

EVM-8XA Voicemail System

2008

Installation and Programming Manual

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1. Overview

EVM Voice Mail System works with telephone system (PBX) to automate the call answering, voice messaging, and call transferring.

EVM Voice Mail System provides three services:

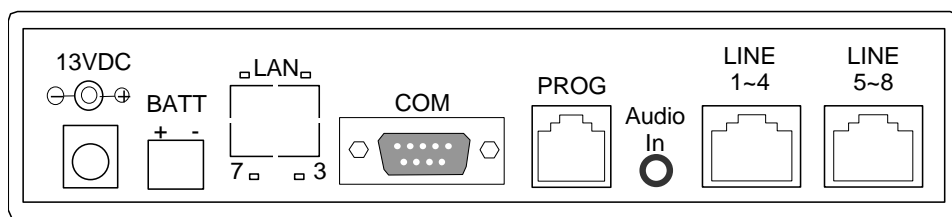
- Automated Attendant (AA) Service answers calls and transfers the calls to pre-defined destinations or destinations that callers select; picks up unanswered calls.
- Information Service provides frequently requested information to callers; enables callers to search the transfer destinations systematically.
- Voicemail Service allows callers to leave messages; enables a mailbox owner to retrieve messages and to send messages to other mailbox owners.

Specifications

	2030A	2050A	8100A	8200A	8400A
Voice Storage Capacity (hours)	2.5~3.5	4.5~5.5	100~120	200~240	400~480
Number of Information Menus	9	256	170		
Number of Mailboxes	255		511		
Number of Hunt Groups	8		8		
Ways of Integration to PBXs	DTMF		DTMF / RS232 / Ethernet (additional)		
Number of SLT Interfaces	2 Ports		4 or 8 Ports		
Power Consumption (13VDC)	0.1A		0.14A (4 Ports) / 0.24A (8 Ports)		

2. Installation

Connection Description of EVM-8XA



- 13VDC:** the main power connector, which is for connecting to the power transformer included in the EVM-8X package.
- BATT:** the backup-power connector, which is for connecting to a rechargeable battery (12V/7AH is recommended).
- LAN:** the hole, which is reserved for the LAN port of an EVM-NIC card. If the PBX uses the LAN for voicemail integration, the EVM-8X system will need an EVM-NIC card.
- COM:** the serial port. If the PBX uses a serial port for voicemail integration, the connection between both serial ports should be made according to the pin assignment of each connector.

The 9-pin connector (DB9) of the wire cable (included in the EVM-8X package) is for connecting to this COM port, which is a DTE (Data Terminal Equipment) connector; the 25-pin connector (DB25) is for connecting to a DCE (Data Center Equipment) connector. If the 25-pin connector is unfit for the PBX, you might alter the wires connected on its pins or use an appropriate wire cable. Anyway, a RD pin must be connected to the TD pin of the other end; a CTS pin must be connected to the RTS pin.

Standard Pin Assignment of RS232 Connectors

DCE Connectors			DTE		
Signal Name	DB25 Pin No.	DB9 Pin No.		DB9 Pin No.	Signal Name
RD	3	2	←	2	TD
TD	2	3	→	3	RD
RTS	4	7	→	7	CTS
CTS	5	8	←	8	RTS
DSR	6	6	←	6	DTR
GND	7	5	-	5	GND

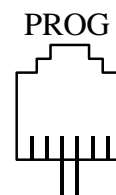
There are two indicators beside the COM port: the lighting of “3” indicates that the RD pin is correctly connected to the PBX; the lighting of “7” indicates that the CTS pin is correctly connected to the PBX.

- PROG:** the programming-telephone port, which is for connecting to a standard touch-tone telephone for on-site programming or connecting to a simple switch to be the Night switch.

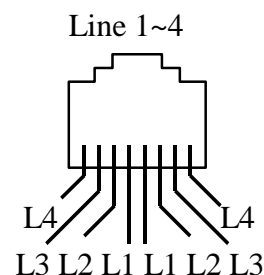
SYS_4_* determines whether the Night switch is allowed.

- LINE 1~4:** the Group 1 analog telephone line ports, which are for connecting to the PBX.

The 8P8C-plug modular cable and the 8P8C socket (included in the package) are used to connect the Line ports to the PBX's analog extension ports prepared for the voice mail system. On the terminal block of the socket, the red and green wires are for the L1 port, the yellow and black wires are for the L2 port, the brown and orange wires are for the L3 port and the white and



External Switch

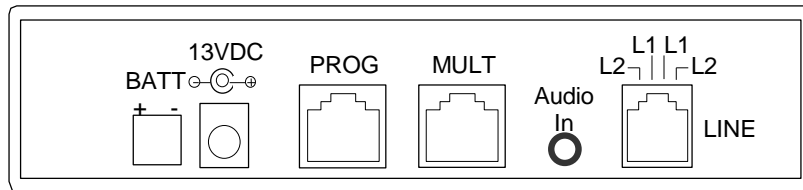


blue wires are for the L4 port.

LINE 5~8: the Group 2 analog telephone line ports, which are also for connecting to the PBX only if the EVM system is already equipped with an EVM83-4LC card.

Audio-In: the audio input port. For more information, see “[Methods of Recording Announcements](#)”.

Connection Description of EVM-2XA

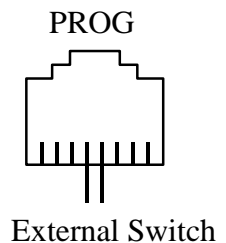


13VDC: the main power connector, which is for connecting to the power transformer included in the EVM-2X package.

BATT: the backup-power connector, which is for connecting to a rechargeable battery (12V/7AH is recommended).

PROG: the programming-telephone port, which is for connecting to a standard touch-tone telephone for on-site EVM programming or connecting to a simple switch to be the Night switch.

[SYS_4_*](#) determines whether the Night switch is allowed. If the Night switch is allowed using, the closed-hour mode will be activated in minutes after the switch is switched to the ON position.



MULT: the multi-connection port, which is not used because the EVM voicemail system is stand-alone.

LINE: the analog telephone line ports, which are for connecting to the PBX.

The 6P4C-plug modular cable and the 6P4C socket (included in the package) are used to connect the Line ports to the PBX's analog extension ports prepared for the voice mail system. On the terminal block of the socket: the red and green wires are for the L1 port; the yellow and black wires are for the L2 port.

Audio-In: the audio input port. For more information, see “[Methods of Recording Announcements](#)”.

Installation Procedure

1. Power the EVM system. The “POW” light on the front panel will continually blink when the system is ready.
2. Connect the Line ports to the PBX's analog extension ports prepared for the EVM system.
3. If the EVM was used before, delete inappropriate setting values by using the related [All-Deletion commands](#) (p.48).
4. Perform the EVM programming:
 - Create [EXTN Groups](#) to define the desired extension numbers.
 - Correct the [operating-ways and feature codes](#).
 - Define the Hook Flash length and define the Tone Cycle lengths for the Internal [Tone](#)

Detection.

- Adjust the system clock for to current date and time.
 - Check the [COM Port parameters](#) if any related feature is used.
 - Specify [service operators](#) as needed.
 - [Create mailboxes](#) as needed.
 - Create [information menus](#) as needed.
5. Record the main greetings.
 6. Set up a PBX's hunt group to transfer incoming calls to the EVM. It is recommended that the L2 port be the end of the hunting sequence. If the PBX does not provide such a hunt group feature but can simultaneously send the ringing signals to all the given extensions for each call incoming, the number of L2 Rings ([SYS_3_2](#)) should be more than the L1 Rings ([SYS_3_1](#)) in order to prevent that the EVM system answers an incoming call with all of the idle ports at the same time.

3. How to Start EVM Programming

Logging in to the System Program

To perform the EVM programming, you need to log in to the [System Program](#) and the [Administration Program](#). To set Special External Phone numbers and the related Remote Switch Access numbers, you need to log in to some of the [Mailbox Programs](#) of the special mailboxes (9900~9999).

Use either of the following ways to log in to the System Program:

- Plug a standard touch-tone telephone into the “PROG” jack; pick up the handset when the L1 port is not in use.
- Make a phone call to the EVM system; press * * and the system password on hearing the main greeting.
- Hearing the main menu of System Program, you can press 0 for the main menu of Administration Program.
- [SYS_6_8](#) is used to modify the system password (Default= 0#0#).
- [SYS_6_9](#) is used to modify the administrator’s password (Default= empty).

Symbols of Programming Paths

This document illustrates programming paths with the following symbols.

Symbols	Meanings
ADM	Start from the main menu of Administration Program.
SYS	Start from the main menu of System Program.
MBxxxx- VM	Start from the main menu of the Mailbox Program of the specified mailbox.
[X]	The digit length is 1-digit.
[XX]	The digit length is 2-digit.
[XXX]	The digit length is 3-digit.
[XXXX]	The digit length is 4-digit.
[abcd]	The maximum digit length is 4-digit; each digit is a feature option.
[X~]	The maximum digit length is 4-digit. To complete inputting a value less than four digits, you need press # or wait three seconds.
[X~~]	The maximum digit length is 16-digit. To complete inputting a value less than sixteen digits, you need press # or wait three seconds.
(Hex)	A Hex value, which consists of two hexadecimal digits: Hex values from 00 to 7F as shown in the ASCII character set are used to represent character information. Hex values from A0 to A9 are used to define the variables of byte.

For example, [SYS_3_5_\[X\]](#) indicates the programming path of the Operator Code administration as follows:

1. Hearing the main menu of System Program, you should press 3 to select “To set Ring Times and Operator Code.” If press # or do nothing, you will exit from the System Program and return to the main greeting.
2. Pressing 3, you hear the options on “Ring Times and Operator Code” menu. You should press 5 to select “For Operator Code.” If you press # or do nothing, you will return to the main menu.
3. Pressing 5, you hear the value of the Operator code. You can change the value by pressing the desired number. If press #, you will confirm the value as prompted, and return to the previous menu. If do nothing, you will return to the previous menu and leave the value unchanged.

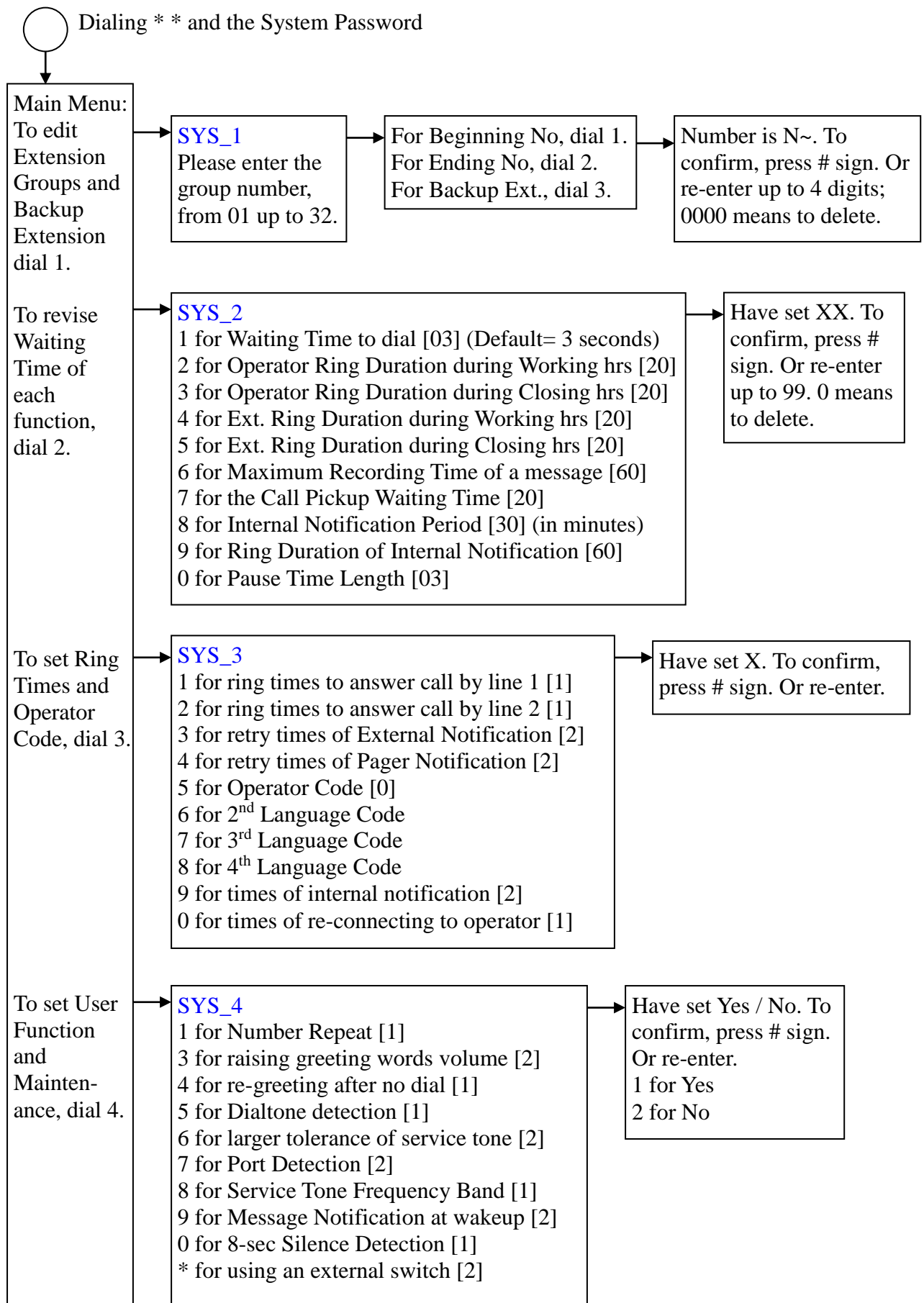
Each of the following DTMF / Function digits is programmed by pressing two buttons in sequence on the telephone keypad:

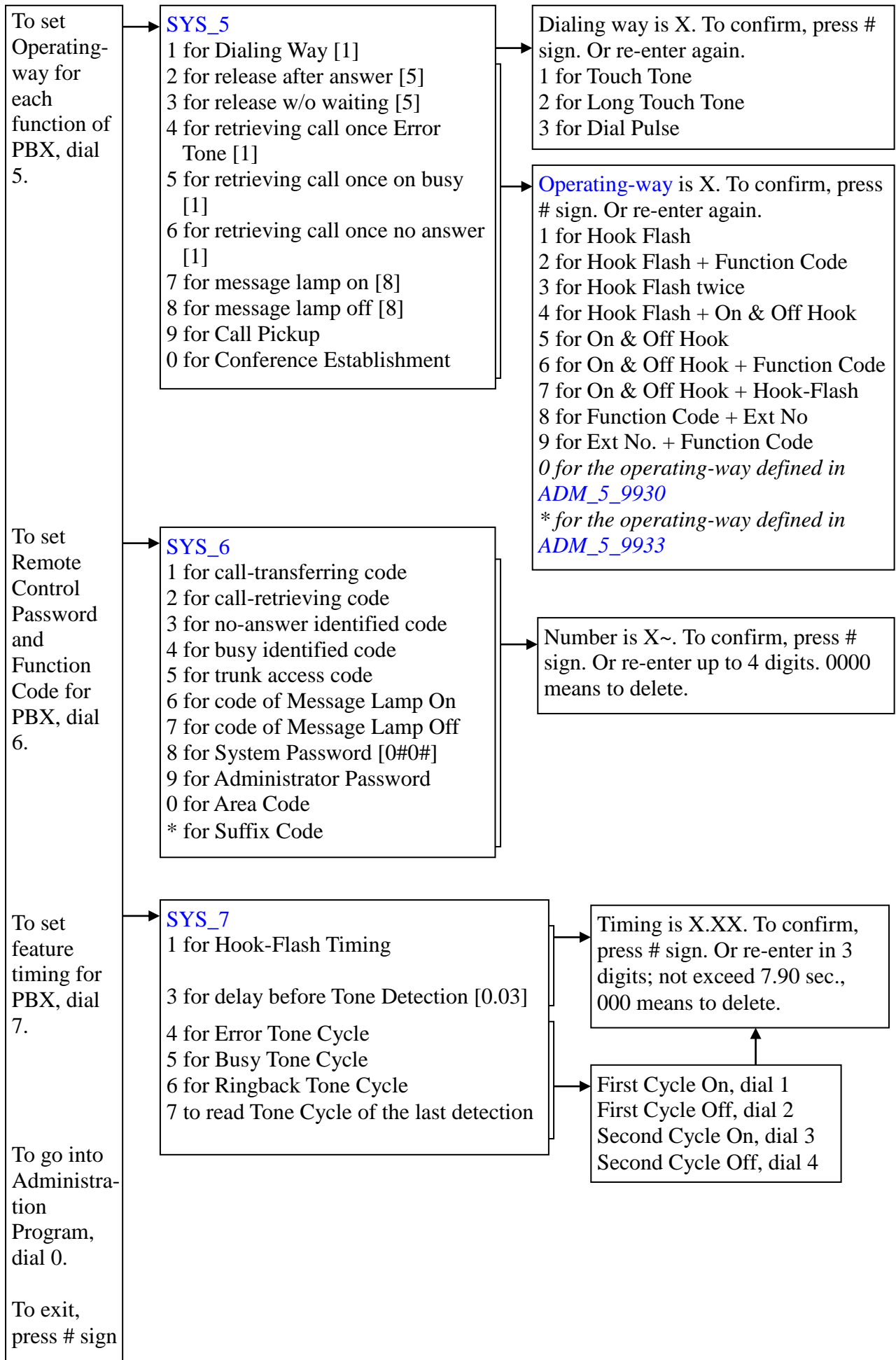
DTMF digits:	*	#	A	B	C
Buttons:	* *	* 1	* 2	* 3	* 4

Each of the following Hexadecimal digits is programmed by pressing two buttons in sequence on the telephone keypad:

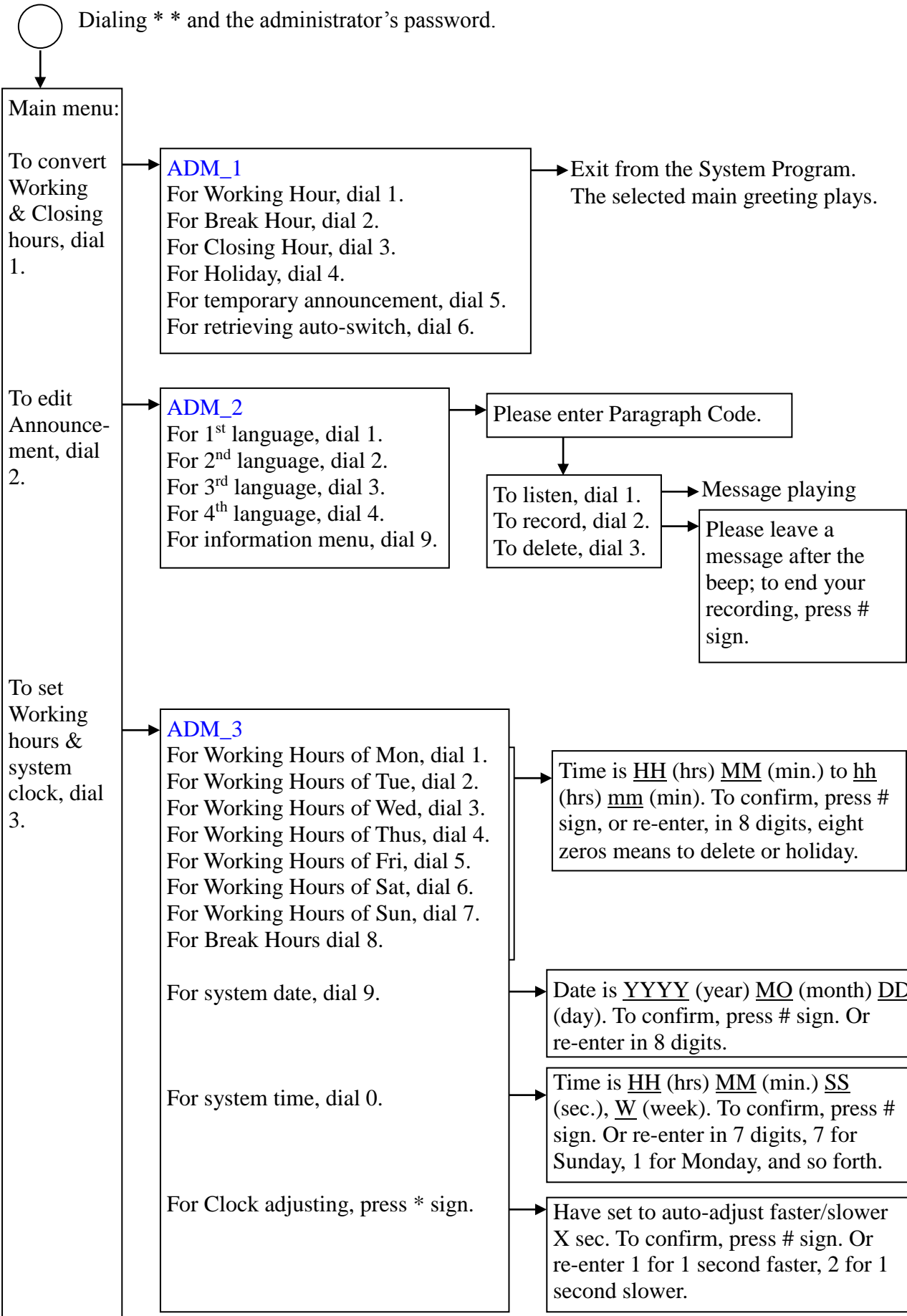
Hexadecimal digits:	A	B	C	D	E	F
Buttons:	* 0	* 1	* 2	* 3	* 4	* 5

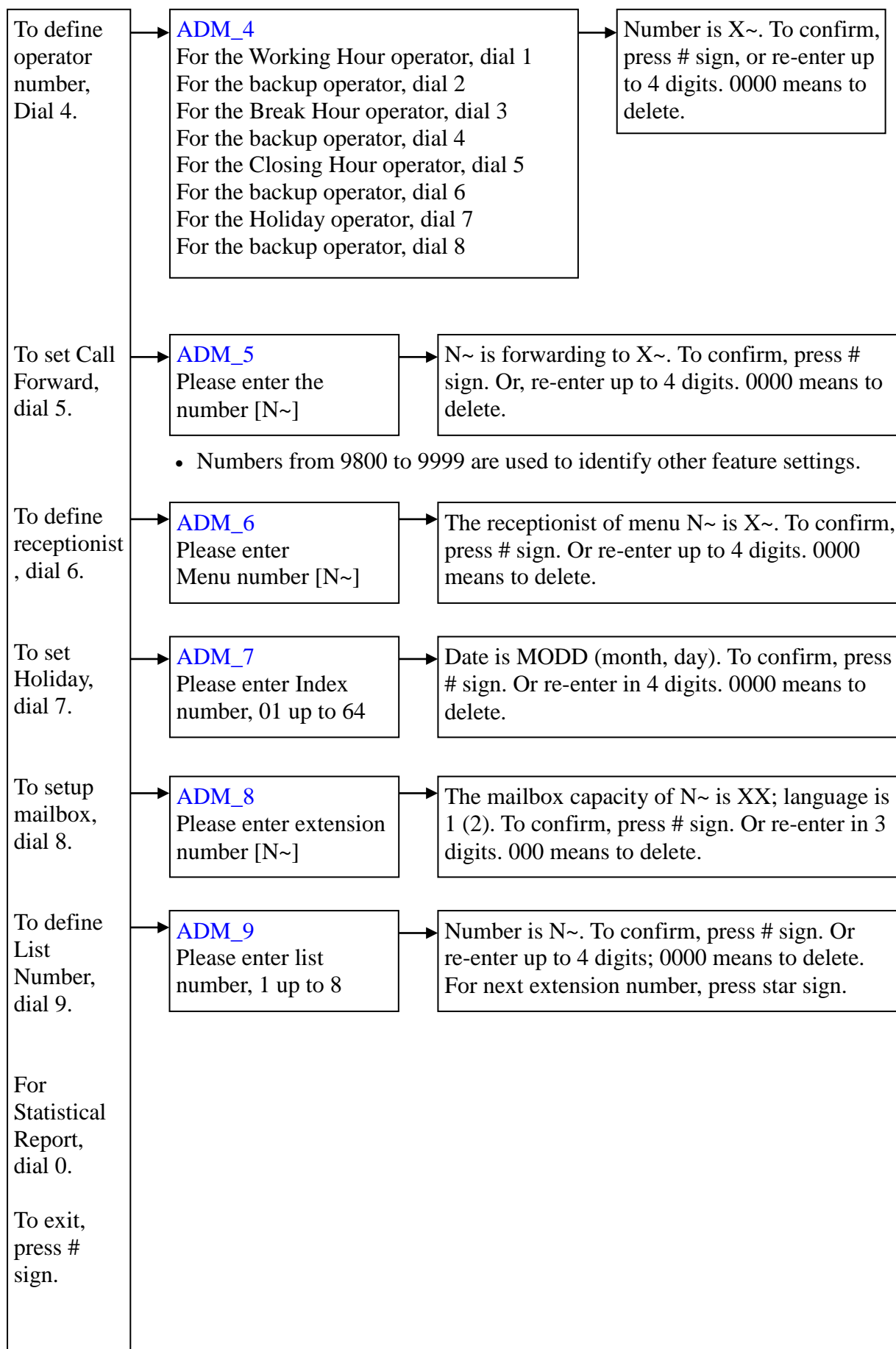
Programming Path Diagram of System Program



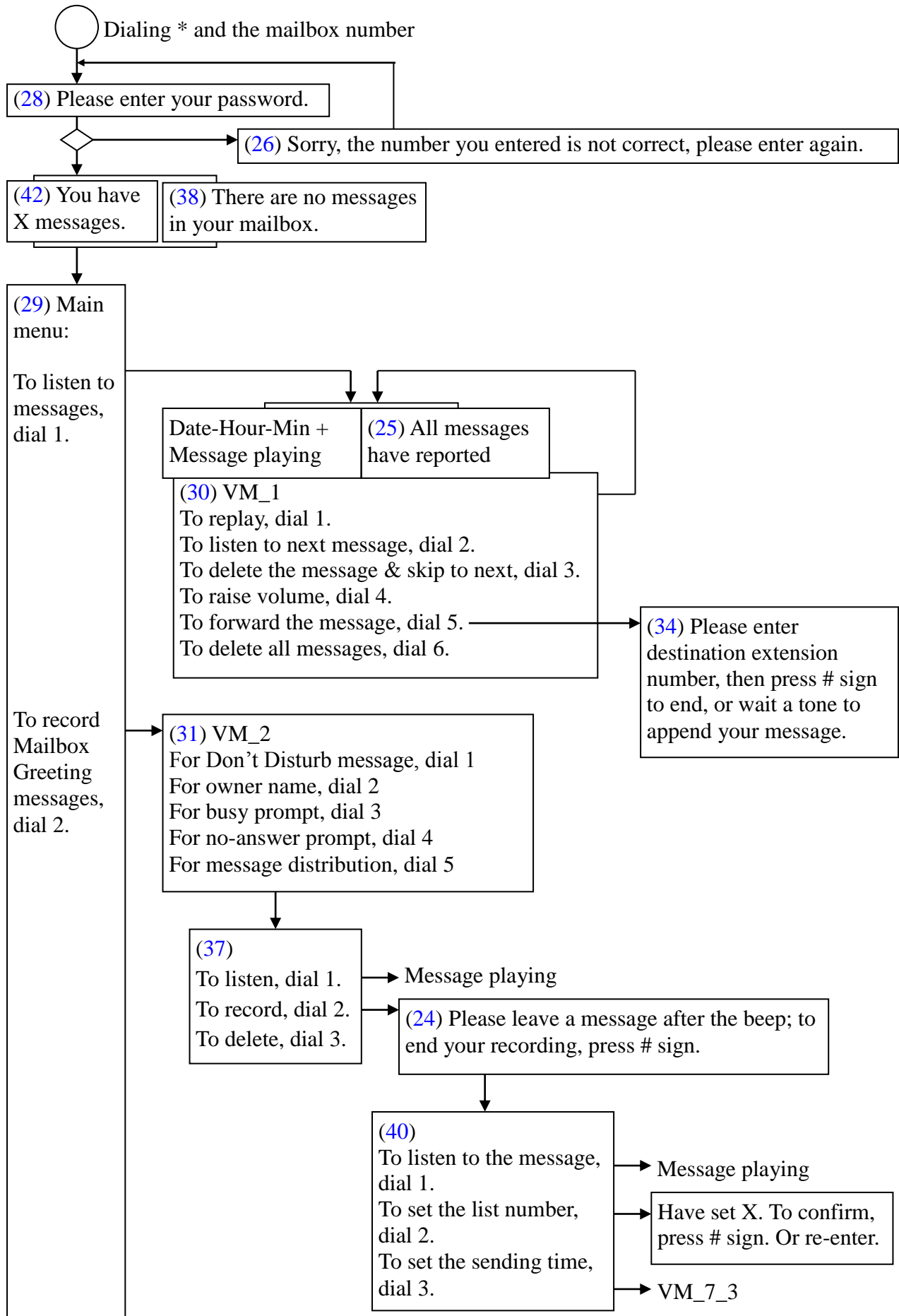


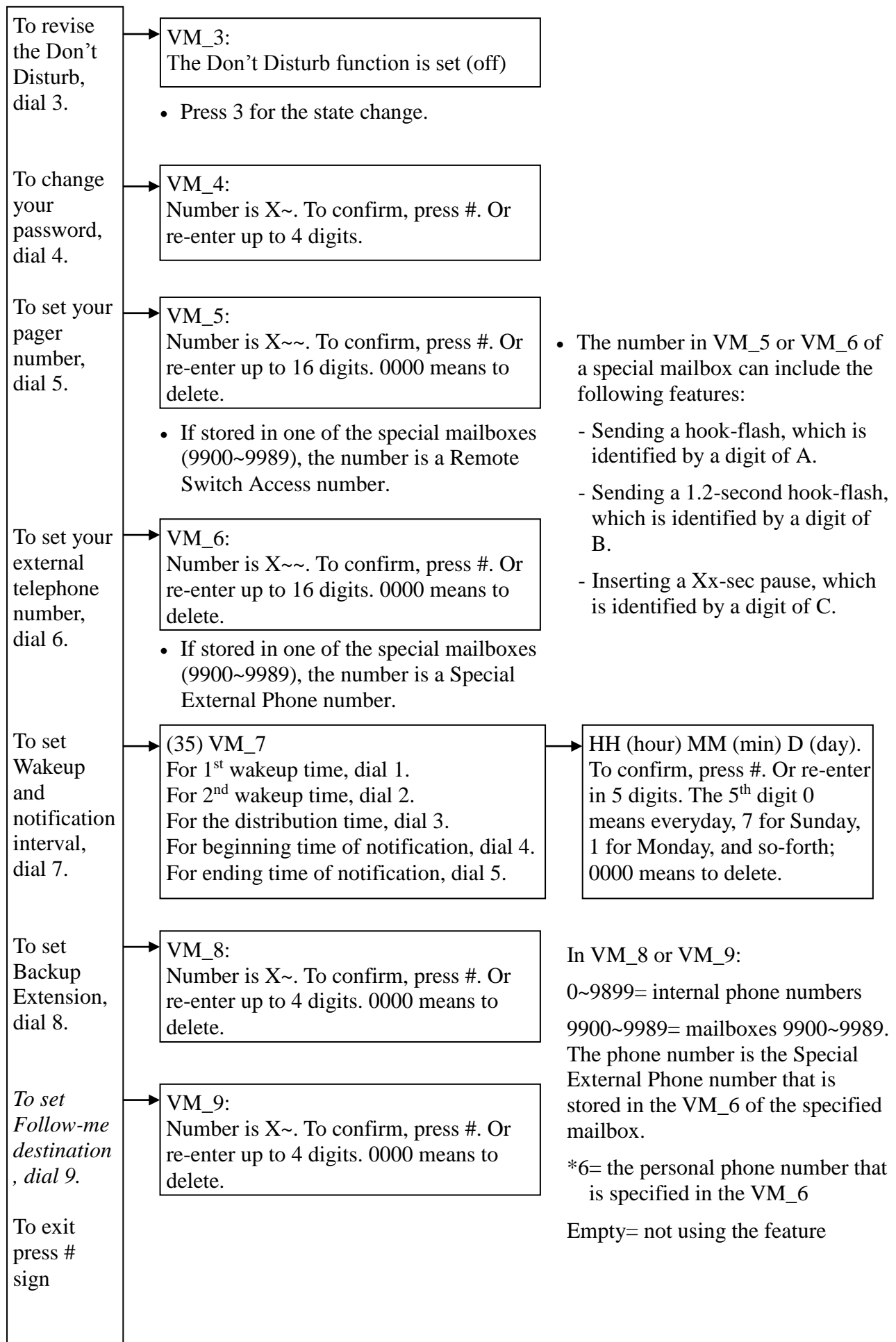
Programming Path Diagram of Administration Program





Programming Path Diagram of Mailbox Programs





4. Feature Descriptions and Administration

This chapter describes the features that can be administered by the system administrator.

Business Schedule and Control

With the Weekly Working Hour schedule ([ADM_3](#)) and the Holiday schedule ([ADM_7](#)), the EVM can automatically change the mode of AA service.

Also, the system administrator can manually control the mode of AA service, by using the Schedule Control menu ([ADM_1](#)), or manually activates the closed-hour mode by using the Night switch.

Modes of AA service:

	Working-hour Mode	Break-hour Mode	Closed-hour Mode	Holiday Mode
Information Menus	24-hour menus	Break-hour menus or 24-hour menus	Closed-hour menus or 24-hour menus	Closed-hour menus or 24-hour menus
Service Operators	Working Hour Service operators	Break-hour Service operators	Closed-hour Service operators	Holiday Service operators
Main Greetings	Paragraph 01	Paragraph 02	Paragraph 03	Paragraph 04
General No-answer Prompts	Paragraph 06	Paragraph 09		
General Busy Prompts	Paragraph 07	Paragraph 10		
Operators' Busy Prompts	Paragraph 08	Paragraph 11		
Backup No-answer Prompts	Paragraph 12	Paragraph 15		
Backup Busy Prompts	Paragraph 13	Paragraph 16		
Wrong-Number Prompts	Paragraph 18	Paragraph 19		

Announcements Administration

To administer announcements, you will use the Announcement Administration menu ([ADM_2](#)).

Administrable announcements are information announcements and the prompts/greetings that are identified by the paragraph codes as shown in table 4-1.

The paragraph codes indicate the purposes of the recorded messages. Up to four messages can be recorded for the same purpose by using the recording language options. The language options also determine which message is played when the purpose of a message occurs.

Table 4-1 also shows the words of the built-in messages of the system. An EVM system of English version includes only the built-in messages recorded in English, which is called 1st language in this document. The built-in message of a paragraph code is the default message of all the four languages of that paragraph code.

Table 4-1. Paragraph Codes

01 Main Greeting of AA Service on Working Hours

“Hello, please dial extension number or wait for the operator service.”

Messages are for answering incoming calls during the working hours.

02 Main Greeting of AA Service on Break Hours

“It is break hour now. Please dial extension number.”

Messages are for answering incoming calls during the break hours.

03 Main Greeting of AA Service on Closed Hours

“It is closing hour now. Please dial extension number, or wait for operator service.”

Messages are for answering incoming calls during the closed hours.

04 Main Greeting of AA Service on Holidays

“It is Closing hour now. Please dial extension number.”

Messages are for answering incoming calls during the holidays and weekends.

05 On-hold Prompt

a. “Please wait a moment!”

b. “Please wait a moment for operator service.”

Messages are for telling callers that the system starts to transfer their calls.

06 General No-answer Message (Working Hours)

a. “Sorry, the call is unanswered, please dial * sign to hold, or wait for operator service.

b. “Sorry, the call is unanswered, please dial * sign to hold, or dial another extension number.

Messages are for telling callers that the called party is “Ring No Answer”, during the working hours.

07 General Busy Prompt (Working Hours)

- a. “Sorry, the extension is busy now, please dial * sign to hold, or wait for operator service.
- b. “Sorry, the extension is busy now, please dial * sign to hold, or dial another extension number.

Messages are for telling callers that the called party is busy, during the working hours.

08 Operators’ Busy Prompt (Working Hours)

Sorry, the operator is busy now, please dial * sign to hold, or dial another extension number.

Messages are for telling callers that the service operator is busy (maybe in fact the call is Ring No Answer), during the working hours.

09 General No-answer Prompt (Non-working Hours)

- a. “Sorry, the call is unanswered, please dial * sign to hold, or wait for operator service.
- b. “Sorry, the call is unanswered, please dial * sign to hold, or dial another extension number.

Messages are for telling callers that the called party is “Ring No-answer”, during the non-working hours.

10 General Busy Prompt (Non-working Hours)

- a. “Sorry, the extension is busy now, please dial * sign to hold, or wait for operator service.
- b. “Sorry, the extension is busy now, please dial * sign to hold, or dial another extension number.

Messages are for telling callers that the called party is busy, during the non-working hours.

11 Operators’ Busy Prompt (Non-working Hours)

“Sorry, the operator is busy now, please dial * sign to hold, or dial another extension number.”

Messages are for telling callers that the service operator is busy (maybe in fact the call is Ring No Answer), during the non-working hours.

12 Backup No-answer Prompt (Working Hours)

- a. “Sorry, the call is unanswered, please dial * sign to hold, dial # sign to leave a message, or wait for operator service.”
- b. “Sorry, the call is unanswered, please dial * sign to hold, dial # sign to leave a message, or dial another extension number.”

The purpose is to provide backup greetings for the mailbox owners who have not recorded the Personal No-answer Prompts.

- [ADM_5_9903](#) determines the related features.

13 Backup Busy Prompt (Working Hours)

- a. “Sorry, the extension is busy now, please dial * sign to hold, dial # sign to leave a message, or wait for operator service.”
- b. “Sorry, the extension is busy now, please dial * sign to hold, dial # sign to leave a message, or dial another extension number.” (Note 1, 2)

The purpose is to provide backup greetings for the mailbox owners whose mailboxes have

no Personal Busy Prompt.

- [ADM_5_9903](#) determines the related features.

15 Backup No-answer Prompt (Non-working Hours)

- a. “Sorry, the call is unanswered, please dial * sign to hold, dial # sign to leave a message, or wait for operator service.”
- b. “Sorry, the call is unanswered, please dial * sign to hold, dial # sign to leave a message, or dial another extension number.” (Note 1, 2)

The purpose is to provide backup greetings for the mailbox owners whose mailboxes have no Personal No-answer Prompt.

- [ADM_5_9903](#) determines the related features.

16 Backup Busy Prompt (Non-working Hours)

- a. “Sorry, the extension is busy now, please dial * sign to hold, dial # sign to leave a message, or wait for operator service.”
- b. “Sorry, the extension is busy now, please dial * sign to hold, dial # sign to leave a message, or dial another extension number.” (Note 1, 2)

The purpose is to provide backup greetings for the mailbox owners whose mailboxes have no Personal Busy Prompt.

- [ADM_5_9903](#) determines the related features.

18 Wrong-Number Prompt (Working Hours)

- a. “Sorry! The number you dialed is wrong number, please check and redial.”
- b. “Sorry! The number you dialed X can’t be identified, please check and redial.”

Messages are for telling the callers that the dialing number is wrong, during the working hours.

19 Wrong-Number Prompt (Non-working Hours)

- a. “Sorry! The number you dialed is wrong number, please check and redial.”
- b. “Sorry! The number you dialed X can’t be identified, please check and redial.”

Messages are for telling the callers that the dialing number is wrong, during the non-working hours.

20 Call Disconnection Prompt

“Sorry, this connection will be terminated. Good-bye.”

Messages are for telling callers that the system is going to hang up.

21 Operation Instruction of Information Service

“To repeat, press star sign; to previous menu, press # sign; or dial 0 for operator service.”

Messages are for telling callers how to operate [Information Menus](#).

- If you intend not using such a message, the only method is to record the message by not speaking.
- The actual recording language for this paragraph need not be the same as other paragraphs.

- [ADM_5_9911](#) ~ ADM_5_9919 are used to assign the recorded messages to menu groups.

22 Notification Greeting

“Hello! There are messages in your mailbox, please enter your password to listen.”

The purpose is to provide the message a mailbox owner hears on answering a call of Message Notification.

23 Temporary Announcement

No built-in messages

Messages are for telling callers that the office is on temporary closure.

24 Auxiliary Message of Personal Don't Disturb Greetings

“Please leave a message after a tone; to end your recording, press # sign.”

Messages are for telling callers how to start recording and how to end recording.

- [ADM_5_9910](#)_[xxcx] determines whether this paragraph is used or not.

25 Mailbox Bottom Prompt

All messages have reported.

Mailbox owners will hear this prompt if selecting Option 2, 3, or 6 to the oldest message. A mailbox owner whose mailbox has no message will also hear this on selecting Option 1 from the main menu.

26 Input Error

“Sorry! The number you entered is not correct, please enter again.”

27 Callers' Message Revising Options

“To listen to message dial 1, To record again, dial 2, To exit, dial 3.”

Callers will hear this when pressing # to end recording a message.

28 Mailbox Password Request Greeting

“Please enter your password.”

Callers will hear this when dialing * and a mailbox number to a main greeting.

29 Mailbox Program Main Menu

“To listen to messages dial 1. For Personal Greetings, dial 2. To revise the Do Not Disturb, dial 3. To change password, dial 4. To define pager number, dial 5. To define external telephone number, dial 6. To set Wakeup Time and Notification Interval, dial 7. To set Personal Back Extension, dial 8. To exit, press # sign.”

See the Programming Path Diagram of [Mailbox Program](#).

30 Administration Menu for Received Messages (VM_1)

“To replay, dial 1. To listen to next message, dial 2. To delete the message, dial 3. To raise volume, dial 4. To forward the message, dial 5. To delete all messages, dial 6.”

31 Administration Menu for Outgoing Messages (VM_2)

“For Don’t Disturb message, dial 1. For owner name, dial 2. For busy prompt, dial 3. For no-answer prompt, dial 4. For message distribution, dial 5.”

32 Response to DND-ON Selection (VM_3)

“The Do Not Disturb function is set.”

Mailbox owners hear this response on dialing 3 (To revise the Do Not Disturb) from the main menu if the previous option is "DND-OFF"; owners also hear this response on dialing 3 to the response of DND-OFF selection.

33 Response to DND-OFF Selection (VM_3)

“The Do Not Disturb function is off.”

Mailbox owners hear this response on dialing 3 (To revise the Do Not Disturb) from the main menu if the previous option is "DND-ON"; owners also hear this response on dialing 3 to the response of DND-ON selection.

34 Message Forwarding Options Menu (VM_1_5)

“Please enter destination extension number, then press # sign to end, or wait a tone to append your message.”

35 Wakeup and Notification Schedule Menu (VM_7)

“The 1st wake-up time, dial 1. The 2nd wake-up time, dial 2. For the distribution time, dial 3. For beginning time of notification, dial 4. For ending time of notification, dial 5.”

36 Wakeup Greeting

“Hello! The time you set is up.”

Mailbox owners hear this when answering a Wakeup call.

37 Outgoing Message Administration Submenu (VM_2_X)

“To listen dial 1, to record dial 2, to delete dial 3.”

38 Empty-Mailbox Greeting

“There are no messages in your mailbox.”

The mailbox owners whose mailboxes have no message will first hear this greeting when logging in to the mailbox programs.

39 Pausing Service Greeting

“Sorry, the mailbox is full no message more.”

Callers hear this because the required mailbox is full of messages.

40 Message Distribution Menu (VM_2_5_2)

To listen, dial 1. To set List Number, dial 2. To set the sending time, dial 3.

41 Unavailable-message Prompt (VM_2_X_1)

There’s no recording.

Mailbox owners will hear this prompt if selecting "To listen" to a personal greeting that has not been recorded.

42 Amount of Messages

“You have X messages.”

The mailbox owners whose mailboxes have messages will first hear this message when logging in to their mailbox programs.

- Only the built-in message can report the number of messages.

43 Auxiliary Message of Personal Busy / No-answer Prompts

“Dial # sign to leave a message.”

Messages are for telling callers the AA Service option of leaving a message if [ADM_5_9903](#)_[0xxx] or [ADM_5_9903](#)_[x0xx] is already specified.

- [ADM_5_9910](#)_[xxcx] determines whether this paragraph is used or not.

Automated Attendant (AA)

AA Service Options

Main Greetings, Busy Prompts and No-answer Prompts may allow callers to:

- Dial extension numbers, to identify transfer destinations.
- Dial the Operator code, to transfer to a [Service Operator](#).
- Dial one of the AA Service Language Codes, to choose the language they want to hear.
- Dial a menu number, to select an [information menu](#).
- Dial a mailbox number (extension number), to listen to a Bulletin Board message.
- Wait for the Time-out action.

The main greetings may also allow callers to:

- Dial # and an extension number, to identify a mailbox owner and leave a message.
- Dial *, an extension number and a self-determined mailbox password, to create a new mailbox if Mailbox Owner Self-registration is allowed.
- Dial *, a mailbox number and the mailbox password, to log in to the [Mailbox Program](#).
- Dial * * and the system password, to log in to the [System Program](#).
- Dial * * and the administrator's password, to log in to the [Administration Program](#).

The Busy Prompts and No-answer Prompts may also allow callers to:

- Dial # to leave a message if prompted.
- Dial * to transfer the call to the original destination.
- [SYS_3_6](#), [SYS_3_7](#) and [SYS_3_8](#) are used to specify AA Service Language Codes
- [SYS_3_0](#) determines the time-out action to main greetings.
- [SYS_4_4](#) determines the time-out action to Busy/No-answer Prompts.
- [ADM_5_9938](#) determines whether to allow Mailbox Owner Self-registration.

Call Transfer

The EVM can transfer a call to an internal phone, a group external phone, a special external phone or a mailbox owner's personal external phone.

- [SYS_1](#) is used to define the extension numbers to identify internal phones and group external phones.
- Special mailboxes (9900~9989) are used to store special external phone numbers and the related Remote Switch Access numbers.

Call Forwarding

A one-digit number (0~9) or an extension number included in a General EXTN Group is possible to be assigned to an internal phone, a Special External Phone or a Hunt Group, or the mutual mailbox, by using the Call-Forwarding List [ADM_5_\[N~\]](#).

Service Operators

Service Operator is the destination to which callers needing help are transferred.

When a caller dials the Operator code or does not respond to a main greeting or an operators' Busy Prompt, the call may be disconnected, or may be transferred to the specified operator.

- [ADM_4](#) is used to specify service operators.
- [SYS_3_0](#) determines how the EVM processes the call that a caller does not respond to a main greeting or the operators' Busy Prompt
- [SYS_3_5](#) determines the Operator code

Hunt Groups

A Hunt Group identified by a group number is a group of internal phone numbers. Group numbers (*001~*008) are only used in the Operator Number List ([ADM_4](#)), the Call-Forwarding List ([ADM_5](#)) and the Receptionist List ([ADM_6](#)).

To transfer a call to a Hunt Group extension, the EVM will hunt out an available Hunt Group extension according to the specified Hunt mode:

Circular: hunting starts after the available extension found by the last hunting. If all of the Hunt Group extensions are busy, the caller hears the Busy Prompt.

Linear: hunting starts from the first extension of the Hunt Group. If all of the Hunt Group extensions are busy, the caller hears the Busy Prompt.

Up to eight Hunt Groups can be created by setting the Hunt Group extensions. A large Hunt Group can contain up to twenty-nine internal phone numbers; a small Hunt Group can contain up to four internal phone numbers. The programming of a small Hunt Group contains five settings: the first four settings can specify only internal phone numbers, an empty value of which indicates end of the group; only the fifth setting can specify the Hunt Mode option of this group and of the related large Hunt Groups. If the fifth setting specifies an internal phone number, this group will be a large Hunt Group to subsume the next group.

- [ADM_5_9950](#) ~ [ADM_5_9954](#) are for setting *001 Hunt Group.
- [ADM_5_9955](#) ~ [ADM_5_9959](#) are for setting *002 Hunt Group.

- ADM_5_9960 ~ ADM_5_9965 are for setting *003 Hunt Group.
- ADM_5_9965 ~ ADM_5_9970 are for setting *004 Hunt Group.
- ADM_5_9970 ~ ADM_5_9975 are for setting *005 Hunt Group.
- ADM_5_9975 ~ ADM_5_9979 are for setting *006 Hunt Group.
- ADM_5_9980 ~ ADM_5_9985 are for setting *007 Hunt Group.
- ADM_5_9985 ~ ADM_5_9989 are for setting *008 Hunt Group.

Example:

ADM_5_9950_[201], ADM_5_9951_[202], ADM_5_9952_[203], ADM_5_9953_[204],
 ADM_5_9954_[205], ADM_5_9955_[206], ADM_5_9956_[207], ADM_5_9957_[208],
 ADM_5_9959_[1]:

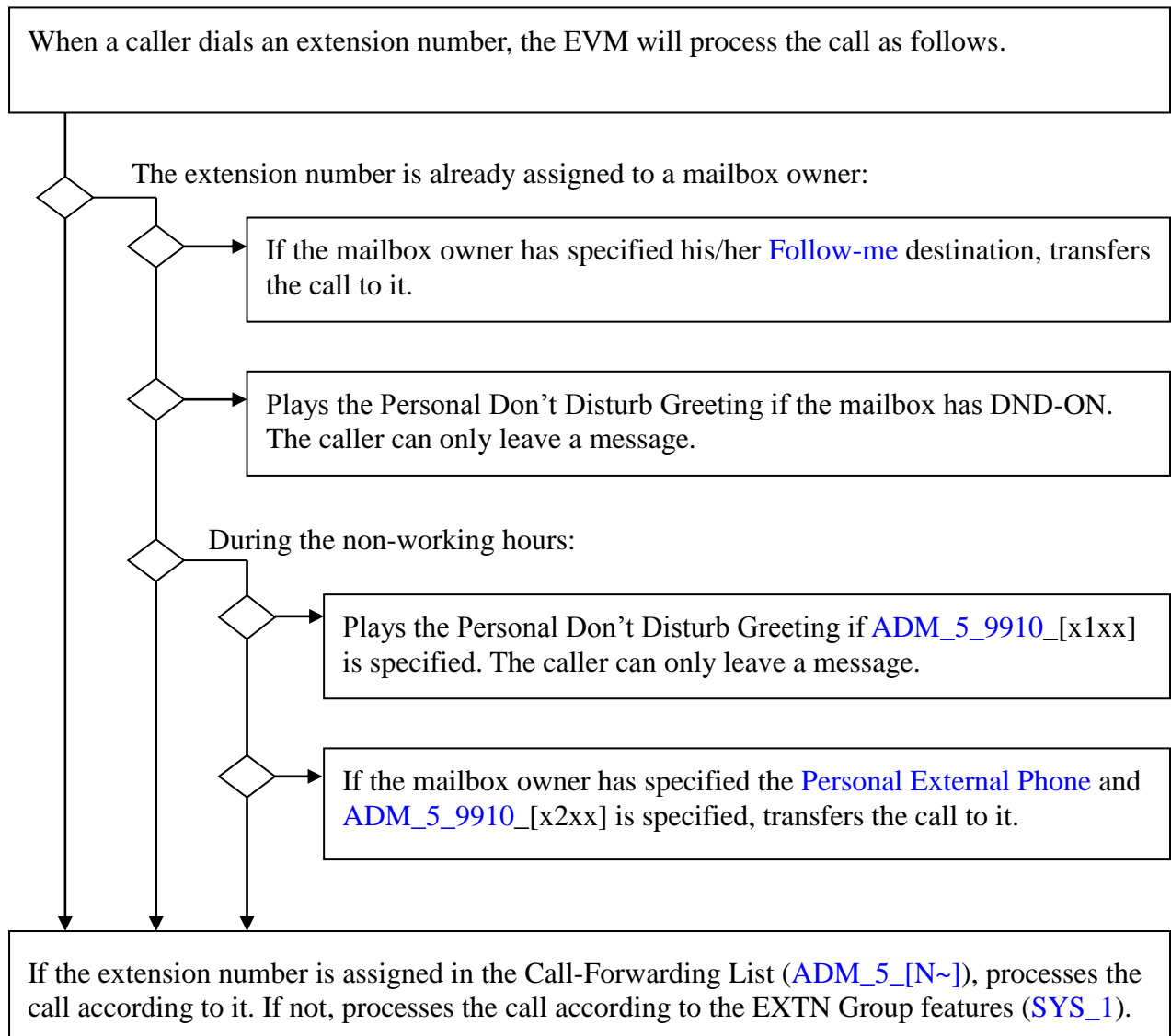
*001 Hunt Group extensions are 201 to 208; *002 Hunt Group extensions are 205 to 208;
 Circular mode is used for both of these Hunt Groups.

Number Repeat

When a caller finishes dialing an extension number, the EVM repeats the number in 1st language, unless:

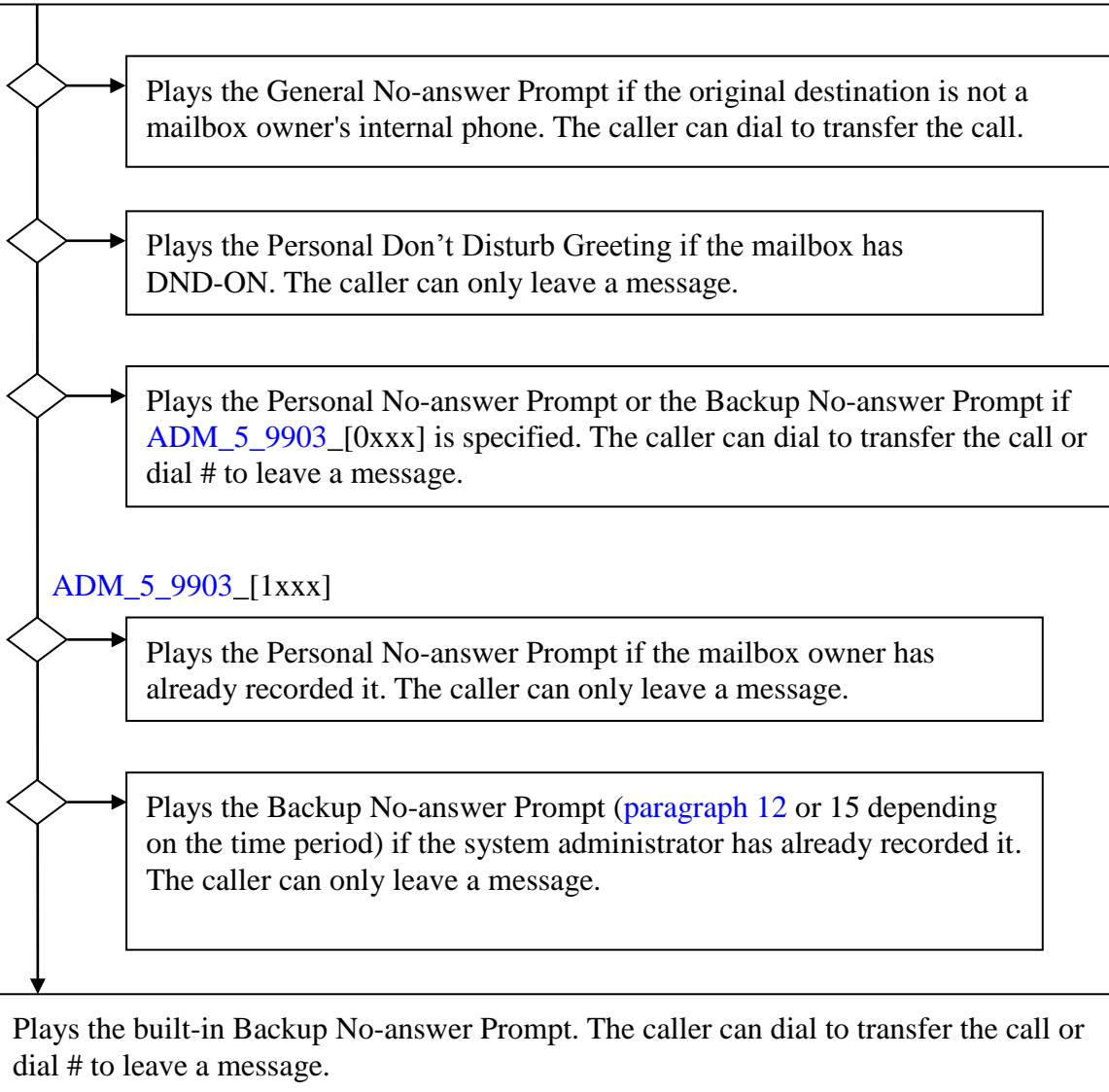
- the Hold prompt ([Paragraph 05](#)) is not the system built-in message,
 - the extension number is not the actual phone number of the destination,
 - the extension number is associated with a mailbox having the Owner Name message, or
 - Number Repeat feature is not used.
- [SYS_4_1](#) determines whether Number Repeat feature is used.

Available Services for Extension Numbers



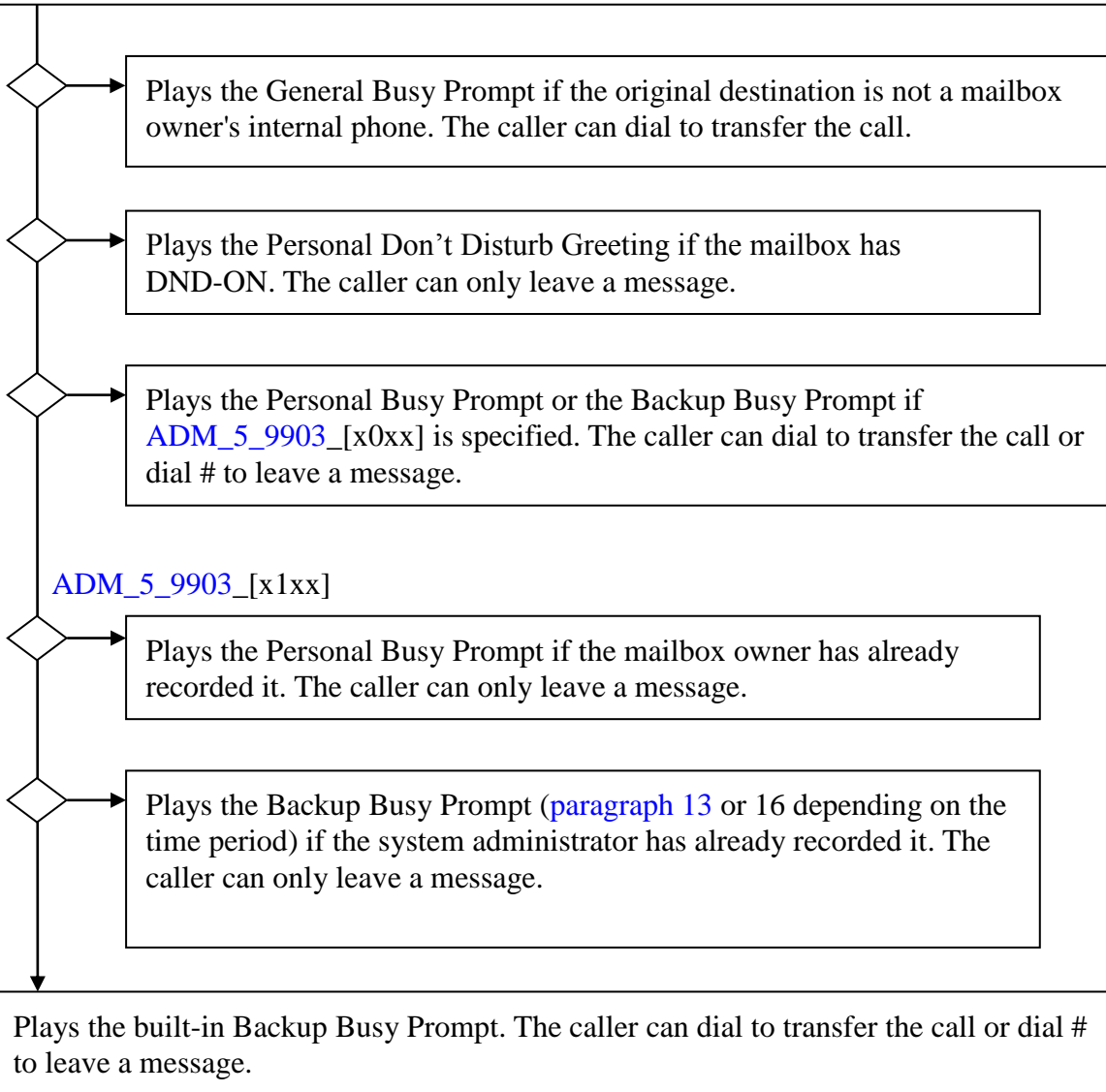
Available Services to No-answer Phones

Upon answering or reconnecting a call, whose original destination is a "Ring No Answer" phone, the EVM provides the caller an appropriate service, one of the following.



Available Services to Busy Phones

Upon answering or reconnecting a call, whose original destination is a busy phone, the EVM provides the caller an appropriate service, one of the following.



Information Menus

Information menus are used to provide the frequently requested information to callers. Callers can choose a main menu from the [AA Service options](#) to start searching the information the information menu group provides.

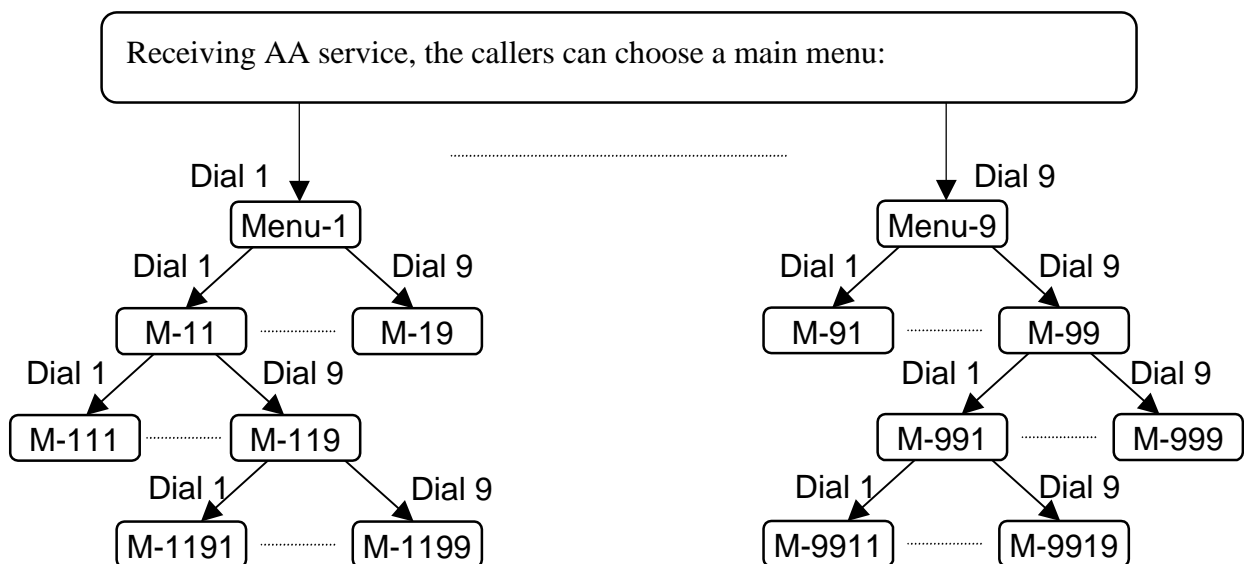
Hearing an information announcement, callers can:

- Dial * (default) to repeat the announcement.
- Dial # (default) to return to the previous menu.
- Dial 0 to transfer the call to the information receptionist.
- Choose a submenu as prompted.
- Dial an extension number to transfer the call.

The Information Announcement Administration menu ([ADM_2_9](#)) is used to administer all the information menus. A menu is created by recording an announcement and is deleted by deleting the announcement. Information menus are linked and grouped by the menu number arrangement.

Any of the 1-digit, 2-digit, 3-digit or 4-digit numbers not including any 0 is suitable to be used as a menu number:

- If having not been assigned as an AA service option yet, the 1-digit numbers may be used to create the main menus of 24-hour menu groups.
- Each 2-digit number, the first digit of which is the same as a 24-hour main menu, may be used to create a Layer 2 menu to be a submenu for this main menu.
- Each 3-digit number, the first two digits of which is the same as a Layer 2 menu, may be used to create a Layer 3 menu to be a submenu for this Layer 2 menu.
- Each 4-digit number, the first three digits of which is the same as a Layer 3 menu, may be used to create a Layer 4 menu to be a submenu for this Layer 3 menu.



For example, four messages are recorded as the announcements of the menus 8, 89, 891 and 8911 so callers can dial 8 to select menu 8 from the AA Service options during the working hours and during the non-working hours when there is not any break-hour main menu or closed-hour main menu. Also the callers can dial 9 to select menu 89 from menu 8; dial 1 to select menu 891 from

menu 89; dial 1 to select menu 8911 from menu 891.

2-digit numbers beginning with the same first digit may be used to create the main menus of break-hour menu groups or the main menus of closed-hour menu groups. For example, ADM_5_9904_[x2xx] is already specified and two messages are already recorded as the announcements of the menus 28, 29, so callers can dial 8 to select menu 28 from the AA Service options or dial 9 to select menu 29, during the closed hours.

Each menu can also be assigned a receptionist by using the Receptionist List ([ADM_6](#)).

- [ADM_5_9911](#) ~ 9919 determine the Operation Options of all the menu groups and determine the language of each menu group.
- [ADM_5_9904](#) is used to specify two groups of numbers in order to create the break-hour menus and the closed-hour menus.

Voicemail

Mailbox Creation

In an EVM-2X voicemail system, a total of 255 mailboxes can be created. In an EVM-8X voicemail system, a total of 511 mailboxes can be created.

Except 9900 through 9999, the extension numbers included in General EXTN Groups can be used to create mailboxes:

- The system administrator can use the Mailbox Capacity/Language Administration menu ([ADM_8](#)) to create mailboxes as needed.
 - The installer can use the third setting of a General EXTN Group ([SYS_1_\[YY\]_3](#)), to create a group of mailboxes at a time. The group extension numbers will be the mailbox numbers.
 - Internal phone users can create new mailboxes if Mailbox Owner Self-registration is allowed. To be a mailbox owner, a user can dial * to a main greeting and dials the own extension number as the mailbox number, and then dials a number as the mailbox password of the new mailbox when the EVM requests the password.
- [ADM_5_9938](#) determines whether Mailbox Owner Self-registration is allowed.

Types of Mailboxes

General Mailboxes:

General mailboxes are used by the internal phone users.

Bulletin Board Mailboxes:

The Personal Don't Disturb Greeting of a Bulletin Board mailbox is the Bulletin Board message. When a caller dials the mailbox number, the Bulletin Board message plays if the mailbox has DND-ON. The caller can dial to transfer the call, but cannot leave a message.

Special Mailboxes:

Special mailboxes (9900~9989) are used to store Special External Phone numbers and Remote Switch Access numbers.

Stacked Mailboxes:

In an EVM-2X system, only the mailbox 9998 can be created for expanding the message storage

capacity of the mutual mailbox (9999).

In an EVM-8X system, mailboxes 9990~9998 are used as stacked mailboxes. For example, mailbox 9998 and mailbox 9997, if created, are stacked under the mutual mailbox. While the mutual mailbox is full of messages, the new messages will be deposited into the mailbox 9998; while mailbox 9998 is also full of messages, the mailbox 9997 is used.

The VM_8 of a stacked mailbox is used to store the internal phone number for the Message Lamp and Internal Phone notification.

Mutual Mailbox

The mutual mailbox (9999) is created automatically by the system, which is used as an answering machine and can be assigned as a service operator, an information receptionist or a transfer destination.

The VM_5 is only used to specify the System Callback Number that is displayed on the pager of [Pager Notification](#). The VM_8 is used to store the internal phone number for the Message Lamp and Internal Phone notification.

The Notification Schedule of the mutual mailbox is also the default Notification Schedule of each mailbox owner who does not set up the personal Notification Schedule.

Features of Mailboxes

The basic features of a mailbox is determined by the mailbox number:

Types of mailboxes	General Mailbox 0 ~ 9899	Bulletin Board Mailbox 0 ~ 9899	Special Mailbox 9900 ~ 9989	Stacked Mailbox 9990 ~ 9998	Mutual Mailbox 9999
Basic Features					
Call Transfer		Y			
Do Not Disturb (DND)	Y	Y			
Voice Mail Storage	Y			Y	Y
Message Distribution	Y			Y	Y
Message Lamp Notification	Y			Y *	Y *
Pager Notification	Y				
External Phone Notification	Y			Y	Y
Internal Phone Notification	Y			Y *	Y *
Wakeup Schedules	Y			Y *	Y *
Personal Notification Schedule	Y			Y	Y
Personal Backup Extension	Y				
Follow-me	Y				
Phone Recording	Y			Y	

* The VM_8 is used to store the internal phone number for these features.

** A blank indicates the feature is unavailable or unnecessary.

Personal External Telephone Numbers

A mailbox owner administers his/her personal external phone number by setting the VM_6 of the mailbox program.

In addition to using the personal external phone to answer the calls of External Phone Notification, the mailbox owner can have the EVM transfer his/her calls to the personal external phone, by setting the function code *6 to the VM_8 and/or VM_9.

The system administrator can also have the EVM transfer the incoming calls directly to mailbox owners' personal external phones during the non-working hours. For more information, see the diagram of "[Available Services for Extension Numbers](#)."

- [ADM_5_9910](#) determines whether the calls to a mailbox owner are directly transferred to the owner's external phone during the non-working hours.

Wakeup and Personal Message Notification Schedules

A mailbox owner administers his/her Wakeup Schedule by setting the VM_7_1 and VM_7_2; administers his/her Personal Message Notification Schedule by setting the VM_7_4 and VM_7_5. If the Notification Schedule is empty, the Notification Schedule stored in the Mutual Mailbox will be in place of it. If both schedules are empty, the notification is immediately initiated whenever a new message arrives in the mailbox.

A Wakeup call may also deliver the Notification greeting ([paragraph 22](#)) so long as the mailbox has a new message.

- [SYS_4_9](#) determines whether a Wakeup call also delivers the Notification greeting.

Personal Backup Extensions

When a caller does not respond to a mailbox owner's Busy or No-answer Prompt first time, the call will be transferred to the Personal Backup Extension. The second time will depend on the No-answer/Busy Prompt Time-out Action Option specified in [SYS_4_4](#).

A mailbox owner administers the phone number of his/her Personal Backup Extension by setting the VM_8:

0~9899= internal phone numbers

9900~9989= special mailboxes 9900~9989. The phone number is the Special External Phone number that is stored in the VM_6 of the specified mailbox.

*6 (programmed by pressing **6)= the personal phone number specified in the VM_6

Empty= not using this feature

Follow Me

When a caller dials a mailbox owner, the EVM immediately transfers the call to the Follow-me destination that the mailbox owner has specified. For more information, see the diagram of "[Available Services for Extension Numbers](#)."

A mailbox owner administers the phone number of his/her Follow-me destination by setting the VM_9:

0~9899= internal phone numbers

9900~9989= special mailboxes 9900~9989. The phone number is the Special External Phone number that is stored in the VM_6 of the specified mailbox.

*6 (programmed by pressing **6)= the personal phone number specified in the VM_6

Empty= not using this feature

Message Distribution

A mailbox owner can record a message and send it to all of the mailboxes on a Mailbox Group list at the same time simply by using the list number (1~8). The time of Message Distribution is specified in the VM_7_3.

- [ADM_9](#) is used to administer all the Mailbox Group lists.

Message Notification

When a new message arrives in a mailbox, the EVM re-sets the count value of attempts of each notification type of the mailbox, according to the notification types specified for the class of this message.

The EVM will notify the mailbox owner within the time period that the mailbox owner specifies unless all the counts are zero. Every time a type of notification is attempted, the related count value will be decreased. All the count values are deleted when the mailbox owner logs in to the Mailbox Program. After the mailbox owner selects “To listen to message”, the EVM will send out the MLOFF Control Command to turn off the message lamp in minutes.

Notification types are:

- Message Lamp Notification – sends the MLON Control Command to the PBX.
- Pager Notification – dials the owner’s pager number.
- External Phone Notification – dials the owner’s external phone number.
- Internal Phone Notification – dials the owner’s internal phone number.
- [SYS_2_8](#) determines the interval of attempts of Internal Phone Notification.
- [SYS_2_9](#) determines the Ring Duration of an Internal Notification call.
- [SYS_3_3](#) determines the maximum number of attempts of External Phone Notification
- [SYS_3_4](#) determines the number of attempts of Pager Notification.
- [SYS_3_9](#) determines the maximum number of attempts of Internal Phone Notification.
- [SYS_4_9](#) determines whether the Wakeup calls also deliver the Notification greeting.
- [ADM_5_9900](#) determines the Notification Types for Class-A Message Arrival.
- [ADM_5_9901](#) determines the Notification Types for Class-B Message Arrival.
- [ADM_5_9902](#) determines the Notification Types for Class-C Message Arrival.

Phone Recording

EVM can support the PBX Phone-recording feature by receiving the character strings or DTMF Digit strings of the Phone-recording information.

Upon answering a call and receiving the Recording-request code and an extension number, the EVM starts to record the conversation on the call as a message. The message may be deposited into the mailbox associated with the extension number, or may be deposited into the Recording Collection mailbox, depending on whether a mailbox number is already specified in [ADM_5_9990](#).

- The maximum length of a recording is 48 minutes.

5. System Configuration

This chapter describes the settings to be programmed by the installer.

Number Plan

Number Plan includes:

- Extension numbers
 - An Operator Code
 - AA Service Language Codes
 - One-digit Speed Dialing numbers
 - The menu number of each of information menus
- It is recommended that all of the first digits of the planned numbers be different.
 - [SYS_1](#) is used to define the extension numbers.
 - [SYS_3_5](#) determines the Operator Code.
 - [SYS_3_6](#), [SYS_3_7](#) and [SYS_3_8](#) are used to specify the AA Service Language Codes.

Operating Ways and Feature Codes

Inward Transfers

To transfer a call to an internal phone, EVM will take the following actions:

1. Sends out a hook-flash if [ADM_5_9937](#)_[xx0x] or [xx2x] is specified. If not, starts Step 3.
2. If [SYS_4_5](#)_[2] is specified, waits one second and then starts Step 3. If not, starts the dial tone detection:
 - When the dial tone is detected, start Step 3.
 - When four-second silence is detected, restarts Step 1, but hangs up after the third time.
3. Dials the feature code specified in [SYS_6_1](#).
4. Dials the phone number.
5. Waits for the Tone Detection delay, the length of which is specified in [SYS_7_3](#).
6. Handles the call, according to the result of the tone detection. The transfer mode is determined by the Ring Duration option.
 - Blind Transfer (Option 01)
 - If 5-second silence or any tone other than the Error tone is detected, releases the call.
 - If the Error tone is detected, retrieves the call.
 - Unsupervised Transfer (Option 00)
 - If any tone other than the Busy tone or Error tone is detected, releases the call.
 - If the Error tone or Busy tone is detected, retrieves the call.

- Supervised Transfer (Options 10~99= number of seconds of the Ring Duration)
 - If the Error tone or Busy tone is detected, retrieve the call.
 - If the ringback tone is detected, monitors successive ringback tone cycles. If the called party answers, release the call. If the called party does not answer within the specified ringing duration, retrieves the call.
- [SYS_2_2](#) determines the Ring Duration to Working Hour Operators.
- [SYS_2_3](#) determines the Ring Duration to Non-working Hour Operators.
- [SYS_2_4](#) determines the Ring Duration to Internal Phones (Working Hours).
- [SYS_2_5](#) determines the Ring Duration to Internal Phones (Non-working Hours).
- [SYS_5_2](#) determines how the EVM releases a call when the called party answers.
- [SYS_5_3](#) determines how the EVM releases a call before the called party answers.
- [SYS_5_4](#) determines how the EVM retrieves a call of inward transfer on the Error tone.
- [SYS_5_5](#) determines how the EVM retrieves a call of inward transfer on the busy tone.
- [SYS_5_6](#) determines how the EVM retrieves a call of inward transfer on the ringback tone.
- [SYS_5_9](#) determines whether Call Pickup feature is used and how the EVM picks up the call it has released. If the Operating-way of Call Pickup is already specified, the EVM will start a Call Pickup timer when releasing a call.

Outward Transfers

To transfer a call to an external phone, EVM will take the following actions:

1. Sends a hook-flash if [ADM_5_9937](#)_[xx0x] is specified. If not, start Step 3.
2. If [SYS_4_5](#)_[2] is specified, waits one second and then starts Step 3. If not, starts the dial tone detection:
 - When the dial tone is detected, starts Step 3.
 - When four-second silence is detected, restarts Step 1, but hangs up after the third time.
3. Establishes the connection of access to the remote switch.
4. Waits two seconds and then dials the phone number.
5. Waits for the Tone Detection delay, the length of which is specified in [SYS_7_3](#).
6. Handles the call, according to the result of the tone detection. The transfer mode is determined by where the phone number is stored unless the 3-party Conference feature is used:
 - 3-party Conference
 - Retrieves the call when the Error tone or busy tone is detected.
 - If 5-second silence or a tone other than the Error tone or busy tone is detected, establishes the conference call and starts a Conference timer. When the busy tone that an outside party hung up is detected or the timer expires, hangs up the call.
 - Blind Transfer
 - Releases the call immediately.
 - Unsupervised Transfer
 - If any tone other than the Busy tone is detected, releases the call.

- If the Busy tone is detected, retrieves the call.
- Supervised Transfer
 - Retrieves the call when the Error tone or busy tone is detected.
 - If the ringback tone cycle is detected, monitors the successive ringback tone cycles. Releases the call when the called party answers. Retrieves the call when the ringback tone continues for 30 seconds.
- [SYS_5_0](#) determines whether 3-party Conference feature is used and how the EVM establishes a 3-party conference. If the PBX cannot disconnect the connection that an outside party has hung up, or does not allow the internal phones to transfer incoming calls to any phone number outside the PBX, using 3-party Conference feature is a solution.
- [SYS_5_2](#) determines how the EVM releases a call when the called party answers.
- [SYS_5_3](#) determines how the EVM releases a call before the called party answers.
- [ADM_5_9937](#)_[xbxx] determines the time length of a Conference timer.
- [ADM_5_9949](#) determines how the EVM retrieves a call of Outward Transfer.
- Unless the 3-party Conference feature is used, the Transfer mode and Tone Detection mode to an external phone number depend on where the phone number is stored.

	Transfer mode and Tone Detection mode	Access to the remote switch
A group external phone	Determined by the 2 nd setting of the special EXTN Group	Determined by the 3 rd setting of the special EXTN Group
A special external phone	Supervised Transfer and External Tone Detection	Determined by the VM_5 of the special mailbox or else by ADM_5_9948
A personal external phone	Supervised Transfer and External Tone Detection	Determined by ADM_5_9948

Message Lamp Notification

If the PBX only uses a RS-232 port to accept the commands of turning message lamps on or off (MLON / MLOFF), you should install an EVM-8X system and define the [Primal Byte String of ML Control Commands](#). EVM-2X systems are not equipped any RS-232 port.

If the PBX can use extension ports to accept the commands, you may specify the Operating-ways for sending the DTMF digits of ML Control Commands.

- [SYS_5_7](#) is used to specify how the EVM sends out MLON Control Commands through the specified Line ports.
- [SYS_5_8](#) is used to specify how the EVM sends out MLOFF Control Commands through the specified Line ports.
- [ADM_5_9991](#)_[abxx] determines whether to send out MLON Control Commands only for the first new message of each mailbox, and specifies the Line port(s) with which the PBX can accept the ML Control Commands.

Pager Notification

To call a pager for message notification, EVM will take the following actions:

1. Establishes the connection of access to the PBX by using an idle port (L2 or L4).
2. If [SYS_4_5_\[2\]](#) is specified, waits one second and then starts Step 3. If not, starts the dial tone detection:
 - When the dial tone is detected, start Step 3.
 - If 3-second silence is detected, abandons the following actions and plays the main greeting as receiving an incoming call.
3. Dials the C.O Trunk Group Access code specified in [SYS_6_5](#).
4. Waits two seconds and then dials the pager number.
5. Waits three seconds.
6. Waits for the paging system response till a tone or 6-second silence is detected.
7. Waits 1.2 seconds and then dials the Personal Identification Number. If there is not a PIN, dials the System Callback Number specified in [MB9999_VM_5](#).
8. Hangs up.
 - The VM_5 setting of a general mailbox may include two parts: the first part specifies a pager number; the second part may or may not specify a Personal Identification Number.
 - A pager number must not include any *, #, A, B or C because either of them will cause the system to start Step 5.
 - A Personal Identification Number must begin with a *, #, A, B or C. A digit of C (entered by pressing * 4) represents an XX-second pause, the length of which is specified in [SYS_2_0](#).
 - Usually, the System Callback Number is a telephone number to inform pager owners to telephone the EVM system. It will be not sent out if a Personal Identification Number is sent following the pager number.

External Phone Notification

To deliver the Notification greeting ([paragraph 22](#)) to a personal external phone, EVM will take the following actions:

1. Establishes the connection of access to the PBX by using an idle port (L2 or L4).
2. If [SYS_4_5_\[2\]](#) is specified, waits one second and then starts Step 3. If not, starts the dial tone detection:
 - If a tone is detected, start Step 3.
 - If 3-second silence is detected, abandons the following actions and plays the main greeting as receiving an incoming call.
3. Dials the C.O Trunk Group Access code specified in [SYS_6_5](#).
4. Waits two seconds and then dials the phone number.
5. Waits for the Tone Detection delay specified in [SYS_7_3](#).
6. Handles the call, according to the result of the tone detection:
 - If the busy tone is detected, hangs up.
 - If the ringback tone is detected, monitors the successive ringback tone cycles. Plays the Notification greeting ([paragraph 22](#)) when the mailbox owner answers. Hangs up when the ringback tone continues for 30 seconds.
- [SYS_3_3](#) determines the maximum number of External Phone Notification attempts. The

interval between the attempts is a minimum of 6.5 minutes.

Internal Phone Notification

To deliver the Notification greeting ([paragraph 22](#)) to an internal phone, EVM will take the following actions:

1. Establishes the connection of access to the PBX by using an idle port (L2 or L4).
 2. If [SYS_4_5_\[2\]](#) is specified, waits one second and then starts Step 3. If not, starts the dial tone detection:
 - Starts Step 3 when a tone is detected.
 - If 3-second silence is detected, abandons the following actions, and plays the main greeting as answering an incoming call.
 3. If an Internal Path Access Code is already specified in [ADM_5_9909](#), dials the access code and waits two seconds. If not, starts Step 4.
 4. Dials the phone number.
 5. Waits for Tone Detection delay specified in [SYS_7_3](#).
 6. Handles the call, according to the result of the tone detection:
 - If the busy tone is detected, hangs up.
 - If the ringback tone is detected, monitors the successive ringback tone cycles. Plays the Notification greeting ([paragraph 22](#)) when the mailbox owner answers. Hangs up when the ringback tone continues for 30 seconds.
- [SYS_2_8](#) determines the interval of attempts of Internal Phone Notification.
 - [SYS_2_9](#) determines the Ring Duration of an Internal Notification call.
 - [SYS_3_9](#) determines the maximum number of attempts of Internal Phone Notification.
 - [SYS_4_9](#) determines whether the wakeup calls also deliver the Notification greeting.

Tone Detection

EVM has two Tone Detection modes:

External Tone Detection – EVM can identify most ringback tones and busy tones, according to the built-in tone cycle parameters.

Internal Tone Detection – EVM only identifies the ringback tone, the busy tone and the Error tone (reorder tone), according to the specified Tone Cycle lengths.

- [SYS_4_6](#) determines the tolerance of Internal Tone Detection.
- [SYS_4_8](#) determines the Internal Tone Detection Bandwidth.
- [SYS_7_3](#) determines the Tone Detection Delay.
- [SYS_7_4](#) determines the Error Tone Cycle Lengths.
- [SYS_7_5](#) determines the Busy Tone Cycle Lengths.
- [SYS_7_6](#) determines the Ringback Tone Cycle Lengths.
- [ADM_5_9908](#) determines the Tone Detection Sensitivities.

- If you hear a beep on entering SYS_7_6, it means that the Automatic System Configuration mode has not completed setting up the Busy Tone Cycle Lengths or the Ringback Tone Cycle Lengths.
- [SYS_7_7](#), the Tone Cycle Record menu, always remains the time lengths of the last two cycles of the last tone detection; it can help you to set up the lengths of tone cycles of a service tone directly, or parse the reason that the EVM failed to recognize the specified tone.

Integration to PBX

ID DTMF Digit Strings

An ID DTMF Digit string carrying the call information of a call must include:

- A Type code, which represents the call type.
- A meaningful phone number: the internal phone number of a mailbox owner activating a Recording-request or activating a Mailbox Program Access Request, or the internal phone number of the original destination of a call. However, a valid phone number must be an extension number included in an EXTN Group.

To enable the EVM to detect the specified Type codes from the Digit strings, you need to specify the Type field.

To enable the EVM to find a phone number from the Digit string received on answering a call of a specific type, you need to specify the Type code and the EXTN field by a setting that determines how the EVM handle the type of calls.

- [ADM_5_9908](#)_[axxx] determines the maximum time length of ID DTMF Detection.
- [ADM_5_9920](#) is used to specify the Mailbox Program Access Request code
- [ADM_5_9922](#) is used to specify the Phone Recording Request code
- [ADM_5_9924](#) is used to specify the Type field.
- [ADM_5_9926](#) is used to specify the 1st All-call code.
- [ADM_5_9927](#) is used to specify the 2nd All-call code.
- [SYS_6_3](#) is used to specify the 1st No-answer code.
- [ADM_5_9928](#) is used to specify the 2nd No-answer code.
- [SYS_6_4](#) is used to specify the 1st Busy-line code.
- [ADM_5_9929](#) is used to specify the 2nd Busy-line code.

If you haven't information about a type of Digit string content, you may take the following actions to enable the EVM to report the receiving Digit string to a call.

1. Enter [ADM_1_\[7\]](#) and hang up. If you hear a voice reporting a string of digits, please ignore it.
2. Make a phone call to an internal phone for the call type you want. The PBX will forward your call to the EVM, according to the Call-Forwarding feature specified for this internal phone number. On answering the call, the EVM reports a string of digits, which is the information of this call. If the EVM receives nothing within the ID DTMF Detection time, you hear the main greeting.
3. Repeat Step 2 for another call type. If finished, reset the previous option in [ADM_1_\[X\]](#).

- To ensure getting correct information, please make calls of the same type twice.
- If you sometimes heard the main greeting instead of a string of digits, you need to lengthen the ID DTMF Detection time.
- If any Type code sometimes does not start from the same digit position inside each of the related Digit strings, you need to enable the PBX to delay sending out DTMF Digit strings.

Example:

Digit sequence:	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 st DTMF Digit string:	9	1	A	2	0	1	A	2	0	2	A	2	7	0
2 nd DTMF Digit string:	9	1	A	3	0	A	3	9	A	2	7	1		
3 rd DTMF Digit string:	9	4	A	0	1	A	2	0	2	A	2	7	1	
4 th DTMF Digit string:	9	8	A	3	0	A	2	7	0					

The assumptions of the above DTMF Digit strings are:

- In the 1st Digit string, "91" is the No-answer code of internal calls, "201" is the caller and "202" is the original destination.
- In the 2nd Digit string, "91" is the No-answer code of internal calls, "30" is the caller and "39" is the original destination.
- In the 3rd Digit string, "94" is the No-answer code of external calls, "01" is the number of the trunk line, and "202" is the original destination.
- In the 4th Digit string, "98" is the Recording-request code and "30" is the phone number of the mailbox owner who activates the recording-request.

To enable the EVM to recognize the information, the programming will be as follows:

ADM_5_9924_[0000]:

Enables the EVM to detect a Type code from the 1st digit of a digit string.

SYS_6_3_[91A6]:

Enables the EVM to detect a phone number that follows a DTMF digit of A after the sixth digit of a Digit string whose Type code is "91". The caller of a call accompanying such a digit string will receives the No-answer Phone Service.

ADM_5_9928_[94A6]:

Enables the EVM to detect a phone number that follows a DTMF digit of A after the sixth digit of a Digit string whose Type code is "94". The caller of a call accompanying such a string will receives the No-answer Phone Service.

ADM_5_9922_[9803]:

Enables the EVM to detect a phone number from the fourth digit of a Digit string whose Type code is 98. A call accompanying such a string will be recorded and deposited into the mailbox the phone number indicates.

ADM_5_9922_[98A], which is the programming way for the ID detection to the Digit strings of simple format: the 1st digit is absolutely the beginning of the Type code, and the phone number follows it closely.

ID Character Strings

The ID character string carrying the call information of a call must include:

- A port number (or phone number), which indicates the extension port that the call reaches.

- A Type code, which represents the call type.
- A meaningful phone number: the internal phone number of a mailbox owner activating a Recording-request or activating a Mailbox Program Access Request, or the internal phone number of the original destination of a call. However, a valid phone number must be an extension number included in an EXTN Group.

To enable the EVM to capture character strings in the data stream on its COM port, you need to specify:

- The Beginning Character: the unique Hex value with which a character string begins.
- The Ending Character: the unique Hex value with which a character string ends.

On capturing a character string, the EVM first decodes the data from each of the specified Type fields in order to find a Type code. If not carrying any of the specified Type codes, the string is discarded. If finding one of the specified Type codes, the EVM decodes the phone number and line number from the EXTN and LN fields that are associated with that Type field. For example, if the data inside 1st Type field is a specified Type code, the data in 1st EXTN field will be decoded as the phone number; the data in 1st LN field will be decoded as the Line number of the Line port.

To enable the EVM to detect the specified Type codes from character strings, you need to specify the Type field(s) according to the formats of the character strings. The character strings of the same format must have the same Type field, EXTN field and LN field.

To enable the EVM to find a phone number and Line number from a character string of a type of call, you need to specify the Hex value of the Type code by a setting that determines how the EVM handles the type of calls.

Moreover, you need to define:

- The Line number of the L1 port: the last two digits of the port number of the extension port connecting to the L1 port of the EVM. The port numbers of the extension ports connecting to EVM must be consecutive so that the EVM can recognize the Line port that a Line number represents.
- The EXTN Field width: the maximum number of digits of an internal phone number.
- [ADM_5_9800](#) and [ADM_5_9801](#) determine the COM Port parameters.
- [ADM_5_9802](#)_[XX0Y] is used to specify the Line number of the L1 port and EXTN Field Width.
- [ADM_5_9803](#)_(HexHex) is used to specify the Ending Character.
- [ADM_5_9804](#)_(HexHex) is used to specify the Beginning Character.
- [ADM_5_9808](#)_[XX] is used to specify 1st EXTN Field.
- [ADM_5_9809](#)_[XXYY] is used to specify 1st Type Field and LN Field
- [ADM_5_9810](#)_(HexHex) is used to specify 1st Busy-line Code.
- [ADM_5_9811](#)_(HexHex) is used to specify 1st No-answer Code.
- [ADM_5_9812](#)_(HexHex) is used to specify 1st All-call Code.
- [ADM_5_9813](#)_(HexHex) is used to specify 1st Recording-request Code.
- [ADM_5_9814](#)_(HexHex) is used to specify 1st Recording-interruption Code.
- [ADM_5_9815](#)_(HexHex) is used to specify 1st Recording-continuation Code.
- [ADM_5_9816](#)_[XX] is used to specify 2nd EXTN Field.
- [ADM_5_9817](#)_[XXYY] is used to specify 2nd Type Field and LN Field.

- [ADM_5_9818](#)_(HexHex) is used to specify 2nd Busy-line Code.
- [ADM_5_9819](#)_(HexHex) is used to specify 2nd No-answer Code.
- [ADM_5_9820](#)_(HexHex) is used to specify 2nd All-call Code.
- [ADM_5_9821](#)_(HexHex) is used to specify 2nd Recording-request Code.
- [ADM_5_9822](#)_(HexHex) is used to specify 2nd Recording-interruption Code.
- [ADM_5_9823](#)_(HexHex) is used to specify 2nd Recording-continuation Code.
- [ADM_5_9855](#)_(HexHex) is used to specify 2nd Recording-completion Code.
- [ADM_5_9824](#)_[XX] is used to specify 3rd EXTN Field.
- [ADM_5_9825](#)_[XXYY] is used to specify 3rd Type Field and LN Field.
- [ADM_5_9826](#)_(HexHex) is used to specify 3rd Mailbox Program Access Request Code.
- [ADM_5_9827](#)_(HexHex) is used to specify 3rd Recording-request Code.

If you haven't information about a type of character string content, you may take the following actions to enable the EVM to report the Hex values being stored in the input data buffer.

1. Enter SYS_8_[00] to clear the data buffer and exit from the System Program and then hang up.
2. Dial an internal phone for the call-forwarding type you want.
3. Log in to the system program when the EVM answers your call.
4. Enter SYS_8_[01] to listen to the first eight bytes of the character string.
5. Press 2 for the next 8 bytes.
6. Repeat Step 5 until you hear the ending character or "0000". The end of a character string is usually a "CR (0D)", "LF (0A)" or both.
7. Hang up the call or repeat Steps 1 ~ 6 for another call type.

Example:

Byte sequence	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 st string:	STX	9	1		2	0	1		2	0	2		2	7	0		CR	LF
2 nd string:	STX	9	1		3	0			3	9			2	7	1		CR	LF
3 rd string:	STX	9	4		0	1		2	0	2		2	7	1		CR	LF	
4 th string:	STX	9	8		3	0			2	7	0		2	7	0		CR	LF

The assumptions of the above character strings are:

- The extension ports from 270 to 273 are already in sequence connected to the Line ports of L1, L2, L3 and L4. The longest digit length of the extension numbers of the PBX is three-digit.
- In the 1st string, "91" is the No-answer Code of internal calls, "201" is the caller and "202" is the original destination.
- In the 2nd string, "91" is the No-answer Code of internal calls, "30" is the caller and "39" is the original destination.
- In the 3rd string, "94" is the No-answer Code of external calls, "01" is the number of the trunk line, and "202" is the original destination.
- In the 4th string, "98" is the Recording-request Code and "30" is the phone number of the

mailbox owner who activates the recording-request.

To enable the system to recognize the information, the programming will be as follows:

ADM_5_9802_[7003]:

The Line number of the L1 port is “70” and the EXTN Field width is three-byte.

ADM_5_9803_(0D0A) and ADM_5_9804_(02):

Each string begins with “STX (02)” and ends with “CR (0D)” and “LF (0A)”.

ADM_5_9816_[09], ADM_5_9817_[0214], ADM_5_9811_(3931):

Enables the EVM to detect a phone number and Line number by decoding data from the 9th byte and 14th byte of a character string whose Type code is "91 (3931)" beginning with the 2nd byte. The caller of a call accompanying such a string will receives the No-answer Phone Service.

ADM_5_9808_[08] ADM_5_9809_[0213] ADM_5_9819_(3934):

Enables the EVM to detect a phone number and Line number by decoding data from the 8th byte and 13th byte of a character string whose Type code is "94 (3934)" beginning with the 2nd byte. The caller of a call accompanying such a string will receives the No-answer Phone Service.

ADM_5_9824_[05] ADM_5_9825_[0214] ADM_5_9827_(3938):

Enables the EVM to detect a phone number and Line number by decoding data from the 5th byte and 14th byte of a character string whose Type code is "98 (3938)" beginning with the 2nd byte. A call accompanying such a string will be recorded and deposited into the mailbox the phone number indicates.

Primal Byte String of ML Control Commands

To enable the EVM to send out the ML Control Command Character strings through the COM port, you need to define the primal byte string, which includes:

- The CONT field where the MLON Code or the MLOFF Code will automatically fill in,
- The EXTN field where the phone number will automatically fill in,

and specify:

- The Hex value of the MLON Code, which is the data in the CONT field of a character string of turning a message lamp on.
 - The Hex value of the MLOFF Code, which is the data in the CONT field of a character string of turning a message lamp off.
 - The value of a meaningless byte: in an outgoing Character string, this value is the value of each byte that is generated by a function code (A2~A8) and is the value of each of the rest of the bytes if the phone number is shorter than the specified EXTN field width.
- [ADM_5_9840](#) and [ADM_5_9841](#) are used to specify the MLON Code.
 - [ADM_5_9842](#) and [ADM_5_9843](#) are used to specify the MLOFF Code.
 - [ADM_5_9844](#) ~ [ADM_5_9853](#) are used to program the primal byte string.
 - [ADM_5_9854](#) determines the value of a meaningless byte.

Example:

Character sequence	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
--------------------	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----

Outgoing string 1	S	E	S	T	<u>2</u>	<u>0</u>	<u>2</u>			M	W	<u>O</u>	<u>N</u>			CR
Outgoing string 2	S	E	S	T	<u>3</u>	<u>9</u>				M	W	<u>O</u>	<u>F</u>	<u>F</u>		CR

The assumptions of the above character strings are: the string 1 is to turn the message lamp on for extension 202; the string 2 is to turn the message lamp off for extension 39.

To enable the system to send out ML Command strings in the above format, the Primal byte string should be defined by the following either programming.

1:

Byte sequence	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Primal byte string	53	45	20	53	54	20	<u>A0</u>	<u>A0</u>	<u>A0</u>	20	20	4D	57	<u>A9</u>	<u>A9</u>	<u>A9</u>	20	0D

2:

Byte sequence	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Primal byte string	53	45	20	53	54	20	<u>A0</u>	<u>A0</u>	<u>A0</u>	<u>A2</u>		4D	57	<u>A9</u>	<u>A9</u>	<u>A9</u>	20	0D

The variables of byte are:

ADM_5_9854_(20): a “SPACE (20)” is a meaningless byte.

ADM_5_9840_(4F4E) ADM_5_9841_(Empty): the MLON Code is “ON”.

ADM_5_9842_(4F46) ADM_5_9843_(46): the MLON Code is “OFF”.

DTE / Mailbox Reply String

To enable the EVM to respond to a Phone Recording request or a DTE Reply request, you need to define the primal byte string of the reply.

- [ADM_5_9860](#) ~ ADM_5_9867 are used to define the primal byte string.

6. Programming Paths

All-Deletion Commands

SYS_1_00_0_#

This command is used to reactivate Automatic System Configuration mode, restore the default settings of the System Program and empty the Operator Number list and the Holiday schedule.

SYS_7_8_1_000_#

This command is used to empty all the Tone Cycle settings and reactivate the Automatic System Configuration mode.

ADM_2_1_00_0

This command is used to delete all of the recorded greetings. Inputting the last "0" must wait that the menu voice finishes playing.

ADM_2_9_0000_0

This command is used to delete all the messages of Information Announcements. Inputting the last "0" must wait that the voice finishes playing.

ADM_5_0000_0000_#

This command is used to empty the Call-Forwarding list and the Hunt Group settings.

ADM_6_0000_0000_#

This command is used to empty the Receptionist list.

ADM_8_0000_000_#

This command is used to delete all mailboxes.

ADM_9_0_0000_#

This command is used to empty all the Mailbox Group lists.

SYS_1: Extension Number (EXTN) Administration

Extension numbers are the numbers that callers dial to identify the transfer destinations of their calls. An extension number may or may not equal the actual phone number the EVM dials. Therefore, in this document, the meaning of extension numbers is the numbers that the EVM allows callers to dial.

A group of extension numbers has the same features. If not specially programmed, an extension number is the same number as an internal phone number (extension number) of the PBX's.

The EXTN Group administration menu is used to define the desired extension numbers and group them. Up to thirty-two EXTN Groups can be created; the group numbers of the created EXTN Groups must be consecutive numbers beginning with 01.

The programming of an EXTN Group contains three settings: the first and the second settings together defines a group of extension numbers; the third setting may specify a backup extension, a Remote Switch Access number or a Trunk Group Access code.

If the third setting of an EXTN Group specifies a Remote Switch Access number or a Trunk Group Access code, the phone numbers included in the EXTN Group are the group external phone numbers; External Tone Detection and Supervised Transfer are the default features.

General EXTN Groups

A group of consecutive extension numbers can be defined by specifying the Beginning number and the Ending number. An extension number included in a General EXTN Group is an actual phone number except the extension numbers specified in the Call-Forwarding List.

SYS_1_[YY]_1_[N~]

YY: the group number (01~32)

N~: the Beginning number (1~9999)

SYS_1_[YY]_2_[N~]

YY: the group number (01~32)

N~: the Ending number (1~9999)

- The Ending number should be the same digit length as the Beginning number and its value should be not less than the Beginning number.
- Internal Tone Detection feature is the default to General EXTN Groups.
- [SYS_2_4](#) and [SYS_2_5](#) determine the Transfer modes to General EXTN Groups.

Special EXTN Groups

A group of extension numbers can be defined by specifying the Prefix and the Digit Length: the Prefix defines the first part of each of the extension numbers; the Digit Length defines how many digits that each of the extension numbers has. Moreover, you can specify two of the following features for a special EXTN Group.

- 2-sec Pause Point –enables the EVM to insert a 2-sec pause to each of the extension numbers, according to the specified digit length. Usually, a pause point is for waiting the dial tone or a service tone.
- XX-sec Pause Point –the usage is the same as a 2-sec pause point but the time length is specified in [SYS_2_0](#).
- Blind Transfer or Un-supervised Transfer –Supervised Transfer feature is the default to a special EXTN Group that contains external phone numbers. [SYS_2_4](#) and [SYS_2_5](#) determine the Transfer modes to a special EXTN Group that contains internal phone numbers.
- External Tone Detection or Internal Tone Detection –External Tone Detection feature is the default to a special EXTN Group that contains external phone numbers. Internal Tone Detection feature is the default to a special EXTN Group that contains internal phone numbers.

SYS_1_[YY]_1_[N~]

YY: the group number (01~32)

N~: the Prefix

SYS_1_[YY]_2_[abcd]

YY: the group number (01~32)

a: 0

b: 1~9= number of digits of an extension number that begins with the specified Prefix

0= variable digit length – all the numbers that begin with the specified Prefix from 1 digit to 9 digits all are included. Callers dialing the numbers beginning with the specified Prefix must wait two seconds to indicate end of dialing.

c: 1~9= number of digits before the 2-sec pause to insert

0= Unsupervised Transfer
*= External Tone Detection

d: 1~9= number of digits before the XX-second pause to insert
0= Blind Transfer
* = External Tone Detection

- Item c and d are optional; you can press # to end setting for the default features.

EXTN Groups' Backup Extensions / Remote Switch Accesses

SYS_1_[YY]_3_[X~]

YY: the group number (01~32)

X~: the group backup extension, Remote Switch Access number or Trunk Group Access code, which is identified by one of the following numbers:

0~9, 10~9899= internal phone numbers

9900~9989= mailboxes 9900~9989. The phone number of the backup extension is the Special External Phone number that is stored in the VM_6 of the specified mailbox.

9999= using the mutual mailbox, which allows callers to leave a message.

0001~0007= mailboxes 9901~9907 (i.e. 0001= 9901). The remote switch access number is stored in the specified mailbox.

000~009, 0010~0099= the number beginning with the 3rd digit of the specified number is the trunk group access code (i.e. 009= 9).

- Inputting * * * * will create a group of mailboxes, whose mailbox numbers depend on the group extension numbers. The default Capacity / Language of each mailbox is 32-message storage capacity and 1st language.
- If a caller first time does not respond to a Busy or No-answer Prompt, the call will be transferred to the group backup extension unless the called party is a mailbox owner who has specified the [Personal Backup Extension](#).

Examples:

SYS_1_[01]_1_[100], SYS_1_[01]_2_[289], SYS_1_[01]_3_[Empty]:

Extension numbers are 100~289, which are also the internal phone numbers.

SYS_1_[02]_1_[290], SYS_1_[02]_2_[299], SYS_1_[02]_3_[100]:

Extension numbers are 290~299, which are also the internal phone numbers; internal phone 100 is the group backup extension.

SYS_1_[03]_1_[82], SYS_1_[03]_2_[04], SYS_1_[03]_3_[0001], ADM_5_[829]_[9000]:

Extension numbers are 8200~8299, which are external phone numbers because the group is assigned the remote switch access number that is stored in mailbox 9901. "829" is specified as an invalid number; Therefore, the extension numbers from 8290 to 8299 are invalid and the actual phone numbers the EXTN Group 03 includes are 8200~8289.

SYS_2: Time Lengths

Time-out Length

SYS_2_1_[XX]

XX: the time length that waits a caller to dial a number after the greeting finishes playing
00~99= 0~99 seconds (Default= 03)

- **SYS_3_0** determines the Time-out action after main greetings.
- **SYS_4_4** determines the Time-out action after No-answer/Busy Prompts.

Ring Duration to Working Hour Operators

SYS_2_2_[XX]

XX: the option that determines how EVM transfers a call to a service operator during the non-working hours (Default=20)

00= Unsupervised Transfer

01= Blind Transfer

10~99= number of seconds of the Ring Duration of Supervised Transfer

Ring Duration to Non-working Hour Operators

SYS_2_3_[XX]

XX: the option that determines how EVM transfers a call to a service operator during the non-working hours (Default=20 sec.)

00= Unsupervised Transfer

01= Blind Transfer

10~99= the number of seconds of the Ring Duration of Supervised Transfer

Ring Duration to Internal Phones (Working Hours)

SYS_2_4_[XX]

XX: the option that determines how the EVM transfers a call to an internal phone during the working hours (Default=20)

00= Unsupervised Transfer

01= Blind Transfer

10~99= the number of seconds of the Ring Duration of Supervised Transfer

Ring Duration to Internal Phones (Non-working Hours)

SYS_2_5_[XX]

XX: 00= Unsupervised Transfer

01= Blind Transfer

10~99= number of seconds of the Ring Duration of Supervised Transfer (Default=20)

Message Length

SYS_2_6_[XX]

XX: the maximum length of a message recorded by a caller (Default= 60)
00= 250 seconds, 10~99= 10~99 seconds.

Call Pickup Timer

SYS_2_7_[XX]

XX: the interval between releasing a call and starting the Call Pickup action
01~99 = 1~99 seconds (Default= 20)

- This value should be shorter than the time length of “Ring No Answer” specified in the PBX; otherwise, another call ringing on the target may be picked off by the EVM.

Interval of Internal Phone Notification Attempts

SYS_2_8_[XX]

XX: the minimum interval between the calls of Internal Phone Notification for a mailbox owner
01~99= 1 ~ 99 minutes (Default= 30)

Ring Duration of Internal Notification

SYS_2_9_[XX]

XX: the maximum length that a call of internal notification waits for the mailbox owner to answer
10~99= 10 ~ 99 seconds (Default= 60)

Pause Time Length

SYS_2_0_[XX]

XX: the time length of an XX-sec pause (Default=03)
00~32= 0~32 seconds

SYS_3

L1 Rings

SYS_3_1_[X]

X: number of rings that the EVM detects before answering an incoming call on L1, L3, L5 or L7
1~9= number of rings, 0= a half of first ring. (Default=1)

L2 Rings

SYS_3_2_[X]

X: number of rings that the EVM detects before answering an incoming call on L2, L4, L6 or L8
1~9= number of rings, 0= a half of first ring. (Default=1)

- [ADM_5_9937](#)_[axxx] determines the maximum time length possible between the rings of an incoming call.

External Phone Notification Attempts

SYS_3_3_[X]

X: 1~9= maximum number of attempts of the External Phone Notification of a new message (Default =2)

- The interval between attempts is a minimum of 6.5 minutes.
- [SYS_6_5](#) is used to specify the C.O Trunk Group Access code.

Pager Notification Attempts

SYS_3_4_[X]

X: 1~9= number of attempts of pager notification for a mailbox owner (Default= 2)

- The interval between the attempts of dialing a pager is a minimum of 6.5 minutes.

The Operator Code

SYS_3_5_[X]

X: 0~9= the number that callers needing operator assistance dial (Default= 0)

* = not using this feature

2nd AA Service Language Code

SYS_3_6_[X]

X: 1~9= the number that callers dial to hear 2nd language

* = not using this feature (default)

3rd AA Service Language Code

SYS_3_7_[X]

X: 1~9= the number that callers dial to hear 3rd language

* = not using this feature (default)

4th AA Service Language Code

SYS_3_8_[X]

X: 1~9= the number that callers dial to hear 4th language

* = not using this feature (default)

Internal Phone Notification Attempts

SYS_3_9_[X]

X: 1~9= the maximum number of the calls of Internal Phone Notification activated by a new message (Default= 2)

Time-out Action to Main Greetings

SYS_3_0_[X]

X: the option that determine how EVM processes the call when a caller does not respond to a main greeting or the operators' Busy Prompt (Default =1)

0= repeats the same greeting once; hangs up the call if the caller still does not respond to the greeting.

1~9= maximum number of attempts to transfer the call to the service operator

- [SYS_2_1](#) determines the Time-out length.

SYS_4: Feature Options

Number Repeat Control

SYS_4_1_[X]

X: 1 = using Number Repeat feature (Default)

2 = not using Number Repeat feature

Announcement Sound Volume Control

SYS_4_3_[X]

X: 1 = increasing the sound volume of announcements playing

2 = original sound volume (Default)

Time-out Action After Busy/No-answer Prompts

When a caller does not respond to a Busy Prompt or a No-answer Prompt, the call may be transferred to the service operator or may be disconnected unless this is the first time and the call can be transferred to a Personal Backup Extension or Group Backup Extension.

SYS_4_4_[X]

X: the option that determines how the EVM handles the call when a caller does not respond to a Busy Prompt or a No-answer Prompt (Default=2)

1 = repeats the same greeting once; hangs up the call if the caller still does not respond to the greeting.

2 = according to the option that is specified in [SYS_3_0](#)

- [SYS_2_1](#) determines the time-out length.

Dialtone Detection for Call Hold

SYS_4_5_[X]

X: 1= the EVM will wait for the dial tone within a four-second period after sending out a hook-flash for putting a call on hold; dials the phone number upon receiving any tone; otherwise, sends a hook-flash again or hangs up after the third four-second period. (Default)

2= the EVM only waits one second and then dials the phone number.

Internal Tone Detection Tolerance

SYS_4_6_[X]

X: the option that determine the tolerance of the acceptable lengths diverging from the specified Tone Cycle lengths

1= large tolerance, for the cycle lengths of the service tones that the PBX sends out may be irregular.

2= normal tolerance (Default)

Port Condition Detection

SYS_4_7_[X]

X: 1= using Port Condition Detection feature

2= not using Port Condition Detection feature (Default)

- Do not use the Port Condition Detection feature unless any extension port connected to the EVM sometimes automatically changes into a busy state.

Internal Tone Detection Bandwidth

SYS_4_8_[X]

X: 1= the bandwidth of internal tone detection is 300 to 640Hz. (Default)

2= the bandwidth of internal tone detection is 200 to 3400Hz.

- After changing the Tone Detection Bandwidth option, you may need to reset all the Tone Cycle lengths.

Notification on Wakeup Calls

SYS_4_9_[X]

X: the option that determines whether a Wakeup call also delivers the Notification greeting ([paragraph 22](#)).

1= Yes. Mailbox owners whose mailboxes have new messages will hear the Notification greeting on their Wakeup calls.

2= No. (Default)

8-sec Silence Detection

SYS_4_0_[X]

X: 1= using 8-sec Silence Detection feature (Default)

2= not using 8-sec Silence Detection feature

- If a caller keeps silence for eight seconds when recording a message, Option 1 enables the system to end recording the message.

Night Switch Validation

SYS_4_*_[X]

X: the option that determines whether the Night switch is allowed using.

1= Yes. The closed-hour mode will be activated in minutes after the switch is switched to the ON position.

2= No (Default)

SYS_5: Operating-Ways

Description of Operating-Way Options

Operating-Way Options

1= sending a hook-flash

2= sending a hook-flash and then dialing the related feature code

3= sending a hook-flash and then sending a hook-flash again

4= sending a hook-flash and then sending a On & Off Hook signal

5= sending a On & Off Hook signal

6= sending a On & Off Hook signal and then dialing the related feature code

7= sending a On & Off Hook signal and then sending a hook-flash

8= dialing the related feature code, the telephone number and the Suffix Code

9= dialing the telephone number and the related feature code

0= the operating-way is defined in [ADM_5_9930](#).

*= the operating-way is defined in [ADM_5_9933](#).

- Although each Operating-Way menu only announces the options of 1~9, you can choose 0 or * and define the operating-way.
- Each hook-flash or On & Off Hook signal is followed by a one-second pause.
- An On & Off Hook signal is a 1.2-second hook-flash. If the operating-way option is specified for Call Releasing, a Line port to release is only to change into On-Hook status.
- [SYS_7_1](#) is used to specify the length of a hook-flash.
- [SYS_6_*](#) is used to specify the Suffix Code

Dialing-Way

SYS_5_1_[X]

X: the option that determines how EVM dials numbers (Default= 1)

1= touchtone (125ms On/Off), 2= Long touchtone (250ms On/Off), 3= Dial Pulse.

Operating-Way of Call Release of Supervised Transfer

SYS_5_2_[X]

X: the [Operating-Way option](#) that determines how EVM releases a call when the called party answers (Default=5)

Operating-Way of Call Release of Unsupervised Transfer

SYS_5_3_[X]

X: the [Operating-Way option](#) that determines how EVM releases a call before the called party answers (Default=5)

Operating-Way of Call Retrieval on Error Tones

SYS_5_4_[X]

X: the **Operating-Way option** that determines how EVM retrieves the call on the Error tone in transferring a call (Default=1)

- **SYS_6_2** determines the feature code the operating way may include.

Operating-Way of Call Retrieval on Busy Tones

SYS_5_5_[X]

X: the **Operating-Way option** that determines how EVM retrieves the call on the busy tone in transferring a call (Default=1)

- **SYS_6_2** determines the feature code the operating way may include.

Operating-Way of Call Retrieval on Ringback Tones

SYS_5_6_[X]

X: the **Operating-Way option** that determines how EVM retrieves the call on the ringback tone in transferring a call (Default=1)

- **SYS_6_2** determines the feature code the operating-way may include.

Operating-Way of MLON Control Commands

SYS_5_7_[X]

X: the **Operating-Way option** that determines how EVM sends out MLON Control Commands through the specified Line ports (Default = 8)

- **SYS_6_6** is used to specify the feature code (the MLON Code of MLON Control Command).

Operating-Way of MLOFF Control Commands

SYS_5_8_[X]

X: the **Operating-Way option** that determines how EVM sends out MLOFF Control Commands through the specified Line ports (Default = 8).

- **SYS_6_7** is used to specify the feature code (the MLOFF Code of MLOFF Control Command).

Operating-Way of Call Pickup

SYS_5_9_[X]

X: the **Operating-Way option** that determines how EVM retrieves the call when a Call Pickup timer expires (Default=8)

- **SYS_5_9_[8]** and **ADM_5_9907_[empty]**: the Call Pickup feature is not used.
- **ADM_5_9907** determines the feature code the operating-way may include.
- **SYS_2_7** determines the time length of a Call Pickup Timer.
- EVM-8X uses only the ports of L1, L3, L5 and L7, to access the Call Pickup feature.

Operating-Way of Conference Establishment

SYS_5_0_[X]

X: the [Operating-Way option](#) that determines how EVM establishes a 3-party conference (Default=1)

* = Not using Conference feature

- [SYS_6_2](#) determines the feature code the operating-way may include. But if any Call Retrieving Way has already included it, you must specify Option 0 for using the Operating-Way defined in [ADM_5_9930](#).
- If the PBX does not permit a user to establish a conference call immediately after his dialing the phone number of the third party, you may add several Cs (a “C” represents a XX-sec pause) at the end of each external phone number.

Example:

SYS_5_0_[0], ADM_5_9930_[1C3], ADM_5_9931_[*3]:

The Operating-Way of Conference Establishment is: sending a hook-flash, pausing two seconds and then dialing *3.

SYS_6: Feature Codes

Feature Code of Inward Transfers

SYS_6_1_[X~]

X~: the feature code that is dialed before the internal phone number of an inward transfer (Default= empty)

- If no feature code is required, SYS_6_1 must keep the empty value.

Call Retrieval Feature Code

SYS_6_2_[X~]

X~: the feature code of call retrieval (Default= empty)

1st No-answer Code

SYS_6_3_[XXYZ]

XX: the code of the call type, which informs the EVM to provide the [No-answer Phone Service](#) to the caller.

YZ: the start of the EXTN field inside a DTMF Digit string carrying this Type code

01~09 (1~9), 0* (10)= number of digits before the EXTN field. For example, YZ=03 indicates that the EXTN field starts at the fourth digit of each DTMF digit string that carries the specified Type code.

*1 ~ *9 = * indicates that the start of the EXTN field is not fixed but follows a digit of * closely. 1 ~ 9 are used to specify the minimum number of digits (including this *) appearing before the EXTN field.

#1 ~ #9, A1 ~ A9, B1 ~ B9 and C1 ~ C9 are similar to the functions of *1 ~ *9.

1st Busy-line Code

SYS_6_4_[XXYZ]

XX: the Type code, which informs the EVM to provide the Busy Phone Service to the caller.

YZ: the start of the EXTN field inside a DTMF digit string carrying this Type code

01~09 (1~9), 0* (10)= number of digits before the EXTN field.

99= enabling the EVM to detect this Type code on sending out an internal phone number.

*1 ~ *9 = * indicates that the start of the EXTN field is not fixed but follows a digit of * closely. 1 ~ 9 are used to specify the minimum number of digits (including this *) appearing before the EXTN field.

#1 ~ #9, A1 ~ A9, B1 ~ B9 and C1 ~ C9 are similar to the functions of *1 ~ *9.

C.O Trunk Group Access Code

SYS_6_5_[X~]

X~: the number that EVM dials before an external number or pager number of message notification, which is used to seize a trunk connected to the Central Office. (Default empty)

MLON Code

SYS_6_6_[X~]

X~: the feature code for the operating way specified in [SYS_5_7](#) (Default = empty)

MLOFF Code

SYS_6_7_[X~]

X~: the feature code for the operating way specified in [SYS_5_8](#) (Default = empty)

System Password

SYS_6_8_[XXXX]

XXXX: the password for logging in to the [System Program](#) (Default= 0#0#)

Administrator Password

SYS_6_9_[XXXX]

XXXX: the password for logging in to the [Administration Program](#) (Default= empty)

- The first two digits of the Administrator Password must not be the same number as the first two digits of the System Password.

Suffix Code

SYS_6_*_[X~]

X~: the Suffix code (Default = empty)

SYS_7: Hook Flash and Tone Detection

Hook Flash Length

SYS_7_1_[XXX]

XXX: the time length of a hook-flash
000~765= 0.00 ~ 7.65 seconds

- If the Hook Flash length that the PBX requires is less than 0.13 seconds, or if the PBX does not send out any tone after receiving a hook-flash of signaling to put a call on hold, you must directly set the Hook-Flash length. For example: the required Hook Flash length is between 0.05 and 0.1 seconds, this setting should be 007 (0.07 seconds).

Tone Detection Delay

SYS_7_3_[XXX]

XXX: the time length that the EVM waits in order to delay initiating the tone detection to the call after dialing a phone number
000~765= 0.00 ~ 7.65 seconds (Default= 003)

Error-Tone Cycle Lengths

The time lengths of two cycles of the Error tone that Internal Tone Detection will identify

SYS_7_4_[Y]_[XXX]

Y: 1= the 1st Cycle ON (tone)
2= the 1st Cycle OFF (silence)
3= the 2nd Cycle ON (tone)
4= the 2nd Cycle OFF (silence)

XXX: the time length
000~765= 0.00 ~ 7.65 seconds

Busy-Tone Cycle Lengths

The time lengths of any two cycles of the busy tone

SYS_7_5_[Y]_[XXX]

Y: 1= the 1st Cycle ON (tone)
2= the 1st Cycle OFF (silence)
3= the 2nd Cycle ON (tone)
4= the 2nd Cycle OFF (silence)

XXX: the time length
000~765= 0.00 ~ 7.65 seconds

- If you directly set any Busy-Tone Cycle Length, the Automatic System Configuration mode will be shut off.
- If you delete the existing values after the Automatic System Configuration mode is shut off, the built-in parameter will be in place of this parameter.

Ringback Tone Cycle Lengths

The time lengths of two cycles of the ringback tone that Internal Tone Detection will identify.

SYS_7_6_[Y]_[XXX]

- Y: 1= the 1st Cycle ON (tone)
2= the 1st Cycle OFF (silence)
3= the 2nd Cycle ON (tone)
4= the 2nd Cycle OFF (silence)

XXX: the time length

000~765= 0.00 ~ 7.65 seconds

- If you directly set any Ringback Tone Cycle Length, the Automatic System Configuration mode will be shut off.
- If you delete the existing values after the Automatic System Configuration mode is shut off, the built-in parameter is in place of this parameter.
- As long as each ringback tone cycle detected on a call corresponds to the specified cycles either, the EVM continues the tone detection till the Ring Duration timer expires.
- The 2nd Cycle OFF length is the maximum silent length allowed in tone detection, which enables the EVM to detect that the call is answered even if the called party picks up the handset and does not speak.

Tone Cycle Record

SYS_7_7_[Y]_XXX

- Y: 1= the 1st Cycle ON
2= the 1st Cycle OFF
3= the 2nd Cycle ON
4= the 2nd Cycle OFF

XXX: the number you will hear (000~765= 0.00 ~ 7.65 seconds)

ADM_1: Schedule Control

ADM_1_[X]

- X: 1= Working-hour mode –the Working-hour main greeting ([Paragraph 01](#)) plays.
2= Break-hour mode –the Break-hour main greeting ([Paragraph 02](#)) plays.
3= Closed-hour mode –the Closed-hour main greeting ([Paragraph 03](#)) plays.
4= Holiday mode –the Holiday main greeting ([Paragraph 04](#)) plays.
5= Holiday mode –the temporary announcement ([Paragraph 23](#)) plays.
6= the mode change is controlled by the [Weekly Working Hour schedule](#) (ADM_3) and the [Holiday schedule](#) (ADM_7).

Example:

If from Jan 1 to Jan 4 are holidays, the system administrator might select Option 4 after the working hours on Dec 31; select Option 6 before the working hours on Jan 5.

ADM_2: Announcement Administration

Paragraph Message Administration

ADM_2_[L]_[YY]_[X]

L: the recording language

1= 1st language, 2= 2nd language, 3= 3rd language, 4= 4th language.

YY: the paragraph code

01~43= paragraph codes

X: 1= to listen to the message

2= to record the message

3= to delete the message

- [SYS_3_6](#) is used to specify the 2nd AA Service Language Code.
- [SYS_3_7](#) is used to specify the 3rd AA Service Language Code.
- [SYS_3_8](#) is used to specify the 4th AA Service Language Code.
- [SYS_4_3](#) determines the sound volume of announcements playing.
- [ADM_8](#) is used to administer the language a mailbox uses.
- [ADM_5_9905](#) determines which language the callers hear on the specified Line ports.

Information Announcement Administration

Messages for information announcements may be recorded in any languages, but all the messages for an information menu group should be only recorded in a language. If the recording language is not 1st language, you must use [paragraph 21](#) and an appropriate recording language option to record the Operation Instruction of the menu group and use [ADM_5_991\[Y\]](#) to specify the language. Callers will hear the Operation Instruction when one of the announcements of the menu group finishes playing.

The main greetings of AA Service should announce the information of the menu number of each main menu.

ADM_2_9_[N~]_[X]

N~: 1~9989= menu numbers (Note: menu numbers must not contain any 0's.)

X: 1= to listen to the message

2= to record the message

3= to delete the message

Methods of Recording Announcements

Using a standard telephone

- 1-a. On-site: plug a standard touch-tone telephone into the "PROG" jack; pick up the handset when L1 is not in use.
- 1-b. Remote Control: make a phone call to the EVM.
2. Log in to the Administration Program; press 2 to select "To Edit Announcement".
3. Select the recording language. (Or dial 9 for Information Announcements.)

4. Enter the paragraph code. (Or dial the menu number.)
5. Press 2 to select “To Record”, and then speak to the handset on hearing a beep. Press # to end recording and return to Step 4 when finish.
6. Repeat Step 4 to 5 for another announcement for the same recording language.

Using a PC

To use this feature, you need to record the desired announcements and record them as PC sound files (*.wav), or convert them to audio wave files. Then edit each sound file by inserting the given DTMF tones and voiceless lengths as follows:

“0.2-sec DTMF 2” + “0.5-sec silence” + “the message” + “0.2-sec silence” + “0.2-sec DTMF #”
 (The “DTMF 2” is used to start recording; the “DTMF #” is used to end recording.)

To enable the system to record announcements from a PC, you will take the following steps:

1. Use a 3.5mm- mini-plug modular cord to connect the “Audio In” jack of the EVM to the “Earphone” jack of the PC. Plug a speakerphone into the “PROG” jack. When the L1 indicator is off, turn on the “Speaker” and turn off the “Microphone” by pressing the “Mute” button on the speakerphone.
2. Hearing the main menu of System Program, press 0 for the main menu of the Administration Program; then press “2” to select "To Edit Announcements".
3. Select the recording language, or dial 9 for information announcements.
4. Enter the paragraph code, or dial the menu number of information announcement.
5. Play the sound file on the PC, and then listen to the sound through the "Speaker" until the system prompts: "Please enter the paragraph code."
6. Repeat Step 4 to 5 for another announcement of the same recording language. If finished, you must remember to remove the connection from the “Audio In” jack.

ADM_3: Weekly Working Hour Schedule and System Clock

Weekly Working Hour Schedule

ADM_3_[W]_[HHMMhhmm]

- W: 1= Monday (Default= 0830~1730)
- 2= Tuesday (Default= 0830~1730)
- 3= Wednesday (Default= 0830~1730)
- 4= Thursday (Default= 0830~1730)
- 5= Friday (Default= 0830~1730)
- 6= Saturday (Default= empty)
- 7= Sunday (Default= empty)
- 8= the break hours on each weekday (Default= 1200~1300)

HHMM: the beginning time, hhmm: the ending time of the working hours.

HH/hh= Hour (00~23), MM/mm= Minute (00~59).

Empty= weekend (W=1~7); no break hour (W=8)

System Clock Adjustment

System Clock is used to control the business schedule and to stamp each message deposited into the mailbox.

Current Date

ADM_3_9_[YYYYMODD]

YYYY: Year (2002~ up)

MO: Month (01~12)

DD: Day (01~31)

Current Time

ADM_3_0_[HHMMSSW]

HH: Hour (00~23)

MM: Minute (00~59)

SS: Second (00~59)

W: 1= Monday, 2= Tuesday, 3= Wednesday, and so forth, 7= Sunday.

Daily Adjusting Seconds

ADM_3_*_[X]

X: the number that second of system clock is daily added or subtracted

Pressing “1” is to add one to the number. Pressing “2” is to subtract one from the number.

For example, if the system prompts: “Have set to adjust faster 2 seconds”, it means that the system clock will automatically add two seconds every day.

ADM_4: Operator Number List

ADM_4_[Y]_[X~]

Y: 1= for specifying the main service operator of working hours

2= for specifying the backup service operator of working hours

3= for specifying the main service operator of break hours

4= for specifying the backup service operator of break hours

5= for specifying the main service operator of closed hours

6= for specifying the backup service operator of closed hours

7= for specifying the main service operator of holidays

8= for specifying the backup service operator of holidays

X~: the transfer destination that is identified by one of the following numbers (Default= empty)

0~8999= internal phone numbers

9900~9989= mailboxes 9900~9989. The phone number of the service operator is the Special External Phone number stored in the specified mailbox.

9999= using the [mutual mailbox](#) to allow callers to leave a message

*001~*008= *001 Hunt Group ~ *008 Hunt Group (only for main service operators)

Examples:

ADM_4_1_[*001]:

During the working hours, callers needing help are transferred to *001 Hunt Group.

ADM_4_3_[Empty]:

During the break hours, no service operator is on duty.

ADM_4_5_[9999]:

During the closed hours, no service operator is on duty; the Mutual Mailbox prompts callers to leave a message when they need help.

ADM_4_7_[9900], MB9900_VM_6_[55553911]:

During the holidays, callers needing help are transferred to Special External Phone 55553911.

ADM_5: Call-Forwarding List

ADM_5_[N~]_[X~]

N~: the extension number

0~9799= extension numbers or one-digit numbers (Note: numbers from 9800 to 9999 are used to identify other feature settings.)

X~: the destination that is identified by one of the following numbers. (Default= empty)

0~8999= internal phone numbers

9000= using the wrong-number message ([Paragraph 18](#) or 19) to respond to the callers dialing the extension number

9900~9989= mailboxes 9900~9989. The phone number of the destination is the Special External Phone number that is stored in the VM_6 of the specified mailbox.

9999= using the mutual mailbox to allow callers to leave a message

*001~*008= *001 Hunt Group ~ *008 Hunt Group

Examples:

ADM_5_[6]_[1234], ADM_5_[567]_[1234]:

Allow callers to dial 6 or 567 to transfer their calls to internal phone 1234.

ADM_5_[7]_[*001]:

Allow callers to dial 7 to transfer their calls to *001 hunt group.

ADM_5_[8]_[9910], MB9910-VM_6_[55553900]:

Allow callers to dial 8 to transfer to Special External Phone 55553900.

ADM_5_[9]_[9999]:

Allow callers to dial 9 to leave a message, which will be deposited into the mutual mailbox.

ADM_6: Receptionist List

All the information service receptionists are specified in the Receptionist list. Each information menu may have a receptionist:

ADM_6_[N~]_[X~]

N~: 1~9989= menu numbers

X~: the receptionist that is identified by one of the following numbers. (Default= empty)
0~8999= internal phone numbers.
9900~9989= mailboxes 9900~9989 - the phone number of the receptionist is the Special External Phone number that is stored in the VM_6 of the mailbox specified.
9999= using the mutual mailbox to allow callers to leave a message
*001~*008= *001 Hunt Group ~ *008 Hunt Group

Example:

ADM_6_[81]_[9902], MB9902-VM_6_[55553901]:

Callers can transfer to Special External Phone 55553901 by dialing 0 from menu 81.

ADM_7: Holiday Schedule

You can specify up to sixty-four dates of holidays in the year.

ADM_7_[YY]_[MODD]

YY: 01~64= Index numbers of entries

MO= Month (01~12), DD= Day (01~31)

- A holiday is from 00:00 to 23:59.

ADM_8: Mailbox Capacity/Language Administration

ADM_8_[N~]_[XXL]

N~: the mailbox to be programmed

0~9999= mailbox numbers

XX: the Mailbox Capacity

01= the mailbox is a Bulletin Board mailbox

10~99= the maximum number of messages that the mailbox can store

L: the language that the mailbox owner uses.

1= 1st language, 2= 2nd language.

XXL: 000= to delete the mailbox

- If the Mailbox Capacity / Language of a mailbox is reset, the archived messages callers left will be deleted; the mailbox password will be changed into "0000".
- [SYS_2_6](#) determines the maximum length of a message recorded by a caller.

ADM_9: Mailbox Group Lists for Message Distribution

A total of eight Mailbox Group lists can be created. Normally, each list can specify up to fifteen mailbox numbers, but if the sixteenth mailbox number is specified in a list, it connects the list to the next list. For example, if Mailbox Group List 1 has sixteen mailbox numbers and Mailbox Group List 2 has two mailbox numbers, the list number '1' is used to identify all the eighteen mailbox numbers; the list number '2' is used to identify the two mailbox numbers specified in Mailbox Group List 2.

ADM_9_[Y]_[N~]

Y: 1~8= list numbers

N~: 0~9899= mailbox numbers

To delete the number you hear, you need to press 0000 and confirm it.

To specify the next number, you need to press * to confirm the number you hear.

To return to “Define List Number” menu, you need to press # to confirm the number you hear.

ADM_5_9900 ~ 9949

Notification Types for Class-A Message Arrival

ADM_5_9900_[X~]

X~: Notification Type options that determine how EVM notify a mailbox owner whose mailbox has a new message arrival of class A:

The message is left when the mailbox has DND-ON.

The message is the owner’s phone recording.

0= Message Lamp Notification

1= Pager Notification

2= External Phone Notification

3= Internal Phone Notification

Default= 021: Message Lamp, External Phone and Pager Notification.

Notification Types for Class-B Message Arrival

ADM_5_9901_[X~]

X~: Notification Type options that determine how EVM notify a mailbox owner whose mailbox has a new message arrival of class B:

The message is left because of the Busy Prompt.

The message is distributed from another mailbox.

The message is forwarded from another mailbox.

Default= 03: Message Lamp and Internal Phone Notification

Notification Types for Class-C Message Arrival

ADM_5_9902_[X~]

X~: Notification Type options that determine how EVM notify a mailbox owner whose mailbox has a new message arrival of class C:

The message is left because of the No-answer Prompt.

The message is left by a caller who dials # and the mailbox number.

Default= 0: Message Lamp Notification

Optional Mailbox Features

ADM_5_9903_[abcd]

a: the option that determines how the EVM processes the call upon reconnecting or answering a call that a mailbox owner does not answer during the internal phone ringing

0= the caller can dial to transfer the call or dial # to leave a message. (Default)

1= the caller can only leave a message if the Personal No-answer Prompt or the Backup No-answer Prompt (paragraph 12 for working hours; paragraph 15 for non-working hours) is already recorded.

For more information, see the diagram of “[Available Services to No-answer Phones.](#)”

- b: the option that determines how the EVM processes the call upon reconnecting or answering a call whose original destination is a busy internal phone of a mailbox owner
0= the caller can dial to transfer the call or dial # to leave a message. (Default)

1= the caller can only leave a message if the Personal Busy Prompt or the Backup Busy Prompt (paragraph 13 for working hours; paragraph 16 for non-working hours) is already recorded.

For more information, see the diagram of “[Available Services to Busy Phones.](#)”

c: 0

d: 0

Number Arrangement to Non-working Hour Information Menus

Time-out Action to Information Announcements

ADM_5_9904_[abcd]

- a: 1~9= the first digit of each menu number for break-hour menus

0= not creating any break-hour menu (default)

- b: 1~9= the first digit of each menu number for closed-hour menus

0= not creating any closed-hour menu (default)

c: 0

- d: the Time-out Action option that determines how EVM handles the call when a caller does not dial any digit within three seconds after an information announcement finishes playing
0= hangs up (default).

1= transfers the call to the specified receptionist or service operator.

Example:

ADM_5_9904_[7801] is specified and the related announcements are already recorded; callers may dial 9 to select:

- Menu 9 during the working hours
- Menu 79 during the break hours
- Menu 89 during the closed hours

Lines' Greeting Languages

ADM_5_9905_[abcd]

- a: the language of the greetings callers hear on L1 and L5

- b: the language of the greetings callers hear on L2 and L6

- c: the language of the greetings callers hear on L3 and L7

- d: the language of the greetings callers hear on L4 and L8

1= 1st language (Default), 2= 2nd language, 3= 3rd language, 4= 4th language.

Lines' Service Operators

ADM_5_9906_[abcd]

- a: the option that determines the service operators for L1 and L5
- b: the option that determines the service operators for L2 and L6
- c: the option that determines the service operators for L3 and L7
- d: the option that determines the service operators for L4 and L8.
 - 1= the service operators of four service time periods are specified in [ADM_4_1](#), [ADM_4_3](#), [ADM_4_5](#) and [ADM_4_7](#)
 - 2= the service operators of four service time periods are specified in [ADM_4_2](#), [ADM_4_4](#), [ADM_4_6](#) and [ADM_4_8](#).

Call Pickup Feature Code

ADM_5_9907_[X~]

X~: the feature code that the operating-way specified in [SYS_5_9](#) may include

ID DTMF Detection Time

Internal Tone Detection Sensitivity

External Tone Detection Sensitivity

Tone Cycle Filter

ADM_5_9908_[abcd]

- a: the time length between answering a call and starting the main greeting for no ID DTMF
0= 1 second (Default), 1= 1.5 seconds, 2= 2 seconds.
- b: the value that raises the sensitivity of internal tone detection
0= 0 (default), 1= +2, 2= +4, 3= +6, 4= +8, 5= +10, 6= +12, 7= +14 db.
- c: the value that raises the tone detection sensitivity on external calls
0= 0 (default), 1= +2, 2= +4, 3= +6, 4= +8, 5= +10, 6= +12, 7= +14 db.
- d: the option that determines whether the Tone Cycle filter is used
0= not using the Tone Cycle filter
1~7= the maximum length of silence that is ignored in tone detection
1= 0.03, 2= 0.06, 3= 0.09, 4= 0.12, 5= 0.15, 6= 0.18, 7= 0.21 seconds

For example, if the cycle format of the ring back tone is that "0.4-sec ON, 0.2-sec OFF, 0.4-sec ON" repeats after one second of silence and then repeats after four seconds of silence, it is necessary to ignore each "0.2-sec OFF" in tone detection because there are three different tone cycles (a "0.4-sec ON / 0.2-sec OFF", a "0.4-sec ON / 1-sec OFF" and a "0.4-sec ON / 4-sec OFF").

- All the Tone Cycle Length settings should be reset after the Internal Tone Detection sensitivity is changed.

Internal Path Access Code

ADM_5_9909_[X~]

X~: the number that is dialed before an internal phone number (Default= empty)

- Most of PBX systems do not need any Internal Path access code.

Virtual Mailbox Numbers

Non-working Hour Call Transfer Control

Auxiliary Mailbox Greetings Control

Automatic Message Deletion

ADM_5_9910_[abcd]

- a: the option that determines the mailbox number of each mailbox owner whose internal phone is specified as a destination in the Call-Forwarding list ([ADM_5_\[N~\]](#))
 - 0= the extension number (Default)
 - 1= the internal phone number

No matter which option is specified, the internal phone is still the destination of Internal Phone notification.
- b: the option that determines how EVM handles the call of a caller who dials a mailbox owner during the non-working hours
 - 0= transfers the call to the owner's internal phone. (Default)
 - 1= plays the owner's Don't Disturb Greeting; the caller can only leave a message.
 - 2= forwards the call to the owner's personal external phone.

For more information, see the diagram of "[Available Services for Extension Numbers.](#)"
- c: the option that determines whether [paragraph 24](#) and [paragraph 43](#) are used
 - 0= the paragraph 24 message plays when a Personal Don't Disturb Greeting finishes playing. The paragraph 43 message plays when a Personal Busy Prompt or a Personal No-answer Prompt finishes playing.
 - 2= paragraph 24 and paragraph 43 are not used.
- d: the option that determines how many days an old message may remain in a mailbox before the EVM automatically deletes it
 - 1~9= number of days
 - 0= not using the Automatic Message Deletion feature (Default)

Languages and Operation Options of Information Service

Operation Options are "to listen to the announcement again" and "return to the previous menu", which are available in each information menu. You can add an option of "to return to the main greeting".

Each message recorded for [paragraph 21](#) is for telling callers the Operation Options in the information menus. If group menus are created by recording messages in a language not 1st language, you should use the same language to record such a message, and assign it to the menu group by specifying the language.

ADM_5_991[Y]_[abcd]

- Y: (1~9) the group number of the menu group whose language is to be specified, or the number that is to be assigned as an Operation Option.
 - a: the language of the menu group
 - 1= 1st language (Default), 2= 2nd language, 3= 3rd language, 4= 4th language.

- b: the Operation that is identified by the number Y
 0= the number is not an Operation Option.
 1= “to listen to the announcement again.”
 2= “to return to the previous menu.”
 3= “to return to the main greeting.”

Mailbox Program Access Request Code

ADM_5_9920_[XXYZ]

XX: the Type code, which informs the EVM that a mailbox owner requests to log in to the mailbox program.

YZ: the start of the EXTN field inside a DTMF Digit string carrying this Type code

01~09 (1~9), 0* (10)= number of digits before the EXTN field.

*1 ~ *9 = * indicates that the start of the EXTN field is not fixed but follows a digit of * closely. 1 ~ 9 are used to specify the minimum number of digits (including this *) appearing before the EXTN field.

#1 ~ #9, A1 ~ A9, B1 ~ B9 and C1 ~ C9 are similar to the functions of *1 ~ *9.

- If the 3rd digit of the setting value is 0, *, #, A, B or C, it means that the first two digits specifies the Type code ("0" at the 2nd digit is only used as a spacing so it is possible to specify a 1-digit Type code), the 4th digit specifies the start of the EXTN field and [ADM_5_9924](#) specifies the start of Type field. If not, the setting value specifies the Type code and means that the Type code begins with the 1st digit and the EXTN field follows the Type code.

Recording Request Code

ADM_5_9922_[XXYZ]

XX: the Type code, which informs the EVM that an internal phone requests to record the conversation.

YZ: the start of the EXTN field inside a DTMF Digit string carrying this Type code

Please refer to [ADM_5_9920](#).

Type Field of ID DTMF Digit Strings

ADM_5_9924_[00XX]:

XX: 00~19 = number of digits before the Type field of each ID DTMF digit string.

1st All-call Code

ADM_5_9926_[XXYZ]

XX: the Type code, which informs the EVM to route the call to the mailbox the phone number indicates for the caller to leave a message.

YZ: the start of the EXTN field of the digit strings carrying this Type code

01~09 (1~9), 0* (10)= number of digits before the EXTN field. For example, YZ=03 indicates that the EXTN field starts at the fourth digit of each DTMF digit string that carries the specified Type code.

*1 ~ *9 = * indicates that the start of the EXTN field is not fixed but follows a digit of * closely. 1 ~ 9 are used to specify the minimum number of digits (including this *)

appearing before the EXTN field.

#1 ~ #9, A1 ~ A9, B1 ~ B9 and C1 ~ C9 are similar to the functions of *1 ~ *9.

2nd All-call Code

ADM_5_9927_[XXYZ]

XX: the Type code, which informs the EVM to route the call to the mailbox the phone number indicates for the caller to leave a message.

YZ: the start of the EXTN field of the digit strings carrying this Type code

2nd No-answer Code

ADM_5_9928_[XXYZ]

XX: the Type code, which informs the EVM to provide the No-answer Phone Service to the caller.

YZ: the start of the EXTN field of the digit strings carrying this Type code

2nd Busy-line Code

ADM_5_9929_[XXYZ]

XX: the Type code, which informs the EVM to provide the Busy Phone Service to the caller.

YZ: the start of the EXTN field of the digit strings carrying this Type code

Acts of Operating-Way 0

ADM_5_9930_[X~]

X~: options that determine the acts the operating-way comprises (Default= empty)

0= sending a On & Off-Hook signal

1= sending a hook-flash

2= sending the phone number of the destination

3= sending the number that is specified in ADM_5_9931

4= sending the number that is specified in ADM_5_9932

5= sending the Remote Switch Access number that is specified in MB9900-VM_5

ADM_5_9931_[X~] (Default= empty)

ADM_5_9932_[X~] (Default= empty)

Acts of Operating-Way *

ADM_5_9933_[X~]

X~: options that determine the acts the operating-way comprises (Default= empty)

0= sending a On & Off-Hook signal

1= sending a hook-flash

2= sending the phone number of the destination

3= sending the number that is specified in ADM_5_9934

4= sending the number that is specified in ADM_5_9935

5= sending the Remote Switch Access number that is specified in MB9900-VM_5

ADM_5_9934_[X~] (Default= empty)

ADM_5_9935_[X~] (Default= empty)

Example:

ADM_5_9933_[132], ADM_5_9934_[#4]:

The Operating-Way is: sending a hook-flash, #4, and the phone number.

Ring Pause

Conference Time Length

Call-Hold Procedure Control

ADM_5_9937_[abcd]

- a: the maximum time of a pause between the rings of an incoming call
1~9= 1~9 seconds, 0= 6 seconds (Default)
- b: the maximum time of a conference call
0 or 1= 10 (Default), 2= 20, 3= 30, 4= 40, 5= 50, 6= 60, 7= 70 minutes
- c: the option that specifies the transfer-type skipping the Hold procedure
0= not using this feature (Default)
1= inward and outward transfers
2= outward transfers
- d: 0

Mailbox Owner Self-registration

ADM_5_9938_[abcd]

- a: 0
- b: 0
- c: 0
- d: the option that determines whether Mailbox Owner Self-registration is allowed
0= allowing Mailbox Owner Self-registration (Default)
1= not allowing Mailbox Owner Self-registration

Call Disconnection Number

ADM_5_9939_[X~]

X~: the DTMF digits that the PBX sends on a call, which indicates the connection has been disconnected.

Special C.O Trunk Group Access Code

ADM_5_9948_[X~]

X~: the Special C.O Trunk Group Access Code, in which a “C” represents an XX-sec pause. This code cannot begin with 00. Otherwise:
00*= using the Operating-way that is defined by [ADM_5_9933](#).

Empty= using the C.O Trunk Group Access code specified in [SYS_6_5](#)

Operating-way for Call Retrieval on Trunk Lines

ADM_5_9949_[X~]

X~: the **Operating-Way option** that determines how the EVM retrieves a call of outward transfer

If beginning with 00, the value specifies an operating-way option, the third digit of which is an **Operating-Way option** (i.e. 001= Operating-Way Option 1).

If not beginning with 00, the value is the call retrieval feature code on trunk lines and indicates the operating way is: sending a hook-flash and then dialing the feature code.

If this setting is empty, the operating-way is the same as on internal paths. (Default)

ADM_5_9950 ~ 9989

***001 Hunt Group Extensions / Hunt Mode**

ADM_5_9950_[X~] ~ ADM_5_9953_[X~]: 1st extension ~ 4th extension
0~9999= internal phone numbers

ADM_5_9954_[X~]: Hunt Mode or 5th extension
1= Circular mode, 2= Linear mode, 3~9999= internal phone numbers

***002 Hunt Group Extensions / Hunt Mode**

ADM_5_9955_[X~] ~ ADM_5_9958_[X~]: 1st extension ~ 4th extension
ADM_5_9959_[X~]: Hunt Mode option or 5th extension

***003 Hunt Group Extensions / Hunt Mode**

ADM_5_9960_[X~] ~ ADM_5_9963_[X~]: 1st extension ~ 4th extension
ADM_5_9964_[X~]: Hunt Mode option or 5th extension

***004 Hunt Group Extensions / Hunt Mode**

ADM_5_9965_[X~] ~ ADM_5_9968_[X~]: 1st extension ~ 4th extension
ADM_5_9969_[X~]: Hunt Mode option or 5th extension

***005 Hunt Group Extensions / Hunt Mode**

ADM_5_9970_[X~] ~ ADM_5_9973_[X~]: 1st extension ~ 4th extension.
ADM_5_9974_[X~]: Hunt Mode option or 5th extension

***006 Hunt Group Extensions / Hunt Mode**

ADM_5_9975_[X~] ~ ADM_5_9978_[X~]: 1st extension ~ 4th extension
ADM_5_9979_[X~]: Hunt Mode option or 5th extension

***007 Hunt Group Extensions / Hunt Mode**

ADM_5_9980_[X~] ~ ADM_5_9983_[X~]: 1st extension ~ 4th extension

ADM_5_9984_[X~]: Hunt Mode option or 5th extension

***008 Hunt Group Extensions / Hunt Mode**

ADM_5_9985_[X~] ~ ADM_5_9988_[X~]: 1st extension ~ 4th extension

ADM_5_9989_[X~]: Hunt Mode option

ADM_5_9990 ~ 9999

Phone Recordings Collection

ADM_5_9990_[N~]

N~: the only mailbox that is used to store all the phone recordings (Default= empty)

0~9999= mailboxes 0~9999

0000= not using this feature

- The maximum length of a recording is 48 minutes.

ML Notification Control / Line Ports

ADM_5_9991_[abcd]

a: the option that determines whether the EVM sends out the MLON Control Command again or not when a mailbox has another new message arrival

0= No (Default), 1= Yes.

b: the Line port(s) with which the PBX accepts the ML Control Commands

1~8= L1~ L8, 0= all of the Line ports (default).

c: reserved for future

d: reserved for future

ADM_5_9800

COM Port Parameters

To use any system feature related to the COM port, you should first check the following parameters.

ADM_5_9800_[ab]#

a: 0= CTS (Clear To Send) is not implemented.

1= CTS is implemented (half duplex).

b: 0= Data Echo is not implemented.

1= Data Echo is implemented.

Empty (default)= CTS and Data Echo are not implemented.

ADM_5_9801_[XXPD]

XX: Bit Rate: 00=19200, 01=38400, 12=1200, 24=2400, 48=4800, 96=9600 bps.

P: Parity check: 0= none, 1= odd, 2= even.

D: Data bits: 7= 7 bits, 8= 8 bits.

XXPD= empty (default): Bit rate= 9,600 bps; Parity Check= none; Data bits= 8 bits.

Line Number of L1 Port / EXTN Field Width

ADM_5_9802_[XX0Y]

XX: 00~92= the line number that indicates the L1 port

Y: 1~9= the number of bytes of the EXTN field width

- The line number of L1 port must equal to the last two digits of the port number of the extension port connecting to the L1 port of the EVM. The Line number of L1 port plus one is regarded as the Line number of L2 port, and so on. Therefore, the port numbers of the extension ports connecting to EVM must be consecutive.
- The EXTN Field width must equal to the longest digit-length of the internal phone numbers.

The Ending Character and Beginning Character

ADM_5_9803_(HexHex)

HexHex: the Hex value(s) with which every incoming character string ends

- If this setting is empty, “ETX (03)” will be regarded as the ending character.

ADM_5_9804_(HexHex)

HexHex: the Hex value(s) with which every incoming character string begins.

- “CR (0D)” is an incorrect value.

1st EXTN Field, Type Field and LN Field

ADM_5_9808_[XX]#

XX: 02~99= the sequence number of the byte of the start of the EXTN field accompanying the 1st Type Field

ADM_5_9809_[XXYY]

XX: 02~99= the sequence number of the byte of the start of 1st Type Field. For example, “02” means the 2nd byte.

YY: 02~99= the sequence number of the byte of the start of the LN field accompanying the 1st Type Field

- ADM_5_9810 ~ ADM_5_9815 are used to specify the Type Codes, each of which will be detected at the 1st Type Field. Also, ADM_5_9836 and ADM_5_9837 are together used to specify the DTE Reply Request Code that the PBX emits to request a DTE reply.

The Type Codes Inside 1st Type Field

ADM_5_9810_(HexHex)

HexHex: the Hex value of the Type code, which informs the EVM to provide the [Busy Phone Service](#) to the caller.

ADM_5_9811_(HexHex)

HexHex: the Hex value of the Type code, which informs the EVM to provide the [No-answer Phone Service](#) to the caller.

ADM_5_9812_(HexHex)

HexHex: the Hex value of the Type code, which informs the EVM to route the call to the mailbox the phone number indicates for the caller to leave a message.

ADM_5_9813_(HexHex)

HexHex: the Hex value of the Recording-request Code, which informs the EVM that an internal phone requests to record the conversation.

ADM_5_9814_(HexHex)

HexHex: the Hex value of the Recording-interruption Code, which informs the EVM to pause the recording.

ADM_5_9815_(HexHex)

HexHex: the Hex value of the Recording-continuation Code, which informs the EVM to continue the recording that it paused before.

- [ADM_5_9860](#) ~ ADM_5_9867 are used to define a character string to be the Mailbox-Reply or DTE-Reply. If the Mailbox Reply string is already defined, it will be sent out when a recording command is received.

2nd EXTN Field, Type Field and LN Field

ADM_5_9816_[XX]

XX: 02-99= the sequence number of the byte of the start of the EXTN field accompanying the Type Field 2

ADM_5_9817_[XXYY]

XX: 01-99= the sequence number of the byte of the start of the Type Field 2

YY: 01-99= the sequence number of the byte of the start of the LN field accompanying the Type Field 2

The Type Codes Inside 2nd Type Field

ADM_5_9818_(HexHex)

HexHex: the Hex value of the Type code, which informs the EVM to provide the Busy Phone Service to the caller.

ADM_5_9819_(HexHex)

HexHex: the Hex value of the Type code, which informs the EVM to provide the No-answer Phone Service to the caller.

ADM_5_9820_(HexHex)

HexHex: the Hex value of the Type code, which informs the EVM to route the call to the mailbox the phone number indicates for the caller to leave a message.

ADM_5_9821_(HexHex)

HexHex: the Hex value of the Recording-request Code, which informs the EVM that an internal phone requests to record the conversation.

ADM_5_9822_(HexHex)

HexHex: the Hex value of the Recording-interruption Code, which informs the EVM to pause the recording.

ADM_5_9823_(HexHex)

HexHex: the Hex value of the Recording-continuation Code, which informs the EVM to continue the recording that it paused before.

ADM_5_9855_(HexHex)

HexHex: the Hex value of the Recording-completion Code, which informs the EVM to end the recording.

3rd EXTN Field, Type Field and LN Field

ADM_5_9824_[XX]

XX: 02-99= the sequence number of the byte of the start of the EXTN field accompanying the Type Field 3

ADM_5_9825_[XXYY]

XX: 01-99= the sequence number of the byte of the start of Type Field 3

YY: 01-99= the sequence number of the byte of the start of the LN field accompanying the Type Field 3

The Type Codes Inside 3rd Type Field

ADM_5_9826_(HexHex)

HexHex: the Hex value of the Mailbox Program Access Request code, which informs the EVM that a mailbox owner requests to log in to the mailbox program.

ADM_5_9827_(HexHex)

HexHex: the Hex value of the Recording-request code, which informs the EVM that an internal phone requests to record the conversation.

DTE Reply Request Code

If the PBX emits a string to request a DTE reply, you should specify the DTE Reply Request Code and define the Primal Byte String.

ADM_5_9836_(HexHex): the 1st and 2nd bytes

ADM_5_9837_(HexHex): the 3rd and 4th bytes

- This Request Code is to be detected from 1st Type Field.
- [ADM_5_9860](#) ~ [ADM_5_9867](#) are used to define the Primal Byte String of a DTE Reply or a Mailbox Reply.

ADM_5_9840: Outgoing Character Strings

MLON Code (Hex)

ADM_5_9840_(HexHex): the 1st byte and 2nd byte

ADM_5_9841_(HexHex): the 3rd byte and 4th byte

MLOFF Code (Hex)

ADM_5_9842_(HexHex): the 1st byte and 2nd byte

ADM_5_9843_(HexHex): the 3rd byte and 4th byte

Primal Byte String for ML Control Commands

ADM_5_9844_(HexHex): byte 1 and byte 2

ADM_5_9845_(HexHex): byte 3 and byte 4

ADM_5_9846_(HexHex): byte 5 and byte 6

ADM_5_9847_(HexHex): byte 7 and byte 8

ADM_5_9848_(HexHex): byte 9 and byte 10

ADM_5_9849_(HexHex): byte 11 and byte 12

ADM_5_9850_(HexHex): byte 13 and byte 14

ADM_5_9851_(HexHex): byte 15 and byte 16

ADM_5_9852_(HexHex): byte 17 and byte 18

ADM_5_9853_(HexHex): byte 19 and byte 20

- An empty value means the ending.
- A byte data is defined by one of the following Hex value
 - 00 ~ 7F, each of which is used as an invariable byte.
 - A0 is used to specify each byte of the EXTN field. The number of A0s (the field width) must equal to the number of digits of the longest phone number.
 - A9 is used to specify each byte of the CONT field. The number of A9s (the field width) must equal to the number of bytes of the longest one of both control codes: MLON Code and MLOFF Code.
 - A2 ~ A8: A2 is a byte outputting two meaningless bytes. A3 is a byte outputting three meaningless bytes, and so on.
- [ADM_5_9854](#) determines the value of a meaningless byte.

The Hex Value of a Meaningless Byte

ADM_5_9854_(Hex)

Hex: the value of a meaningless byte – each of the bytes represented by any of the function codes A2~A8, and the rest of the bytes inside the EXTN field when the phone number is shorter than the specified length

Empty = “SPACE (20)” (Default)

Primal Byte String for DTE/Mailbox Reply

ADM_5_9860_(HexHex): byte 1 and byte 2

ADM_5_9861_(HexHex): byte 3 and byte 4

ADM_5_9862_(HexHex): byte 5 and byte 6

ADM_5_9863_(HexHex): byte 7 and byte 8

ADM_5_9864_(HexHex): byte 9 and byte 10

ADM_5_9865_(HexHex): byte 11 and byte 12

ADM_5_9866_(HexHex): byte 13 and byte 14

ADM_5_9867_(HexHex): byte 15 and byte 16

- A byte data is defined by one of the following Hex values
 - 00 ~ 7F, each of which is used as an invariable byte.
 - A2 ~ A8: A2 is a byte outputting two meaningless bytes. A3 is a byte outputting three meaningless bytes, and so on.

7. Troubleshooting

This chapter describes some problems, possible causes, and what to do when they occur.

Problems	Possible cause and solution
The EVM cannot answer all or some incoming calls.	<ul style="list-style-type: none">• Check the output voltages of the power transformer if the POW indicator is dark or not flashing.• Check the wires between the PBX and the EVM.• Perhaps you have not done the PBX programming of transferring incoming calls to the EVM.• If the PBX replies a busy tone to the caller dialing the phone number of a Line port in fact that is idle, you may set SYS_4_7_[1] for using port detection feature.
The EVM cannot immediately answer the incoming phone calls.	<ul style="list-style-type: none">• This is normal because the PBX and the EVM need time to detect an incoming ring. You may set SYS_3_1_[0] and SYS_3_2_[0], to improve the delay.
When a call is answered, the calling person cannot immediately hear the called person speech.	<ul style="list-style-type: none">• This is normal in using Supervised Transfer. Shortening the pause between the ringback tone cycles from the PBX is a solution. Otherwise, use the Unsupervised Transfer feature.• Perhaps the Ringback Tone Cycle Lengths have not been set up yet.
The EVM always replies a wrong-number message to the caller after transferring a call and retrieving; in fact, the called party is busy.	<ul style="list-style-type: none">• Interchange the values of Error Tone Cycle Lengths (SYS_7_4) and the values of Busy Tone Cycle Lengths (SYS_7_5).
The EVM hangs up the call after having prompted a caller to hold on for three times.	<ul style="list-style-type: none">• Perhaps the Hook-Flash length (SYS_7_1) is too short.• If the frequency of the dialtone of the PBX is not of 300~640 Hz, you must set SYS_4_8_[2] for the Tone Detection Bandwidth.• Occasional occurrence – see Note 1.
The EVM always announces the Wrong Number message when reconnecting any caller.	<ul style="list-style-type: none">• Perhaps there is a feature code should be dialed before the phone number of an inward transfer. SYS_6_1 is used to specify such a feature code.• Perhaps the Dialing-way option specified in SYS_5_1 is incorrect.• Occasional occurrence – see Note 1.
The EVM always hangs up immediately after requesting the callers 'hold on'.	<ul style="list-style-type: none">• Perhaps the Hook-Flash length (SYS_7_1) is too long to put callers on hold.

The EVM fails to announce that a call is busy or no-answer.

- Perhaps the Tone Detection Delay ([SYS_7_3](#)) is too short
- Perhaps the Internal Tone Detection Bandwidth option ([SYS_4_8](#)) is incorrect
- If the PBX sends out irregular tone cycles, large Internal Tone Detection Tolerance ([SYS_4_6_\[1\]](#)) may be helpful.
- Perhaps the Tone Detection sensitivity should be raised ([ADM_5_9908_\[x\]bcx](#)).
- Perhaps the operating-way option specified in [SYS_5_5](#) is incorrect.
- Perhaps the operating-way option specified in [SYS_5_6](#) is incorrect.
- Perhaps the Call Retrieval Feature Code ([SYS_6_2](#)) is incorrect.
- Perhaps the Hook-Flash length ([SYS_7_1](#)) is too short or too long to retrieve calls.

Others

You may find out problems by using a telephone:

1. Plug a speakerphone into the “PROG” jack and turn on the “Speaker”.
2. Press # to exit from the System Program; the main greeting will play.
3. After the main greeting finishes playing, you may make a call to the L1 port and imitate the operation that the problem occurs; the "Speaker" will emit the sound that the call proceeding causes.

Note 1:

If the number of DTMF receivers in the PBX is inadequate, you may add more DTMF receivers to the PBX, or disperse the line ports to several interface cards of the PBX. For example, an 8L-SLT Card of KX-TD contains only two DTMF receivers.

8. Appendix A ASCII Character Set

American Standard Code for Information Interchange:

Char	Hex	Char	Hex	Char	Hex	Char	Hex
NUL	00	SPACE	20	@	40	,	60
SOH	01	!	21	A	41	a	61
STX	02	“	22	B	42	b	62
ETX	03	#	23	C	43	c	63
EOT	04	\$	24	D	44	d	64
ENQ	05	%	25	E	45	e	65
ACK	06	&	26	F	46	f	66
BEL	07	‘	27	G	47	g	67
BS	08	(	28	H	48	h	68
HT	09	)	29	I	49	i	69
LF	0A	*	2A	J	4A	j	6A
VT	0B	+	2B	K	4B	k	6B
FF	0C	,	2C	L	4C	l	6C
CR	0D	—	2D	M	4D	m	6D
SO	0E	.	2E	N	4E	n	6E
SI	0F	/	2F	O	4F	o	6F
DEL	10	0	30	P	50	p	70
DC1	11	1	31	Q	51	q	71
DC2	12	2	32	R	52	r	72
DC3	13	3	33	S	53	s	73
DC4	14	4	34	T	54	t	74
NAK	15	5	35	U	55	u	75
SYN	16	6	36	V	56	v	76
ETB	17	7	37	W	57	w	77
CAN	18	8	38	X	58	x	78
EM	19	9	39	Y	59	y	79
SUB	1A	:	3A	Z	5A	z	7A
ESC	1B	;	3B	[	5B	{	7B
FS	1C	<	3C	\	5C	|	7C
GS	1D	=	3D	]	5D	}	7D
RS	1E	>	3E	^	5E	~	7E
US	1F	?	3F	_	5F	DEL	7F