING MESSAGE			
1	SEL Displayed No Lamps Lit	Plug Handset or Cassette Cord into REC / MON jack	Interlock Circuit enabled (new message recording is permitted)
2*	SEL Displayed No Lamps Lit	Press RECORD button as needed to select channel	Record circuits activated and memory capacity is indicated
3	32 to 518 Displayed RECORD Lamp Lit	Press START / STOP button once and begin message	Recording process commences; audio is loading into memory
4	Display counts down RECORD Lamp Lit	Press START / STOP button once	Recording process ends; audio message is stored in the unit
5**	SI01 to 32 Displayed RECORD Lamp Lit	Press ON LINE or RECORD to change; press START / STOP to enter selected SIT Code	SIT Code characteristics will be stored in memory immediately preceeding the recorded message
PLAYING BACK MESSAGE			
1*	SEL Displayed No Lamps Lit	Press PLAYBACK button as needed to select channel	Playback circuits activated and total message length indicated
2	32 to 518 Displayed No Lamps Lit	Press START / STOP button once and monitor message	Playback process commences; message is played back once

* Press RECORD or PLAYBACK button once to select channel one, twice for channel two, three times for channel three, and so forth.

** This step will not be present unless SIT circuitry has been enabled (rear panel)

Chart 1. Quick Operating Reference for Four Channel Basic Digital Announcer (contd)

STEP	CONDITION	ACTION	RESULT
PLACING ANNOUNCER ON LINE			
1	SEL Displayed No Lamps Lit	Press ON LINE button once (OFF LINE = no messages)	All message requests are ignored (only Remote Record can be used)
2	OFF Displayed No Lamps Lit	Press ON LINE button once (ON LINE = active audio)	Announcer can now interact with external equipment (start inputs)
3*	No Display ON LINE Lamp Lit	Request message through external start (call in)	Each valid request for a message will be met with an announcement
4	1 to 4 Displayed ON LINE Lamp Lit	Disconnect to terminate message (i.e., hang up)	Unit is again ready for next valid message request
5	No Display ON LINE Lamp Lit	Remove cord from REC / MON jack	Recorded message is now safe from unauthorized tampering
OBTAINING PEG COUNT			
1**	Any Display ON LINE Lamp Lit	Press PLAYBACK button as needed to select channel	Peg Count is repeated in 2 seg- ments (for example: PC01, 2546)
2	PCxx,xxxx Display ON LINE Lamp Lit	Press START / STOP button once	Display returns to monitoring message activity
TAKING ANNOUNCER OFF LINE			
1	1 to 4 Displayed ON LINE Lamp Lit	Simultaneously press START / STOP and ON LINE buttons	Unit ignores new start requests; outgoing message will continue
2	Flashing Display ON LINE Lamp Lit	Again press START / STOP and ON LINE simultaneously	Ends current message immediately; unit is ready to record messages
OBTAINING FIRMWARE IDENTIFICATION NUMBER			
1	SEL Displayed No Lamps Lit	Press START / STOP button once	ID number is displayed in 4 seg- ments (ex: 1001, r- 3, 6Ab3, 0821)

* Display will show immediate channel activity at this time if the Digital Announcer has been wired for continuous operation.

** Press RECORD or PLAYBACK button once to select channel one, twice for channel two, three times for channel three, and so forth.

ALARM CONDITIONS

4.02 At the completion of the installation procedure, the Announcer power will be applied and the display will indicate AL-0. (This may not be the case if the Digital Announcer has already been installed and in use.) Press the START/STOP button once to clear the AL-0 display; if it remains or is replaced by another AL-type display, consult the Digital Announcer Maintenance section before attempting to proceed. The error conditions detected and their corresponding alarm codes are listed in table 1.

RECORDING MESSAGES

4.03 The voice information must be recorded into the announcement equipment before it can be made available for individual message requests. Messages can be recorded directly into the Digital Announcer by speaking into one of the accessory handsets, or by transferring audio from another source (a prerecorded cassette, for example).

NOTE: Momentary disruption of power could cause a corruption of the audio message (necessitating complete rerecording of the announcement). The memory back up depends on rechargeable batteries which can take up to 14 hours to reach fully charged condition.

4.04 A record interlock prevents accidental erasure or unauthorized tampering with the stored messages. The Digital Announcer cannot be placed in RECORD mode unless a telephone handset or low impedance audio source is connected to the front panel monitor jack.

4.05 Once all the alarms have been cleared, the number displayed on the Digital Announcer indicates the total amount of memory (in seconds) which is available for storing the message. Time the message so that it does not exceed this value. When satisfied with the length of the announcement, press the START/STOP button to clear the time and ready the Announcer for recording.

4.06 If Special Information Tones are required to identify the content of the message, the SIT circuitry must be enabled before the message is recorded (lnstructions for doing this are found in the SPECIAL FEATURES paragraphs).

4.07 The Digital Announcer display of SEL indicates that the unit is ready for the user to select an operating mode. Insert the handset plug or audio cord into the front panel jack and press the RECORD button. The RECORD lamp will light and the display will alternate between the channel (message) number and the number of unrecorded seconds of time the Announcer has available. If the RECORD lamp does not light, refer to the Maintenance Section for assistance.

4.08 If extra C/MC pulses are desired (to control external equipment, serve as timing references, etc.), the pulses must be programmed into the Digital Announcer during recording (Instructions for doing this are found in the SPECIAL FEATURES paragraphs).

4.09 When ready to record the message, press the START/STOP button and speak in a normal voice into the handset (or adjust the audio source to a normal volume level and start the playback). The Digital Announcer display will count down the number of remaining seconds of unrecorded time as the message is being stored in memory. A pause in the recording (but not in the finished message) may be effected at any time by pressing the RECORD button once to halt the process and once again to continue.

4.10 When the last word of the message is stored, press START/STOP immediately to end the recording. If the SIT circuitry has been enabled, the display will indicate a SIT Code and wait for the user to accept it or enter a new one. The Announcer will then drop out of the Record mode and return to its previous SEL display. Chart 2 summarizes the SIT selection steps in graphic form.

Chart 2. Four Channel Basic Firmware Program - Initial Set up

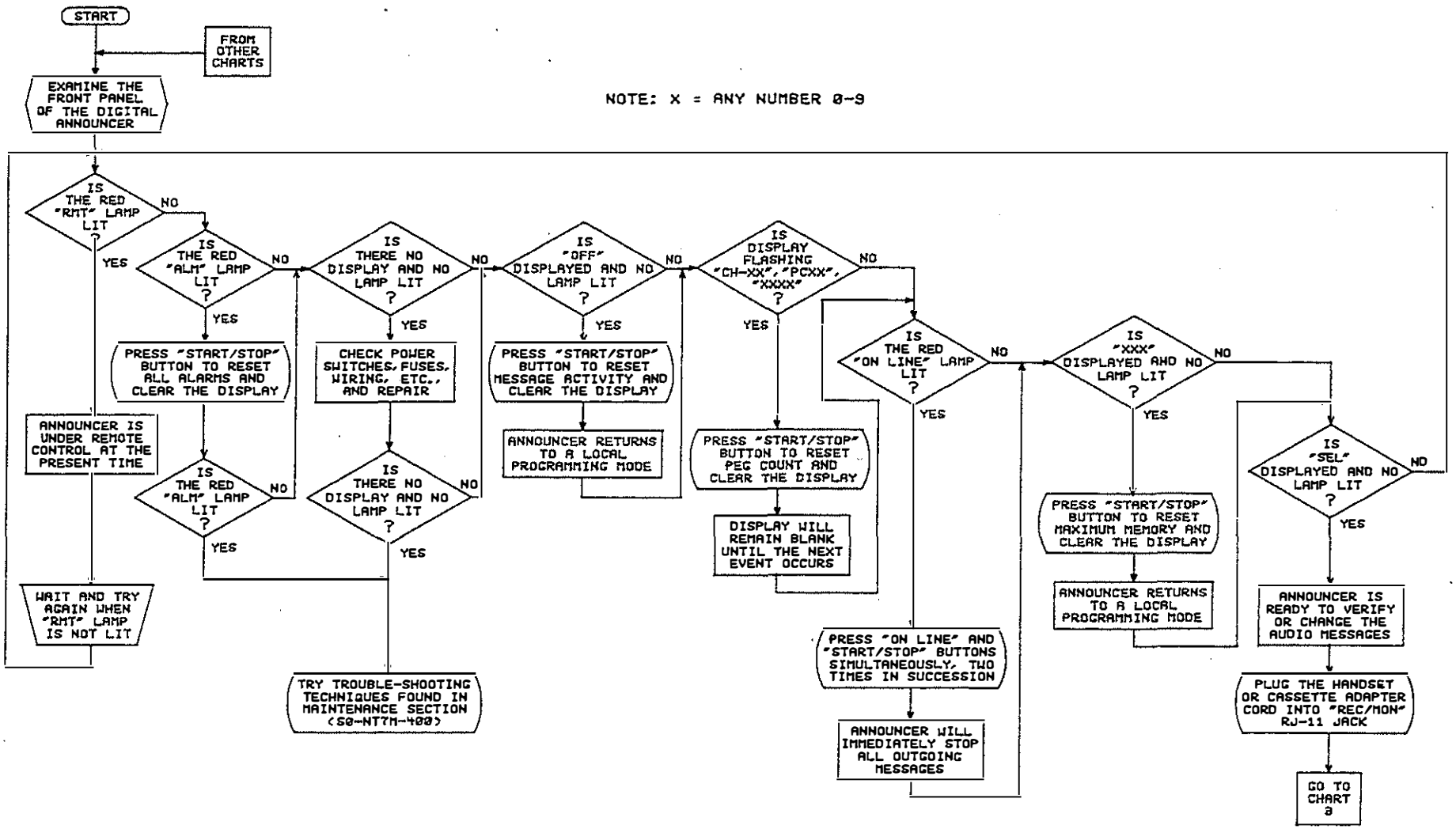


Chart 3. Four Channel Basic Firmware Program - Local Programming

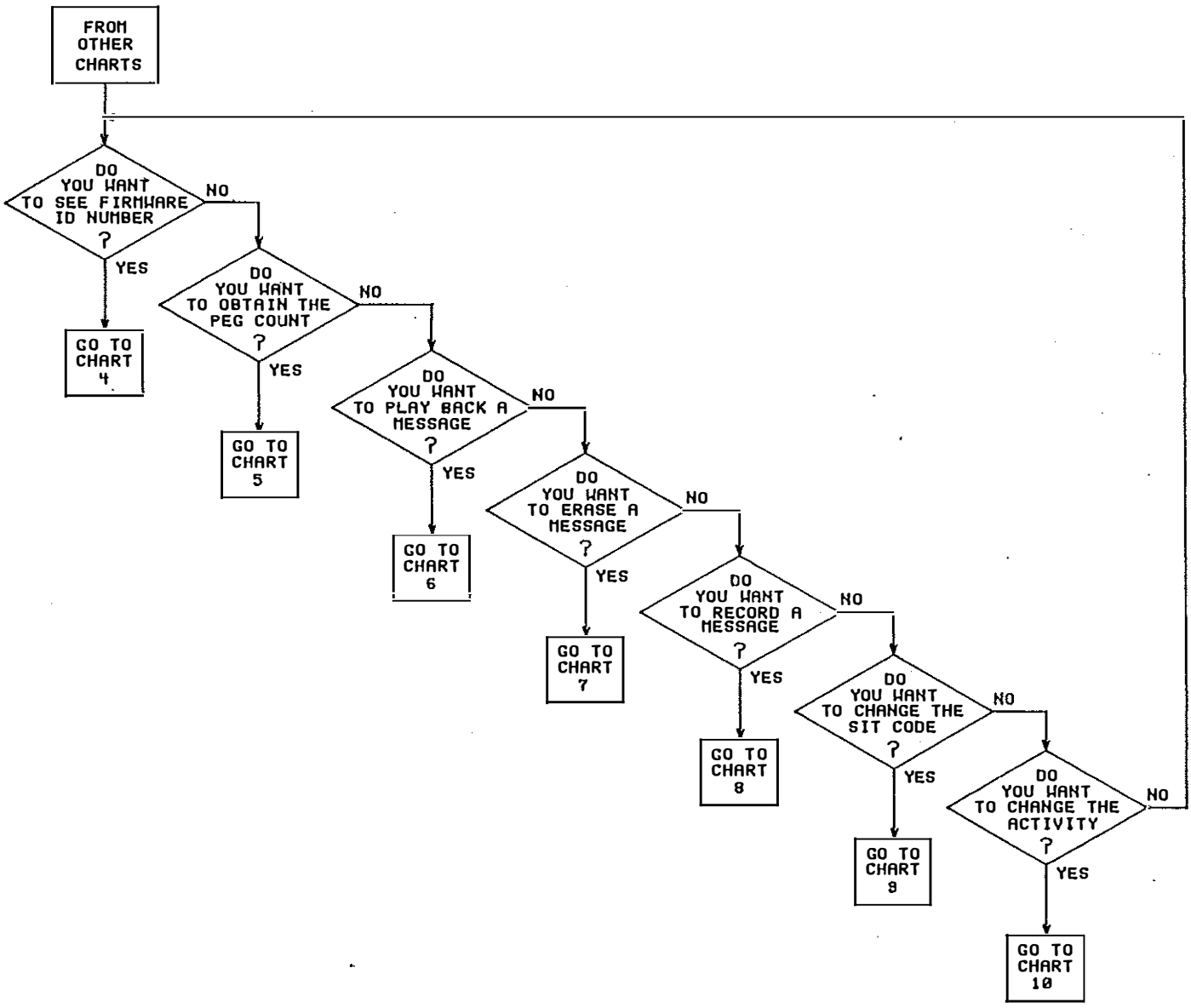


Chart 4. Four Channel Basic Firmware Program - Firmware ID Number

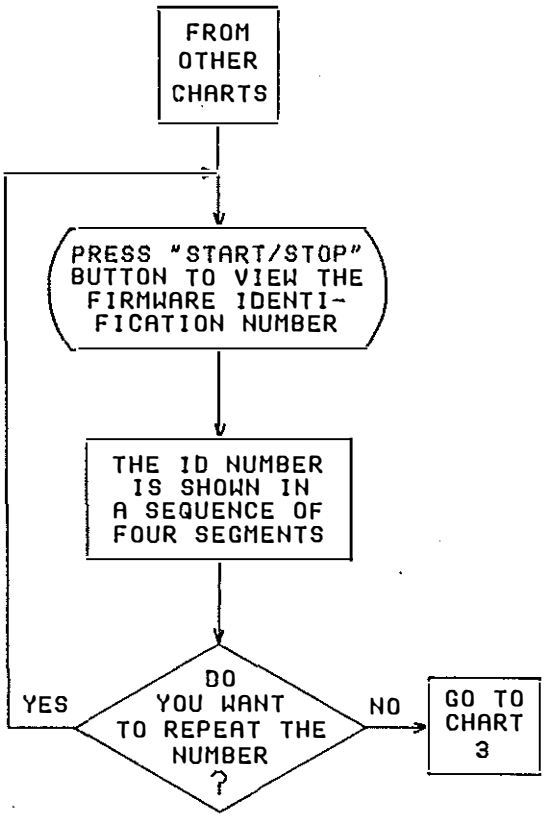


Chart 5. Four Channel Basic Firmware Program - Peg Count

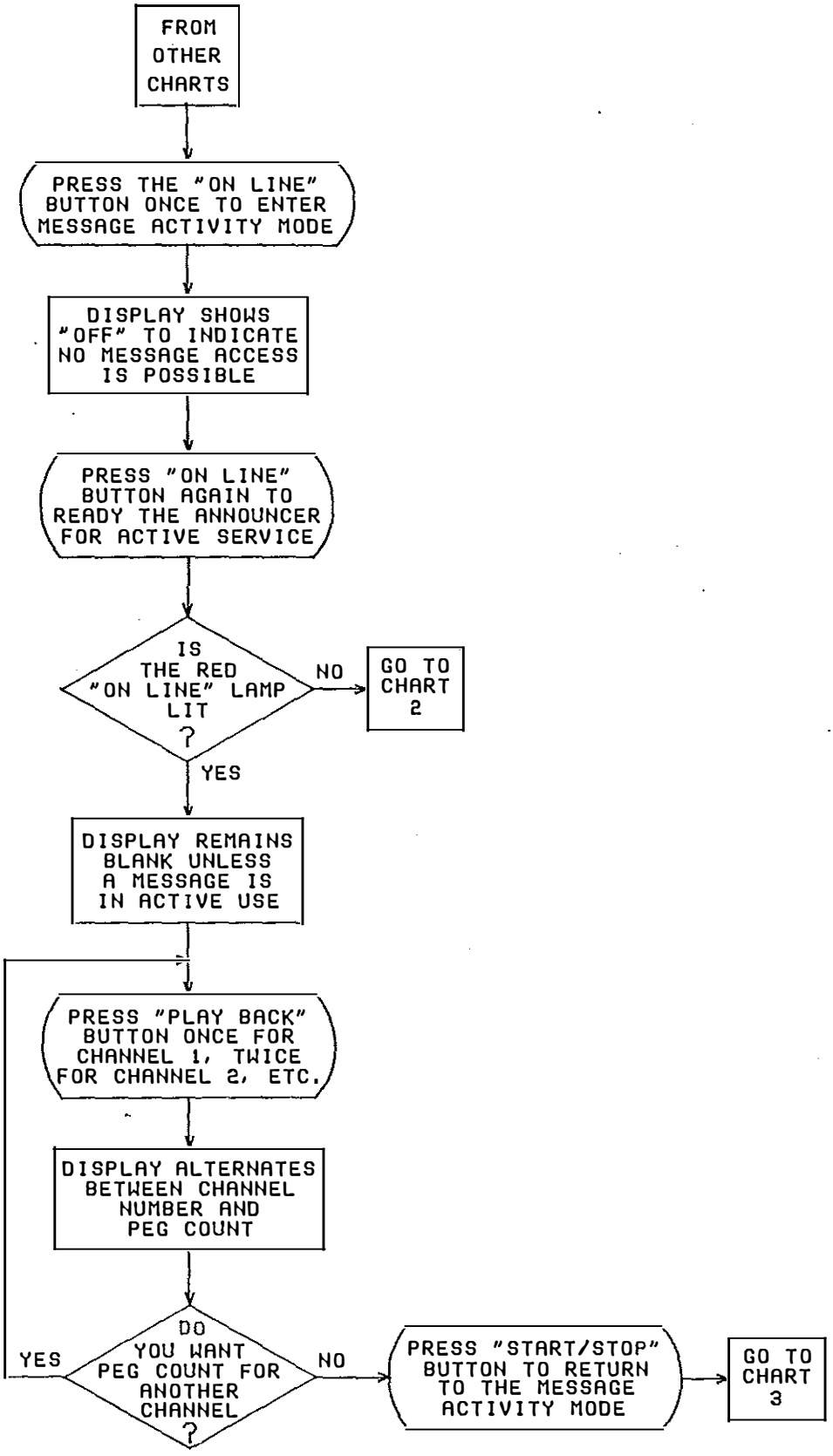


Chart 6. Four Channel Basic Firmware Program - Playback

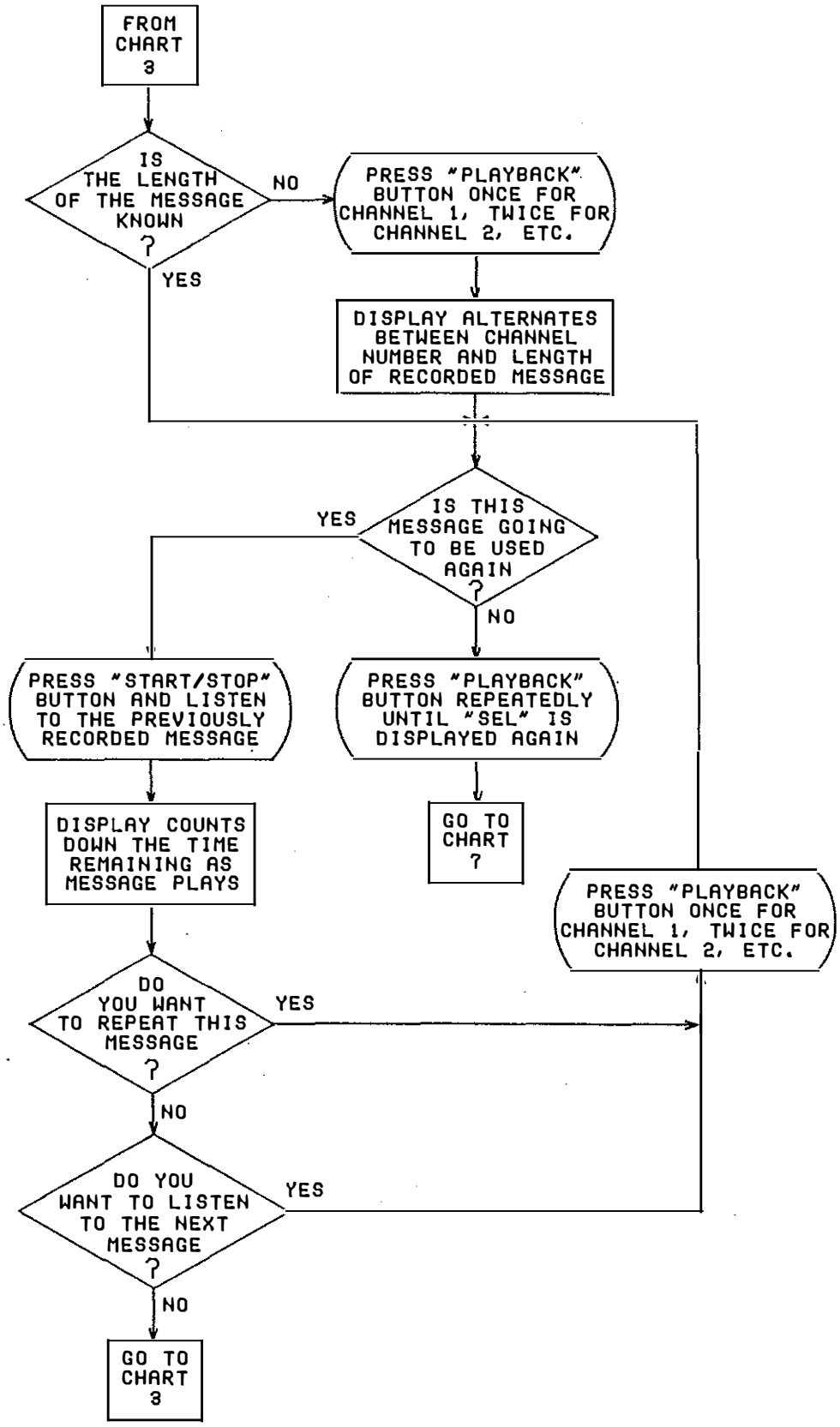


Chart 7. Four Channel Basic Firmware Program - Erase

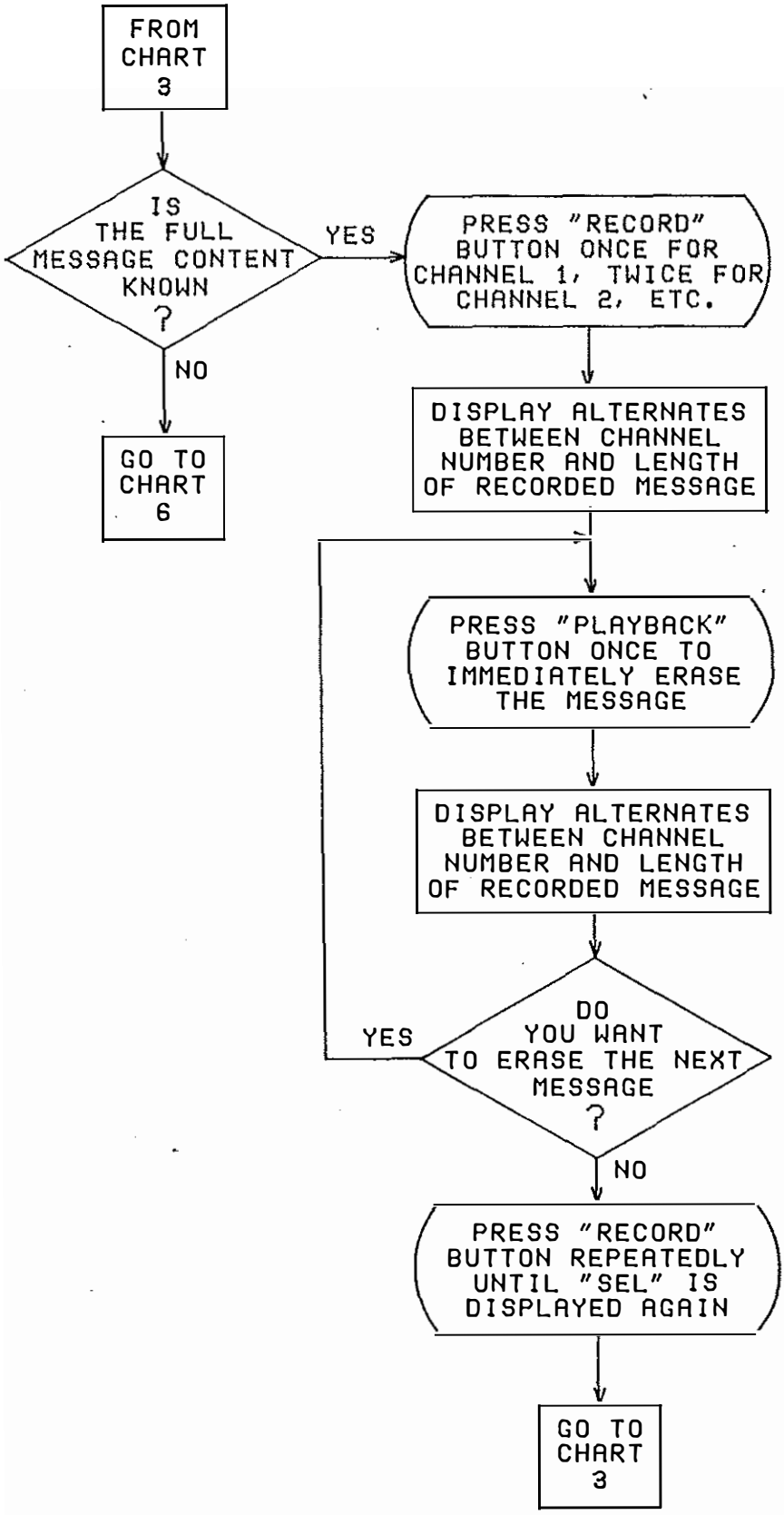


Chart 8. Four Channel Basic Firmware Program - Record

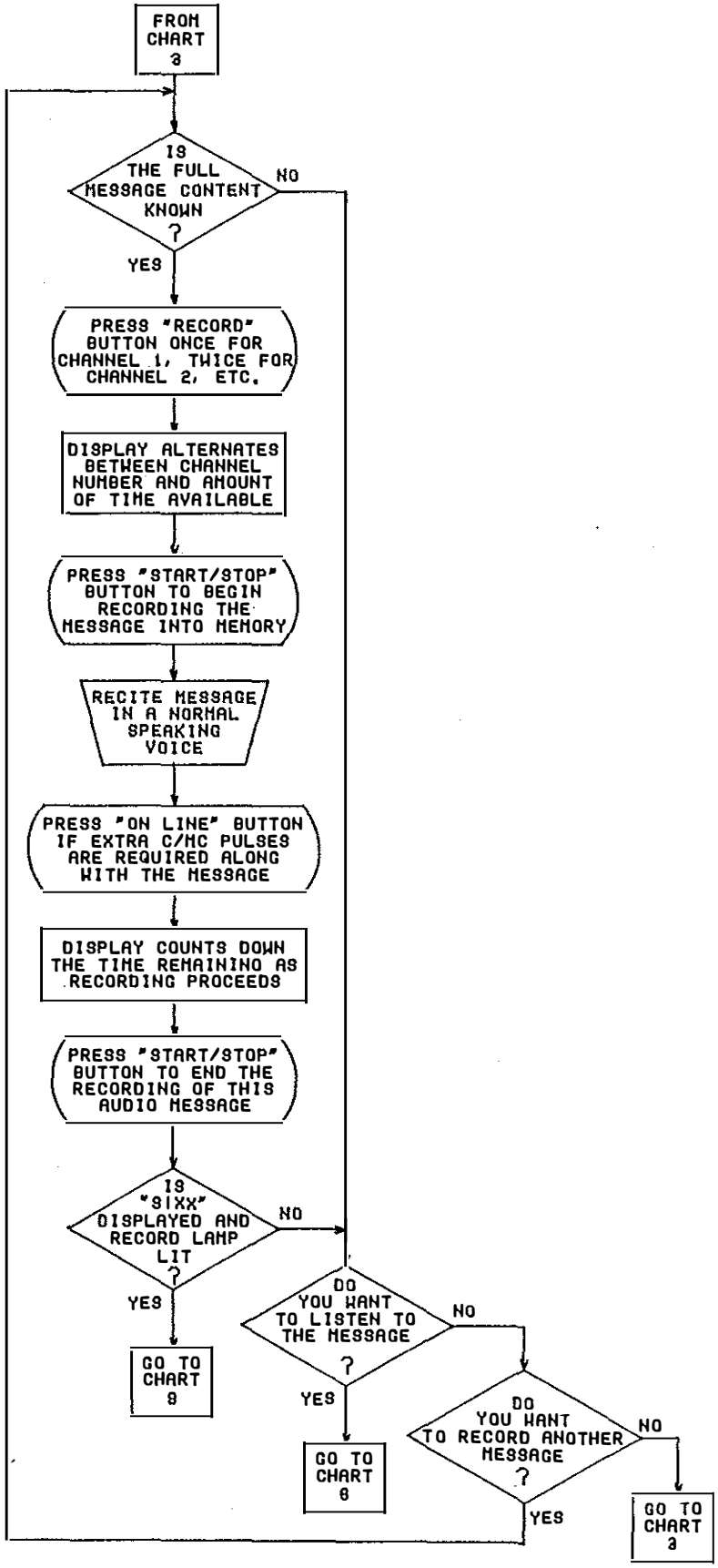


Chart 9. Four Channel Basic Firmware Program - Sit Codes

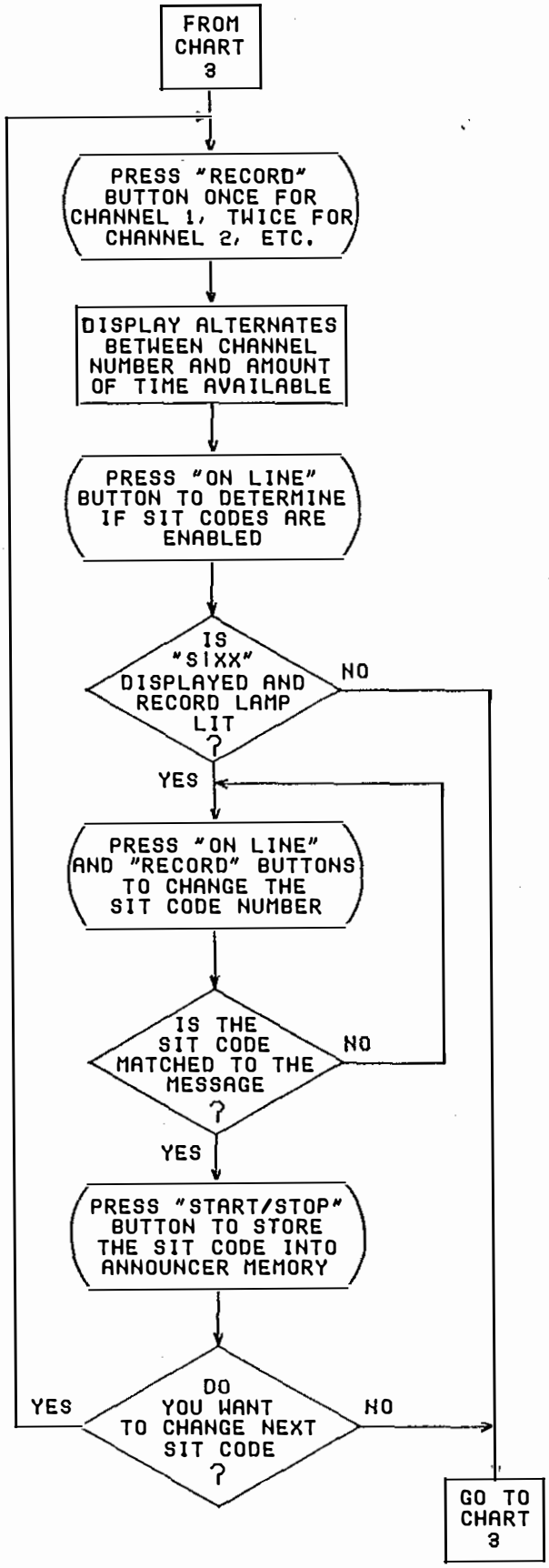
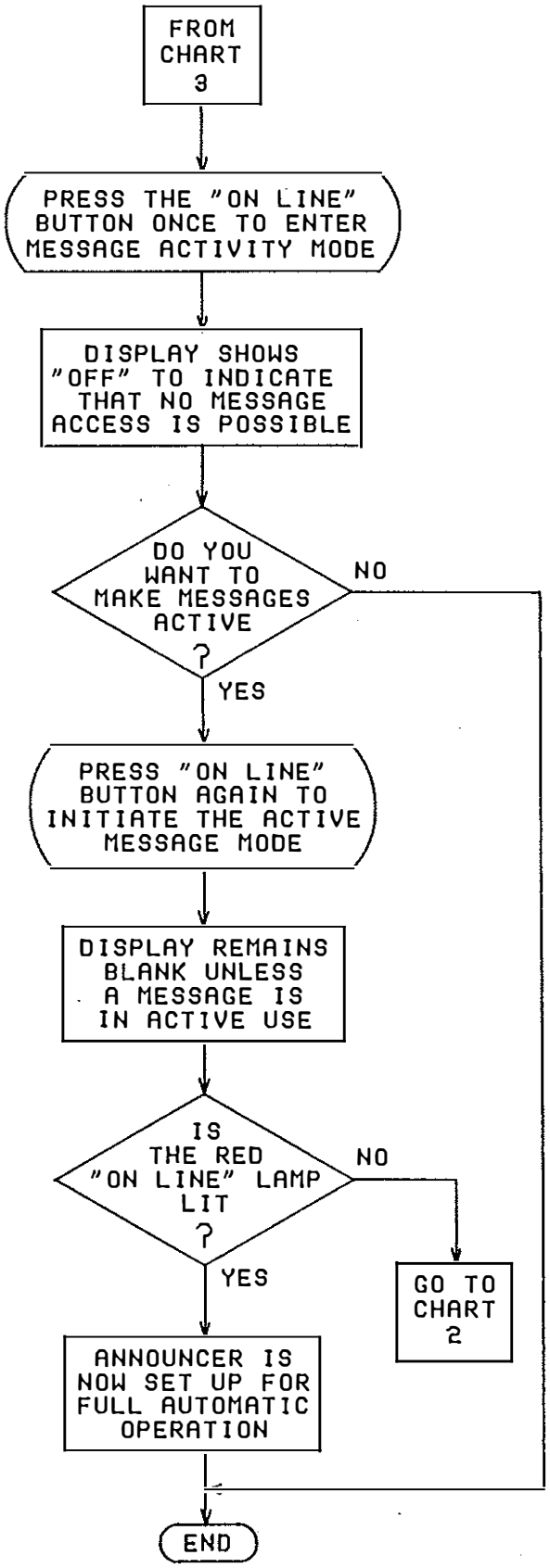


Chart 10. Four Channel Basic Firmware Program - Message Activity



VERIFYING (PLAYING BACK) MESSAGES

4.11 It is always good practice to listen to the message immediately after recording to verify that the message is correct. Press the PLAYBACK button and then the START/STOP button to begin monitoring the message. When the message is finished, the Announcer will return to the SEL display. The Playback sequence may be repeated as many times as needed to verify content and audio quality; the message may be recorded again if corrections are necessary (this rerecording cycle is also illustrated in Chart 2).

CHANNEL (MESSAGE) SELECTION

4.12 The record and playback steps must be repeated for the remaining audio channels. Press the RECORD or PLAYBACK button twice to get to channel two, three times to get to channel three, and so forth; the display will indicate the channel selected and the amount of available time as before. If desired, the unit may be put into service with no message in one or more channels; however, the audio circuits will not be accessable by external equipment if this is done.

MESSAGE ACTIVITY

4.13 The Digital Announcer may be placed in an inactive mode if it is desired to record announcements but not make them available until some time in the future. When the Announcer is actively responding to start signals with messages it is considered to be in its "ON LINE" mode of service. The Announcer can also be set up to ignore any start requests ("OFF LINE"), then later placed into active service as needed. All of the Digital Announcer features remain available to the user from either the front panel controls or through the use of Remote Record when the Digital Announcer is in its "OFF LINE" mode.

4.14 Press the ON LINE button once to enter the OFF LINE condition. In this state, the message in the unit may be played back or rerecorded only through the use of a REMOTE RECORD circuit; no start requests from interfaces or other equipment will be recognized by the Digital Announcer in this operating mode. The Announcer will display the word "OFF" in this mode.

4.15 The Digital Announcer can only respond to START requests when it is in its ON LINE state. Press the ON LINE button once again to make the message available at the audio output circuit. The Digital Announcer display will now indicate channel activity only when a valid start signal is acknowleged, and the ON LINE lamp will illuminate to show that the unit is ready to respond. The BY/MBY relay also changes state to signal that messages are now available.

RECORDING NEW MESSAGES

4.16 As announcements become dated or the reason for their use changes, messages may be replaced by repeating the Record procedure. Each time a new message is stored in memory it is written over data from the previous announcements. Remember that a new SIT code will be required if the content of the message has been changed when it was rerecorded.

NOTE: It is recommended that a back up copy of all messages be available before recording new information. Messages are seldom the same length in seconds as the previous announcements; if the new message is longer than the one it replaces, it will necessitate rerecording of all the subsequent messages.

5. SPECIAL FEATURES

GENERAL

5.01 The Digital Announcer features have been factory preset to the most commonly used settings, allowing it to be operated in most applications without requiring any additional user adjustments; however, the basic utility of the Digital Announcer may be extended with the use of these special features.

START MODES

5.02 There are several start modes that effect the operation of a Digital Announcer. "Pulse Start" mode requires a momentary (250 millisecond or greater) input signal to begin playing the message; once started, the audio will continue until the entire announcement has been completed. In the "Level Start" mode the message will play only as long as a start signal is present; if the call is terminated before the message is over, the Announcer is immediately ready for the next call. In addition, the Digital Announcer can be wired so that a constant potential start signal is always present, creating a "Continuous Run" mode if an endless repetition of announcements is desired. (Announcer switches must be set to "Level Start" position in "Continuous Run" mode for proper interface with other equipment). Start modes are illustrated in figure 4.

SAMPLING RATE

5.03 The rate of sampling for the analog-to-digital and digital-to-analog conversion may be changed to a slower speed by means of a rear panel selector switch. The slower rate extends the recording time by nearly 50%, but it does this at the expense of a degradation in the announcement quality. All Digital Announcers are factory set to the preferred (32 kHz) sampling rate (best audio).

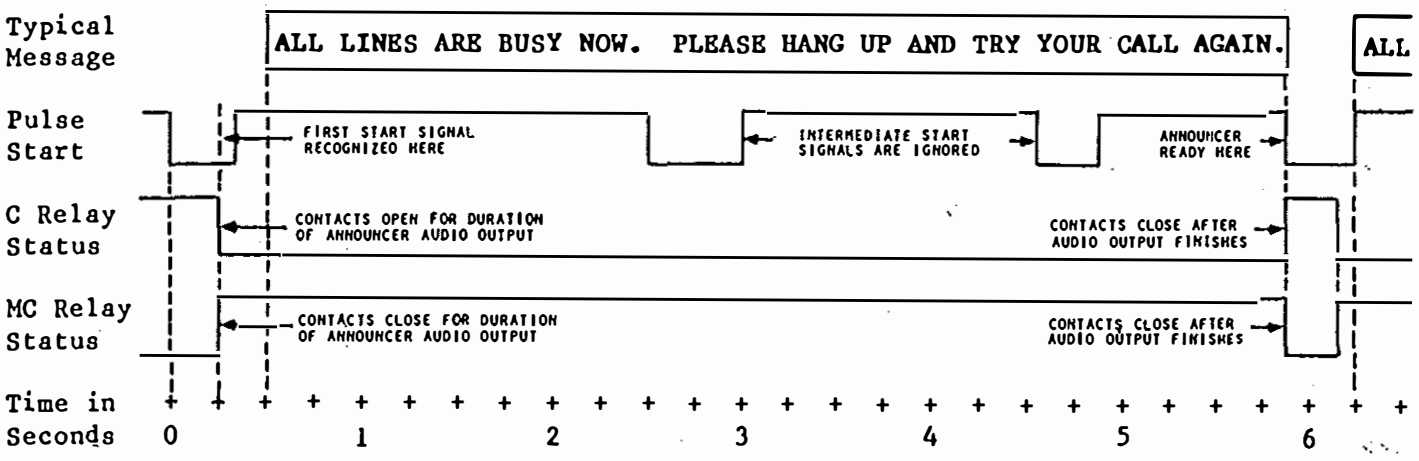
NOTE: Because of the change in clock speed, Special Information Tones can not be used if the 22 kHz sampling rate is selected.

SPECIAL INFORMATION TONES (SIT)

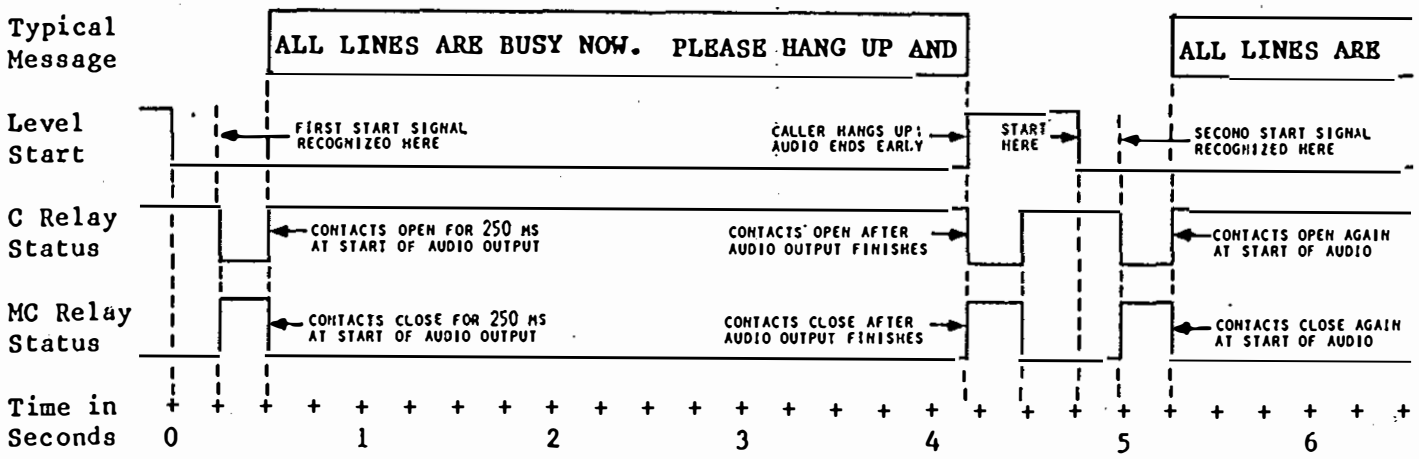
5.04 Some announcement applications require that the message be preceded by a series of short tones to permit automatic message content detection. An accepted technique for doing this is known as Special Information Tones (SIT). Three tones, each with its own highly accurate length and frequency, are produced immediately before the beginning of the audio message to allow electronic identification of the type of information. Typical SIT message identities are wrong numbers, emergencies, all circuits busy, call the operator for assistance, temporary equipment problems, etc.

5.05 SIT generation circuitry is enabled by a rear panel switch. Once the SIT function is enabled, the Digital Announcer Firmware Program will automatically prompt the user to choose the proper SIT Code each time a message is recorded. The tones will be heard before the recorded message but do not affect the total message length. Table 2 lists the SIT Code characteristics; the sequence for selecting the proper SIT are shown in chart 2 immediately after the recording steps. Table 3 indicates which switches settings are used to turn the SIT circuitry, and figure 5 has a diagram showing how the tone sequence preceeds the announcement when SIT is enabled.

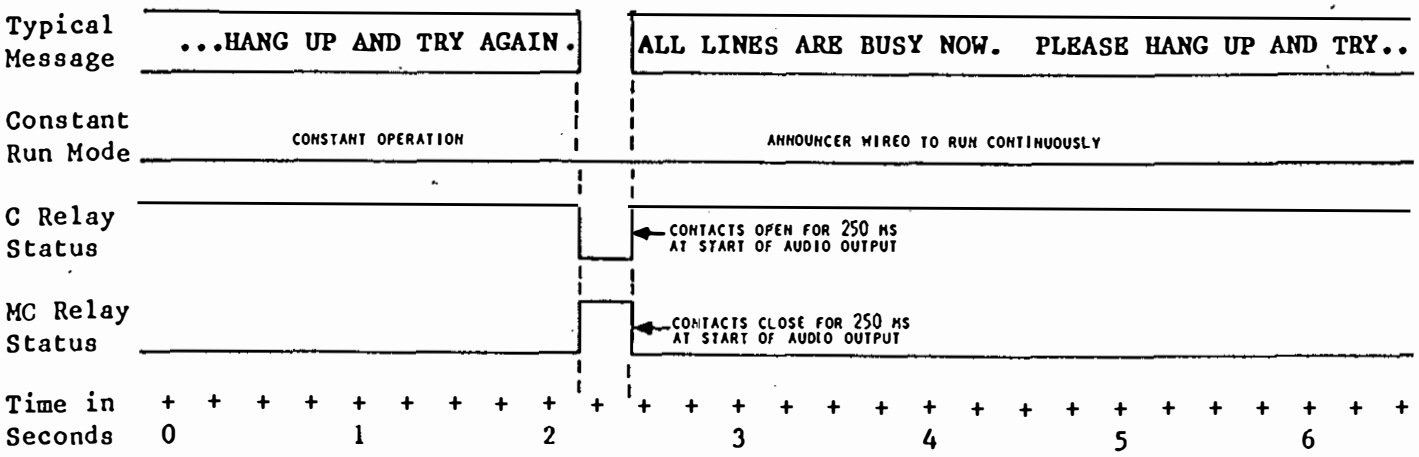
NOTE: Because of the change in clock speed, Special Information Tones can not be used if the 22 kHz sampling rate is selected.



A. Pulse Start, Level C/MC Operation Timing Sequences

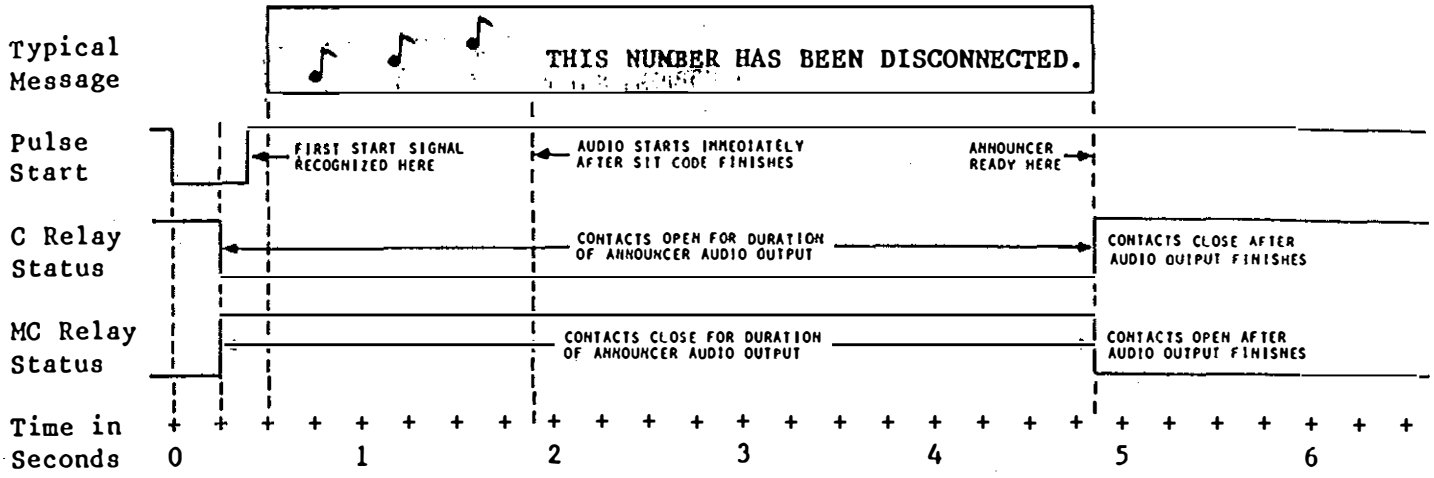


B. Level Start, Pulsed C/MC Operation Timing Sequences

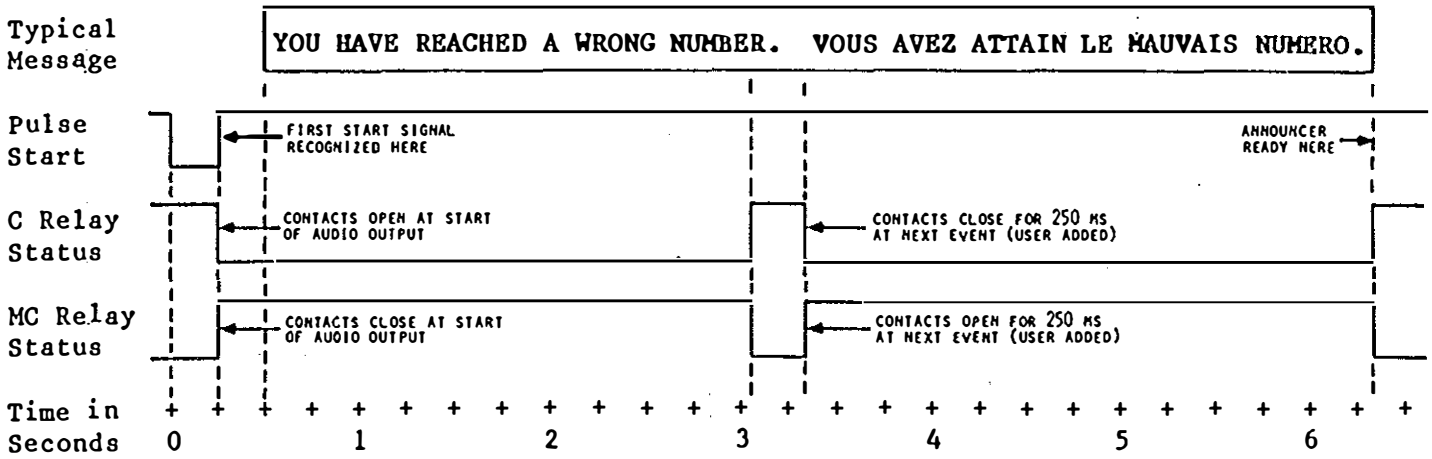


C. Continuous Operation C/MC Timing Sequences

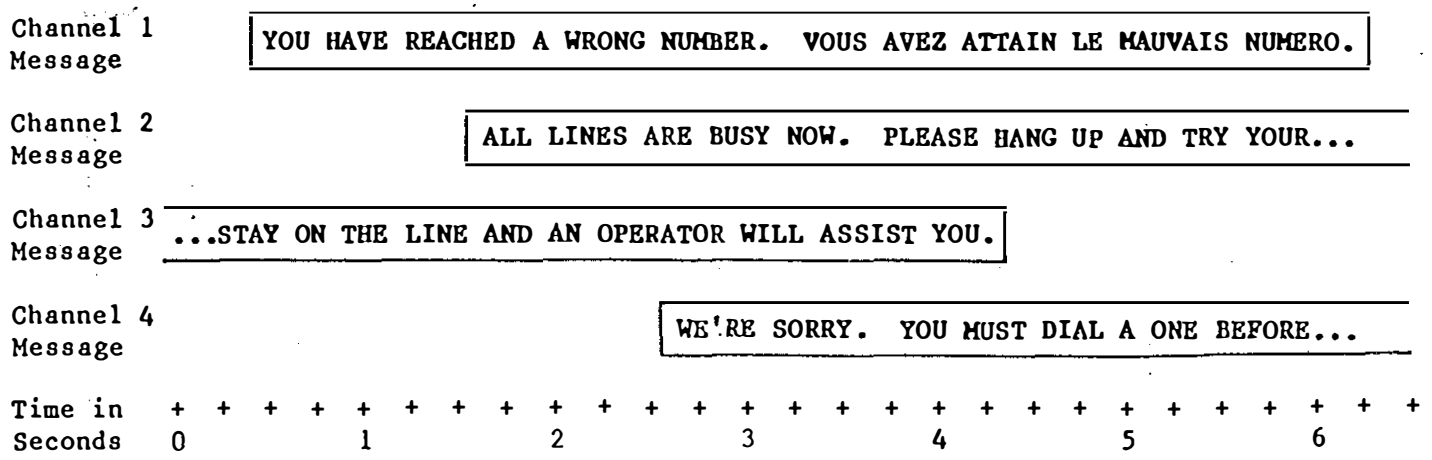
Fig. 4 - Four Channel Basic Firmware Operating Characteristics (Start Mode)



A. - Delaying Effect of SIT Codes on Beginning of Audio Message
(Pulse Start Operation shown; other modes similarly effected)



B. Pulse Start, Level C/MC Operation Timing Sequences showing addition of Intermediate C/MC Sigmals to control external equipment
(Bilingual Message Shown; up to 20 Intermediate Signals are allowed)



C. - Basic Multi-Channel Message Relationships (Any Message Available at Any Time, Independent of the Status of the other Channels)

Fig. 5 - Four Channel Basic Firmware Operating Characteristics (Options)

Table 2. SIT Code Characteristics

DISPLAY INDICATION	TONE NO.	SIT FREQUENCIES	TONE DURATION	CODE CATEGORY	TYPICAL VOICE ANNOUNCEMENTS
SIT 001	1 2 3	913.8 Hz 1370.6 Hz 1776.7 Hz	274 ms 274 ms 274 ms	(See Note 1)	
SIT 002	1 2 3	913.8 Hz 1370.6 Hz 1776.7 Hz	274 ms 274 ms 380 ms	IC (Intercept Customer)	We're sorry, you have reached a number that has been connected or is no longer in service.
SIT 003	1 2 3	913.8 Hz 1370.6 Hz 1776.7 Hz	274 ms 380 ms 274 ms	(See Note 1)	
SIT 004	1 2 3	913.8 Hz 1370.6 Hz 1776.7 Hz	274 ms 380 ms 380 ms	(See Note 1)	
SIT 005	1 2 3	913.8 Hz 1428.5 Hz 1776.7 Hz	274 ms 274 ms 274 ms	(See Note 1)	
SIT 006	1 2 3	913.8 Hz 1428.5 Hz 1776.7 Hz	274 ms 274 ms 380 ms	(See Note 1)	
SIT 007	1 2 3	913.8 Hz 1428.5 Hz 1776.7 Hz	274 ms 380 ms 274 ms	(See Note 1)	
SIT 008	1 2 3	913.8 Hz 1428.5 Hz 1776.7 Hz	274 ms 380 ms 380 ms	RO (Reorder)	We're sorry, your call did not go through. Please hang up and try your call again.
SIT 009	1 2 3	913.8 Hz 1370.6 Hz 1776.7 Hz	380 ms 274 ms 274 ms	(See Note 1)	
SIT 010	1 2 3	913.8 Hz 1370.6 Hz 1776.7 Hz	380 ms 274 ms 380 ms	(See Note 1)	
SIT 011	1 2 3	913.8 Hz 1370.6 Hz 1776.7 Hz	380 ms 380 ms 274 ms	(See Note 1)	
SIT 012	1 2 3	913.8 Hz 1370.6 Hz 1776.7 Hz	380 ms 380 ms 380 ms	NC (No Circuits)	(See Note 2)
SIT 013	1 2 3	913.8 Hz 1428.5 Hz 1776.7 Hz	380 ms 274 ms 274 ms	(See Note 1)	

Table 2. SIT Code Characteristics (contd)

DISPLAY INDICATION	TONE NO.	SIT FREQUENCIES	TONE DURATION	CODE CATEGORY	TYPICAL VOICE ANNOUNCEMENTS
SIT 14	1 2 3	913.8 Hz 1428.5 Hz 1776.7 Hz	380 ms 274 ms 380 ms	(See Note 1)	
SIT 15	1 2 3	913.8 Hz 1428.5 Hz 1776.7 Hz	380 ms 380 ms 274 ms	(See Note 1)	
SIT 16	1 2 3	913.8 Hz 1428.5 Hz 1776.7 Hz	380 ms 380 ms 380 ms	(See Note 1)	
SIT 17	1 2 3	985.2 Hz 1370.6 Hz 1776.7 Hz	274 ms 274 ms 274 ms	(See Note 1)	
SIT 18	1 2 3	985.2 Hz 1370.6 Hz 1776.7 Hz	274 ms 274 ms 380 ms	(See Note 1)	
SIT 19	1 2 3	985.2 Hz 1370.6 Hz 1776.7 Hz	274 ms 380 ms 274 ms	(See Note 1)	
SIT 20	1 2 3	985.2 Hz 1370.6 Hz 1776.7 Hz	274 ms 380 ms 380 ms	RO (Reorder)	(See Note 2)
SIT 21	1 2 3	985.2 Hz 1428.5 Hz 1776.7 Hz	274 ms 274 ms 274 ms	(See Note 1)	
SIT 22	1 2 3	985.2 Hz 1428.5 Hz 1776.7 Hz	274 ms 274 ms 380 ms	(See Note 1)	
SIT 23	1 2 3	985.2 Hz 1428.5 Hz 1776.7 Hz	274 ms 380 ms 274 ms	(See Note 1)	
SIT 24	1 2 3	985.2 Hz 1428.5 Hz 1776.7 Hz	274 ms 380 ms 380 ms	(See Note 1)	
SIT 25	1 2 3	985.2 Hz 1370.6 Hz 1776.7 Hz	380 ms 274 ms 274 ms	(See Note 1)	
SIT 26	1 2 3	985.2 Hz 1370.6 Hz 1776.7 Hz	380 ms 274 ms 380 ms	VC (Vacant Code)	We're sorry, you have dialed a number that can not be reached from your calling area.

Table 2. SIT Code Characteristics (continued)

DISPLAY INDICATION	TONE NO.	SIT FREQUENCIES	TONE DURATION	CODE CATEGORY	TYPICAL VOICE ANNOUNCEMENTS
SIT 27	1 2 3	985.2 Hz 1370.6 Hz 1776.7 Hz	380 ms 380 ms 274 ms	(See Note 1)	
SIT 28	1 2 3	985.2 Hz 1370.6 Hz 1776.7 Hz	380 ms 380 ms 380 ms	(See Note 1)	
SIT 29	1 2 3	985.2 Hz 1428.5 Hz 1776.7 Hz	380 ms 274 ms 274 ms	(See Note 1)	
SIT 30	1 2 3	985.2 Hz 1428.6 Hz 1776.7 Hz	380 ms 274 ms 380 ms	(See Note 1)	
SIT 31	1 2 3	985.2 Hz 1428.5 Hz 1776.7 Hz	380 ms 380 ms 274 ms	(See Note 1)	
SIT 32	1 2 3	985.2 Hz 1428.5 Hz 1776.7 Hz	380 ms 380 ms 380 ms	NC (No Circuits)	We're sorry, all circuits are busy now. Please hang up and try your call again.

Notes: 1. Not all of the 32 SIT Codes are assigned at this time.
2. Sample messages for these SIT Codes are not yet released.
3. SIT Codes can not be enabled if 22 kHz sampling rate is selected.

Table 3. Digital Announcer Option Switch Settings

CONTROL PROCESSOR CHASSIS

FUNCTION	POSITIONS	RESULT
Remote Record Circuit Operation *	S6-1 OFF S6-1 ON	Remote Access Permitted Remote Access Blocked
C/MC Control Signal Activity	S6-2 OFF S6-2 ON	Level (Usual) State Pulsed (lnverse) State
Voice Alarm Circuit Operation	S6-3 OFF S6-3 ON	Voice Alarm Active Voice Alarm Disabled
S6-4 Not used at this time	S6-4 OFF	No effect on Digital Announcer circuits
Sampling Rate Speed Select	S6-5 OFF S6-5 ON	32 kHz (32-518 seconds) 22 kHz (46-737 seconds)**
Output Channel No. 1 SIT Generation **	S6-6 OFF S6-6 ON	Voice Message only Message preceded by SIT
Start Circuit Operation	S6-7 OFF S6-7 ON	Level (early termination) Pulsed (entire Message)
S6-8 Not used	S6-8 OFF	No effect on Digital Announcer circuits

* If Remote Record is not installed, this switch has no effect on the Announcer. Leave unused switches in OFF position.

** Special Information Tones can not be enabled if the 22 kHz sampling rate is selected.

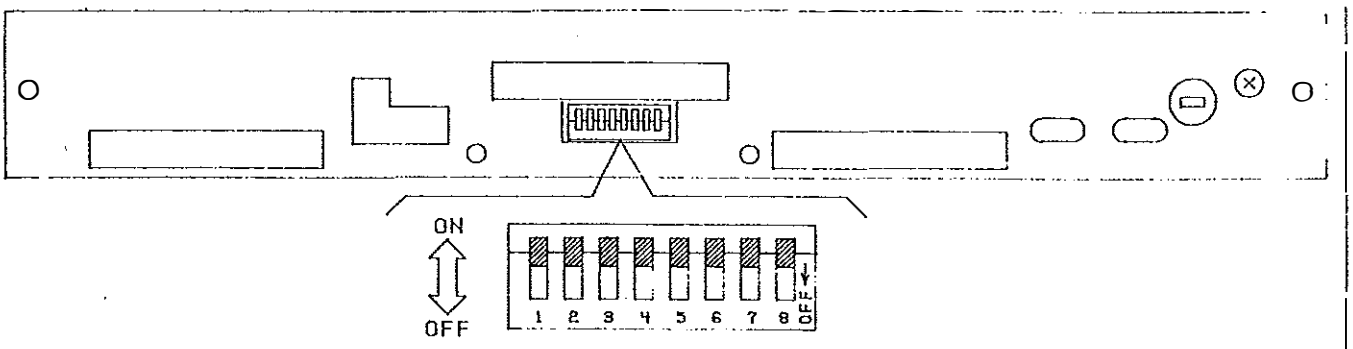
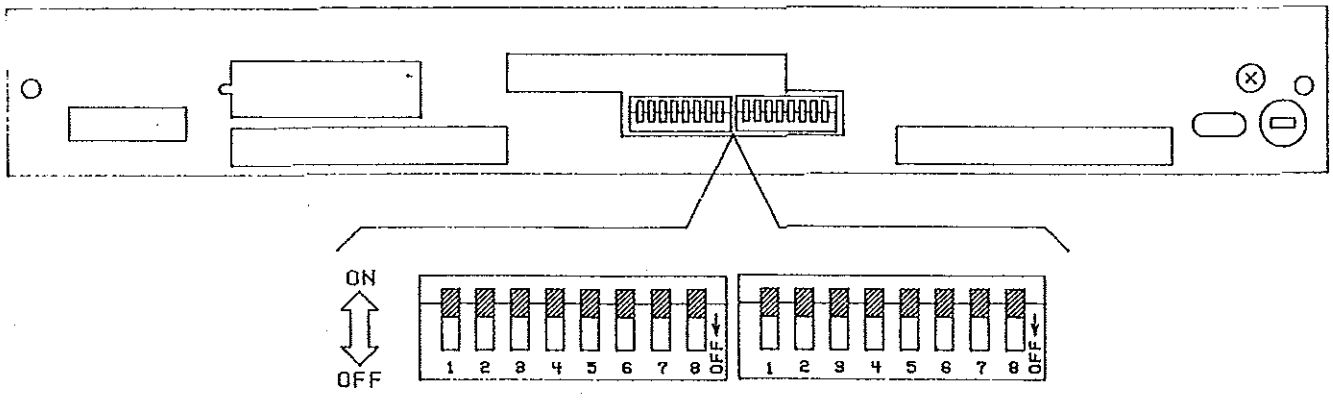


Table 3. Digital Announcer Option Switch Settings (contd)

EXPANSION CHASSIS		
FUNCTION	POSITIONS	RESULT
S2-1 to S2-8 Not used at this time	S2-1 to S2-8 OFF	No effect on Digital Announcer circuits
S3-1 Not used at this time	S3-1 OFF	No effect on Digital Announcer circuits
S3-2 Not used at this time	S3-2 OFF	No effect on Digital Announcer circuits
S3-3 Not used at this time	S3-3 OFF	No effect on Digital Announcer circuits
S3-4 Not used at this time	S3-4 OFF	No effect on Digital Announcer circuits
Output Channel No. 2 SIT Generation *	S3-5 OFF S3-5 ON	Voice message only Message preceded by SIT
Output Channel No. 3 SIT Generation *	S3-6 OFF S3-6 ON	Voice message only Message preceded by SIT
Output Channel No. 4 SIT Generation *	S3-7 OFF S3-7 ON	Voice message only Message preceded by SIT
S3-8 Not used at this time	S3-8 OFF	No effect on Digital Announcer circuits

* Special Information Tones can not be enabled if the 22 kHz sampling rate is selected.



EXTRA C/MC PULSES ADDITION

5.06 Digital Announcer Programs also allow the user to store up to 20 additional control signals into the memory along with the recorded message, permitting synchronization of external equipment activity to announcements. These signals might be used to mark the of events (words, sentences, bilingual announcements, etc.) or to serve as a timing reference (for instance, one control pulse every five or ten seconds). The extra C/MC pulses are programmed into the Digital Announcer memory by pressing the ON LINE button at the desired points in time during recording. Figure 5 shows one method of using extra C/MC pulses.

PEG (CUMULATIVE) COUNT

5.07 The Digital Announcer is able to keep track of the total number of times which a message has been requested. This cumulative record of Announcer activity is often referred to by the telephone industry as Peg Count. The Peg Count information may be obtained whether or not the Digital Announcer is playing out a message at the time of request; however, each Peg Count display only lasts for one second, so the ON LINE Announcer displays are never interrupted for long. The count starts over at zero whenever the total exceeds 999,999 or the power to the Announcer fails and there is no battery backup. Peg Count is obtained by pressing the PLAYBACK button while the Announcer is in its ON LINE state. The total count is displayed in order as shown in the following example:

Channel No.	CH-2
First 4 digits	PC02
Last 4 digits	6243

This example would mean that 26,243 message requests have been processed by the Digital Announcer at this particular time.

FIRMWARE IDENTIFICATION NUMBER

5.08 The firmware identification number describes the specific characteristics of the particular operating program installed in the Digital Announcer. It is important that this identification number be included in any communication with the manufacturer, since it provides valuable information to our service personnel. To view the ID number, place the Digital Announcer in its SELECT mode (SEL displayed) by pressing the START / STOP pushbutton once. Press the START/STOP pushbutton a second time to obtain the firmware identification number. The 16-digit identification number will now be displayed in segments of four digits each, with each segment being displayed for about two seconds (START/STOP may be pressed repeatedly to display the number as many times as needed). The segments of the number are displayed in order as shown in the following example:

Part Number	1001
Revision Level	r- 3
Check Sum (Hex)	6Ab3
Assembly Code	0821

This display gives the identification characteristics of the particular software program resident in the EPROM.

6. EXTERNAL EQUIPMENT CONTROL

GENERAL

6.01 Each audio output channel has its own signalling circuitry associated with it. The Announcer programs control the operation of relays to indicate message activity, fault conditions, timing, etc. The relay contacts may in turn be wired to interfaces, monitoring devices, or other types of external equipment which are associated with the operation of the Announcer. Each relay is provided with both normally open and normally closed contact configurations to allow maximum flexibility in connection to external equipment.

BY/MBY (BUSY) RELAY

6.02 Once the Digital Announcer has a message recorded and has been placed in an ON LINE condition, a set of relay contacts closes to indicate that a recorded message is ready for use. Busy relay contacts are not energized when the Announcer is OFF or in any of the other modes. Busy relay action can be used to remotely indicate Announcer message availability, to control interfaces or other external circuitry, etc.

C/MC (CONTROL) RELAY

6.03 C and MC relay activity permits external equipment control by indicating the beginning and end of announcements. Digital Annnouncer Programs also allow the user to store up to 20 additional control signals into the memory along with the recorded message, permitting synchronization of other equipment activity to announcements. The user may select pulse (momentary) or level (interim) relay operation. The beginning- and end-of-message pulses are fixed in the program, but the extra C/MC pulses can be changed each time a new message is recorded.

ALM (ALARM) RELAY

6.04 The Alarm relay is activated whenever the Digital Announcer is indicating an error condition. The relay is essentially in parallel with the ALM lamp on the front panel, which means it can be used to signal the need for corrective action if the unit is operated in a remote or unattended location. There is no automatic reset for Digital Announcer alarms, since the condition which caused the alarm may have have also corrupted the message (however, some of the alarms can be cancelled from another location by using Remote Record to rerecord the message). Consult the Maintenance section for assistance with alarm conditions which cannot be cleared.

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PRODUCT WARRANTY

The Digital Announcer is covered by the following manufacturer's limited warranty:

The Cook Electric Division of Northern Telecom warrants that the products purchased shall, under normal use and service, be free from defective material and faulty workmanship for a period of twelve (12) months from the date of shipment. Northern Telecom's sole obligation, and the Buyer's exclusive remedy under this warranty shall be limited to (at Northern Telecom's option) repair or replacement (on an exchange basis) of the defective product. Such obligation and remedy is conditioned upon (a) Northern Telecom receiving written notice of the defect within the specified warranty period; (b) Buyer receiving authorization from the manufacturer for the return of the defective product, (c) Buyer, at its own expense, returning the product to Northern Telecom, (d) the product not having been altered or repaired by any party other than Northern Telecom, (e) the defect not being the result of mishandling, abuse, misuse, improper storage, installation, maintenance, or operation by other than Northern Telecom (including use in conjunction with equipment which is electrically or mechanically incompatible); and (f) the product not having been damaged by fire, power failure, explosion, Act of God, or any other similar act or occurrence not attributable to Northern Telecom. The repair or replacement of any defective product shall not extend the applicable warranty period.

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Please address any communication concerning this product to:

Northern Telecom
Cook Electric Division
6201 Oakton Street
Morton Grove, Illinois 60053
Telephone (312)-967-6600
Telex I 72-4472
Telex II 910-223-3654
Cable "Cookpro"

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COOK ELECTRIC DIVISION

NORTHERN TELECOM
6201 OAKTON STREET
MORTON GROVE, IL 60053

Tele: 312-967-6600
Telex I: 72-4472
Telex II: 910-223-3654