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PagePac[®] 20 Voice Paging System
ZoneMate[™] 9 Service Manual

**ZoneMate™ 9
Service Manual
For
PagePac® 20
Voice Paging System**

**999-500-204IS
SM-722050-029
Issue 2, Nov. 1987**

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1. Introduction

Overview

The PagePac® 20/9 Voice Paging System consists of three separate modules, PowerMate™, Common Control Unit, and ZoneMate™ 9 (Figure 1-1), plus loudspeakers and speaker cable. The physical characteristics of each module are shown in Figure 1-1 and also listed in Table 1-A.

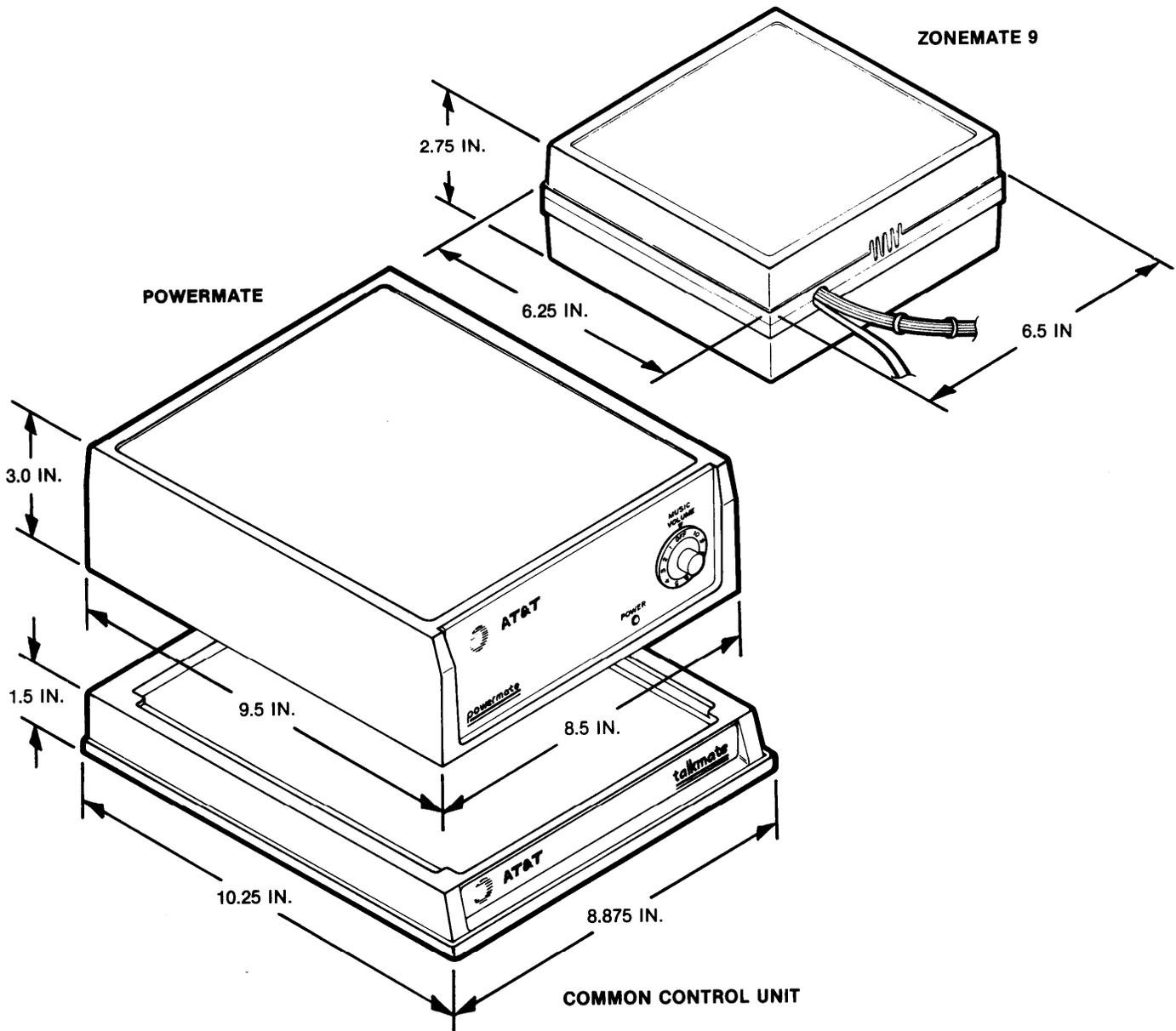


Figure 1-1. PowerMate, Common Control Unit, and ZoneMate 9.

Table 1-A. Physical Characteristics

Module	Specification
PowerMate	
Width	8.5 inches (21.59 cm)
Length	9.5 inches (24.13 cm)
Height	3.0 inches (7.62 cm)
Weight	6.5 pounds (2.95 kg)
Common Control Unit	
Width	8.875 inches (22.54 cm)
Length	10.25 inches (26.03 cm)
Height	1.5 inches (3.81 cm)
Weight	4.0 pounds (1.81 kg)
ZoneMate 9	
Width	6.5 inches (16.51 cm)
Length	6.25 inches (15.87 cm)
Height	2.75 inches (6.98 cm)
Weight	1.0 pound (0.4536 kg)

PowerMate

PowerMate is a compact 20-watt, telephone-integrated loudspeaker paging system designed to be placed on a desk or shelf. PowerMate provides basic single-zone, one-way paging with a choice of voice coil and/or 70.7 VAC audio output to the speakers.

MusicMate™

Background music may be provided to the paging system by adding MusicMate. For more detailed information on PowerMate or MusicMate, refer to the manual provided with the individual modules.

Common Control Unit (CCU)

The CCU sits under the PowerMate (Figure 1) and increases PowerMate capabilities by providing:

- Additional paging features.
- Zone paging.
- Talk-back with multi-zone paging capability.
- Night bell signaling (host system must provide night bell feature).

The CCU operates with a host communications system using ground start or loop start line circuits, as well as line or intercom connection to key systems. Either touch tone or dial pulse systems can be used to enable paging features.

The voice coil output on the CCU allows the PowerMate/CCU combination to provide single-zone paging and talk-back. However, a paging system needing nine zones or less requires ZoneMate 9.

ZoneMate 9

ZoneMate 9 is designed for placing on a flat surface and is used in conjunction with a PowerMate and a CCU to provide 9 paging zones and all-zone paging with paging features described below. A 6-foot cable, provided with the unit, connects ZoneMate 9 to the CCU. All voice coil speaker and night bell connections are made on ZoneMate 9.

ZoneMate 9 Features

Features provided by ZoneMate 9 are described below.

Zone Paging Control

Selects and controls paging into specific physical areas, or zones. A zone might be an office, waiting room or lunch area for example, or a zone could consist of several such areas. The total number of speakers in all zones must not exceed the maximum output load of the PowerMate. Refer to Table 2-A, Speaker Capacity Calculation in the PowerMate Service Manual. Use the table to calculate the load in each zone, then add the values for all zones. The total load must not exceed 300 points.

Zone Selection

After accessing the paging system, a specific zone may be selected by dialing the zone access code. Either touch tone or rotary telephones may be used (COM KEY® systems require touch tone operation).

Zone Group Paging

A zone group consists of several individual zones that may be paged at the same time. For example, you might want to page all zones on the second floor of a building. These zones can be included in a zone group. The CCU provides control of up to 8 zone groups, with up to 8 zones in each group. All zone groups have their own dial access code (Table 4-B, Section 4).

Talk-Back

The talk-back feature (hands-free answer-back) allows individuals in a paging zone to answer a page by talking while facing the speakers. The CCU contains a voice activated switch which is controlled by the voice of the person making the page. When the individual making the page is silent for approximately one-half second, the switch returns to the listen mode and the speakers function as microphones. The page originator's voice will automatically switch the system back to the page mode.

Talk-back may be selected on a per-zone or zone-group basis, by using the appropriate program codes (Table 3-B, Section 3). Generally, ***no more than two or three speakers*** should be used during talk-back. Too many active speakers may cause intelligibility problems as a result of excessive background noise.

Tones

Dial, reorder, connection, program, night bell, and talk-back warning tones are heard at specific times during operation of the paging system. For a detailed description of each tone, refer to Section 3, Programming.

Night Bell Capability

When the host telephone system provides the night bell feature, the CCU may be optioned to supply a night bell tone when an incoming call is ringing. The night bell feature extends the incoming call to the speakers so that any telephone in the system can answer the call. The night bell tone may be selected for a particular zone or zone group as well as all-zone. Selection is made with the program option codes (Table 3-B, Section 3). All-zone paging is the default capability programmed after ZoneMate 9 installation.

All-Zone Lockout

This user-programmable feature allows the all-zone page function to be locked out or deactivated, thereby denying all-zone paging. All-zone paging is a default capability programmed after ZoneMate 9 installation. All-zone lockout is selected with the program option codes (Table 3-B, Section 3).

DSS10 Lockout (COM KEY 416 only)

In COM KEY 416 systems, the DSS10 button initiates an all-zone page. This is true in either single-zone systems, where a ZoneMate 9 is not used, or in 9-zone systems. DSS10 lockout frees the DSS10 button for other uses when it is not required to access paging.

Switch-Selected Voice Coil or 70.7V Output

Three VOICE COIL/70V switches located inside ZoneMate 9 select either voice coil or 70.7V output in zones 7, 8 and 9. Zones 1 thru 6 are voice coil only. The 70.7V output can be used only with speakers equipped with 70.7V transformers. Such speakers normally have a power rating in excess of 2 watts and are used in areas requiring very loud paging audio.

It is recommended that voice coil output be used with standard 45-ohm speakers not equipped with transformers.

2. Installation

Overview

This section contains a description of the paging system jacks, cables, terminals, and controls, as well as installation and connection instructions.

System Jacks, Cables, and Terminals

The jacks, cables, and terminals used to make connections to the PowerMate, CCU, ZoneMate 9, and system speakers (Figure 2-1) are described in the paragraphs that follow.

CCU

- **Modular Cord P1** — Plugs into PAGE INPUT jack J1 on rear of PowerMate.
- **PAGE INPUT Jack J101** — One end of the 6-foot modular cord supplied with the PowerMate plugs into jack J101 (Figure 2-1). The other end of the cord connects to the host communications system using either a modular plug or four spade-tip lugs. When the cord is equipped with spade-tip lugs, connection to the host system may also be through a connecting block. For your host communications system, refer to the PowerMate manual and the specific connection document that is supplied with the PowerMate.
- **Connector J40** — The 6-foot 25-conductor cable hardwired on ZoneMate 9 plugs into CCU connector J40 (Figure 2-1).
- **Cable P3** — Plugs into connector J3 on rear of PowerMate (Figure 2-1).

TO J101 FROM
HOST COMMUNICATIONS
SYSTEM (5-FOOT MODULAR CORD
SUPPLIED WITH POWERMATE)

NOTE: When Ground
Start is selected on the
CCU (see Figure 2.3), the
black lead of the PAGE
INPUT cord must be
connected to the telco
system ground (with
some installer supplied
cords you may have to
use the yellow lead
instead of the black).

TO SPEAKERS
(CONNECTORIZED CABLE
TO EACH ZONE SUPPLIED
WITH SPEAKERS)

TO NIGHT BELL
OUTPUT

TO CONNECTOR
J40

CABLE P3

6-FOOT 25-CONDUCTOR
CABLE (HARDWIRED TO
ZONEMATE 9)

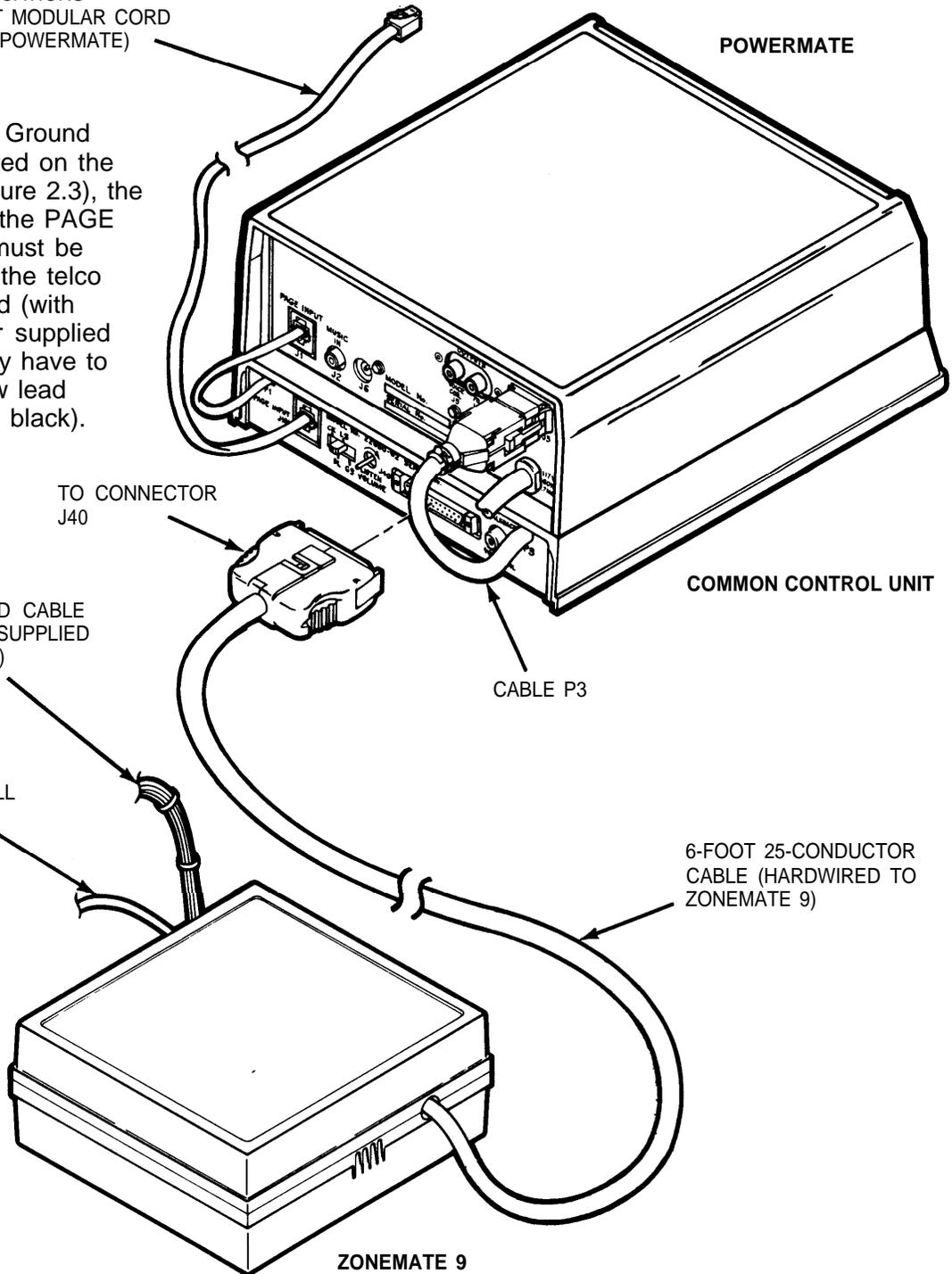


Figure 2-1. PagePac 20/9 Voice Paging System Connections

ZoneMate 9

- **ZONE 1 thru 9 Speaker Jacks** — ZoneMate 9 has one jack for each of the 9 zones (Figure 2-2). Use connectorized speaker cable supplied with speakers to make connection between ZONE jack and speaker(s) in the zone. Refer to manual supplied with PowerMate for additional information on speaker installation.
- **NIGHT BELL INPUT Screw Terminals** — Wires from host system night bell output are connected to the NIGHT BELL INPUT terminals (Figure 2-2). The night bell input responds to an AC or DC voltage signal (105 VDC maximum or 130 VAC maximum).
- **25-Conductor Cable** — The hardwired 6-foot cable plugs into connector J40 on rear of CCU (Figure 2-1).

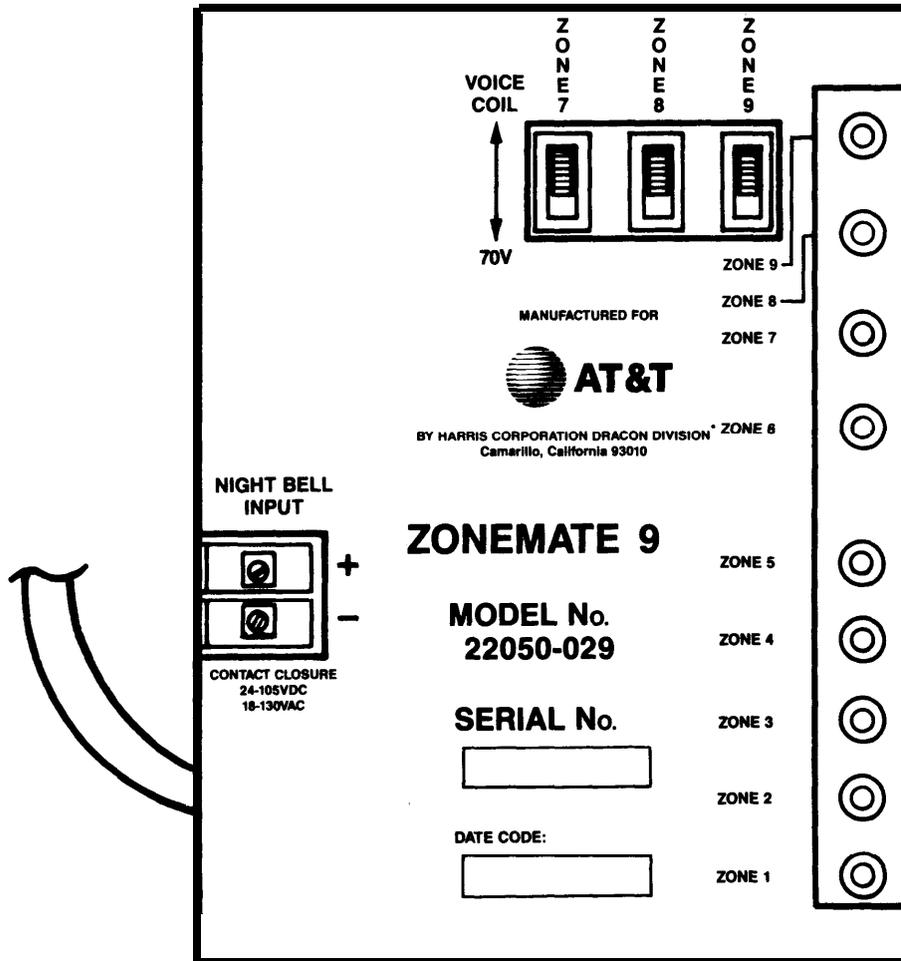


Figure 2-2. ZoneMate 9 Connections (Cover Removed)

Controls

The paging system's controls are located on the rear panel of the CCU (Figure 2-3) and inside ZoneMate 9 (Figure 2-4).

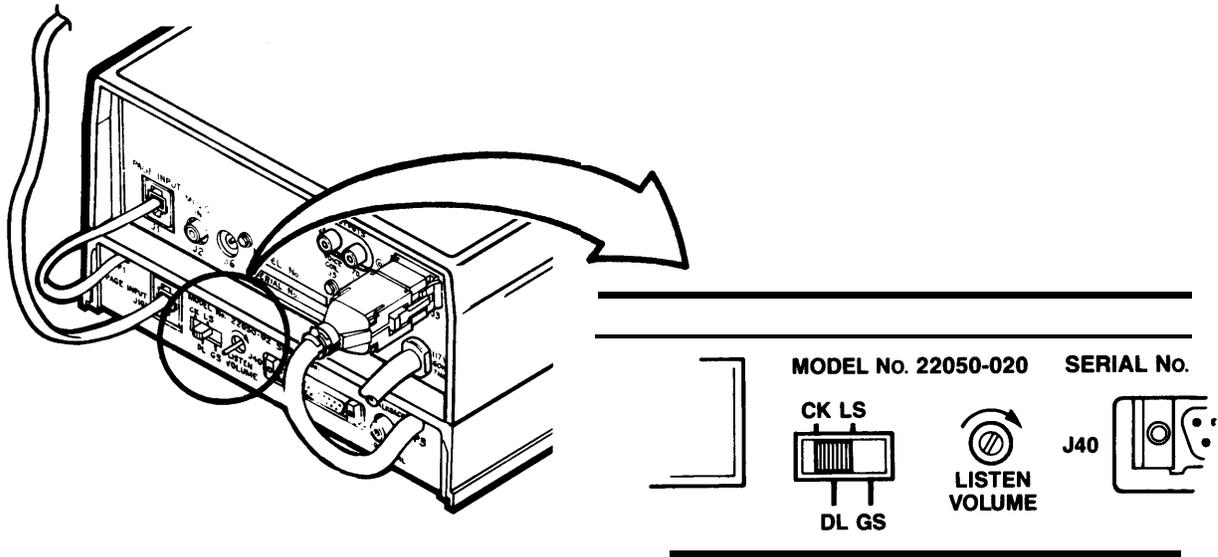


Figure 2-3. CCU Controls

CCU MODE Switch

Selects one of four possible telephone interface modes by placing the slide switch in the appropriate position. The selectable modes are as follows:

- **GS (GROUND START)** — Used when the host system is a PBX or key system and ground start trunk access is required.
- **LS (LOOP START)** — Used when the host system is a PBX or key system and loop start trunk access is required.
- **DL (DRY LOOP)** — Used with 1A/2A type key telephone systems for intercom access.
- **CK (COM KEY)** — Used only with COM KEY 416 telephone system.

CCU LISTEN VOLUME Control

Adjusts volume of talk-back signal received at paging telephone. This signal originates at speakers as someone responds to a page. Turn control clockwise to increase volume or counterclockwise to decrease volume at telephone.

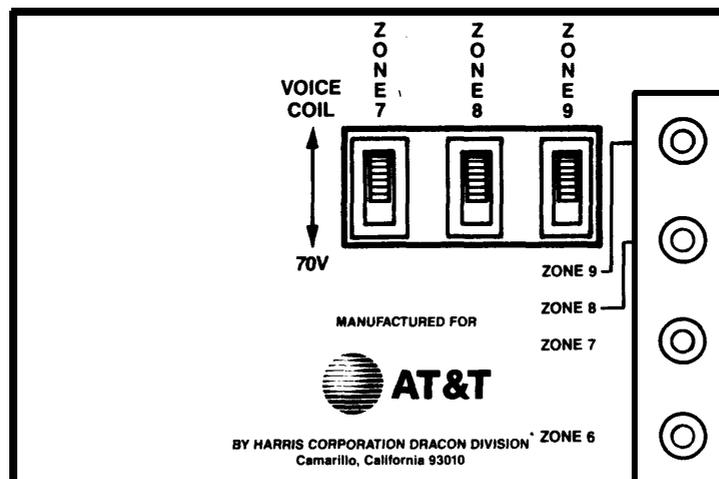


Figure 2-4. ZoneMate 9 Controls

ZoneMate 9 VOICE COIL/70V Switches

Select either voice coil or 70.V output for speaker zones 7, 8 and 9.

System Installation and Connections

If you are connecting the CCU to an operating PowerMate, start at step 1. If your installation includes both PowerMate and CCU, first install and connect PowerMate to host system as directed in the PowerMate Service Manual, then go to step 5.

1. Turn PowerMate MUSIC VOLUME control counterclockwise to OFF. The POWER indicator will go off.
2. Unplug PowerMate power cord from its AC outlet.
3. Disconnect page input modular cord from PAGE INPUT jack J1 on rear of PowerMate, but do not disconnect far end of modular cord from host system or connector block.
4. Disconnect speaker cable(s) from PowerMate OUTPUTS 70.7V LINE jack J4 and/or VOICE COIL jack J5. If Y-connectors are being used, disconnect them also.

Note: The music source (if provided) need not be disconnected.

5. Set PowerMate within the recessed area on top of CCU.
6. Plug CCU modular cord P1 (6-inch modular cord with telephone plug) into PowerMate PAGE INPUT jack J1 (Figure 2-1).

7. Plug CCU cable P3 (6-inch cable with box-like modular connector) into PowerMate connector J3 (Figure 2-1).
8. Plug page input cord (6-foot modular cord supplied with PowerMate that connects to host system) into CCU PAGE INPUT jack J101.
9. Remove cover from ZoneMate 9 by pressing on push-in snap (indicated by several raised bars) on either side of case and pulling apart the top and bottom halves of the case.
10. Connect 6-foot cable supplied with ZoneMate 9 to CCU connector J40 (Figure 2-1).
11. Plug speaker cable from each zone into appropriate ZONE jack on ZoneMate 9.
12. If your system has night bell, connect a 2-wire cable from the host system night bell output to the NIGHT BELL INPUT terminals on ZoneMate 9.
13. Set VOICE COIL/70V switches (Figure 2-4) for the type of speaker(s) being used in zones 7, 8, and 9.
14. Reinstall cover on ZoneMate 9.
15. Set MODE switch on CCU (Figure 2-3) for your particular telephone interface.

Note: If you are upgrading an existing PowerMate installation, Dry Loop (MODE switch position DL) is assumed, unless a change has been made to the host communications system. In either case, the C and C1 leads must be interconnected before paging begins.
16. Plug PowerMate power cord into a 120 VAC, 60 Hz outlet.
17. Turn PowerMate MUSIC VOLUME control clockwise to 1. The POWER indicator will light.
18. Music volume is set with the PowerMate MUSIC VOLUME control. If music is provided, turn MUSIC VOLUME control clockwise to 3 or 4. Music should be heard over the system speakers. If music is not provided, set MUSIC VOLUME control to 1. Refer to MusicMate Service Manual for more information about music sources and their connection.

3. Programming

Overview

This section contains a description of tones generated during system programming and operation, followed by instructions for programming selected options.

Tones

- **Dial tone** — A steady uninterrupted tone that is heard when the CCU is accessed and stops after the first digit is dialed.
- **Reorder tone** — A sound like a fast busy tone which indicates that an error has been made, and that no additional input will be accepted. Errors such as dialing a nonexistent zone will initiate reorder tone. You must hang up and start over.
- **Connection tone** — Consists of one short tone that is heard in the telephone just before zone connection, to indicate that paging may begin. Connection tone may be optioned using the program option codes (Table 3-B), to be heard in the speakers as well as in the telephone, alerting people in the paging area that a page is about to take place. When connection tone is enabled in any paging zone, it is enabled in all zones.
- **Program tone** — Three short bursts of tone used in conjunction with some programming functions, such as zone-group programming. For example, it serves as a prompt when a zone group is being programmed. Each time a correct option dial code (Table 3-B) is entered, the user hears this tone.
- **Night bell tone** — A rapid pulsating tone activated when an incoming call is ringing, and the night bell feature is enabled by the host system.
- **Talk-back warning tones** — An initial 1-second tone and a repetitive tone every 30 seconds which indicate to individuals in a paging zone that talk-back is in operation. The initial tone occurs when the system switches to talk-back. The repetitive tones occur as long as the system remains in the talk-back mode. Either tone may be selected without the other, or they may be used in combination. More information on these tones is given in Section 4, Operation for Systems Testing. (**System Technician** — Unless specifically requested by the customer, **do not** disable either warning tone.)

Programming Options

Table 3-A contains instructions for programming selected options. Where necessary, references are given in the **Option** column to examples of specific options placed at the end of the table. Steps 1 thru 3 below are basic steps of the programming procedure which are performed for all options.

1. Lift telephone handset.
2. Dial paging system access code for applicable option (Table 3-A).
3. Replace handset to complete programming procedure. After setting an option, you *must* replace the handset or depress the hookswitch (go on-hook) before setting another option.

Table 3-A. Programming Instructions

Option	Procedure
Connection Tone	Dial 941, 942, or 943 as applicable. (Table 3-B)
Enter Talk-Back in Individual Zones, Zone Groups, or All-Zone (See Example A at end of Table 3A)	<ul style="list-style-type: none"> • Dial 921. Listen for dial tone. • Dial access code for each zone to have talk-back (Tables 4-A and 4-B, Section 4). Listen for program tone after dialing each zone access code. • Dial 9. Listen for program tone.
Clear Talk-Back in Specific Zones or Zone Groups	<ul style="list-style-type: none"> • Dial 922. • Dial access codes for each zone or zone group in which talk-back is to be cleared. Listen for program tone after dialing each access code.
Clear All Talk-Back	Dial 923
Enter Talk-Back Warning Tones	Dial 931, 932, 933, or 934 as applicable. (Table 3-B)
Select DSS10 Lockout (COM KEY Only)	Dial 951 to prevent all-zone page or Dial 952 to enable all-zone page using DSS10.
Program Zone Group and Select Zones for Each Group (See Example B at end of Table 3-A.)	<ul style="list-style-type: none"> • Dial 99 + group number to be programmed (1, 2, 3 etc.). Listen for dial tone after dialing group number. • Dial access code of each zone to be included in the group (maximum 8). Listen for program tone after dialing each zone access code, then dial the next one. • Dial 9 after dialing the last zone code. Listen for program tone.

Table 3-A. Programming Instructions (Continued)

Option	Procedure
All-Zone Lockout Prevent all-zone paging Allow all-zone paging	Dial 961 Dial 962
Reset All Options to Default Values (Table 3-C)	Dial 987
Night Bell Assignment in Individual Zone, Zone Group or All-Zone	Dial 97 + access code for the zone, zone group, or all-zone in which night bell is to be heard (Tables 4-A and 4-B, Section 4). Example: 9781 (Group 1) 9712 (Zone 2) (See Note below.) 970 (All-Zone)
<p>EXAMPLE A</p> <p>To select talk-back in zones 4, 5 and 6, after accessing system and receiving dial tone:</p> <ol style="list-style-type: none"> 1. Dial 921. Listen for dial tone. 2. Dial 14. Listen for program tone. 3. Dial 15. Listen for program tone. 4. Dial 16. Listen for program tone. 5. Dial 9. Listen for dial tone. 	
<p>EXAMPLE B</p> <p>To program Group 1 for zones 2, 3 and 4:</p> <p>Note: If talk-back is selected for Group 1, zones 2, 3, and 4 can have only one speaker each for a total of three speakers.</p> <ol style="list-style-type: none"> 1. Access paging system. 2. Dial 991. Listen for dial tone. 3. Dial 12. Listen for program tone. 4. Dial 13. Listen for program tone. 5. Dial 14. Listen for program tone. 6. Dial 9. Listen for dial tone. <p>Note: Any one of the following might cause an error in programming the group.</p> <ul style="list-style-type: none"> • Programming an access code for which there is no zone. • Programming the access code for all-zone paging (0). • Programming more than 8 zones in the group. • Programming the access code for another zone group. <p>Should this happen, you will hear reorder tone (a fast busy tone). Hang up and start over.</p>	

Note: Night Bell may be selected in only one zone, unless it is selected in a Zone Group or All-Zones.

Table 3-B. Program Option Codes

Feature	Function Performed	Dial Code
Talk-Back Warning Tones*	Disable both warning tones	931
	Enable initial warning tone	932
	Enable repetitive warning tone	933
	Enable both initial and repetitive warning tones	934
Talk-Back in Zones, Zone Groups, or All-Zones	To program	921 + zone/group codes + 9
	To clear previous zone/group assignments	922 + zone/group codes + 9
	To clear all previous assignments	923
Connection Tone	Disable tone	941
	Enable tone to telephone only	942
	Enable tone to telephone and speakers	943
Programming Zone Groups	To program (See Example B, Table 3-A.)	99 + group no. + zone codes + 9
DSS10 Lockout (COM KEY only)	Disable all-zone page using DSS10 button	951
	Enable all-zone paging using DSS10 button	952
All-Zone Lockout	All-zone not allowed	961
	All-zone allowed	962
Reset All User Options to Factory Default Values		987
Night Bell Assignment to Zone, Zone Group, or All-Zone		97 + zone, group, or all-zone code
*System Technician — Do not disable either warning tone, unless requested by customer.		

Program Assignments in All-Zone-Only Systems

In all-zone-only systems, or systems in which ZoneMate 9 is not used, dial tone is not provided when you initially access the paging system. Instead, the telephone is immediately connected to all speakers. In this situation, press the # button on the telephone to receive dial tone and gain access to the programming function of the CCU. The # tone generated by the telephone will be heard in the speakers. Using Table 3-A, program the selected options applicable to all-zone-only systems.

Option Defaults

Table 3-C lists the default or **factory set** status of the user programmable options. Dial code **987** clears the user selected options and restores the option defaults shown in Table 3-C.

Table 3-C. Program Option Defaults

Option	Default Status
Zone Groups	None
Talk-Back	Not operational
Talk-Back Warning Tone (If Talk-Back Selected)	Initial and repetitive tones active
Connection Tone	Not operational
DSS10 Lockout For All-Zone Page (COM KEY only)	DSS10 selects all-zone page
Night Bell Assignment	Night bell heard in all speakers
All-Zone Lockout	All-zone page operational

4. Operation for Systems Testing

Overview

This section contains instructions for operating and testing the paging system after installation and programming. If the system fails to operate properly, refer to Section 5, Maintenance and Troubleshooting.

Zone Paging

PBX Systems (Ground or Loop Start)

1. Lift telephone handset.
2. Dial PAGING access code. If paging system is busy, you will hear a busy tone. If no busy tone is heard, go to step 3.
3. Dial access code for desired zone or zone group (Tables 4-A and 4-B). If connection tone is active, you will hear a short tone just before connection to the zone. Music if provided, will stop.
4. Speak into telephone in a normal manner. Your voice will be heard in all speakers in the zone or zone group.

Note: If talk-back is selected, individuals near the speakers will be able to respond to you by using speakers. Since your voice controls talk-back switch, you will cut someone off in mid-sentence if you speak or make any sound while they are using talk-back. If talk-back warning tones are active, these tones will be heard in the speakers.

5. When your page is completed, replace handset. Music, if provided, will be heard again in the speakers.

COM KEY 416 Systems (Touch Tone Only)

1. Lift telephone handset.
2. Press IC1 button.
3. Dial access code for desired zone or zone group (Tables 4-A and 4-B). If connection tone is active, you will hear a short tone just before connection to the zone. Music, if provided, will stop.
4. Speak into telephone in a normal manner. Your voice will be heard in all speakers in the zone.

5. When your page is completed, replace handset. Music, if provided, will be heard again in the speakers.

Key Systems

1. Lift telephone handset.
2. Press INTERCOM button assigned to paging.
3. Dial zone access code for desired zone or zone group (Tables 4-A and 4-B). If connection tone is active, you will hear a short tone just before connection to the zone. Music, if provided, will stop.

Note: If paging system is in use, the associated line lamp is on steady. The key system does not provide busy tone.

4. Speak into telephone in a normal manner. Your voice will be heard in all speakers in the zone or zone group.

Note: If talk-back is selected, individuals near the speakers will be able to respond to you by using speakers (if unidirectional amplifiers are not used). Since your voice controls talk-back switch, you will cut someone off in mid-sentence if you speak or make any sound while they are using talk-back. If talk-back warning tones are active, these tones will be heard in the speakers.

5. When your page is completed, replace handset or press any other button. Music, if provided, will be heard again in the speakers.

Zone-Group Paging (All Applicable Systems)

1. Lift telephone handset.
2. Access paging system in normal manner. You will hear dial tone (on COM KEY and key systems you will not hear a dial tone, go to step 3).
3. Dial 2-digit access code (Table 4-B). If connection tone is active, you will hear this tone after last zone is connected, except in COM KEY 416 and some key systems.

Note: If you make a dialing error, hang up and start over. Music, if provided, will be cut off when the zones are connected. The use of talk-back when paging in zone groups is not recommended. In a talk-back situation, no more than 2 or 3 speakers should be active to ensure intelligibility. A zone group will probably exceed this number of speakers. Therefore, talk-back is not recommended.

4. Page after dialing the last digit or after hearing connection tone, if this tone is provided.
5. When your page is completed, replace handset. Music, if provided, will be heard again in the speakers.

Table 4-A. Zone Access Codes

Zone	Dial Access Code
All Zone	0
01	11
02	12
03	13
04	14
05	15
06	16
07	17
08	18
09	19

Table 4-B. Zone Group Access Codes

Group	Dial Access Code
1	81
2	82
3	83
4	84
5	85
6	86
7	87
8	88

5. Maintenance and Troubleshooting

Overview

This section contains instructions on how to isolate a problem in the PagePac 20 9-zone paging system to an individual module or the host telephone system. To troubleshoot by symptom, refer to Table 5-A for a list of common troubles and possible causes and solutions.

Troubleshooting

Should trouble develop in the PagePac 20 system, verify that:

- System power cord is plugged in and power is available at outlet being used.
- All cables and speaker wires are properly connected.

Trouble conditions originating outside of the PagePac 20 system should be brought to the attention of the maintenance person or customer. The following equipment is required:

- Standard 2500-type telephone (touch tone) with full-modular cord.
- Dracon Six-Wire In-Line Modular Adapter (Part Number 10220-000).
- Two 6-inch long jumper wires with clips.

One Or More Speakers Fail (No Music and No Page)

1. Check all connections, including Y-connectors if used, that might affect defective speaker(s). Also check speaker cable for breaks or shorts, such as staples driven through cable.
2. If one or more speakers are defective and others operate normally, replace defective speaker(s) with working speakers.
3. If problems continue, follow maintenance instructions in PowerMate manual.

Paging Is Not Possible

General Test

1. Verify that PowerMate power cord is plugged in.
2. Ensure that power is available at outlet being used. If power is available and POWER indicator on PowerMate remains off, the PowerMate needs repair. If POWER indicator on PowerMate is on, proceed to step 3.

3. Check that MODE switch on CCU (Figure 2-3, Section 2) is correctly set for the host system. If system still fails to operate, proceed to step 4.

Test Host System

4. Turn system off by turning PowerMate MUSIC VOLUME control counterclockwise to OFF. The POWER indicator will go off.
5. Disconnect CCU from PowerMate by unplugging CCU modular cord P1 and cable P3 from PAGE INPUT jack J1 and connector J3, respectively, on PowerMate.
6. Unplug one of the speaker cables from ZoneMate 9 and plug cable into OUTPUTS VOICE COIL jack J5 on PowerMate.
7. Unplug modular page input cord from PAGE INPUT jack J101 on CCU, and plug into PAGE INPUT jack J1 on PowerMate. This connects PowerMate to host telephone system.
8. Turn PowerMate MUSIC VOLUME control clockwise to 1. The POWER indicator will light.
9. Lift a telephone, dial paging access code and speak into handset. If paging is not possible, proceed to step 10. If your voice can be heard in the speakers connected to PowerMate, go to step 16.

Test PowerMate

10. Turn system off by turning PowerMate MUSIC VOLUME control counterclockwise to OFF. The POWER indicator will go off.
11. Unplug modular page input cord from PAGE INPUT jack J1 on PowerMate.
12. Plug a Six-Wire In-Line Modular Adapter into PAGE INPUT jack J1 on PowerMate. Short adapter terminal BK to G and R to Y.
13. Plug a standard 2500-type telephone into adapter.
14. Turn PowerMate MUSIC VOLUME control clockwise to 1. The POWER indicator will light.
15. Attempt to page. If paging is not possible, the problem is most likely in the PowerMate. If your voice can be heard in the speakers connected to PowerMate, the problem is with the host system.

Note: The audio level at the speakers will be much lower than normal when accessing PowerMate in this way.

Test CCU

16. Turn system off by turning PowerMate MUSIC VOLUME control counterclockwise to OFF. The power indicator will go off.
17. Disconnect ZoneMate 9 from CCU by unplugging cable from connector J40 on CCU.
18. Unplug modular page input cord from PAGE INPUT jack J1 on PowerMate, plug into PAGE INPUT jack J101 on CCU. This reconnects CCU to host telephone system.
19. Reconnect CCU to PowerMate by plugging CCU modular cord P1 and cable P3 into PAGE INPUT jack J1 and connector J3, respectively, on PowerMate.
20. Unplug speaker cable from OUTPUTS VOICE COIL jack J5 on PowerMate and plug cable into TALKBACK VOICE COIL OUT jack on CCU.
21. If necessary, set MODE switch on CCU to LS.
22. Turn PowerMate MUSIC VOLUME control clockwise to 1. The power indicator will light. Attempt to page. If your voice can be heard in the speakers connected to the CCU, the problem is most likely in ZoneMate 9.

Paging Does Not Work In Some Zones

If paging does not work in some zones, but functions normally in all other zones, the problem is most likely in ZoneMate 9.

Talk-Back Does Not Function

If talk-back does not work in some zones, check that talk-back has been enabled in those zones (Table 3-B, Section 3). Remember, only voice coil speakers can be used in talk-back systems.

If talk-back has been correctly programmed, but still does not function, the problem is most likely in the CCU, if paging can be heard in the zones in question.

Note: The CCU and ZoneMate 9 interact. It is possible for the CCU to function normally when connected for single-zone paging and talk-back, but to prevent zone paging when connected to ZoneMate 9. Therefore, if replacing ZoneMate 9 does not solve the problem, we suggest that the CCU also be replaced.

No Background Music

Ensure that MusicMate or an alternate music source is properly connected to PowerMate and properly tuned, using procedures appropriate for that particular music source. When an alternate source is used, check that it is connected to the proper power source. Ensure that the PowerMate MUSIC VOLUME control is not set too low. Also refer to the MusicMate manual for troubleshooting procedures.

Background Music Does Not Stop During Page

Should background music continue playing during a page, the problem can be in the PowerMate or CCU.

Table 5-A. Trouble Analysis

Trouble	Possible Cause	Possible Solution
Background music and page dead in all zones	Paging system power off	Check AC power source
	CCU MODE switch improperly set	Set CCU MODE switch as required for host system (DL Mode leads C and C1 must be closed to page)
	Defective ZoneMate 9	Test paging with ZoneMate 9 removed from system—connect a voice coil zone to TALKBACK VOICE COIL OUT jack on CCU
	Defective CCU	Test paging with CCU removed from system—connect one speaker zone to PowerMate jack J4 (70V) or jack J5 (voice coil)
	Wrong type of speakers	Ensure that correct type speakers, voice coil or 70V are used
	Defective PowerMate	Test PowerMate* — if test good, replace CCU and ZoneMate 9

Table 5-A. Trouble Analysis (Continued)

Trouble	Possible Cause	Possible Solution
Page can be heard but level is very low	<p>Speaker output set too low</p> <p>Wrong type of speakers</p> <p>Low level from host system</p>	<p>Adjust power tap, attenuator, or volume control on speakers as appropriate</p> <p>Ensure that correct type of speakers, voice coil or 70V are used</p> <p>Increase level from host system</p>
Page satisfactory but music dead or distorted	<p>Music source volume control improperly set</p> <p>MUSIC VOLUME control on PowerMate improperly set</p> <p>Defective Music source</p> <p>Defective PowerMate</p>	<p>Adjust music source volume control—generally set to mid-range position</p> <p>Adjust MUSIC VOLUME control on PowerMate—generally set between 3 and 5</p> <p>Replace music source</p> <p>Test PowerMate*</p>
Background music satisfactory, music is silenced when page attempted, but can not page	<p>Defective ZoneMate 9</p> <p>Defective CCU</p> <p>Defective PowerMate</p> <p>Defective host system</p>	<p>Test paging with ZoneMate 9 removed from system—connect a voice coil zone to TALKBACK VOICE COIL OUT jack on CCU</p> <p>Test paging with CCU removed from system—connect one zone to PowerMate jack J4 (70V) or jack J5 (voice coil)</p> <p>Test PowerMate* — if test good, replace CCU and ZoneMate 9</p> <p>Troubleshoot host system</p>

Table 5-A. Trouble Analysis (Continued)

Trouble	Possible Cause	Possible Solution
Background music satisfactory, music is not silenced when page attempted, can not page	Defective PowerMate Defective CCU Defective host system	Test PowerMate* Replace CCU Troubleshoot host system
Page and music satisfactory, but talk-back works poorly or is locked in LISTEN mode	Too many talk-back speakers CCU LISTEN VOLUME control improperly set Speaker run is too long Defective CCU	Use no more than 2 or 3 speakers in each zone or zone group for talk-back; do not use talk-back during all-zone paging Adjust LISTEN VOLUME control on CCU Ensure that no voice coil speaker is located more than 600 feet from ZoneMate 9 Replace CCU
Page and music satisfactory, but talk-back does not work, or will not work in some zones	CCU LISTEN VOLUME control improperly set Voice coil speaker(s) used in zone 7, 8, or 9 but applicable VOICE COIL/70V switch improperly set Wrong type of speakers Speaker(s) placed too far from person responding to page Speaker(s) near noise source Talk-back programming Defective CCU and ZoneMate 9	Adjust LISTEN VOLUME control on CCU Set applicable VOICE COIL/70V switch to VOICE COIL Ensure that only voice coil speakers are used with talk-back Move speaker(s) closer Move speaker(s) or reduce noise Reprogram (Tables 3A and 3B, Section 3) Replace CCU and ZoneMate 9

*The PowerMate test procedure is contained in the MAINTENANCE section of the PowerMate Service Manual supplied with each PowerMate.

Repairs and Warranty

The modules of the PagePac 20 paging system do not require periodic maintenance and are not field repairable.

All terms and conditions of your agreement with AT&T Information systems apply. For service information, call the AT&T Information Systems Service Number that is provided for your communications system.

6. FCC Statement/Registration

Federal Communications Commission (FCC) Statement (Part 68)

Component registration for the Common Control Unit (CCU) has been applied for from the Federal Communications Commission (FCC) in accordance with Part 68 of its Rules.

Registered equipment may not be used with Coin Telephone Lines. Equipment may be used with Party Lines in areas where state tariffs permit such connections and when equipment is adaptable for such service.

If trouble is experienced, the equipment should be disconnected (unplugged) from the interface to determine if this equipment, the host equipment, or the telephone line is the trouble source. If this equipment is determined to be malfunctioning, it should not be reconnected until repairs are effected.

Connection to host equipment is via a 6-position modular jack (74D Connecting Block). Equivalent connections may be used. This equipment is designated to be installed in a foolproof manner. Permission of the host equipment owner, who may determine the means of connection, is required for connection.

Repairs to this equipment, other than routine repairs, as stated in the Service Manual can be made only by the manufacturer or its authorized agents.

If the equipment causes harm to the telephone network, the local telephone company may temporarily discontinue your service and, if possible, notify you in advance. If advance notice is not practical, you will be notified as soon as possible. You will be given the opportunity to correct the problem and informed of your right to file a complaint with the FCC.

The local telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be given adequate notice in writing to allow you an opportunity to maintain uninterrupted telephone service.

Federal Communications Commission (FCC) Registration (Part 15)

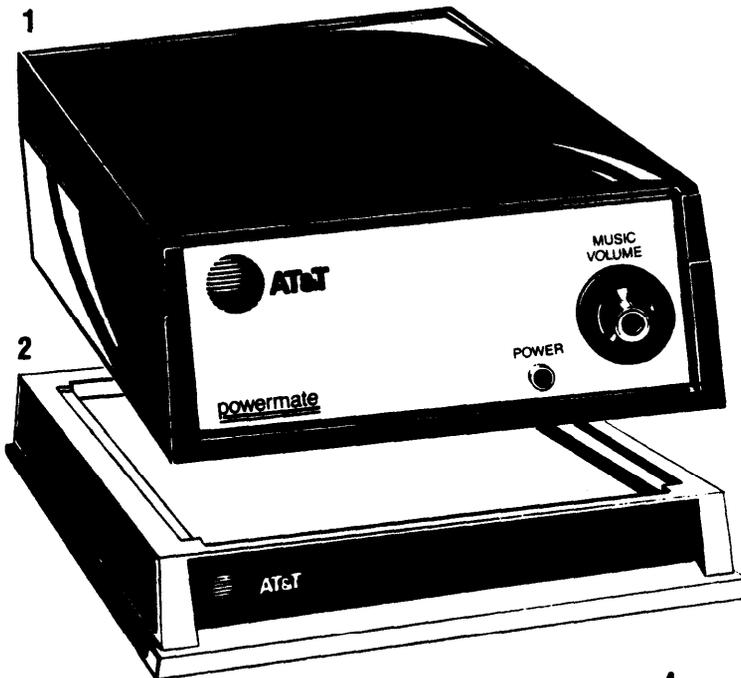
Radio Frequency Interference

The CCU unit generates and uses radio frequency energy and if not installed and used in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. Testing is being conducted for compliance with the limits for a Class B device in accordance with the specifications in Subpart J of Part 15 of the FCC Rules. This testing is designed to provide reasonable protection against such interference. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the PowerMate unit off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the radio or TV receiving antenna.
- Relocate the PowerMate unit with respect to the radio or TV receiver or vice-versa.
- Plug the PowerMate unit into a different outlet so that it and the radio or TV receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet, "How To Identify and Resolve Radio-TV Interference Problems", helpful. This booklet was prepared by the Federal Communications Commission (FCC) and is available from the U.S. Government Printing Office, Washington, DC 20402. Stock order No. 004-000-00345-4.

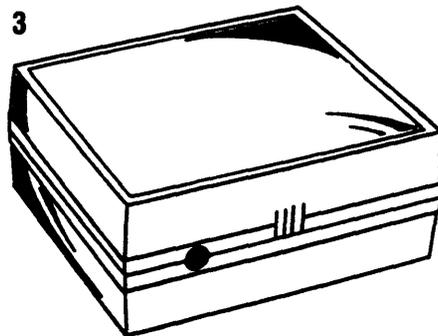
PowerMate
PE Code 5323-005
COM Code 403308026



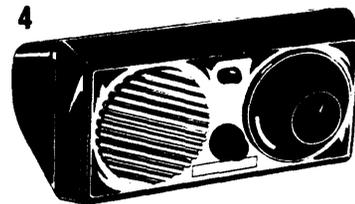
1. PowerMate
2. Common Control Unit (CCU)
3. ZoneMate 9
4. MusicMate

Common Control Unit
PE Code 53505
COM Code 405024134

ZoneMate 9
PE Code 53505
COM Code 404057911



MusicMate
PE Code 58300
COM Code 403308000



PagePac 20 with 9 Zones

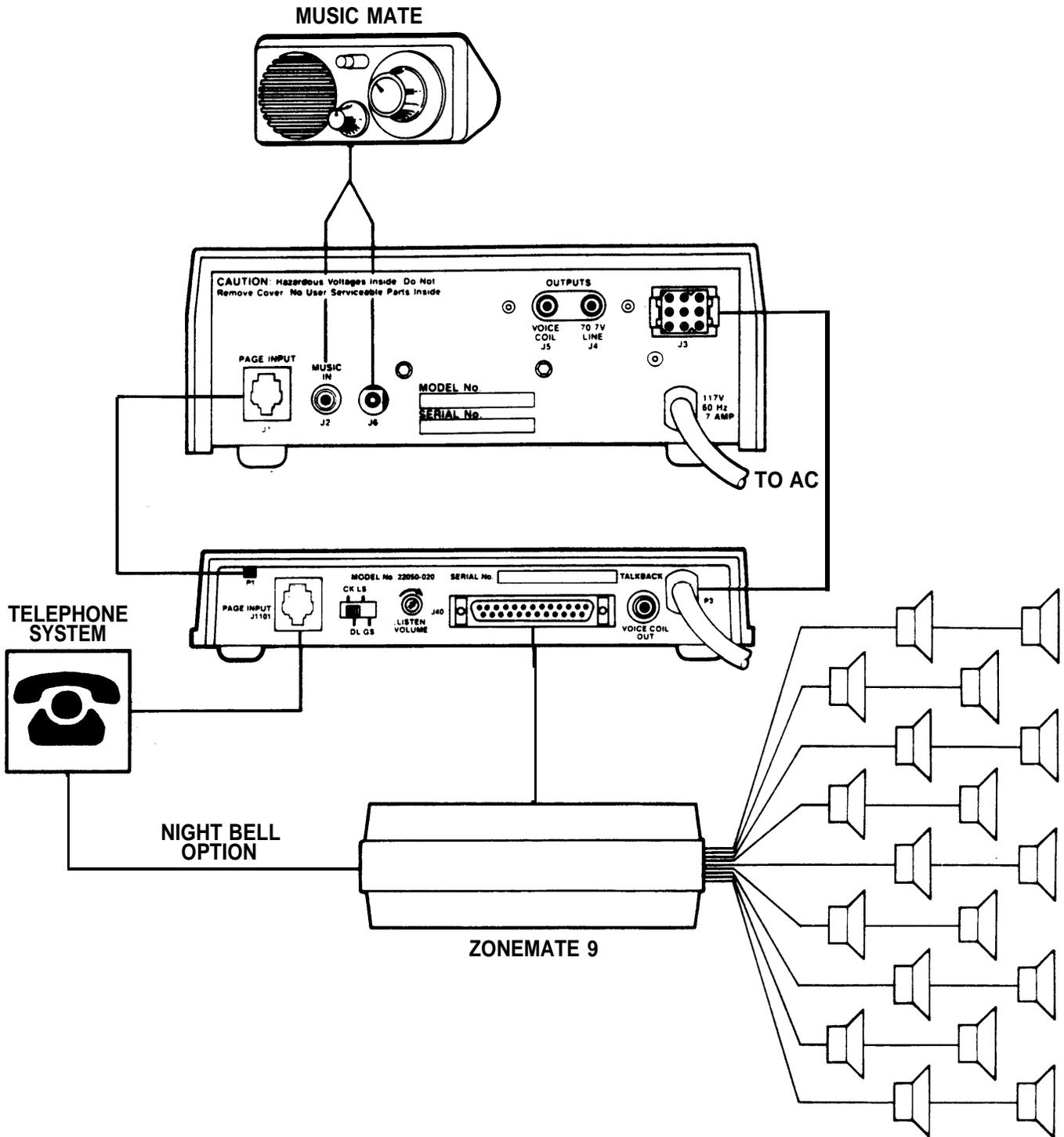
AT&T PagePac 20 with 9 zones is the full featured PagePac 20 system that includes the sophisticated paging options of up to nine separate zones for selective page and Talkback for two-way conversation.

The common control unit (CCU) stacks neatly under the PowerMate, turns the system's speakers into voice-activated microphones. Ideal for warehouses, medical laboratories, loading docks, etc. —making it unnecessary for personnel to locate a telephone instrument in order to respond to a paging message.

ZoneMate 9 expands the system to 9 paging zones for more control over selective paging messages or message areas.

Music-on-Hold and background music are provided through the MusicMate module. An alternate music source, such as an FM tuner maybe used in place of MusicMate.

Rear View



PagePac 20 with 9 Zones

Four units comprise the complete system: PowerMate (powers the system), Common Control Unit (integrates the system and provides talkback), MusicMate (for music feature) and ZoneMate 9 (expanding the system to 9 paging zones or areas).