



# 17A, List 6 Announcement System Description and Operating Procedures

**For All Questions Regarding the 17A Call:  
1-800-352-5563 (within USA)  
1-973-386-4311 (outside USA)**

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# Overview

# 1

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## **1.1 What's New**

The 17A Announcement System (J1C275A-1, List 6), shown in Figure 1-1, contains all of the features of the 17A, List 5 system plus the following three new features:

- Change Number Intercept (CNI)
- Automatic Number Announcement Circuit (ANAC)
- External Audio Source, e.g., music on hold or music on queue

## **1.2 Overview of the Features of the 17A, List 6 Announcement System**

The 17A, List 6 Announcement System is a digital announcement system with storage capacity for up to 166 announcements. The 17A interconnects with a digital switch using one DS digital facility that provides 24 trunk channels. The DS1 signal uses the D4 format and AMI line coding.

The 17A is compatible with Lucent and non-Lucent digital switches. The 17A provides an effective way to manage a large number of announcements on a limited number of trunk channels.

Each caller may listen to any one of 166 unique announcements or all 24 callers may listen to the exact same announcement but with different announcement starting times depending on when the caller was connected to the trunk channel.

The maximum length of the announcements recorded on the 17A is flexible. The memory space for the announcements is allocated as follows:

- 121 announcements - up to one minute each,
- 30 announcements - up to two minutes each, and
- 15 announcements - up to four minutes each.

Any 17A announcement can be used as an immediate start announcement or as a broadcast announcement or as both at the same time depending on how the 17A is programmed by the administrator.

- **Immediate Start** - Lengthy announcements can be effectively delivered to callers without delays in playback. The playback of a requested announcement occurs immediately. If the caller hangs up before the end of the announcement, the 17A disconnects and the trunk channel becomes available for the next caller.

The 17A plays immediate start announcements over interoffice trunk channels, e.g., LTOLLCON trunks in 5ESS® switches, in response to a three digit MF code from the switch. The MF code transmitted to the 17A identifies which one of up to 166 announcements to play.

Each of the 166 announcements used for immediate start service can be set for either answer supervision or no-answer supervision. If the signaling type is set for answer supervision, billing is triggered when the announcement is played back to a caller. The call is disconnected upon completion of the announcement playback. If the signaling type is set for no-answer supervision, billing is not triggered when the announcement is played back and the 17A sends reorder (trunk busy) until the caller disconnects.

- **Broadcast** - A network announcement stored on the 17A can be linked (or nailed up) to a specific announcement trunk channel for broadcast to multiple callers. An MF code does not have to be transmitted to the 17A to identify which announcement to play. But an announcement must be assigned to a “placeholder” MF code for the 17A to place the announcement in service. The 17A plays the broadcast announcement continuously. The 17A sends a start signal to the switch at the beginning of the network announcement each time the announcement plays. The 5ESS central office domestic switch delivers each broadcast announcement to as many as 60 callers simultaneously.

For announcements linked to announcement trunk channels, the signaling type does not have to be set to a specific state as this information is not used by the switch.

Trunk channels are numbered from 0 to 23 and correspond to time slots 1 to 24 on the DS1 facility.

Each announcement is stored on non-volatile flash memory cards. The announcement is not lost when power is removed. A new announcement can be recorded over

an existing announcement as often as necessary after erasing the old announcement. The solid state design of the 17A does not require the use of computer hard drives.



**Figure 1-1. 17A Announcement System - Front View with the Access Door Closed  
Dimensions: 5.2 in. high; 17 in. wide; 16 in. deep**

### **1.3 Remote Access (POTS dial-up)**

Announcements are recorded remotely from any touch tone telephone or from a Recorded Announcement Systems Manager (RASM) via a standard analog POTS line assigned to the 17A. Announcements cannot be recorded locally at the 17A.

Simple and concise voice prompts guide the administrator through a variety of administration functions all without taking the 17A out of service. In addition to recording announcements, the administrator can

- play back an announcement,
- obtain the status of an announcement,

- assign or unassign an announcement to an MF code,
- link or unlink an announcement to an announcement trunk channel,
- erase an announcement,
- select answer or no-answer supervision signaling,
- select how the automatic number announcement is played, i.e., either by voice or DTMF tones,
- set the combined prefix and ANAC access code used by the 17A for identifying an ANAC request,
- link or unlink an external audio source to an announcement trunk channel,
- perform diagnostics, or
- change a security code.

CNI is also administered remotely via the POTS line connected to the 17A. Communication is via modems in a CNI computer and the 17A.

In addition to recording announcements by speaking the announcement into the telephone handset, announcements can also be recorded from audio sources such as tape, CD, or a computer by using a Headset Switcher™ and a headset included with the 17A. The Headset Switcher provides an audio interface for a tape player, CD player, or a computer through the telephone.

An announcement can be placed out-of-service by not assigning or un-assigning the announcement to an MF code.

If an immediate start announcement is routinely updated or if an immediate start announcement must be replaced, the new announcement can first be recorded on an unused memory location or slot. The new announcement is then assigned to the MF code to which the old announcement is assigned, thereby immediately placing the new announcement in service and taking the old announcement out of service. The old announcement can then be erased so that the slot can be reused in the future for a new announcement.

In a similar manner, if a network broadcast announcement must be updated or replaced, the new broadcast announcement can be recorded on an unused slot and assigned to an unused MF code. The new broadcast announcement is then linked to the announcement trunk channel to which the old announcement was linked, thereby immediately placing the new broadcast announcement in service and the old broadcast announcement out of service. The old announcement can then be unassigned from its MF code and erased so that the slot can be reused in the future for a new announcement.

To ensure remote access security, a unique 8-digit master security code should be

assigned by the 17A administrator. The default security code installed at the factory is **\*47985621**.

The 17A is not compatible with the Remote Record Concentrator.

For a complete list of equipment codes and comcodes for the 17A and the Recorded Announcement Systems Manager, see Appendix D.

#### **1.4 Automatic Number Announcement Circuit (ANAC)**

The 17A provides an ANAC feature that is typically used by craft for identifying telephone lines. After the craft person dials the ANAC access code from the line to be identified, the switch sends a combined prefix and ANAC access code to the 17A over a CAMA trunk channel. The 17A uses the prefix and access code received from the switch to determine that this call is an ANAC call. The switch then immediately sends to the 17A the telephone number of the line used by the craft person to make the ANAC call. The 17A can either voice the calling line telephone number to the craft person or send DTMF tones over the calling line which are interpreted by equipment attached to the line.

The 17A sets the signaling on the CAMA trunk channel used for ANAC to answer supervision; billing may occur for the ANAC call.

ANAC is administered remotely from any touch tone telephone via the POTS line connected to the 17A. By following voice prompts from the 17A, the administrator can

- select how the ANA is played back to the craft person, i.e., either by voice or by DTMF tones,
- select a combined prefix and ANAC access code from one up to a maximum of fourteen digits. The default prefix is set to 1000 at the factory. No access code is provided. It is highly likely that this prefix will be changed by the administrator and an access code added.

#### **1.5 External Audio Source**

One external audio source may be linked to a selected announcement trunk channel for broadcast to multiple callers. The trunk channel used for the external audio source becomes unavailable for any other 17A services.

The external audio source is administered remotely from any touch tone telephone via the POTS line connected to the 17A. By following voice prompts from the 17A, the administrator can link or unlink an external audio source to a selected announcement trunk channel.

## **1.6 Change Number Intercept (CNI)**

A call to a number that has been recently changed is generally intercepted by the central office switch. If the 17A is used to provide the CNI announcements, the central office switch sends a special four digit prefix and the old number to the 17A over an interoffice trunk channel. The trunk class for CNI for 5ESS offices is LTOLLCON or Automatic Intercept Service (AIS). The 17A identifies this CNI announcement request from the switch by the four digit prefix code. The 17A plays an announcement that voices the old number followed by the new number. This announcement is played either once or twice, depending on how an option is set for each old telephone number. A language choice is required for each old number. The languages that may be used are English, Spanish, and French. A different language may be chosen for the first and second time that the announcement is played back to the caller.

CNI announcements are installed in the 17A at the factory. They cannot be installed by a CNI administrator.

A default four digit CNI prefix is also installed at the factory; this default prefix is 2000. The CNI administrator can change this default prefix so that it agrees with the prefix used by the switch. This prefix must be four digits in length.

A special purpose software program supplied by Lucent Technologies, called the CNI Manager, is used for CNI administration. The CNI Manager is installed on a personal computer that is provided locally. Any PC with Windows 95 or Windows 98 and equipped with a modem can be used for CNI administration.

To set up a CNI session with the 17A, the CNI administrator uses the CNI Manager to dial the 17A and establish a modem call with the 17A over the analog POTS line connected to the 17A. After completing a handshaking sequence designed to enhance security, the CNI administrator enters CNI information. Up to 50,000 old/new telephone number pairs plus associated information can be stored in flash memory on the 17A. The current date is automatically added to each row of data added to the database for each telephone number. Intercept data that can be entered include the following:

- old and new telephone number,
- the number of days to expiration, i.e., the number of days that the old/new CNI announcements are played,
- the language for the first and second CNI announcement. If no language is chosen for the second announcement, the second announcement is not played.

CNI administration includes:

- adding data to the database,
- modifying and deleting data,
- sorting the data according to selected criteria,
- searching the database for specific information,
- printing database information,
- saving database information to a file,
- displaying a list of CNI telephone numbers received from the switch which are **not** in the CNI database,
- backing up the 17A CNI database on the CNI computer, and
- restoring the CNI database to the 17A from the CNI computer.

For security, a CNI ID and a CNI callback number must be installed on the 17A for each CNI computer that accesses the 17A. A locally supplied laptop or other computer must be connected to the serial port on the 17A to install this information.

### **1.7 Recorded Announcement Systems Manager**

The optional RASM workstation is a PC based system used for the administration of recorded announcements for the 15A, 16A, 17A, and 18A Announcement Systems. The RASM is an effective way of administering announcement systems in multiple offices from a central location via an analog POTS dial-up line. RASM allows the administrator to record, edit, store, and download announcements. The RASM administrator can also transfer announcements on an administrator controlled schedule to any 15A, 16A, 17A, or 18A throughout the network via the remote access feature of these systems.

RASM is particularly useful for the administration of recorded announcements for the 17A. RASM provides a simple way to automatically download large numbers of announcements at one session using the batch feature.

The CNI Manager software can be installed on the RASM workstation. A modem and a second POTS dial-up line have to be added to the RASM workstation for CNI administration.

## **1.8 Upgrading a 17A, List 5 to a 17A, List 6**

A 17A, List 5 can be upgraded to the 17A, List 6 by replacing the TN 1882 circuit pack and the TN 1875 circuit pack in the 17A, List 5 with the TN 1882 Series 2 circuit pack and the TN 1876 circuit pack respectively.

To connect an external audio source to the 17A, List 6, an unused pair in the alarm cable for the 17A, List 5 is connected to an external audio source at the MDF.

After a 17A, List 5 is upgraded to a 17A, List 6, all of the custom announcements previously loaded on the 17A, List 5 must be reloaded on the 17A, List 6. If RASM is used to administer announcements for the 17A, a simple, straight forward procedure can be used to reload announcements on the 17A, List 6 using the "batch" capability of RASM.

## **1.9 Reasons for Reissue**

This document is being reissued because of the addition of new features to the 17A. The list number for the 17A is changed from List 5 to List 6 to reflect the addition of the new features.

## **1.10 Regulatory Agency Approvals and Additional Information**

The 17A complies with the following:

UL Standard 1459

FCC Rules and Regulations - Part 15, Subpart B - Class A

FCC Rules and Regulations - Part 68

CAN/CSA - C22.2

Bellcore GR-63-CORE and GR-1089-CORE (NEBS Level 3)

ISO 9001 Certification, Quality Management Systems

Additional information is listed below pertaining to Part 68 - Equipment Registration:

FCC Registration Number AS5USA-25565-PX-N

Ringer Equivalence 0.4A

Facility Interface Code (for DS1 interface) - 04DU9-1SN, 02LS2

Service Order Code (for DS1 interface) - 6.0F

### **1.10.1 Federal Communications Commission (FCC) Notification and Repair Information**

The 17A Announcement System complies with Part 68 of the FCC Rules as indicated above. On the back of the 17A is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not

ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

If the 17A causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify you as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of this equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

**⇒ NOTE:**

No circuit pack or backplane repairs should be performed by the customer. If trouble is experienced with this equipment, please contact the following for repair and warranty information.

Lucent Technologies Customer Technical Service  
for Announcement Systems  
Phone: 1-800-352-5563  
E-mail: [annsys@lucent.com](mailto:annsys@lucent.com)

**⇒ NOTE:**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. The equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

**⇒ NOTE:**

If the 17A is to be installed in a leased system, permission to connect the 17A to the system should be obtained from the owner of that system.



# Installation Instructions for the 17A, List 6 Announcement System

# 2

## ATTENTION INSTALLERS!

For successful completion of this installation, you may require the assistance of a system administrator or switch maintenance person to assign a test directory number to one of the 17A, List 6 trunk channels.

You will also need to have a POTS line assigned to the 17A Announcement System for administration of the announcements.

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## **2.1 Unpacking**

The 17A Announcement System shipped from the factory consists of the following:

- A J1C275A-1, L6 prewired shelf equipped with the following:
  - a. TN 1881 Circuit Pack (Announcement Control Unit)
  - b. TN 1882, Series 2 Circuit Pack (Announcement Memory Unit)
  - c. TN 1876 Circuit Pack (Announcement Interface Unit)
  - d. 506A Alarm Module
  - e. Fan Assembly - Comcode 108517962
  - f. Air Filter Assembly
  - g. Sixteen feet long shielded -48 Vdc power cable with ferrite cores
- A Headset Switcher for connecting the audio output from a tape recorder, a CD player, or a computer to a telephone.
- A headset for use with the Headset Switcher.
- Two copies of Lucent Technologies Practice 201-523-201. One copy is for the installer and one copy is for the 17A administrator.

One of the following two wiring kits must be ordered when ordering the J1C275A-1, L6 17A.

- A J1C275A-1, L21 wiring kit with three cables, each 300 feet long. Each cable has a Dsub connector on one end. The other end is unterminated.
- For a wiring kit with cables that are 600 feet instead of 300 feet, order J1C275A-1, L22.

If the 17A will be used to provide CNI service,

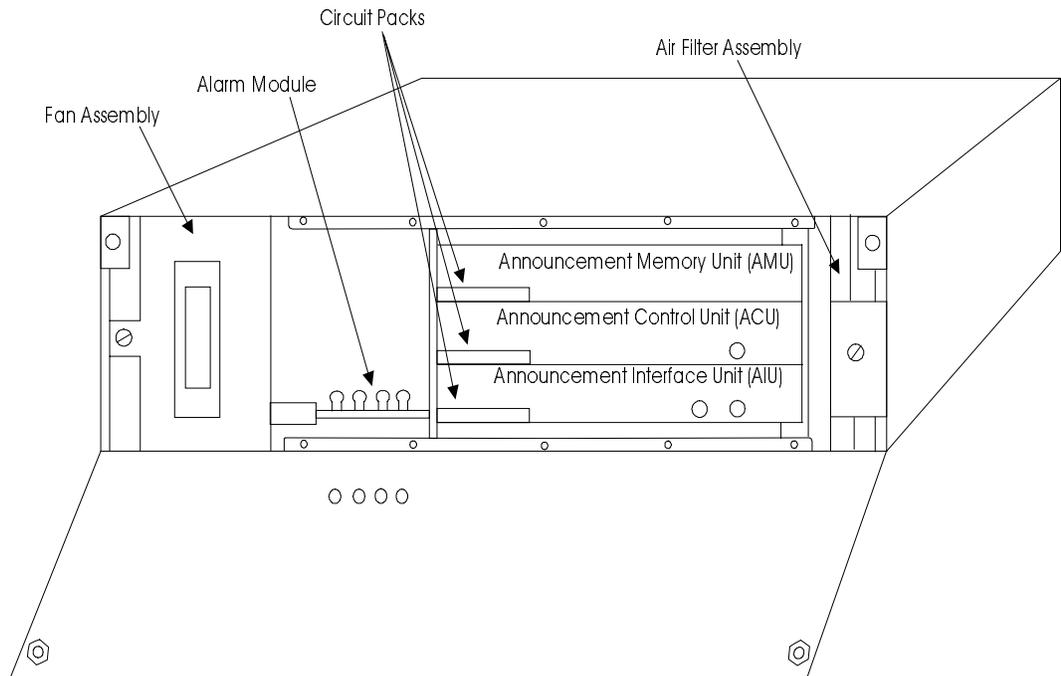
- Order the J1C275A1, L24 that includes the Change Number Intercept (CNI) Administrator's Guide and the CD with the CNI Manager application software.
- Purchase locally at a computer store a standard serial port cable that is approximately 12 feet long for connecting the 17A serial port to a PC. This cable should be equipped with a 25-pin Dsub receptacle connector on one end and a 25-pin Dsub plug connector on the other end. A receptacle adapter is required consisting of a 25-pin Dsub plug on one side of the adapter and a 9-pin Dsub receptacle on the other side of the adapter. The 9-pin Dsub receptacle connects to the computer serial port.

Other optional equipment and apparatus includes the following:

- Air Filter Kit (6 air filters included) - Comcode 108517954
- 17A Spares Kit J1C275A-1, L23, Comcode 108949348

## **2.2 System Description**

Figure 2-1 shows a sketch of the front of the 17A shelf with the front access door open and the front plate removed.



**Figure 2-1. Front of the 17A With the Access Door Open and the Front Plate Removed**

The fan assembly is located on the extreme left of the shelf and is mounted vertically.

Next to the fan assembly is the 506A Alarm Module which is mounted horizontally near the bottom of the shelf. The Alarm Module is 3.5 inches wide and has four alarm LEDs mounted on the front of the module. When the front plate is installed and the front door is closed, these LEDs are visible through holes in the front plate and the front access door.

The LEDs indicate the following from left to right:

- GREEN - power on
- RED - system alarm
- YELLOW - network alarm
- RED - fan alarm

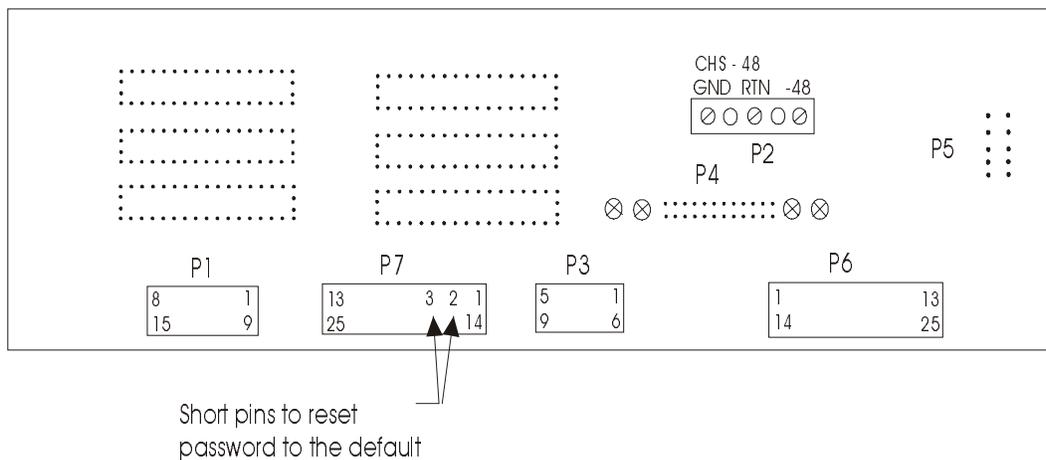
Three circuit packs are mounted horizontally one above the other to the right of the Alarm Module as follows:

- The top circuit pack is the TN 1882, Series 2 Announcement Memory Unit (AMU).
- The middle circuit pack is the TN 1881 Announcement Control Unit (ACU).
- The bottom circuit pack is the TN 1876 Announcement Interface Unit (AIU).

These circuit packs are 7.5 inches wide. They are held in place by a latch located on the left side of the face plate. The three LEDs on the face plate of these circuit packs are not visible when the front plate is installed and the front door of the shelf is closed. The two LEDs on the TN 1876 are for a system alarm and a network alarm and are duplicated on the Alarm Module. The third LED on the TN 1881 is for an Out Of Service (OOS) condition; it is not used for 17A trouble shooting. The OOS alarm does not appear on the Alarm Module.

An air filter assembly is located on the extreme right of the shelf and is mounted vertically. The filter assembly should be replaced as required, depending on the amount of air-borne contaminants in the central office environment. A filter kit with six air filters can be ordered (see Appendix D).

Figure 2-2 shows a sketch of the rear of the 17A shelf to which all connections are made. The rear panel is removed in Figure 2-2.



**Figure 2-2. Rear of the 17A With the Rear Panel Removed**

The -48 Vdc power for the 17A is connected to the terminal block on the back plane. The 17A is shipped with 16 feet of shielded power cable already connected to the terminal block. The power cable is equipped with ferrite cores to suppress electromagnetic radiation.

All other connections are made using connectorized cables that plug into connectors P1, P3, P6, and P7 located on the lower part of the back plane. These connectors are accessible with the back cover installed. These back plane connectors are used as follows:

- P1 - two pairs for the DS1/E1 facility.
- P3 - one pair for a telephone line.
- P6 - three alarm pairs, one pair for an external audio source, and one pair for a future application.
- P7 - serial port for connecting a laptop or other computer.

### **2.3 Shelf Mounting**

The 17A is typically mounted in a 5ESS miscellaneous cabinet. It can also be mounted in any standard 23-inch communications cabinet or bay. The mounting brackets supplied with the 17A should be installed so that the front and back of the 17A are easily accessible. The front door on the 17A should open freely.

To insure that a good electrical ground connection is established with the 17A shelf, the **thread-forming screws supplied with the 17A must be used** to install the mounting brackets on the 17A chassis and to install the 17A with mounting brackets in a cabinet or bay. Paint piercing washers are not required because there is no paint on the mounting brackets in the area where the mounting screws contact the brackets.

### **2.4 Power Requirements and Fusing**

The maximum current drain for the 17A is 1.2 amps at -48 Vdc. The acceptable voltage range is from -39.5 Vdc to -60 Vdc. Each 17A should be fused separately. A 2 amp slow blow fuse is recommended. There are no serviceable fuses internal to the 17A. There is no power ON/OFF switch in the 17A. Power is applied to the 17A via the external 2 amp fuse.

## **2.5 Grounding**

The 17A chassis can be grounded to either a Common Bonding Network or an Isolated Bonding Network. The 17A is grounded to the cabinet or bay ground through the 17A mounting brackets and thread-cutting screws.

The instructions for grounding the 17A and the shields on the interconnecting cabling are identical for either a Common Bonding Network or an Isolated Bonding Network.

## **2.6 Wiring**

After the 17A is mounted in a cabinet or bay, connect the shielded power cable to a 2 amp fuse. When using a 5ESS miscellaneous cabinet, the fuse is located in the cabinet fuse panel at the top of the cabinet. Do **NOT** install the fuse at this time. The color coding for the power cable is as follows:

- RED: -48 Vdc
- BLACK: -48 Vdc Return

**NOTE: Do not ground the shield at the end of the power cable that connects to the fuse. Insulate the shield so it does not contact conducting surfaces or other wiring.**

**NOTE: If the -48 Vdc and the -48 Vdc return leads are reversed, the 17A will not function when the fuse is inserted.**

For some fuse panels, high impedance -48 Vdc may be supplied on the -48 Vdc power lead, causing the alarm LEDs on the circuit packs installed in the 17A shelf to glow dimly. This is a normal condition when the fuse is not present. When the fuse is inserted, the circuit packs power up and the LEDs glow normally.

Shielded cables connectorized at one end and unterminated at the other end are used for the digital trunk facility (P1); the telephone line (P3); and the three alarm pairs, the external audio source pair, and the miscellaneous pair (P6). The requirements for all three cables are as follows:

- Each cable consists of twisted solid copper pairs.
- The shield at the unterminated end of the cable should be connected to frame ground at the MDF (or DSX).
- The shield at the end of the cable with the connector is not connected to frame ground at the 17A.
- Each cable is equipped with a ferrite core.
- The miscellaneous pair is not used for the 17A, List 6 and therefore must be insulated so it does not accidentally contact other wires or ground.
- These three cables supplied with the 17A must be used in order to meet grounding and EMC requirements.

Connect the connectorized end of the following cables to the back plane of the 17A and the unterminated end of the cables to either the DSX or the MDF:

- Two pair DS1 or E1 digital trunk facility cable (see Table 2-1) - connect the 15-pin Dsub plug to back plane receptacle P1.
- One pair T-R cable for the telephone line (see Table 2-2) - connect the 9-pin Dsub plug to the back plane receptacle P3.
- Five pair cable used for the three alarm pairs, the external audio source pair, and the miscellaneous pair (see Table 2-3) - connect the 25-pin Dsub receptacle to the back plane plug P6.

A fourth cable is a standard serial port cable with a 25-pin Dsub receptacle connector on one end and a 25-pin Dsub plug connector on the other end. The plug end connects to receptacle P7 on the 17A back plane and the receptacle end connects to the serial port plug of a PC through a 25-pin Dsub plug to a 9-pin Dsub receptacle adapter.

**CAUTION:**

*The 17A is suitable for connection to intrabuilding or nonexposed wiring or cabling only.*

**TABLE 2-1****DS1 or E1 Digital Trunk Facility Cable**

PIN NO.	PIN NAME	COLOR CODE	FUNCTION	CABLE TYPE	TYPICAL 5ESS CONNECTION
1	TX	White	transmits outgoing DS1 or E1 to the switch	2 pair 24 GA shielded cable	RCV T
9	RX	Blue			RCV R
3	TR	White	receives incoming DS1 or E1 from the switch		XMT T
11	RR	Orange			XMT R
<p>NOTES:</p> <ol style="list-style-type: none"> <li>1. The 15-pin Dsub plug connector on the cable connects to receptacle connector P1 on the 17A back plane.</li> <li>2. The unterminated end of the cable is wire wrapped at the DSX. Connect the shield to frame ground at the DSX.</li> <li>3. Typically this cable connects to the 5ESS ANN3B or TN1611 circuit pack through the DSX.</li> <li>4. The DS1 signal uses the D4 framing format and AMI line coding.</li> </ol>					

**TABLE 2-2**  
**T-R CABLE**

<b>PIN NO.</b>	<b>PIN NAME</b>	<b>COLOR CODE</b>	<b>FUNCTION</b>	<b>CABLE TYPE</b>
2	LT	White	telephone line tip conductor	1 pair 24 GA shielded cable
4	LR	Blue	telephone line ring conductor	
NOTES: 1. The 9-pin Dsub plug connector connects to receptacle connector P3 on the 17A back plane. 2. The unterminated end of the cable is wire wrapped at the MDF. Connect the shield to frame ground at the MDF.				

**TABLE 2-3**  
**ALARM CABLE**

PIN NO.	PIN NAME	COLOR CODE	FUNCTION	CABLE TYPE	TYPICAL 5ESS CONNECTION
1	MISC2R	Blue	Miscellaneous pair	5 pair 24 GA shielded cable	-----
2	MISC2	White/Blue			
4	FAN_RTN	Orange	Fan alarm pair		AR00
5	FANC	White/Orange			
6	BRC	Green	System alarm pair		AT01
7	BR_RTN	White/Green			
10	YC	White/Brown	Network alarm pair		AT02
11	Y_RTN	Brown			
12	MISC1	Slate	External Audio Source		-----
13	MISC1R	White/Slate			

NOTES:

1. The 25-pin Dsub receptacle connector on the cable connects to plug P6 on the 17A back plane.
2. The unterminated end of the cable is wire wrapped at the MDF. Connect the shield to frame ground at the MDF.
3. Typically the three alarm pairs in this cable connect to the 5ESS TN220B circuit pack through the MDF.
4. The miscellaneous pair and external audio source pair in this cable connect to the MDF. The miscellaneous pair is not used in the 17A, List 6 and are reserved for future use. Insulate any unused pairs that are not terminated so they to not come in contact with any conducting surfaces or other wiring.

### **2.7 DIP Switch Settings**

Only the TN 1876 circuit pack has a DIP switch that must be set correctly. The DIP switches are used as follows:

- SW1 - SW3: for DS1 distance settings to the DSX. The default setting is for 0 to 109 feet of 24 gauge cable.
- SW4 - controls the serial port. Set the switch for RS232 or the **UP** position for the 17A, List 6 system.
- SW5 - allows the DS1 or E1 input to the 17A system to be looped back for troubleshooting the DS1 or E1 digital cable facility. Normal operation is in the **DOWN** position.
- SW6 - not used.
- SW7 - used to download the default security code (see Appendix A, Security Code Reset). The switch should be in the **DOWN** position for normal operation.
- SW8 - used to erase the TN1882 and the TN1876 (see Appendix B, System Initialization). The switch should be in the **DOWN** position for normal operation.
- SW9 - SW12 - not used.

The 12 position DIP switch has factory default settings that apply for most applications. Verify that the switch settings are as shown in Figure 2-3 and Tables 2-4 and 2-5.

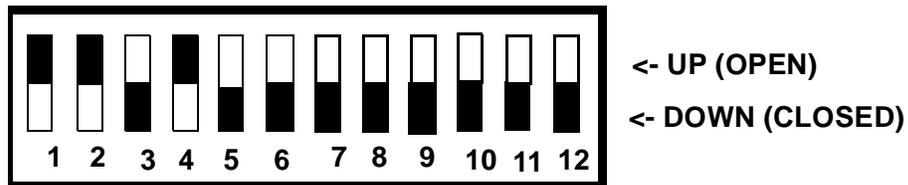


Figure 2-3. Default Settings for the DIP Switch on the TN1876 Circuit Pack

**TABLE 2-4**  
**DIP SWITCH DEFAULT SETTINGS**

SWITCH	POSITION	FUNCTION
SW1,2,3	-----	Line equalization (see Table 2-5)
SW4	UP	RS232 serial port. For RS422, set SW4 DOWN. Set SW4 UP for RS232 for the 17A, List 6 system.
SW5	DOWN	Normal operation. To loop back the digital facility for trouble shooting, set SW5 to UP.)
SW6	DOWN	Not used for the 17A, List 6 system.
SW7	DOWN	Normal operation. Set SW7 to UP to set the security code to the default security code (see Appendix A for the procedure).
SW8	DOWN	Normal operation. Set SW8 to UP to initialize the 17A (see Appendix B for the procedure).
SW9 - SW12	DOWN	Not used for the 17A, List 6 system.

**TABLE 2-5**  
**DIGITAL TRUNK EQUALIZATION TO THE DXS**  
**24 GAUGE CABLE**

SERVICE	EQUALIZATION	SW1	SW2	SW3
DS1	0 to 109 ft	UP	UP	DOWN
DS1	109 to 218 ft	UP	DOWN	UP
DS1	218 to 328 ft	UP	DOWN	DOWN
DS1	328 to 437 ft	DOWN	UP	UP
DS1	437 to 546 ft	DOWN	UP	DOWN
E1 (75 ohms)	-----	DOWN	DOWN	UP
E1 (120 ohms)	-----	DOWN	DOWN	DOWN
NOTE: For the 17A, List 6 system, only DS1 service can be used.				

### **2.8 Powering Up the 17A at Initial Installation**

If the 17A does not perform as described below, see Appendix C for the trouble shooting procedures.

1. Verify that the 17A is NOT powered by checking that the fuse is not installed. Any equipment to which the 17A is connected via the DS1 facility should have a carrier group alarm.
2. Verify from the 5ESS Trunk Line Test Position (TLTP) that the digital trunk facility to the 17A is active. The trunk should be cross connected at the DSX to a 5ESS Digital Facility Interface circuit pack, a DACS, or other equipment.
3. Verify from the TLTP that a directory number has been assigned to the analog POTS line connected to the 17A and that dial tone is present.
4. Verify that the three alarm pairs to the 5ESS scan points show a contact closure from the 17A alarm module. No power applied to the 17A is one of the causes of a contact closure.

5. Insert a 2 amp fuse in the fuse panel at the top of the miscellaneous cabinet for the 17A that is being turned up. Verify that the 17A boots up as follows:
  - The red system alarm LED turns on and the yellow network alarm LED turns on one second later.
  - After approximately 21 seconds the red system alarm LED turns off. The yellow network alarm turns off and on at various times while the system boots up. The boot-up lasts about 2.3 minutes. During boot-up the system performs self-diagnostics.
  - At the end of a successful boot-up, the yellow network alarm flashes twice. If a valid DS1 signal is received, the network alarm stays off. The 17A is now operational.

If an invalid DS1 signal is received, the network alarm turns back on and stays on until the fault is corrected.

6. If a failure occurs during boot-up, the system tries to reboot automatically up to 20 times more. When this occurs, the red system alarm turns on for 21 seconds and then off at the start of each reboot. Each reboot lasts from half a minute to 2.3 minutes depending on where in the diagnostic cycle the failure occurs. The yellow network alarm turns off and on at various times during successive reboots. If the system still fails to boot up after 20 attempts, the red system alarm comes on and stays on for 20 minutes. This 20 minute period is called the administration data mode. During the administration data mode, the yellow network alarm is off unless there is also a DS1 facility failure.

If at the end of the administration data mode the 17A still fails to operate, the reboot process repeats with 20 more reboot attempts followed by another 20 minute administration data mode. This cycle lasts between half an hour and an hour, depending on where in the diagnostic cycle of the reboot that the fault is detected, and continues to repeat until 17A service is restored. If service is restored for eight minutes or more after one of the reboot attempts, the reboot counter is reset to zero.

If the administrator calls the 17A during the administration data mode, a modem carrier is heard instead of 17A voice prompts. Refer to the Trouble Shooting Procedures in Appendix C.

**CAUTION:**

*If the 17A that was just installed did not come directly from the factory but was previously used in another location or the TN 1882, Series 2 and/or the TN1876 circuit packs that came with the 17A were*

*replaced with circuit packs from another 17A or from circuit pack inventory, the flash cards on the TN1882, Series 2 and the memory on the TN1876 should be erased to ensure correct system operation. See Appendix B for the procedure.*

7. If the network alarm goes off for two seconds and comes back on and stays on at the end of boot-up, the 17A may not be receiving a valid DS1 signal. Verify the following:
  - Verify that the DS1 connection has been activated.
  - Verify that the DS1 signal has been wired through the DSX frame correctly. Incorrect wiring at the DSX is a frequent cause of this problem.
  
8. If the network alarm does not clear after completing Step 7, isolate the source of the problem to the DS1 facility itself, the DSX, the TN1876 circuit pack, or other connecting equipment such as the DFI circuit pack or a DACS. Use the loopback capability at the TN1876, the DSX, and the 5ESS DFI. Use SW5 on the TN1876 to place the 17A system in loopback towards the switch to help isolate the problem. See Appendix C, Section C.6.

## **2.9 System Verification**

### **2.9.1 Administration Verification**

1. Call the number assigned to the POTS line for 17A administration. The 17A answers with an initial access tone followed by  
  
“Enter your security code after the tone”  
  
followed by another tone. Enter the default security code:  
\*47985621. The 17A then responds with another message:  
  
“Enter a function code or press \* for help”.  
  
2. Hang up.

### 2.9.2 Modem Verification for CNI.

1. Call the number assigned to the POTS line for 17A administration. The 17A answers with an initial access tone followed by

“Enter your security code after the tone”

followed by another tone.

**Do not enter the security code!**

2. Wait about 15 seconds for the system to time out and say

“Good-bye”

3. After a few seconds, a modem carrier should be heard.

4. Hang up.

### 2.9.3 DS1 Trunk Verification

Verify that the DS1 trunk is working properly:

1. After all network alarms at both the 17A system and the switch are clear, verify that a directory number has been assigned to the trunk group connected to the 17A system. Set up the trunk group so that when a call is routed to it, all digits are deleted and it prefixes any three MF tones. This may require the assistance of a switch maintenance person or a system administrator.
2. Call the trunk and verify the presence of the following default message:

“No slot is currently assigned to this MF code.”

If any other number of digits up to 16 are prefixed, the default message played will be:

“Invalid MF code”

### 2.9.4 External Audio Source Verification

The use of an external audio source is an optional feature. If this feature is going to be used, complete the following steps:

1. Verify that the audio source is cross connected to the external audio source pair of the 17A at the MDF.

2. Disconnect the alarm cable from connector P6 at the back of the 17A and verify that the audio source is present between pins 12 and 13.
3. Reconnect the alarm cable to connector P6 of the 17A.

### **2.10 Concluding Remarks**

If you have not done so, give the system administrator or switch maintenance person the additional copy of the 17A Announcement System Description and Operating Procedures manual.

Give the Change Number Intercept Administrator's Guide for the 17A Announcement System and the associated CNI Manager CD to the CNI administrator if the CNI feature is going to be used.

If you should require any assistance in performing this installation, please contact the Announcements Systems Department at:

1-800-352-5563 (within the United States)

1-973-386-4311 (outside the United States)



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# Administrator's Guide

# 3

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## **3.1 Announcements**

### **3.1.1 Announcement Organization on the 17A**

The 17A memory used for recording announcements is organized into 166 distinct memory locations or slots. The maximum length of a recording on a slot is a function of the slot number as indicated below:

- Slots 000 - 120: 121 one minute announcements
- Slots 121 - 150: 30 two minute announcements
- Slots 151 - 165: 15 four minute announcements

Announcements can be recorded ahead of time and stored for later use. An announcement does not become available for use until the slot on which it is recorded is assigned to an MF code.

### **3.1.2 Assigning Slots to MF Codes**

After an announcement is recorded on a slot, the slot may then be assigned to an MF code that is used to identify the announcement. A slot cannot be assigned to an MF code if the slot is empty, i.e., if an announcement is not recorded on the slot. MF codes in the range of 000 to 999 are valid MF codes. If a slot is assigned to an MF code with more than three digits, only the first three digits are used.

When the switch seizes a 17A interoffice trunk channel and transmits a three digit MF code to the 17A, the announcement in the slot assigned to that particular MF code is played out over that trunk channel. The announcement starts immediately. Such announcements are called immediate start announcements. MF code assignments must be coordinated with the switch using the announcements.

If the same MF code is transmitted by the switch to the 17A over several different trunk channels and at different times, the same announcement is played out over the respective trunk channels immediately and at different times corresponding to the time that the switch seized the trunk channel and sent the MF code.

If a caller hangs up before the end of an immediate start announcement, the 17A disconnects and the trunk channel becomes available for the next caller.

### **3.1.3 Linking Slots to Channels**

After an announcement is recorded on a slot and the slot is assigned to an MF code, the same slot may then be linked to an announcement trunk channel. The 17A plays the announcement continuously over the trunk channel to which the slot is linked. A slot cannot be linked to a trunk channel if the slot is not assigned to an MF code.

Typically, network announcements are linked (nailed up) to a trunk channel. The 17A sends a start signal to the switch at the beginning of the network announcement each time the announcement plays.

For these broadcast trunk channels, no MF codes are sent from the switch over the trunk channel to the 17A in order to play the announcement. The MF code to which the slot is assigned does not affect the switch routing index.

The 5ESS central office domestic switch delivers each broadcast announcement to as many as 60 callers simultaneously.

The trunk channels are numbered from 0 to 23 and correspond to time slots 1 to 24 respectively on the DS1 facility.

### **3.1.4 Slot Signaling Types**

Each announcement slot can be individually configured to be either answer or no-answer supervision. An announcement slot configured for answer supervision incurs billing when accessed by the caller over an interoffice trunk channel. Typically announcement slots used for immediate start announcements are configured for answer supervision. With answer supervision, the 17A disconnects the call upon completion of the announcement playback.

If an announcement slot is configured for no-answer supervision, billing is not triggered when the announcement is played back over an interoffice trunk channel and the 17A sends reorder until the caller disconnects.

For announcement trunk channels used for network announcements that are broadcast to multiple callers, the signaling type does not have to be set to a specific state as this information is not used by the switch.

The 17A default setting from the factory for signaling is answer supervision for all slots.

### **3.1.5 Updating or Replacing Announcements Used for Immediate Start**

If an immediate start announcement must be replaced or is routinely updated, a 17A procedure that reduces the unavailability time for the announcement to essentially zero is as follows:

- Record the new announcement on an unused slot of the same length.
- Assign the slot with the new announcement to the same MF code that is used for the old announcement. The new announcement is immediately placed into service and the old announcement is taken out of service since it is no longer assigned to an MF code.
- Erase the old announcement so that the slot can be reused in the future for a new announcement.

As soon as the new announcement is assigned to the MF code for the old announcement, any future caller listening to the announcement over the interoffice trunk channel hears the new announcement. If a caller is listening to the old announcement at the instant that the old announcement slot is unassigned from the MF code, the caller is immediately disconnected from the trunk channel while listening to the old announcement. If the slot is configured for no-answer supervision, the caller hears reorder until the caller disconnects.

### **3.1.6 Updating or Replacing Announcements Used for Broadcast**

If a network broadcast announcement must be updated or replaced, a procedure that reduces the unavailability time for the broadcast announcement to essentially zero is as follows:

- Record the new broadcast announcement on an unused slot.
- Assign an unused MF code.
- Link the slot with the new announcement to the announcement trunk channel to which the old announcement slot is linked. The new announcement is placed into service immediately.
- Unassign the slot with the old announcement from its MF code and then erase the announcement.

If a caller is listening to the old broadcast announcement at the instant the linkage is changed, the caller is disconnected from the trunk channel.

### **3.1.7 Using the Same Announcement for Both Immediate Start and Broadcast**

An announcement can be used simultaneously as an immediate start announcement as well as a broadcast announcement. In other words, an announcement recorded on a slot linked to an announcement trunk channel is broadcast continuously on that channel and at the same time may be played out over one or more interoffice trunk channels. The starting times for the announcements are probably all different, depending on when the switch seized the various interoffice trunk channels and sent the same MF code over each to the 17A. The signaling type for all instances of the immediate start announcements must all be the same, e.g., answer supervision, since the signaling type is set by the slot with the common announce-

ment. Broadcast announcements linked to channels are independent of signaling type by the nature of the announcement trunk channel.

### **3.2 Automatic Number Announcement Circuit**

The ANAC feature is typically used by a craft person for identifying telephone lines. After the craft person dials the ANAC access code from the line to be identified, the switch sends a combined prefix and ANAC access code to the 17A over a CAMA trunk channel followed by the telephone number of the line used by the craft person to make the ANAC call. Depending on which option is chosen, the 17A either voices the calling line telephone number to the craft person or sends DTMF tones over the calling line which are interpreted by equipment attached to the line.

The 17A uses the prefix and access code received from the switch to determine that the call is an ANAC call. A default prefix code is set to 1000 at the factory. No access code is provided at the factory. The default prefix code is generally changed by the ANAC administrator and an access code is added. The combined prefix and access code may be from one to fourteen digits.

If a three digit combined prefix and access code is used for ANAC, that three digit code cannot be used for an announcement slot.

The 17A sets the signaling on the CAMA trunk channel used for ANAC to answer supervision; billing may occur for the ANAC call.

The 17A ANAC feature can be optioned in one of three ways for playing back the automatic number announcement:

- always voice the telephone number,
- always play the telephone number using DTMF tones, or
- play the telephone number in the way chosen by the craft person.

If this third option is chosen, the 17A first plays a DTMF \* tone to the craft person. The 17A then waits from one to eight seconds, depending on how the 17A is programmed, for a DTMF # tone from the craft person. If a DTMF # tone is received by the 17A from the craft person before the time-out, the automatic number announcement is played using DTMF digits. Otherwise, the automatic number announcement is voiced.

### **3.3 External Audio Source**

One external audio source may be connected to the 17A, List 6 system and broadcast to multiple callers. The external audio source is placed into service by linking it to one of the 24 announcement trunk channels. The trunk channel used for the external audio source becomes unavailable for any other 17A services. The external audio source may be taken out of service by unlinking it from the trunk channel.

### **3.4 Change Number Intercept (CNI)**

The 17A, List 6 system provides CNI announcements that are played to a caller who dials a telephone number that has been changed recently. The process is as follows.

A central office switch intercepts a call to a number that has been recently changed and routes that call to the 17A over an interoffice trunk channel. The switch sends a four digit CNI prefix and the old number to the 17A. In response, the 17A plays an announcement that voices the old number followed by the new number. This announcement is played either once or twice, depending on how an option is set for each old telephone number in the CNI database. A language choice is required for each old number. The languages that may be used are English, Spanish, and French. A different language may be chosen for the first and second time that the announcement is played back to the caller.

CNI announcements are installed in the 17A at the factory. They cannot be installed by a CNI administrator.

A default four digit CNI prefix is also installed at the factory; this default prefix is 2000. The CNI administrator can change this default prefix so that it agrees with the prefix used by the switch.

#### **3.4.1 CNI Administration**

A special purpose software program supplied by Lucent Technologies, called the CNI Manager, is used for CNI administration. The CNI Manager is installed on a Personal Computer (PC) that is provided locally. Almost any PC with Windows 95 or Windows 98 and equipped with a modem can be used for CNI administration.

See the Change Number Intercept Administrator's Guide for the 17A Announcement System for a description of how to administer the 17A CNI feature from a locally provided personal computer (PC).

#### **3.4.2 Setting Up a CNI Administration Session**

To set up a CNI administration session, the following steps are completed:

- Using the initial CNI Manager window, the CNI administrator dials the 17A and establishes a modem call with the 17A over the analog POTS line connected to the 17A.
- The CNI PC sends a CNI ID to the 17A.
- If the CNI ID is a valid ID stored on the 17A, the 17A sends back its own serial number to the CNI PC.

If the CNI ID is not valid, an invalid CNI ID message is sent to the CNI PC and displayed on a CNI Manager window. The CNI administrator terminates the modem call to the 17A.

- If the CNI ID that the 17A receives is valid, the 17A hangs up, looks up the callback number for the CNI PC that just called, calls back the CNI PC, and establishes a second modem call with the CNI PC.
- The 17A sends its serial number again to confirm its identity.
- The CNI PC checks the 17A serial number with the one it received during the first modem call. If the two 17A serial numbers agree and the rest of the handshake is completed successfully, the CNI Remote Administration window opens.

### **3.4.3 Installing the CNI ID and Callback Number on the 17A**

For the security protocol described in the previous section, a CNI ID and a CNI callback number are installed on the 17A for each CNI computer that accesses the 17A. Use a locally supplied laptop or other computer with Windows 95, Windows 98, or Windows NT to input this information into the 17A via the 17A serial port.

The Windows utility Hyper Terminal may be used to communicate with the 17A via the serial port. Hyper Terminal is used to perform the following functions:

- add, modify, or delete a CNI ID and a callback number.
- reset the 17A security code to the default security code.

Hyper Terminal must be configured appropriately the first time it is used to communicate with the 17A. Thereafter, it is only necessary to double click on a file that is created during the configuration process to open a Hyper Terminal session with a 17A at another time.

You may also use a terminal or a computer with a terminal emulator to input the CNI ID and call-back number instead of using a computer with Windows.

Using a serial port cable that is purchased locally (see Section 2.1 for the cable specifications), connect one end to the 17A serial port connector P7 on the 17A backplane and the other end to an available serial port on the computer.

#### **3.4.3.1 Configuring Hyper Terminal**

Use the following procedure to configure Hyper Terminal the first time it is used with the 17A.

**Table 3.1. Configuring Hyper Terminal**

Step	Action
1	Return to the desk top. Click on <b>Start -&gt; Programs -&gt; Accessories -&gt; Communications -&gt; Hyper Terminal</b> and the initial <b>Hyper Terminal</b> window opens. On some computers, the path may not require the "Communications" link to reach Hyper Terminal.
2	If the <b>Connection Description</b> window does not open automatically, double click on the <b>Hypertrm.exe</b> icon in the <b>Hyper Terminal</b> window and the <b>Connection Description</b> window opens.
3	Type in a name in the <b>Name:</b> field such as <b>CNI data</b> .
4	Click on any <b>icon</b> you wish. This icon will then appear on the initial <b>Hyper Terminal</b> window with the label <b>CNI data</b> that you supplied in Step 3.
5	Click on <b>OK</b> . The <b>Phone Number</b> or the <b>Connect to</b> window opens.
6	In the <b>Connect using:</b> field, select the serial port to which you connected the serial port cable from the 17A. For example, click on Direct to COM 1 if the serial port cable from the 17A is connected to serial port 1. Some PCs may label the serial ports as A1 and B2 for example.  You do not need to enter a telephone number.
7	Click on <b>OK</b> .
8	Assuming that Serial port 1 was chosen above, in the <b>COM 1 Properties</b> window, enter the following information in the appropriate fields:  <b>Bits per second:</b> 57,600 <b>Data bits:</b> 8 <b>Parity:</b> None <b>Stop bits:</b> 1 <b>Flow Control:</b> None
9	Click on <b>OK</b> to return to the <b>CNI data - Hyper Terminal</b> window.
10	Click on <b>File -&gt; Properties</b> and the <b>CNI data Properties</b> window opens.

**Table 3.1. Configuring Hyper Terminal**

11	<p>Click on the <b>Settings</b> tab.</p> <ul style="list-style-type: none"> <li>• Verify that <b>Terminal Keys</b> is selected.</li> <li>• If available, click on <b>Ctrl + H, Space, Ctrl + H</b>.</li> <li>• Click on ASCII Setup to open the <b>ASCII Setup</b> window. Check the following boxes: <ul style="list-style-type: none"> <li>• ASCII Sending - <ol style="list-style-type: none"> <li>1. Send line ends with line feed.</li> <li>2. Echo typed characters locally.</li> </ol> <p style="margin-left: 40px;">Leave the two delays set to zero.</p> </li> <li>• ASCII Receiving - <ol style="list-style-type: none"> <li>1. Wrap lines that exceed terminal width.</li> </ol> </li> </ul> </li> </ul>
12	Click on <b>OK</b> and the <b>ASCII Setup</b> window closes.
13	Click on <b>OK</b> and the <b>CNI data Properties</b> window closes.
14	<p>Click on <b>File -&gt; Save</b>.</p> <p>The <b>CNI data - Hyper Terminal</b> window should be filled with \$\$\$\$. This means that Hyper Terminal is communicating with the 17A.</p> <p>If the <b>CNI data - Hyper Terminal</b> window is not filling with \$\$\$\$,</p> <ul style="list-style-type: none"> <li>• check the serial port cable connection between the 17A and the computer using the Hyper Terminal utility.</li> <li>• verify that the 17A POTS line is <b>not</b> in use. If the 17A POTS line is off hook, the serial port will not function.</li> <li>• reconfigure Hyper Terminal again using the procedures of this table.</li> </ul>

### 3.4.3.2 Opening the CNI data - Hyper Terminal File Already Configured for 17A Operation

Use the following procedure to open the **CNI data - Hyper Terminal** file already configured for operation with the 17A. The assumption is that the name **CNI data** is the Hyper Terminal name selected when first configuring Hyper Terminal for operation with the 17A.

**Table 3.2. Opening CNI data - Hyper Terminal**

Step	Action
1	Return to the desk top. Click on <b>Start -&gt; Programs -&gt; Accessories -&gt; Communications -&gt; Hyper Terminal</b> . On some computers, the path may not require the "Communications" link to reach Hyper Terminal.
2	If it is open, close the <b>Connection Description</b> window by clicking on <b>Cancel</b> .
3	If the <b>New Connection - Hyper Terminal</b> window opens, click on <b>File -&gt; Open</b> . Otherwise skip to Step 4.
4	<p>Double-click on the <b>CNI data.ht</b> file and the <b>CNI data - Hyper Terminal</b> window opens. This window should be filling with \$\$\$\$. This means that Hyper Terminal is communicating with the 17A.</p> <p>If the window is not filling with \$\$\$\$,</p> <ul style="list-style-type: none"> <li>• check the serial port cable connection between the 17A and the computer using the Hyper Terminal utility.</li> <li>• verify that the 17A POTS line is <b>not</b> in use. If the 17A POTS line is off hook, the serial port will not function.</li> <li>• reconfigure Hyper Terminal again using the procedure of Table 3.1.</li> </ul>
5	Go to Section 3.4.3.3 for the procedure for installing the CNI callback number and the CNI ID.

### 3.4.3.3 Adding, Deleting, or Modifying the CNI ID and CNI Call-Back Number on the 17A

After the CNI data - Hyper Terminal file is open and Hyper Terminal is communicating with the 17A (see Section 3.4.3.1 or 3.4.3.2), i.e., the **CNI data - Hyper Terminal** window is filling with \$\$\$, complete the following procedure to add, delete, or modify, the CNI ID and the CNI callback number.

**Table 3.3. Adding, Deleting, or Modifying the CNI ID and the CNI Callback Number**

1	<p>To start communicating with the 17A, type !.</p> <p><b>⇒ NOTE:</b> A CNI ID and CNI call-back number may already be installed in row 9 for factory system test purposes. This information in row 9 may also be used by the Announcement Systems Department to assist you in diagnosing 17A problems in the future. You may delete row 9 if you wish.</p>
2	<p>At the 17A prompt, type in <b>modify_cni_id</b>. Press <b>Enter</b>.</p>
3	<p>Enter an <b>INDEX</b> from 0 to 9 to identify the row to add, delete, or modify the CNI ID and the CNI call-back number (called the DIAL STRING); press <b>Enter</b>. See Table 3.4 below for the special characters that may be used in the DIAL STRING for calling back the CNI computer.</p>
4	<p>At the 17A prompt, type in one of the following:</p> <ul style="list-style-type: none"> <li>• type <b>_delete</b> to delete the row identified by the INDEX; press <b>Enter</b>, or</li> <li>• type in the <b>CNI ID</b> (1 to 8 alphanumeric characters) to either add a CNI ID or modify an existing CNI ID on the row identified by the INDEX; press <b>Enter</b>, and</li> <li>• type in a <b>DIAL STRING</b> to either add the DIAL STRING or modify an existing DIAL STRING; press <b>Enter</b>.</li> </ul>
5	<p>Type <b>r</b> and press <b>Enter</b> to re-display the window. Verify that the data has been entered or modified correctly.</p> <p><b>⇒ NOTE:</b> You may also reset the 17A security code used by the 17A to the default security code by using the 17A serial port.</p> <p>At the 17A prompt, type <b>reset_security_code</b>; press <b>Enter</b>.</p>
6	<p>Type <b>e</b> and press <b>Enter</b> to terminate the 17A serial port session.</p>
7	<p>Close the <b>CNI data - Hyper Terminal</b> window by clicking on <b>File -&gt; Exit</b> and then <b>Yes</b>.</p>

Dial string parameters that are supported by the modem in the 17A are listed in the following table. These dial string parameters may be used as part of the CNI call-back number if necessary.

**Table 3.4. Supported Dial Modifiers for the CNI Callback Number**

<b>Parameter</b>	<b>Description</b>
0 - 9	DTMF digits 0 through 9.
A -D	DTMF digits A, B, C, and D. Some countries may prohibit sending of these digits during dialing.
*	The "star" digit (tone dialing only).
#	The "gate" digit (tone dialing only).
P	Select pulse dialing: pulse dial the numbers that follow until a "T" is encountered. Affects current and subsequent dialing. Some countries prevent changing dialing modes after the first digit is dialed.
T	Select tone dialing: tone dial the numbers that follow until a "P" is encountered. Affects current and subsequent dialing. Some countries prevent changing dialing modes after the first digit is dialed.
!	Flash: the modem will go on-hook for 0.7 seconds. Country requirements may limit the time imposed.
W	Wait for dial tone: the modem will wait for dial tone before dialing the digits following "W". If dial tone is not detected within 120 seconds (US) or 2 seconds (W-class), the modem will abort the rest of the sequence, return on-hook, and generate an error message.
@	Wait for silence: the modem will wait for at least 5 seconds of silence in the call progress frequency band before continuing with the next dial string parameter. If the modem does not detect these 5 seconds of silence before 120 seconds, the modem will terminate the call attempt with a NO ANSWER message. If busy detection is enabled, the modem may terminate the call with the BUSY result code. If answer tone arrives during execution of this parameter, the modem handshakes.

**Table 3.4. Supported Dial Modifiers for the CNI Callback Number**

&	Wait for credit card dialing tone before continuing with the dial string. If the tone is not detected within 120 seconds (US) or 2 seconds (W-class models), the modem will abort the rest of the sequence, return on-hook, and generate an error message.
,	Dial pause: the modem will pause for 2 seconds before dialing the digits following “,”.
^	Toggles calling tone enable/disable: applicable to current dial attempt only.

### **3.5 System Administration Overview**

The 17A can only be administered remotely by dialing the analog telephone line connected to the 17A. If a telephone is used to send touch tone signals to control the 17A, the 17A responds to the touch tone signals with voice prompts.

When the RASM is used to administer the 17A, both the 17A and the RASM send and receive touch tone signals for control. RASM documentation describes how to use the RASM to administer the 17A.

The remainder of this chapter describes the 17A administration using a telephone.

#### **3.5.1 Security Codes**

In order to access a 17A, a system administrator dials the 17A. After the 17A answers with a tone, a voice prompt, and another shorter tone, the administrator then enters a \* followed by an 8-digit security code. A default security code is programmed into the 17A at the factory (\*47985621). **The system administrator is strongly encouraged to change the security code to a unique code.**

If a unique security code is forgotten or lost, thereby preventing access to the 17A, the security code can be reset to the default security code at the location of the 17A as described in Appendix A.

#### **3.5.2 Functions**

A system administrator performs 17A functions by entering a touch tone function code from the following table.

**Table 3.5. Main Menu Functions for the 17A**

<b>Function</b>	<b>Function Code</b>
Slot Operations	0
MF Code Search - slot assigned to MF code	1
Trunk Channel Search - slot assigned to trunk channel	2
Automatic Number Announcement and External Audio Source Operations	3
Perform Diagnostics	4
Change Security Code	8
Help	*
Return to the Main Function Code Menu	#

### 3.5.3 Slot Operations

The system administrator performs slot operations using the following steps:

- enter the function code 0 from the Main Menu,
- enter a three digit slot number or a three digit search number,
- enter a slot operation code from the following table.

**Table 3.6. Slot Operations for the 17A**

Slot Operations	Slot Operation Codes
Change Slot Selection	0
Slot Status	1
Playback the Slot	2
Assign Slot to MF Code	3
Unassign Slot MF Code	4
Slot Signaling Type Selection	5
Erase the Announcement on the Slot	6
Link/Unlink Slot to a Trunk Channel	7
Record an Announcement on a Slot	9
Help	*
Return to Main Function Code Menu	#

### 3.5.4 MF Code Search

The system administrator performs an MF code search using the following steps:

- enter function code 1 from the Main Menu,
- enter a three digit MF code to retrieve the slot number assigned to the MF code. The 17A plays back the announcement recorded in the slot.

### 3.5.5 Trunk Channel Search

The system administrator performs a trunk channel search using the following steps:

- enter function code 2 from the Main Menu,

- enter a two digit trunk channel number from 00 to 23 to retrieve the slot number linked to the trunk channel. The 17A plays back the announcement recorded in the slot.

### 3.5.6 Automatic Number Announcement (ANA) and External Audio Source Operations

The system administrator enters function code 3 from the Main Menu and then enters an operation code from the following table for ANA and external audio source operations.

**Table 3.7. ANA and External Audio Source Operations for the 17A**

ANA and External Audio Source Operations	Operation Codes
Select how ANA is played	0
Change the ANA Combined Prefix plus Access Code	1
Link or unlink an external audio source to a trunk channel	9

#### 3.5.6.1 Select How ANA is Played

The system administrator enters the ANA operation code 0 and then enters a code from the following table to select how ANA is played.

**Table 3.8. Selecting How ANA is Played**

Select How ANA is Played	Code
Always voice ANA	0
Always play ANA using DTMF tones	9
Enter 1, 2, ..., or 8 to allow the caller to determine how ANA is played (See Note below)	1, 2, ..., or 8
Enter * to exit without changing how ANA is played	*

#### **NOTE:**

To allow the caller to determine how the ANA is played, the administrator enters a waiting period from one to eight seconds by entering a digit from one to eight. When the 17A receives a call for ANA, the 17A plays the DTMF \* tone to the caller and then waits from one to eight seconds for a

DTMF # tone from the caller. If a DTMF # is received, the ANA is played using DTMF digits. Otherwise, the 17A voices the ANA number.

### 3.5.6.2 Change the ANA Combined Prefix and Access Code

The system administrator performs the following steps to change the ANA combined prefix and access code:

- enter the ANA operation code 1
- enter from one to fourteen digits followed by a \* to change the ANA combined prefix and access code.

To exit without changing the combined prefix and access code, just enter a \*.

#### **NOTE:**

If a three digit code chosen for the ANA combined prefix and access code already has an announcement slot assigned to it, a diagnostic message indicates that this code is not available.

### 3.5.6.3 Select a Trunk Channel for the External Audio Source

The system administrator performs the following step to link the external audio source to a trunk channel:

- enter the External Audio Source operation code 9.
- enter the two digit number for the trunk channel. The trunk channel numbers range from 00 to 23.

If an external audio source is already linked to a trunk channel, enter the two digit confirmation code provided by the 17A to unlink the external audio source from the trunk channel.

Enter \* to exit without changing the trunk channel linked to the external audio source

#### **NOTE:**

If the two digit trunk channel number chosen for the external audio source already has an announcement slot linked to it, a diagnostic message indicates that this trunk channel is not available.

## 3.5.7 Diagnostics

After accessing the 17A using the dial-in number, enter Function Code 4 to run diagnostics. If a system problem is encountered during the diagnostics check, the 17A reports which alarms are active. Contact the appropriate repair staff to service the 17A. Troubleshooting procedures are in Appendix C.

### **3.5.8 Change Security Code**

The system administrator changes the security code by completing the following steps:

- enter the function code 8.
- enter the new eight digit security code. Do not enter a \* at the beginning.
- re-enter the eight digit security code as prompted by the 17A.

### **3.5.9 Error Conditions and Failures**

If an invalid security code is entered, the 17A responds “Invalid Entry, Good-bye” and hangs up.

If an invalid function code or invalid data is entered, the 17A responds with “Invalid Entry.”

The 17A monitors response time and times out under the following conditions:

- After the 17A prompts the administrator to enter the security code, the 17A waits 30 seconds and then sends modem carrier if no security code is entered.
- After the 17A prompts the administrator to enter either a function code, an operation code, or data, the 17A waits 180 seconds and hangs up if no entry is made.

If the 17A does not respond, press # to return to the main function code menu.

If the 17A does not respond to ringing, the 17A may have failed. A repair person should be dispatched fix the 17A. Troubleshooting procedures are contained in Appendix C.

## **3.6 Recording Announcements Remotely on the 17A**

The following three methods are used to record announcements remotely on the 17A via a standard analog POTS line assigned to the 17A. Announcements cannot be recorded locally on the 17A.

- Use a touch tone telephone and speak the announcement into the handset.
- Use a tape recorder, a CD player, or any other device with an audio output, such as a computer.
- Use RASM. Making recordings using RASM is described in the RASM documentation and is not discussed further in this document.

### **3.6.1 Recording Announcements Remotely Using the Telephone Handset**

The procedure for recording an announcement by speaking the announcement into the telephone handset is as follows:

1. Dial the 17A.
2. Enter the security code when prompted by the 17A.
3. Press 0 for Slot Operations.
4. Enter a three digit slot number for the slot you wish to use for the announcement.
5. Press 9 to record an announcement on the slot chosen in Step 4.
6. When you hear the tone, speak the announcement into the handset.
7. Verify the quality of the recording by pressing 2 to playback the announcement on the slot. If the quality of the recording is satisfactory, hang up the handset to terminate the call to the 17A.
8. If you wish to re-record the slot, press 6 to erase the announcement on the slot. Enter the confirmation code provided by the 17A.
9. Repeat Steps 5 - 8 as many times as necessary to obtain a satisfactory recording.

### **3.6.2 Recording Announcements Remotely From an Audio Source**

This section describes how to record announcements remotely on a 17A using an audio source from either a tape recorder, a CD player, or a computer.

A Headset Switcher™, provided with the 17A, is used to connect an audio source to a telephone line through a telephone. Announcements are monitored as they are played from the audio source by using a headset that is connected to the Headset Switcher. The headset is also included with the 17A. The telephone handset cannot be used to monitor announcements as they are played from the audio source.

#### **3.6.2.1 Setting Up and Adjusting the Headset Switcher**

Follow the instructions in the Headset Switcher User's Guide for setting up and adjusting the Headset Switcher. These instructions include:

- Interconnection instructions for the Headset Switcher, a telephone, an audio source, the headset, and the AC power supply for the Headset Switcher. The Headset Switcher can also be powered from two AA alkaline batteries.
- Adjustment instructions for

- the headset incoming volume,
- the headset outgoing volume,
- the telephone/amplifier compatibility switch, and
- the audio source incoming volume.

### 3.6.2.2 Testing the Headset Switcher

After completing the above interconnections and adjustments, verify that you can make and receive calls using the headset. Set the switches on the Headset Switcher as follows:

- Headset/Handset rocker switch is set on headset.
- Microphone switch (right switch) is released (no red indicator showing). If this switch is operated (red indicator showing), the headset microphone is muted.
- Telephone/Audio Source switch (left switch) is released (no red indicator showing). If this switch is operated (red indicator showing), both the audio source, if present, and received telephone line audio are heard in the headset.

Verify that you can also make and receive calls with the handset. To do this change the Headset/Handset switch to handset. The Microphone switch and the Telephone/Audio Source switch can be either operated or released. These two switches have no effect on audio transmitted to the telephone line or received from the telephone line when the handset is used. The audio source cannot be heard in the handset for any of the switch positions.

### 3.6.2.3 Recording an Announcement on the 17A

After completing the interconnections and adjustments for the Headset Switcher and verifying that telephone calls can be made using the headset and the handset, practice recording an announcement on the 17A using an audio source and the Headset Switcher. The procedure is as follows:

1. Set the switches as follows:
  - Headset/Handset Switch on Headset.
  - Microphone Switch is operated (red indicator showing). The headset microphone is muted and the audio source is connected to the telephone line.
  - Telephone/Computer Audio Switch is operated (red indicator showing). The audio source is enabled and can be heard in the headset.
2. Lift the phone handset off the cradle and place it on your desk.

3. Dial the 17A.
4. Enter the security code when prompted by the 17A.
5. Press 0 for Slot Operations.
6. Enter a three digit slot number for the slot you wish to use for the announcement.
7. Press 9 to record an announcement on the slot chosen in step 6.
8. When you hear the tone, start the audio source for the announcement to be recorded.
9. Stop the audio source at the end of the announcement.
10. Verify the quality of the recording by pressing 2 to playback the announcement on the slot. If the quality of the recording is satisfactory, hang up the handset to terminate the call to the 17A.
11. If you wish to re-record the slot, press 6 to erase the announcement on the slot. Enter the confirmation code provided by the 17A.
12. Repeat Steps 7 - 11 as many times as necessary to obtain a satisfactory recording.

### **3.7 Impact of Flash Memory Read Limitations on Playing Announcements**

Flash memory is organized into blocks of memory such that when erasing/writing any part of that block, it is not possible to read from any other part of that block at the same time. The blocks of memory are known as "device pairs." From one to four announcement slots are contained in each device pair, depending on whether the announcement slots are one minute, two minute, or four minute slots.

By way of example, assume that one particular device pair is the memory allocated for four one-minute announcement slots. No announcement play limitations occur when the first of the four slots is recorded. When recording a second one-minute announcement in any of the other three slots in the device pair, the first announcement slot that was recorded is unavailable for use for a maximum of one minute. When recording a third one-minute announcement in either of the two remaining slots of the device pair, the first two announcements that were recorded are unavailable for a maximum of one minute. When recording a fourth one-minute announcement in the last remaining slot of the device pair, the first three announcements that were recorded in the same device pair are unavailable for a maximum of one minute. During the short period of unavailability, an administrative message is played instead: "This system is under administration. Please try your call again later."

Since a device pair holds only one four minute announcement, the read limitation

does not affect four minute announcements.

Table 3.9 shows how the slots are allocated among each of the 64 device pairs that are used for the 17A announcements. Each row of slots in the table represents a device pair. Thirty device pairs are used for one minute slots 1 through 120 with four slots per device pair. Fifteen device pairs are used for the four minute slots 151 through 165 with one slot per device pair. Twenty two device pairs are used for two minute slots 128 - 138, and 140 - 150 with two slots per device pair. Seven device pairs are half the size of the rest and are used for two minute slots 121 - 127 with one slot per device pair. One device pair contains a hybrid of two slot lengths; slot 0 is a one minute slot and slot 139 is a two minute slot.

Up to the point where only one slot is used per device pair, no interruption in the playing of an announcement occurs during the recording of another announcement. One example are the 64 slots in column 1 of Table 3.9. Many other combinations are possible by choosing different slots for many of the device pairs, e.g., by choosing slots 31 - 60 instead of slots 1 - 30.

By design, the slots have been assigned to the device pairs in a manner to minimize announcement play limitations if the slots are recorded in ascending order from 0 to 30 for one minute announcements and 121 through 138 for two minute announcements. The four minute slots can be recorded in any order.

**Table 3.9. Slots in Each Device Pair - One Device Pair Per Row)**

Device Pairs - 64 Used (Each Row is a Device Pair)	Slots			
	Column 1	Column 2	Column 3	Column 4
Slot 0 - One-Minute Slot 139 -Two Min-utes	0	139		
One Minute Slots	1	31	61	91
	2	32	62	92
	.	.	.	.
	.	.	.	.
	30	60	90	120
Two Minute Slots	121			
	122			
	.			
	.			
	127			
	128	140		
	129	141		
	.	.		
	.	.		
	138	150		

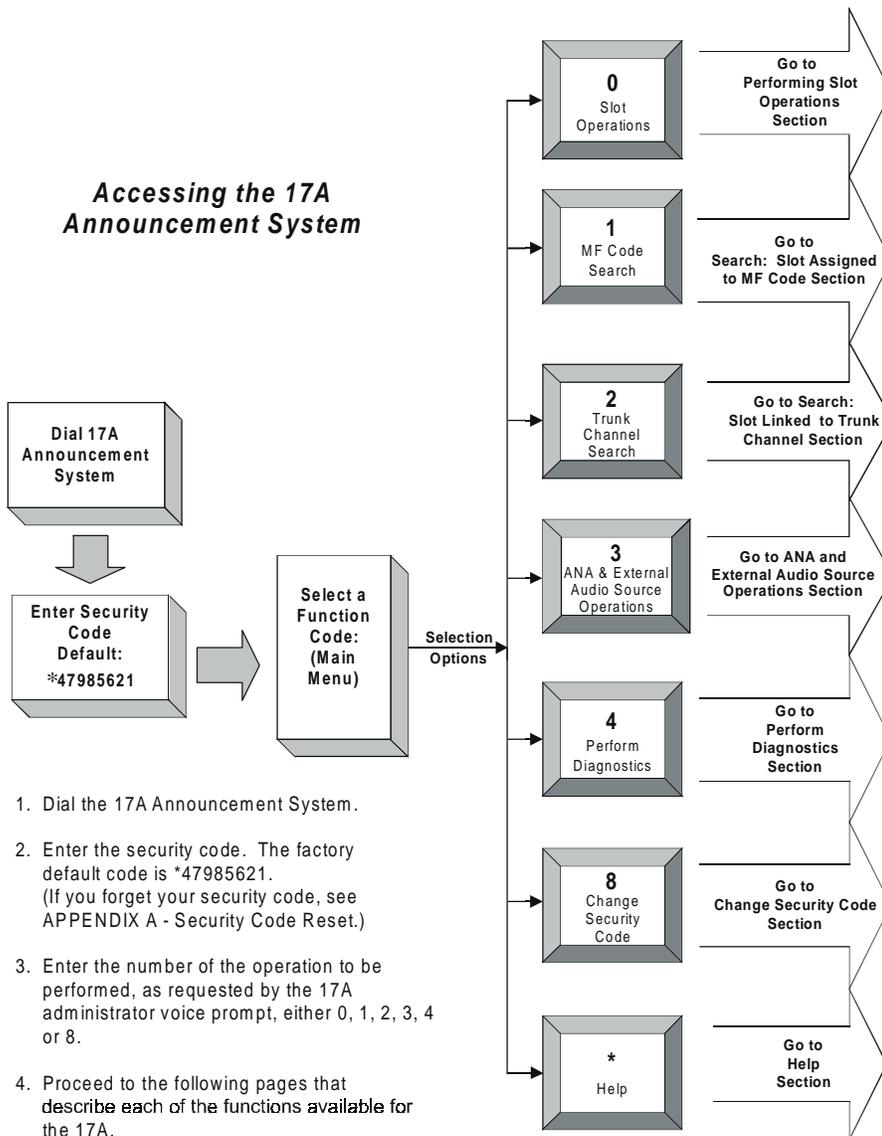
**Table 3.9. Slots in Each Device Pair - One Device Pair Per Row)**

Device Pairs - 64 Used (Each Row is a Device Pair)	Slots			
	Column 1	Column 2	Column 3	Column 4
Four Minute Slots	151			
	152			
	153			
	.			
	.			
	165			
<b>TOTAL SLOTS</b>	64	42	30	30

### **3.8 System Administration - Detailed Description**

The following pages contain step-by-step information for accessing and using the 17A features.

### Accessing the 17A Announcement System



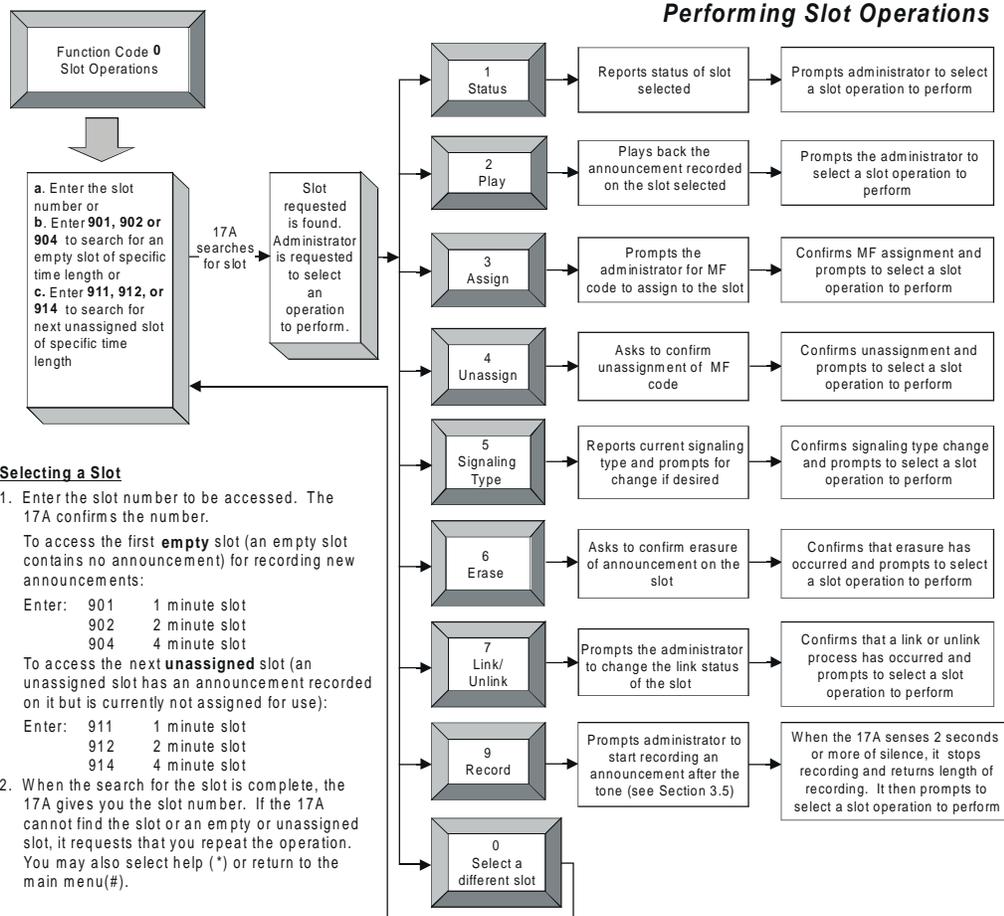
1. Dial the 17A Announcement System.
2. Enter the security code. The factory default code is \*47985621. (If you forget your security code, see APPENDIX A - Security Code Reset.)
3. Enter the number of the operation to be performed, as requested by the 17A administrator voice prompt, either 0, 1, 2, 3, 4 or 8.
4. Proceed to the following pages that describe each of the functions available for the 17A.

The 17A always advises if an incorrect selection is made and allows the administrator to either make a new selection or select the help function.

Hang up at any time to terminate the session.

**Terms to Remember:**

- SLOT - memory space for an announcement
- EMPTY SLOT - no announcement recorded
- UNASSIGNED SLOT - recorded but not assigned to MF code
- ASSIGNED SLOT - recorded and assigned to MF code
- FUNCTION CODE - an action performed by 17A
- LINKED SLOT - recorded, assigned to MF code and linked to a trunk channel
- UNLINKED SLOT - not linked to a trunk channel
- Press \* for help
- Press # to return to the Main Menu



**Selecting a Slot**

- Enter the slot number to be accessed. The 17A confirms the number.  
To access the first **empty** slot (an empty slot contains no announcement) for recording new announcements:  
Enter: 901 1 minute slot  
902 2 minute slot  
904 4 minute slot  
To access the next **unassigned** slot (an unassigned slot has an announcement recorded on it but is currently not assigned for use):  
Enter: 911 1 minute slot  
912 2 minute slot  
914 4 minute slot
- When the search for the slot is complete, the 17A gives you the slot number. If the 17A cannot find the slot or an empty or unassigned slot, it requests that you repeat the operation. You may also select help (\*) or return to the main menu(#).

**Slot Operations**

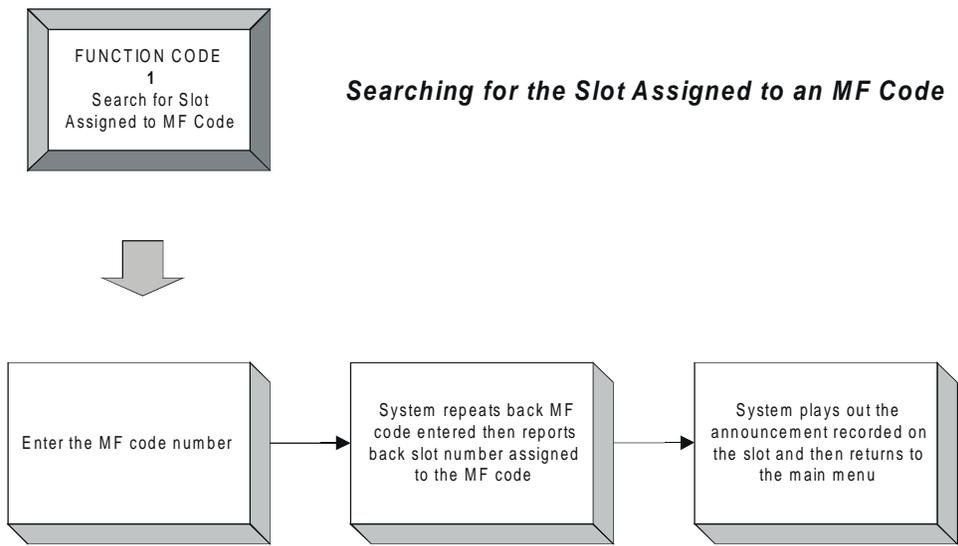
- 0 - Select a Different Slot** - Administrator enters a new slot number.
- 1 - Determine Slot Status** - The slot may be empty or it may have an announcement recorded on it. If an announcement is recorded on the slot, the following information is provided:
  - Length of announcement
  - MF code to which slot is assigned, if any
  - Trunk channel number to which slot is linked, if any
  - Answer/no answer supervision (signaling type)
- 2 - Play the Slot** - Plays out the announcement recorded.
- 3 - Assign the Slot** - Allows administrator to assign the slot to the MF code.
- 4 - Unassign the Slot** - Allows administrator to unassign the slot from the MF code to take it out of service. The announcement remains recorded on the slot, but inactive.
- 5 - Change the Slot Signaling Type** - Notifies administrator of signaling type and allows administrator to change the type of signaling used for this slot. Default setting for a slot is answer supervision.

- 6 - Erase the Slot** - performing this function erases the announcement on this slot.
- 7 - Link/Unlink the Slot** - Allows administrator to link or unlink a slot to a trunk channel
- 9 - Record the Slot** - Allows administrator to record an announcement on the slot. See detailed instructions in Section 3.5 for recording instructions. If a slot is already recorded, it must be erased before it can be recorded.

Press \* for help  
Press # to return to the main menu. A function code is selected from the Main Menu.

The 17A always advises if an incorrect selection is made and allows the administrator to either make a new selection or select the help function.

**Hang up at any time to terminate the session**



This function retrieves the slot assigned to an MF code and plays back its announcement.

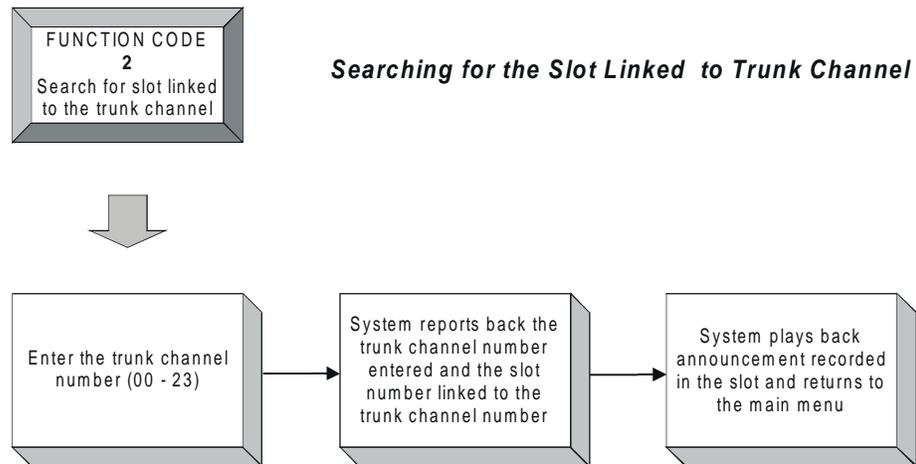
1. Enter the 3 digit MF code.
2. If a slot has been assigned to the MF code, the system plays out the slot number.
3. The system then plays out the announcement.
4. The administrator is then returned to the main menu.

The 17A always advises if an incorrect selection is made and allows the administrator to either make a new selection or select the help function.

Hang up at any time to terminate the session.

**Terms to Remember:**

- SLOT - memory space for an announcement
- EMPTY SLOT - no announcement recorded
- UNASSIGNED SLOT - recorded but not assigned to MF code
- ASSIGNED SLOT - recorded and assigned to MF code
- FUNCTION CODE - an action performed by 17A
- LINKED SLOT - recorded, assigned MF code and linked to a trunk channel
- UNLINKED SLOT - not linked to a trunk channel
- Press \* for help
- Press # to return to the Main Menu
- Main Menu - Select a Function Code



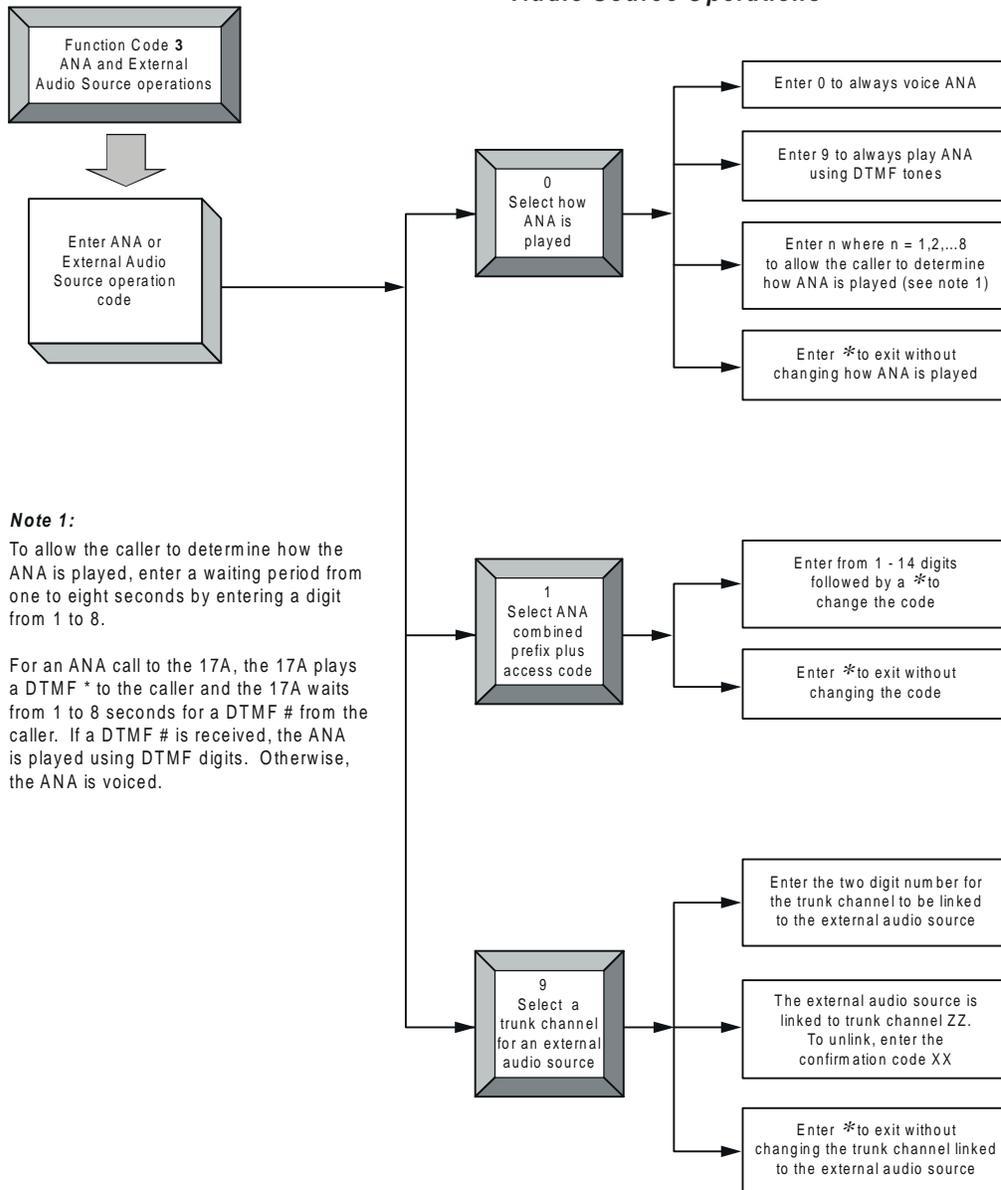
This function retrieves the slot linked to a specific trunk channel and plays back the announcement.

1. The system requests that the user enter a 2-digit trunk channel number from 00 to 23.
2. System provides one of the following responses:
  - "You have selected trunk channel XX which currently has slot XXX linked to it." The announcement recorded on the slot is played back. To terminate the playback before it is completed, press # to return to the main menu.
  - "You have selected channel XX. No slot is currently linked to this trunk channel."
3. The system then returns to the main menu.

**Terms to Remember:**

SLOT - memory space for an announcement  
 EMPTY SLOT - no announcement recorded  
 UNASSIGNED SLOT - recorded but not assigned to MF code  
 ASSIGNED SLOT - recorded and assigned to MF code  
 FUNCTION CODE - an action performed by 17A  
 LINKED SLOT - recorded, assigned MF code and linked to a trunk channel  
 UNLINKED SLOT - not linked to a trunk channel  
 Press \* for help  
 Press # to return to the Main Menu  
 Main Menu - Select a Function Code

**Performing ANA and External Audio Source Operations**

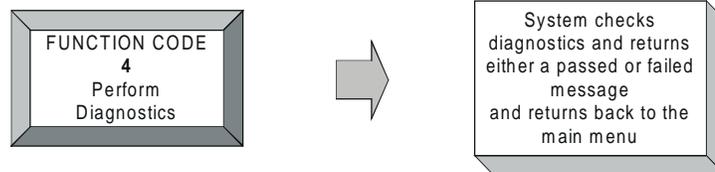


**Note 1:**

To allow the caller to determine how the ANA is played, enter a waiting period from one to eight seconds by entering a digit from 1 to 8.

For an ANA call to the 17A, the 17A plays a DTMF \* to the caller and the 17A waits from 1 to 8 seconds for a DTMF # from the caller. If a DTMF # is received, the ANA is played using DTMF digits. Otherwise, the ANA is voiced.

### Performing Diagnostics



1. The system performs a diagnostic test.
2. If the system passes the diagnostics tests, a passed diagnostics message is played back and the user is returned to the main menu.
3. If the diagnostic tests fail, the system indicates which alarms are present. See Appendix C for the trouble shooting procedure

The 17A always advises if an incorrect selection is made and allows the administrator to either make a new selection or select the help function.

Hang up at any time to terminate the session.

**Terms to Remember:**

SLOT - memory space for an announcement

EMPTY SLOT - no announcement recorded

UNASSIGNED SLOT - recorded but not assigned to MF code

ASSIGNED SLOT - recorded and assigned to MF code

FUNCTION CODE - an action performed by 17A

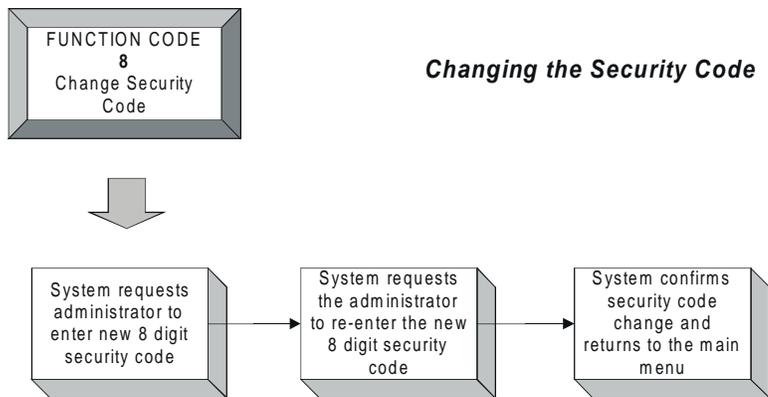
LINKED SLOT - recorded, assigned MF code and linked to a trunk channel

UNLINKED SLOT - not linked to a trunk channel

Press \* for help

Press # to return to the Main Menu

Main Menu - Select a Function Code



1. Enter the new 8 digit security code. Do NOT include a \* at the beginning.
2. Re-enter the 8 digit code as prompted by the system. If the number that is re-entered does not match the first entry, the security code is not changed and the administrator is returned to the main menu.
3. After the security code is changed, the system confirms the change and returns the administrator to the main menu.

The 17A always advises if an incorrect selection is made and allows the administrator to either make a new selection or select the help function.

Hang up at any time to terminate the session.

**Terms to Remember:**

SLOT - memory space for an announcement  
 EMPTY SLOT - no announcement recorded  
 UNASSIGNED SLOT - recorded but not assigned to MF code  
 ASSIGNED SLOT - recorded and assigned to MF code  
 FUNCTION CODE - an action performed by 17A  
 LINKED SLOT - recorded, assigned MF code and linked to a trunk channel  
 UNLINKED SLOT - not linked to a trunk channel  
 Press \* for help  
 Press # to return to the Main Menu  
 Main Menu - Select a Function Code

## Help

The help menus vary depending on the administrator's location within the administration system of the 17A.

### Main Menu Help - Press \*

#### Responses:

To select a slot and perform slot operations  
press 0

To select an MF Code and listen to its assigned slot  
press 1

To select a trunk channel and listen to its linked slot  
press 2

To perform automatic number announcement or external audio source administration  
press 3

To perform diagnostics  
press 4

To change the security code  
press 8

To end the session  
hang up

Slot Operations Help - press\*

Valid one minute slot numbers range from 0 to 120  
Valid two minute slot numbers range from 121 to 150  
Valid four minute slot numbers range from 151 to 165

To search for and select the 1st empty 1 minute slot enter 901  
To search for and select the 1st empty 2 minute slot enter 902  
To search for and select the 1st empty 4 minute slot enter 904

To search for and select the next unassigned 1 minute slot enter 911  
To search for and select the next unassigned 2 minute slot enter 912  
To search for and select the next unassigned 4 minute slot enter 914

HELP: Press \*  
Valid MF codes range from 000 to 999

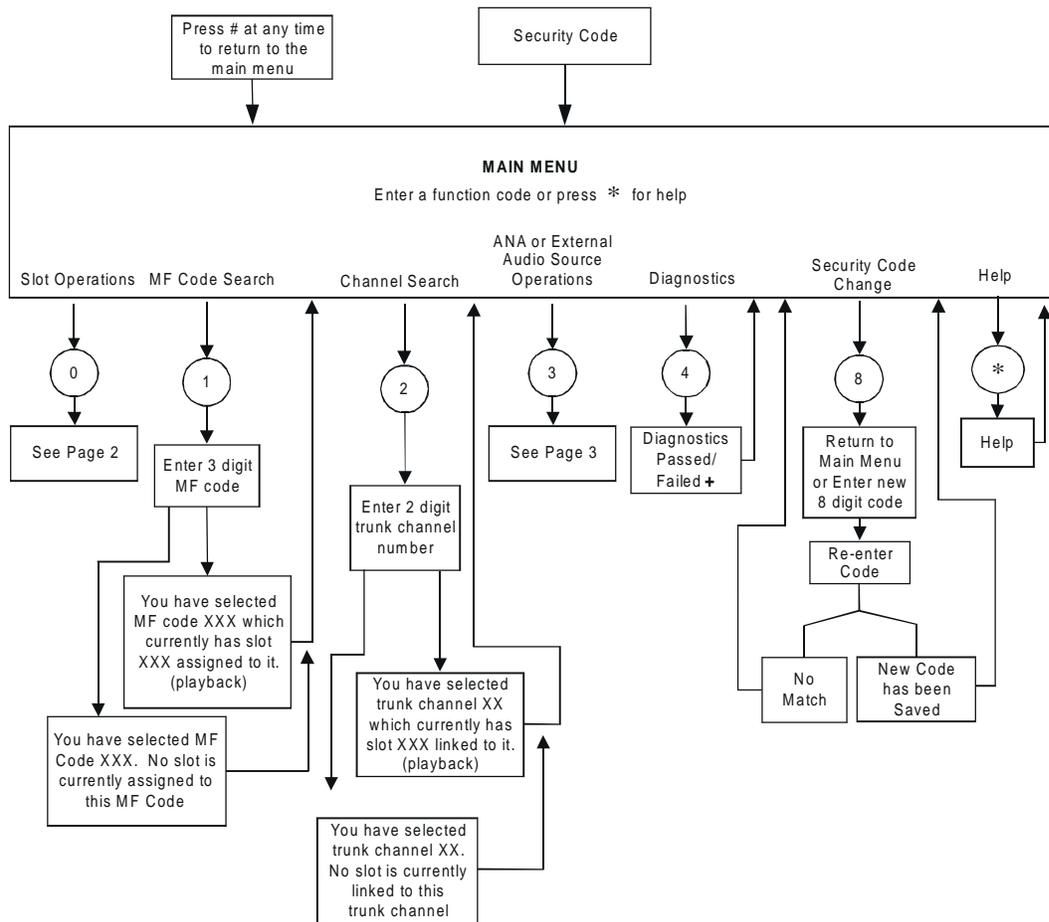
HELP: Press \*  
Valid trunk channel numbers range from 00 to 23

After a slot is selected

To select a different slot press 0  
To hear a description of slot status press 1  
To play the slot press 2  
To erase the slot press 6  
To record the slot press 9  
To assign the slot press 3  
To unassign the slot press 4  
To select slot signalling press 5  
To change the link status of the slot press 7  
To return to the main menu press #

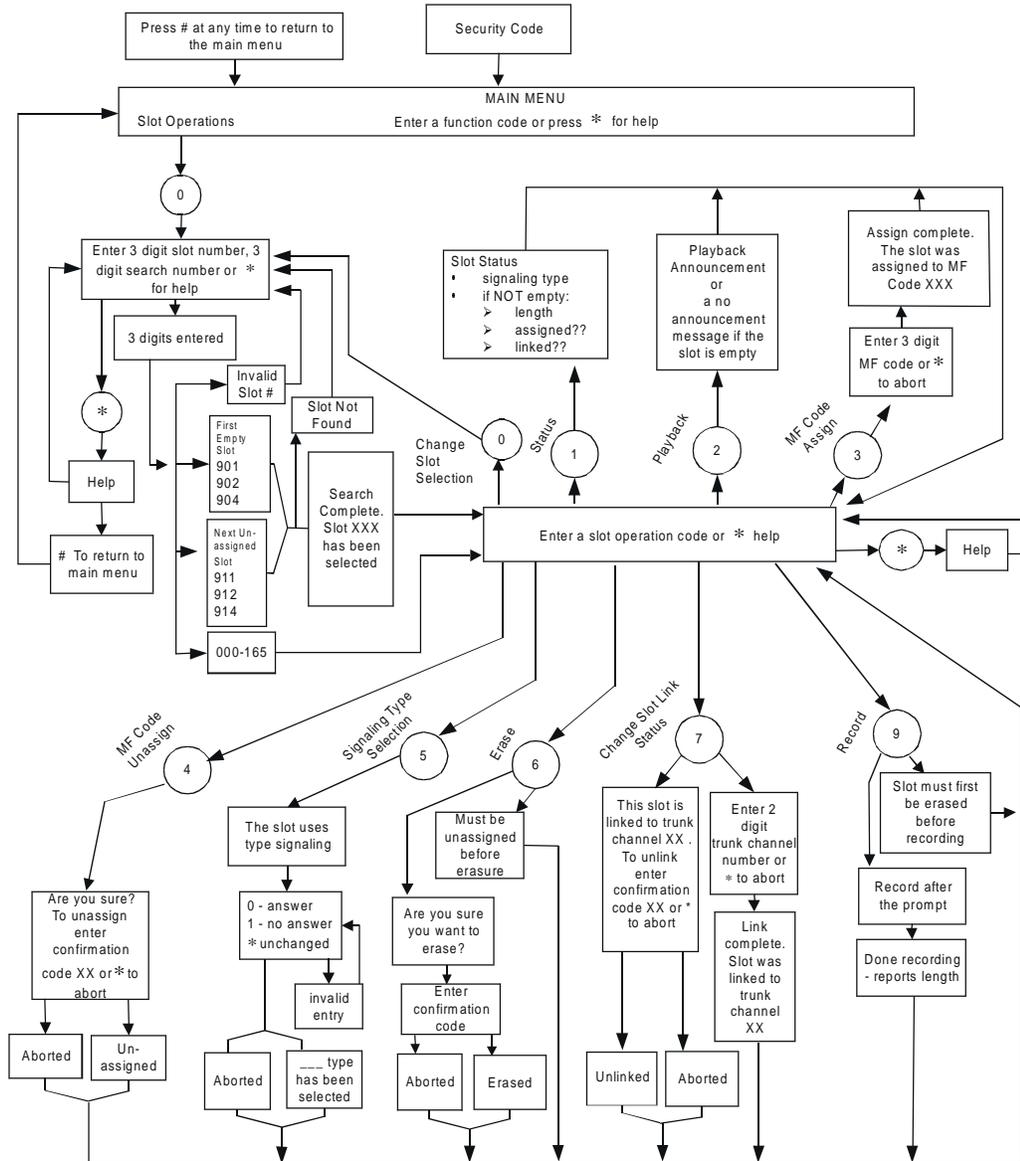
Function-specific help is not available for these selections. The administrator is prompted through the function

**Flow Chart of 17A Prompts (1 of 3)**

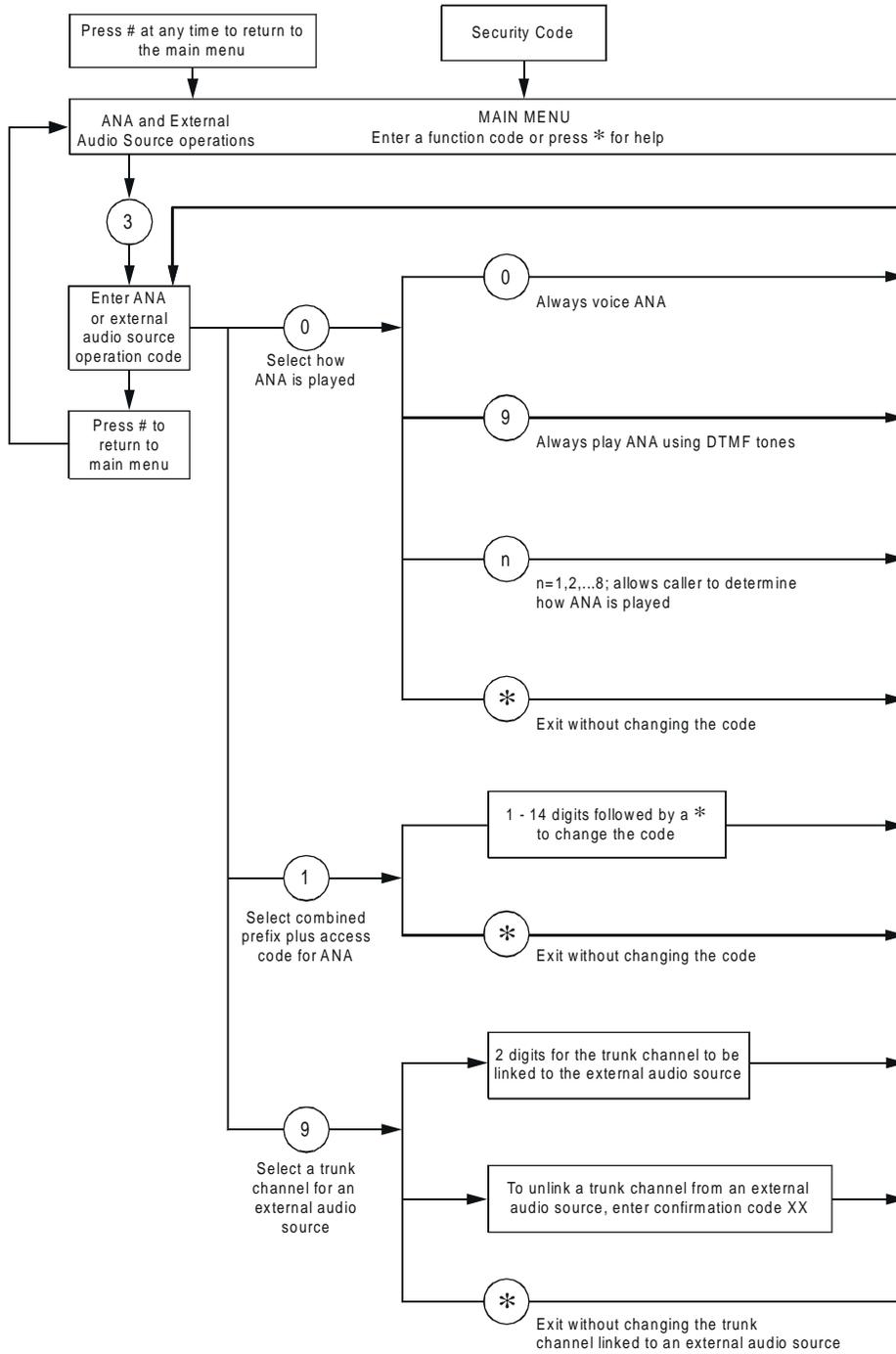


+ Indicates active alarms

**Flow Chart of 17A Prompts (2 of 3)**



**Flow Chart of 17A Prompts (3 of 3)**



# Appendix A - Security Code Reset



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## Resetting the Default Security Code

Three methods for resetting the security code to the default security code are provided below. The simplest method is described first.

### **Method 1**

1. If necessary, disconnect the serial port cable connected to connector P7 on the back plane of the 17A.
2. Apply a short circuit to pins 2-3 of connector P7 for ten seconds. Use a short piece of wire or a paper clip bent to shape. Then remove the strap.
3. Verify that the default security code works by calling the 17A using the POTS line and entering the default security code, \*47985621.



### **WARNING:**

*If the strap is not removed, remote access via the POTS line is blocked.*

4. Reconnect the cable to connector P7 if this cable is being used to access the 17A serial port.

### **Method 2**

Method 2 uses the serial port on the 17A, List 6 to reset the security code to the default code. This method requires the use of a locally supplied laptop or other computer with Windows 95, Windows 98, or Windows NT. The Windows utility Hyper Terminal is used to communicate with the 17A via the 17A serial port. A terminal or computer with a terminal emulator may also be used instead of a computer with Windows.

Use the following procedure to reset the security code to the default code:

1. Open the CNI data - Hyper Terminal file (see Section 3.4.3.1 or 3.4.3.2). The **CNI data - Hyper Terminal** window should fill with \$\$\$.
2. Type !.
3. At the 17A prompt, type **reset\_security\_code**.
4. Press **Enter**.
5. Type **e** and press **Enter** to terminate the 17A serial port session.
6. Close the **CNI data - Hyper Terminal** window by clicking on **File -> Exit** and then **Yes**.

### Method 3

Method 3 is not the preferred method for resetting the security code and should only be used if the 17A connector P7 is not accessible.

1. Turn off the power to the 17A by removing the fuse in the fuse panel.
2. Open the front door of the 17A and remove the front plate.
3. Unplug the TN 1876 circuit pack and place DIP switch SW 7 on the TN 1876 in the **UP** position.
4. Plug the TN 1876 back in the 17A shelf.
5. Install the front plate
6. Install the fuse to power up the 17A. The red system alarm LED starts blinking. A blink is 0.5 seconds on and 0.5 seconds off. When the LED starts blinking, a ten minute timer on the TN 1876 starts. The remaining steps of this procedure **MUST BE COMPLETED WITHIN TEN MINUTES** or the security code will not be reset.
7. Turn off the 17A power by removing the fuse while the system alarm LED is still blinking. The LED blinks for a total of 20 seconds maximum.

**⇒ NOTE:**

If the power is not turned off during this 20 second time interval, the process is aborted and must be restarted by turning the power off and starting again at Step 6.

8. Remove the front plate.
9. Remove the TN 1876 and place DIP switch SW7 in the **DOWN** position.

10. Plug the TN 1876 back into shelf.
11. Install the front plate and close the front door.
12. Power up the 17A again by installing the fuse.
13. The red alarm LED “flashes” three times during boot up to confirm a successful default security code download. A flash is 0.2 seconds on and 0.2 seconds off.
14. Verify that the default security code works by calling up the 17A and entering the default security code, \*47985621.



# Appendix B - 17A Initialization

# B

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## **17A Initialization Procedures**

If the 17A **did not come directly from the factory** but was previously used in another location or the TN 1882, Series 2 and/or the TN 1876 circuit packs were replaced with circuit packs from another 17A or from circuit pack inventory, the flash cards on the TN 1882, Series 2 and the memory on the TN 1876 should be erased to ensure correct system operation. Use the following steps to initialize the 17A.

This process will erase ALL records and data stored on the 17A and may take up to 30 minutes.

1. Turn off the power to the 17A by removing the fuse in the fuse panel.
2. Open the front door of the 17A and remove the front plate.
3. Unplug the TN 1876 AIU and place DIP switch SW8 in the **UP** position.
4. Plug the TN 1876 back in the 17A shelf.
5. Install the front plate.
6. Install the fuse to power up the 17A. The red and yellow alarm LEDs start blinking. A blink is 0.5 seconds on and 0.5 seconds off. When the LEDs start blinking, a ten minute timer on the TN 1876 starts. The remaining steps of this procedure **MUST BE COMPLETED WITHIN TEN MINUTES** or the initialization process will not occur.
7. Turn off the 17A power by removing the fuse while the LEDs are still blinking. The LEDs blink for a total of 20 seconds maximum.

**⇒ NOTE:**

If the power is not turned off during this 20 second time interval, the process is aborted and must be restarted by turning the power off and starting again at step 6.

8. Turn on the power again by installing the fuse. The red and yellow alarm LEDs start flashing. A flash is different from a blink; a flash is 0.2 seconds on and 0.2 seconds off.
9. After the red and yellow alarm LEDs start to flash, turn off the power again by removing the fuse while the LED's are still flashing. The LEDs flash for a total of 20 seconds.

**⇒ NOTE:**

If the power is not turned off during this second 20 second time interval, the process is aborted and must be restarted by turning the power off and starting again at Step 6.

10. Remove the front plate and unplug the TN 1876.
11. Place DIP switch SW8 in the **DOWN** position and plug the TN 1876 back into the bottom slot of the shelf.
12. Install the front plate.
13. Turn on the power to the 17A by installing the fuse. The red alarm LED flashes five times and then goes off to indicate the start of a full system initialization and reset, including erasing the flash cards, clearing the memory on the TN 1876, and rebooting the system. The yellow network alarm stays on until the full system initialization and reset is complete and then turns off. The full system initialization and reset may take up to 30 minutes depending on how many announcements are recorded on the flash cards.

**⇒ NOTE:**

If an invalid DS signal is received, the yellow network alarm turns back on and stays on until the fault is corrected.

# Appendix C - Troubleshooting Procedures

# C

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## C.1 Introduction

The 17A provides three alarm indications as follows:

1. A system alarm (red LED).
2. A network alarm (yellow LED).
3. A fan alarm (red LED).

Associated with each of these alarm indicators is an alarm closure which is connected to the switch. These alarm closures are “normally closed.” When the 17A is not powered, all three alarm pairs are at a low impedance. When a 17A alarm occurs, the corresponding alarm pair is also a low impedance. The alarm pairs are a high impedance when alarms are not present and the system is powered.

The system alarm LED is used to indicate three different types of trouble conditions. The trouble conditions are differentiated by three different on/off sequences for the system alarm LED. The three alarm types are defined as follows:

- **Diagnostic System Alarm** - If the system alarm is on for two seconds, off for two seconds, and blinks anywhere from one to 12 times and then repeats this pattern, the TN 1876 circuit pack is defective. A blink is 0.5 seconds on and 0.5 seconds off. The blinks mean that the self diagnostics of the TN 1876 has diagnosed a particular type of circuit pack failure.
- **Reboot System Alarm** - When power is applied to the 17A, the system boots up as indicated by a unique on/off sequence for the red system alarm and the yellow network alarm. If a failure occurs during boot up, the 17A tries to reboot automatically up to 20 times. When this occurs, the red system alarm turns on for 21 seconds and then

off at the start of each reboot. The length of each reboot is from half a minute to 2.3 minutes depending on where in the diagnostic cycle the failure occurs. The yellow network alarm turns off and on at various times during successive reboots. If service is restored for eight minutes or more after one of the reboot attempts, the reboot counter is reset to zero.

- **Steady System Alarm** - If the system fails to boot up successfully after 20 attempts, the red system alarm comes on and stays on for 20 minutes. This 20 minute period is called the administration data mode. The yellow network alarm is only on during the administration data mode if there is a double failure and the DS1 facility has failed also. If at the end of the administration data mode the 17A still fails to operate, the reboot process repeats with 20 more reboot attempts followed by another 20 minute administration data mode. This cycle lasts between half an hour and an hour, depending on where in the diagnostic cycle of the reboot that the fault is detected, and continues to repeat until 17A service is restored. If the administrator calls the 17A during the administration data mode, a modem carrier is heard instead of 17A voice prompts.

## **C.2 Summary of the Troubleshooting Procedures**

The troubleshooting procedures are grouped according to the nature of the 17A alarms that are present. See the troubleshooting procedure shown in Table C-1.

**Pick out the situation that applies and go directly to that section.**

**Table C-1. Troubleshooting Table**

<b>ALARM CONDITION</b>	<b>SEE INDICATED SECTION</b>
<b>Alarm closure(s) only;</b> no alarm LEDs are on	Section C.3 Page C-4
<b>Diagnostic system alarm</b> (see Section C.1 for definition)	Section C.4 Page C-5
<b>Reboot system alarm or steady system alarm</b> (see Section C.1 for definition)	Section C.5 Page C-6
<b>Network alarm</b>	Section C.6 Page C-11
<b>DS1 yellow alarm transmitted toward the 17A;</b> no 17A network alarm	Section C.7 Page C-12
<b>Fan Alarm</b>	Section C.8 Page C-14
<b>17A cannot be remotely accessed:</b> no alarm closures, no alarm LEDs are on, the 17A is powered, no carrier group alarms on connecting equipment	Section C.9 Page C-14
<b>The problem is not covered by the above</b>	call the help line: 1-800-352-5563 (in USA)  1-973-386-4311 (outside USA)

### **C.3 Alarm Closure(s) Only**

One or more alarm closures to the central office without *any* alarm LEDs lighted may be caused by one of the following:

- loss of power to the 17A,
- a short circuited alarm pair,
- a defective 506A Alarm Module.

CASE 1: If three alarm closures to the switch are present and **all of the alarm LEDs are off and the green power LED is off**, verify that there is -48 Vdc power present on the terminals at the rear of the 17A. Remove the back cover to access the power terminals. If power is not present, check for a blown or missing fuse in the fuse panel.

CASE 2: If the network alarm and the fan alarm closures to the switch are present, the green power LED is on, but the **network alarm and the fan alarm LEDs are off**, replace the TN 1881 circuit pack using the following procedure:

1. Turn off the power to the 17A by removing the fuse in the alarm panel.
2. Open the front door and remove the front plate.
3. Unplug the TN 1881 circuit pack (the middle circuit pack).
4. Install a new TN 1881.
5. Install the front plate.
6. Turn on the power to the 17A by inserting the fuse in the fuse panel.
7. Verify that the alarm closures to the switch have cleared.

CASE 3: If one or more alarm closures to the switch are present, power is present at the 17A, the green power LED is on, and the alarm LEDs are off, verify that a short circuit is not present on the alarm pair for which there is an alarm indication at the central office.

CASE 4: If one or more alarm closures to the switch are present, power is present, the alarm LEDs are off, and none of the alarm pairs is short circuited, replace the 506A Alarm Module. The Alarm Module is replaced as follows:

1. Remove power from the 17A by removing the fuse at the fuse panel.
2. Remove the back plane cover and remove the two outer grounding screws adjacent to connector P4 on the back plane.

3. Remove the front plate and remove the Alarm Module using the white handle on the front of the unit.
4. Slide in a new Alarm Module and make sure it is fully seated.
5. Install the two grounding screws adjacent to the connector P4 on the back plane.
6. Install the back plane cover and the front plate.
7. Power up the 17A by installing the fuse.
8. Verify that the alarm closure(s) to the office have cleared.

#### **C.4 Diagnostic System Alarm** (see definition on page C-1)

If the system alarm is on for two seconds, off for two seconds, and blinks anywhere from one to 12 times and then repeats this pattern, the TN 1876 circuit pack is defective. A blink is 0.5 seconds on and 0.5 seconds off. The blinks mean that the self diagnostics of the TN 1876 has diagnosed a particular type of circuit pack failure. Other failures on the TN 1876 may result in a steady system alarm covered in the next session. The procedure to replace a defective TN 1876 is as follows:

1. Turn off the power to the 17A by removing the fuse in the alarm panel.
2. Open the front door and remove the front plate.
3. Unplug the defective TN 1876 (the bottom circuit pack).
4. Before you install a new TN 1876, set all of the DIP switches correctly as indicated in Tables 2-4 and 2-5.
5. Install the new TN 1876.
6. Install the front plate.
7. Turn on the power to the 17A by inserting the fuse in the fuse panel.
8. Verify that the system alarm does not turn off and on periodically.



#### **CAUTION:**

*If the TN 1876 is defective and you replace the original unit with a new one, you must initialize the 17A as described in Appendix B. **All of the system announcements, the corresponding MF codes, and the trunk channel links have to be restored.***

### **C.5 Reboot System Alarm or Steady System Alarm (see page C-1.2 for definition)**

If a reboot system alarm or a steady system alarm is present, the general procedure to determine the source of the problem is as follows:

- Turn off the power to the 17A, turn the power back on, and determine if the 17A boots up correctly. The correct boot-up process is as follows:
  - The red system alarm LED on the alarm module turns on and the yellow network alarm LED turns on one second later.
  - After approximately 21 seconds the red system alarm LED turns off. The yellow network alarm turns off and on at various times while the system boots up. The boot-up lasts about 2.3 minutes. During boot-up the system performs self-diagnostics.
  - At the end of a successful boot-up, the yellow network alarm turns off and then flashes twice 12 seconds later. If a valid DS1 signal is received, the network alarm stays off. The 17A is now operational.
  - If a failure occurs during boot-up, the system tries to reboot automatically up to 20 times more. When this occurs, the red system alarm turns on for 21 seconds and then off at the start of each reboot. Each reboot lasts from half a minute to 2.3 minutes depending on where in the diagnostic cycle the failure occurs. The yellow network alarm turns off and on at various times during successive reboots. If the system still fails to boot up after 20 attempts, the red system alarm comes on and stays on for 20 minutes. This 20 minute period is called the administration data mode. During this administration data mode, the yellow network alarm is off, unless the DS1 facility is also defective. If at the end of the administration data mode the 17A still fails to operate, the reboot process repeats with 20 more reboot attempts followed by another 20 minute administration data mode. This cycle lasts between a half an hour and an hour, depending on where in the diagnostic cycle of the reboot that the fault is detected, and continues to repeat until 17A service is restored. If service is restored for eight minutes or more after one of the reboot attempts, the reboot counter is reset to zero. If the administrator calls the 17A during the administration data mode, a modem carrier is heard instead of 17A voice prompts.

- If the reboot system alarm or the steady system alarm is still on after power cycling the 17A, remove the three circuit packs and the alarm module from the 17A and then reinstall the original circuit packs and the alarm module. This step is to verify that the circuit packs and the alarm module are seated correctly in their respective connectors. See Section C.5.1 for the detailed procedure.
- If a reboot system alarm or a steady system alarm is still present, replace the three circuit packs and the alarm module in the 17A one at a time with new units to isolate the cause of the problem. See Section C.5.2 for the detailed procedure.
- If a reboot system alarm or a steady system alarm is still present, more than one circuit pack may be defective. In this case, replacing the circuit packs one at a time will not clear the alarm. Therefore, replace the three original circuit packs and the alarm module with new units. See Section C.5.3 for the detailed procedure.

**CAUTION:**

*Before replacing either the TN 1882, Series 2 or the TN 1876 circuit pack with new units, mark the two circuit packs to indicate that these two circuit packs are a match pair containing the 17A announcements, the associated MF codes, and trunk channel links to the announcements. After the system problem is fixed, if either of these circuit packs is replaced, you **MUST** initialize the 17A system as described in Appendix B. **All of the system announcements, the corresponding MF codes, and the trunk channel links have to be restored just as if this is a new system.***

### **C.5.1 Removing and Reinstalling the Original Circuit Packs and the Alarm Module.**

1. Turn off the power to the 17A by removing the fuse in the fuse panel.
2. Open the front door and remove the front plate.
3. Remove the back plane cover and remove the two outer grounding screws adjacent to connector P4.
4. Remove the alarm module by using the white handle.
5. Remove the three circuit packs.
6. Verify that the flash cards on the TN 1882, Series 2 are fully seated in their respective connectors by pushing on the flash cards.
7. Verify that the DIP switches on the TN 1876 are set in accordance with Tables 2-4 and 2-5.

8. Reinstall the original circuit packs. The TN 1882, Series 2 mounts in the top slot; the TN 1881 mounts in the middle slot; the TN 1876 mounts in the bottom slot.
9. Reinstall the alarm module.
10. Install the two grounding screws for the alarm module adjacent to connector P4.
11. Install the front plate and the back plane cover.
12. Turn on the power to the 17A by inserting the fuse in the fuse panel.
13. If the system alarm stays off after the 17A boots up, you fixed the problem.
14. If the system alarm comes back on, indicating the start of a reboot, you have not fixed the problem. Go to Section C.5.2.

### **C.5.2 Replacing the Circuit Packs and the Alarm Module One At a Time**

If the system alarm is still on after removing and reinstalling all of the original units, use the following procedure to replace the units one at a time.

#### **C.5.2.1 Replace the TN 1882, Series 2 Circuit Pack**

1. Turn off the power to the 17A.
2. Open the front door and remove the front plate.
3. Remove the original TN 1882, Series 2 circuit pack.
4. Verify that the flash cards on a **new** TN 1882, Series 2 are fully seated in their respective connectors.
5. Install the **new** TN 1882, Series 2 in the 17A.
6. Replace the front plate.
7. Restore power to the 17A.
8. If the system boots normally and the system alarm goes off and stays off, the original TN 1882, Series 2 is defective.



#### **CAUTION:**

*If the TN 1882, Series 2 is defective and you replace the original unit with a new one, you must initialize the 17A as described in Appendix B. All of the system announcements, the corresponding MF codes, and the trunk channel links have to be restored.*

9. If the system alarm comes back on after booting up, indicating the start of a reboot cycle, you have not fixed the problem. Go to Section C.5.2.2

### **C.5.2.2 Replace the TN 1881 Circuit Pack**

1. Turn off the power to the 17A.
2. Remove the front plate.
3. Reinstall the original TN 1882, Series 2 since it is probably not defective.
4. Remove the original TN 1881 circuit pack.
5. Install the **new** TN 1881 in the 17A.
6. Replace the front plate.
7. Power up the 17A.
8. If the system alarm goes off and stays off, the original TN 1881 is defective.
9. If the system alarm turns off and comes back on again, indicating the start of a reboot cycle, you have not fixed the problem. Go to Section C.5.2.3

### **C.5.2.3 Replace the TN 1876 Circuit Pack**

1. Turn off the power to the 17A.
2. Remove the front plate.
3. Reinstall the original TN 1881 since it is probably not defective.
4. Remove the TN 1876 circuit pack.
5. Make sure you set all of the DIP switches on the **new** TN 1876 in accordance with Tables 2-4 and 2-5.
6. Install the **new** TN 1876.
7. Replace the front plate.
8. Restore power to the 17A.
9. Verify that the system alarm turns off and stays off.
10. If the system alarm turns off and comes back on again, you have not fixed the problem. Go to Section C.5.2.4

### **C.5.2.4 Replace the 506A Alarm Module**

1. Turn off the power to the 17A.
2. Remove the front plate.
3. Reinstall the original TN 1876 since it is probably not defective.
4. Remove the back cover.
5. Remove the two outer grounding screws adjacent to connector P4 on the back plane.
6. Remove the 506A Alarm Module by using the white handle.
7. Install a **new** 506A Alarm Module and make sure it is fully seated.
8. Install the two grounding screws adjacent to connector P4 on the back plane.
9. Install the front plate and the back cover.
10. Restore power.
11. Verify that the system alarm goes off and stays off.
12. If the system alarm comes back on again, indicating the start of a reboot cycle, you have not fixed the problem. Go to Section C.5.3.

### **C.5.3 Replace All of the Circuit Packs and the Alarm Module With New Ones (More Than One Circuit Pack May Be Defective)**

1. Turn off the power to the system.
2. Remove the rear cover.
3. Remove the two outer grounding screws adjacent to connector P4 on the back plane.
4. Remove the front plate.
5. Pull out the alarm module using the white handle.
6. Unlatch the three circuit packs and remove them from the system.
7. Install a **new** alarm module.
8. Verify that the flash cards on the new TN 1882, Series 2 are fully seated in their respective connectors by pushing on the flash cards.
9. Verify that the DIP switches on the TN 1876 are set in accordance with Tables 2-4 and 2-5.

10. Install the **new** TN 1882, Series 2 in the top slot, the **new** TN 1881 in the middle slot, and the **new** TN 1876 in the bottom slot.
11. Install the front plate.
12. Install the two grounding screws adjacent to connector P4 on the back plane.
13. Install the back plane cover.
14. Restore power to the 17A.
15. Verify that the system alarm turns off and stays off. If the system alarm does not come back on, return the original alarm module and the three original circuit packs to repair.
16. If the system alarm comes back on again, indicating the start of a reboot cycle, you have not fixed the problem. Contact Lucent Technologies for assistance by calling 1-800-352-5563 (within the United States) or 1-973-386-4311 (outside the United States).

## **C.6 Network Alarm**

If only the network alarm is on, verify the following:

- Check to make sure that the DS1/E1 connection has been activated.
- Verify that the DS1 signal has been wired through the DSX frame correctly. Incorrect wiring at the DSX is a frequent cause of this problem.
- Using the loop back capability of the 17A, the loop back capability of either a 5ESS Digital Facility Interface circuit pack, a DACS, or other connecting equipment, and the loop back capability of the DSX, isolate the source of the problem to the DS1/E1 facility itself, the 17A, other connecting equipment, or to incorrect wiring at the DSX.

Activate the loop back on the 17A using the following steps:

- Turn off the power to the 17A.
- Open the front door and remove the front plate.
- Remove the TN 1876 circuit pack.
- Set DIP switch SW5 to the UP position to activate the digital facility loop back at the 17A.
- If E1 facilities are used, verify that DIP switches SW1 through SW3 are set correctly for the proper impedance level for the E1 signals.

- Reinstall the TN 1876.
- Install the front plate.
- Turn on the power.
- If troubleshooting using the DS1/E1 loop backs isolates the problem to the 17A, the TN 1876 circuit pack is probably defective.
  - Turn off the power to the 17A.
  - Remove the front plate.
  - Verify that the DIP switches on the new TN 1876 are set in accordance with Tables 2-4 and 2-5.
  - Remove the original TN 1876 and install the new one.
  - Reinstall the front plate.
  - Turn on the power and verify that the 17A network alarm clears after the system boots up.

**CAUTION:**

*If the TN 1876 is replaced, you must initialize the 17A as described in Appendix B. All of the system announcements, the corresponding MF codes, and the trunk channel links have to be restored.*

### **C.7 DS1 Yellow Alarm Transmitted *Toward* the 17A; No 17A Network Alarm**

The yellow network alarm LED on the 17A is **not** on. Do not confuse this 17A yellow alarm LED with a DS1 yellow alarm being transmitted toward the 17A.

If a yellow alarm is being transmitted toward the 17A from the connecting equipment, e.g., a DACS or a 5ESS, and the yellow 17A network alarm LED is not on, this means that the 17A is receiving a valid DS1/E1 signal but the connecting equipment is not receiving a valid DS1/E1 signal from the 17A. Possible failures include the following:

- The DS1/E1 facility from the 17A to the connecting equipment is defective. Incorrect wiring for the DS1/E1 for the transmit pair from the 17A is the most likely cause of the failure.
- The DIP switches SW1 through SW3 on the TN 1876 are set incorrectly for the length of facility to the DSX for DS1 signals or for the proper impedance level for E1 signals.
- The 17A TN 1876 circuit pack is defective.

- The input circuitry of the connecting equipment is defective.

Isolate the problem using the following procedures:

- Check to make sure that the DS1/E1 connection has been activated.
- Verify that the DS1 signal has been wired through the DSX frame correctly. Incorrect wiring is the most likely cause of the problem.
- Verify that the configuration DIP switches SW1 through SW3 on the TN 1876 are properly set to account for the loop length to the DSX for DS1 signals and for the proper impedance level for E1 signals. Use the following steps:
  - Turn off the power to the 17A.
  - Open the front door and remove the front plate.
  - Remove the TN 1876 and verify the correct setting for SW1 through SW3.
  - If the above settings are not correct, change the settings accordingly, reinstall the TN 1876, install the front plate, and turn on the power. Verify that the alarm clears. If it does not clear, turn off the power, remove the front plate, and remove the TN 1876 circuit pack again.
  - Set DIP switch SW5 to the UP position to activate the digital facility loop back at the 17A.
  - Reinstall the TN 1876.
  - Install the front plate.
  - Turn on the power.
  - Using the loop back capability of the 17A, the loop back capability of either a 5ESS Digital Facility Interface circuit pack, a DACS, or other connecting equipment, and the loop back capability of the DSX, isolate the source of the problem to the DS1/E1 facility itself, the 17A, other connecting equipment such as a DACS or 5ESS, or incorrect wiring at the DSX.
  - If the DS1/E1 loop back tests isolate the problem to the 17A, the TN 1876 circuit pack is probably defective.
  - Turn off the power to the 17A.
  - Remove the front plate.

- Verify that the DIP switches on the new TN 1876 are set in accordance with Tables 2-4 and 2-5.
- Remove the original TN 1876 and install the new one.
- Reinstall the front plate.
- Turn on the power and verify that the yellow alarm from the connecting equipment clears.

**CAUTION:**

*If the TN 1876 is replaced, you must initialize the 17A as described in Appendix B. All of the system announcements, the corresponding MF codes, and the trunk channel links have to be restored.*

### **C.8 Fan Alarm**

A fan alarm indicates that one or both of the fans has failed. Use the following procedure to replace the fan assembly.

- Loosen the large captured retaining screw on the front of the fan assembly.
- Push on the bottom of the inner long narrow black plastic section on the front of the fan assembly to cause a handle to appear. Use this handle to pull out the fan assembly.
- Insert a new fan assembly and tighten the retaining screw.
- The fan alarm should clear.

### **C.9 No Alarm Closures, No Alarm LEDs are On, the 17A is Powered, No Carrier Group Alarms on Connecting Equipment, But the 17A Cannot Be Remotely Accessed**

For the most part, 17A failures are alarmed. If there are no alarms and you cannot remotely access the 17A using the analog POTS line or announcements are not played over the trunk channels, use this section for troubleshooting.

The first step is to cycle the 17A power off and then on and verify that the 17A completes the boot-up procedure correctly:

- The red system alarm LED on the alarm module turns on and the yellow network alarm LED turns on one second later.

- After approximately 21 seconds the red system alarm LED turns off. The yellow network alarm turns off and on at various times while the system boots up. The boot-up lasts about 2.3 minutes. During boot-up the system performs self-diagnostics.
- At the end of a successful boot-up the yellow network alarm flashes twice. If a valid DS1 signal is received, the network alarm stays off.

If cycling the power does not clear the problem, use the steps in either section C.9.1 or C.9.2 depending on the nature of the problem.

### **C.9.1 Testing Remote Access**

Use the following steps to determine whether remote access has failed.

1. Dial the 17A. If the 17A does not answer and the POTS line rings into an open:
  - verify that the POTS line is connected to connector P3 on the back plane of the 17A.
  - Verify that ringing is present at the 17A by temporarily disconnecting the cable from connector P3 on the back of the 17A and measuring between pins 2 and 4 on the cable connector.
  - If ringing is present but the 17A does not answer, use the following procedure to replace the TN 1876 circuit pack:
    - Turn off the power to the 17A by removing the fuse in the fuse panel.
    - Open the front door and remove the front plate.
    - Unplug the defective TN 1876 (the bottom circuit pack).
    - Before you install a new TN 1876, set all of the DIP switches correctly as indicated in Tables 2-4 and 2-5.
    - Install the new TN 1876.
    - Install the front plate.
    - Turn on the power to the 17A by inserting the fuse in the fuse panel.
    - Dial the 17A and verify that the system answers.
2. The 17A answers with an initial access tone followed by “Enter your security code after the tone” followed by another tone.

- If the 17A answers with a modem carrier instead, go to Section C.5.1. and follow the procedure.
- 3. Enter the security code. The default security code is \*47985621.
- 4. The 17A responds with another message “Enter a function code or press \* for help.
- 5. Enter function code 4 to perform diagnostics.
- 6. If the tests pass, a passed diagnostics message is played back and the user is returned to the main menu. Hang up to terminate the session. Remote access is working correctly.
  - If the diagnostic tests fail, there is a problem with the 17A hardware. Go to Section C.5.1 and follow the procedure.

### C.9.2 Testing for the Presence of Announcements on Trunk Channels

Use this section to determine whether the 17A can play an announcement.

1. From the Trunk Line Test Position, access one of the 24 trunk channels on the 17A and listen for an announcement transmitted from the 17A.
2. If no announcement is heard, seize the trunk, wait for a wink and then send any three MF digits in the range from 000 to 999.
3. If the 17A is working correctly, either a recorded announcement is heard or a default announcement is heard: “No slot is currently assigned to this MF code.”
4. If an announcement or a default announcement is present, the 17A is operating correctly.

If customers report that they do not hear an announcement and either ringing is not tripped or they hear busy or silence, verify that recent change has been administered correctly.

5. If no announcement is present, the 17A is not working correctly.
  - Verify that the loop back DIP switch SW5 on the TN 1876 is in the **DOWN** position and the digital facility is not looped back. Use the following procedure:
    - a. Turn off the power to the 17A by removing the fuse in the alarm panel.
    - b. Open the front door and remove the front plate.
    - c. Unplug the TN 1876 (the bottom circuit pack).

- d. If DIP switch SW5 is in the **UP** position, set SW5 in the **DOWN** position.
  - e. Install the TN 1876.
  - f. Install the front plate.
  - g. Turn on the power to the 17A by inserting the fuse in the fuse panel.
  - h. Verify that the 17A now works correctly by going back to step 1 of Section C.9.2.
- If the DIP switch SW5 was set correctly in the DOWN position, and the 17A is not working, go to section C.5.1 and follow the procedure.

### **C.10 Still Having a Problem?**

If you are still having a problem, please call the Announcement Systems Department at:

1-800-352-5563 (if calling from within the United States)  
1-973-386-4311 (if calling from outside the United States)



# Appendix D - Equipment Codes and Comcodes for the 17A

# D

**Table D-1 Standard Configuration for the 17A Announcement System**

System	Equipment Code	Comcode
17A, List 6	J1C275A-1, L6	601953771

**Table D-2 Cable and Wiring Kits**

Length in Feet	Description	Equipment Code	Comcode
300	Three 24 gauge shielded cables with a connector on one end to connect one 17A to the DSX and MDF	J1C275A-1, L21	108534876
600	Three 24 gauge shielded cables with a connector on one end to connect one 17A to the DSX and MDF	J1C275A-1, L22	108534892

**Table D-3 Circuit Packs, Module, Assembly, Kits for Replacement and Spares, and Change Number Intercept (CNI) Administrator's Guide and Applications Software CD**

<b>Apparatus Code or Equipment Code</b>	<b>Description</b>	<b>Comcode</b>
TN 1881	Announcement Control Unit (ACU)	107969537
TN 1882, Series 2	Announcement Memory Unit (AMU)	107969545
TN 1876	Announcement Interface Unit (AIU)	108670050
506A	Alarm Module	108452301
	Fan Assembly	108517962
	Air Filter Kit (6 air filters included)	108517954
J1C275A-1, L23	Spare Circuit Pack Kit	108949348
J1C275A-1, L24	CNI Administrator's Guide and Applications Software CD	

**Table D-4 Optional Equipment**

<b>Description</b>	<b>Equipment Code</b>	<b>Comcode</b>
Recorded Announcement Systems Manager (RASM)	J9C003A-2, L11	107665101