Panasonic
DBS
Digital Business System

DBS Release Notes

CPC-EX Version 1.0
(Preliminary)

Document Number: DBS-EX1O-705

Part Number: 550X07901

June 10, 1996

Contents

Introduction

CPC-EX Version 1.0 offers the following new enhancements to the DBS phone system:

Compatibility

CPC-EX Version 1.0 supports all features of CPC-B Version 7.1 (with the exception of TSAPI support). In addition, CPC-EX Version 1.0 adds support for new features, including the 44-Series phones, T1 Networking, and ISDN.

The CPC-EX card can be installed into an existing DBS cabinet, with no hardware modifications.

CPC-EX software uses existing CPC-B programming addresses, with the same numbering. Additional addresses have been added for new CPC-EX features.

44-Series Phone Support

CPC-EX provides full support for Panasonic's 44-Series phones (VB-44xxx). Table 1 below lists all 44-Series phone models and their part numbers. Most models are available in two colors: gray and black.

Table 1. 44-Series Phones

16-Key Phone (gray)	VB-44210G
16-Key Phone (black)	VB-44210B
16-Key Speakerphone (gray only)	VB-44211G
22-Key Phone (gray only)	VB-44220G
22-Key Small-Display Speakerphone (gray)	VB-44223G
22-Key Small-Display Speakerphone (black)	VB-44223B
34-Key Small-Display Phone (gray only)	VB-44230G
34-Key Small-Display Speakerphone (gray)	VB-44233G
34-Key Small-Display Speakerphone (black)	VB-44233B
22-Key Large-Display Speakerphone (gray)	VB-44225G
22-Key Large-Display Speakerphone (black)	VB-44225B
DSS/72 Console (gray)	VB-44320G
DSS/72 Console (black)	VB-44320B
EM/24 Unit (gray)	W-4431 OG
EM/24 Unit (black)	VB-4431 OB

New DBS features that can be executed on the 44-Series phones are described below.

Directory Mode

On the new small-display phones, you can scroll through SSD names, PSD names, or extension names and select a displayed name for dialing.

Variable Mode

The new small-display phones provide one-touch access to various features displayed during each of the following call states: 1) during an intercom call; 2) during CO dial tone; 3) during a trunk call; and 4) after dialing a busy extension.

Handset Mute

The new large-display phone now contains a MUTE key, and a new mute feature is available on all 44-series phones. Pressing the MUTE key during an off-hook call will block audio from the handset transmitter to the outside party. You can still hear them, but they can't hear you.

Off-Hook Monitoring

If you press the ON/OFF key during an off-hook call on any 44-series speakerphone, the other party's voice will be heard through both the handset and the speaker. This allows a third party to hear both sides of a conversation. Note: This feature does not activate your phone's microphone - audio will be transmitted only through, your handset.

Separate Volume Control for Internal vs. CO calls

CPC-EX allows you to establish separate speaker volumes for internal and external calls.

Analog Adapter

The new large-display phone can be enhanced with an analog port adapter which allows you to connect to an analog device such as a FAX or modem to the phone. This allows the same phone to be alternately used for analog or digital communications.

MSG (Message) Key

A new MSG key on the large-display phone will perform Auto-Callback (automatically dialing the extension that sent a "Message Waiting" to your phone), or Auto-Answer Message (automatically dialing your voice mailbox).

DSS/72 and EM/24 - Key Arrangement

The keys on the new consoles are arranged differently, affecting the text layout and default extension numbers assigned to these keys.

FF-Key Programming

Because T1 Networking adds the capability of 4-digit extension numbering, you can now program up to 8 digits (not 6) into an FF-key.

Speed Dial Enhancements

CPC-EX supports up to 500 System Speed Dial (SSD) numbers. CPC-EX also allows SSD codes to be chained, or "linked", to another SSD number, and either PSD or SSD codes to be chained to a PSD number.

Additional Serial Port

The CPC-EX card contains an on-board serial port (Serial Port 2) which can be used for Bus Monitor/Maintenance. This allows remote maintenance to be accomplished without disconnecting SMDR cabling.

T1 Networking Capability

Up to 4 DBS's can now be connected together via T1 interface to form a DBS phone network. The DBS's can be located in the same building, in separate buildings in a campus-type environment, or at remote locations in separate states. Networked DBS's use 4-digit extensions, with the first digit of the extension number identifying the DBS site.

Each site requires its own DBS cabinet with a CPC-EX card and a T1 card. 'New programming addresses are included in CPC-EX software for setting up the T1 Network. (see the *T1 Networking Reference Manual for complete instructions)*

Modification to Toll Restriction Service

The program address for TRS Operator Access (FF7 1#18#) has been modified to allow an extension to dial "0+NXX" phone numbers, even if "O-only" dialing is denied.

Maximum Time Priority Route Tables

CPC-EX allows a maximum of 8 Time Priority Route Tables (not 15) to be used during LCR programming. Since few systems use more than 3 Time Priority Route Tables, this change will allow the saved memory space to be used for future enhancements.

SMDR Modifications

SMDR reports contain several new call types and other parameters due to CPC-EX support of T1 Networking and ISDN calls.

ISDN Support

CPC-EX supports ISDN-PRI (Integrated Services Digital Network -- **Primary** Rate Interface). *The* program address for Trunk Circuit Type (**FF2** (trunk **#)# 21#**) has been modified to allow for ISDN. New programming addresses have also been added in CPC-EX to support ISDN. (See *the* ***ISDN Reference Manual for complete instructions.)***

Modification to T1 Signaling Types

To allow easier programming of E&M trunks, CPC-EX uses "Wink Start" (not "Trnmediate Start") as the default for T1 Incoming and Outgoing Signal Types.

Installation Notes

CPC-EX Installation

Use normal installation procedures to install the CPC-EX. The following illustration shows an installed CPC-EX.

Figure 1. CPC-EX
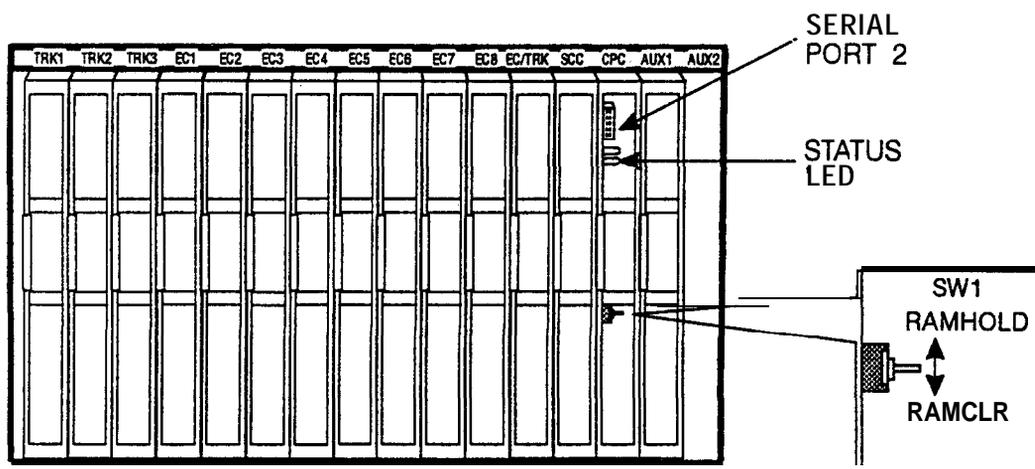
Key Telephone Installation

Desi Strip Cover

Tine 44-Series Key Telephones are shipped with a thin green protective film over the Desi strip cover. Be sure to remove this film from both sides of the Desi cover before placing the phone in service.

Key Telephone Wall Mounting Instructions

The following procedures apply to **44-Series** Key Telephones only. Please be sure to follow these procedures exactly. Removing the desk stand incorrectly can result in damage to the telephone and/or desk stand.

1. Place the telephone face down on a flat surface.

2. Grasp the top of the desk stand (at the **>ABS<** label) and pull up the end to 90" vertical (refer to Step 2 in Figure 2j. The stand will click as it releases from the plastic securing latches.

3. Lift the desk stand as shown in Step 3 of Figure 2.

Figure 2. Desk Stand Removal.
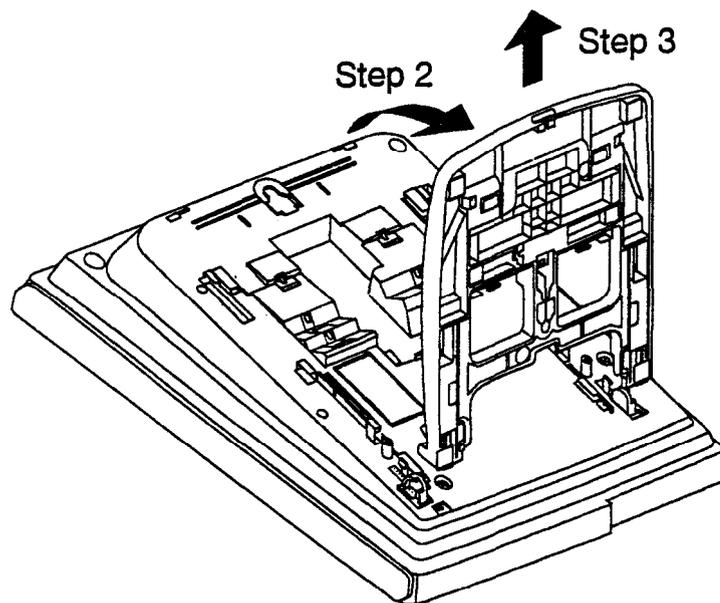
4. Rotate the desk stand 180". In this position it doubles as a wall mount bracket.

5. Insert the wall mount bracket into the mounting guides as shown in Figure 3.

6. Slide the wall mount bracket onto the telephone.

Figure 3. Inserting the wail mount bracket (rotated desk stand)
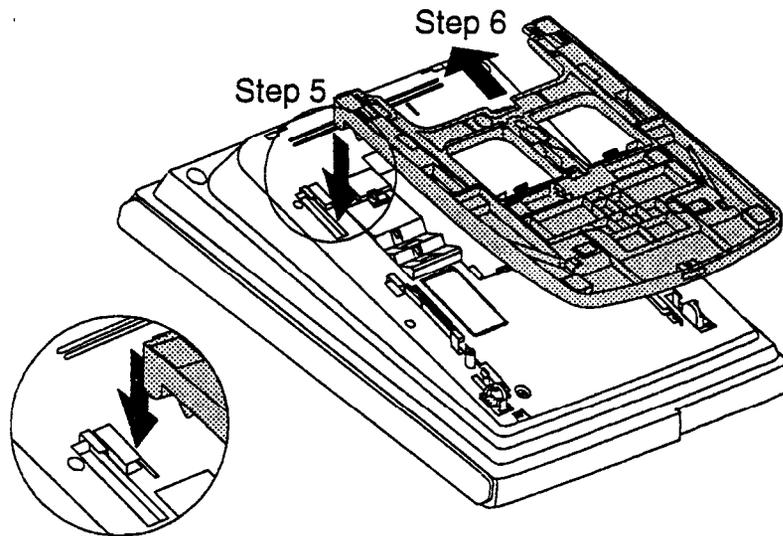
7. While viewing the front of the telephone, find the handset guide located just below the hookswitch (see Figure 8).

8. Slide the handset guide out, rotate 180" so that the holding clip is exposed, and reinsert.

Figure 4. Handset guide *insertion* for wall mounting, key telephone

Panasonic@
June 10, 1996

DBS Release Note!
CPC-EX, Version 1 .O (Preliminary
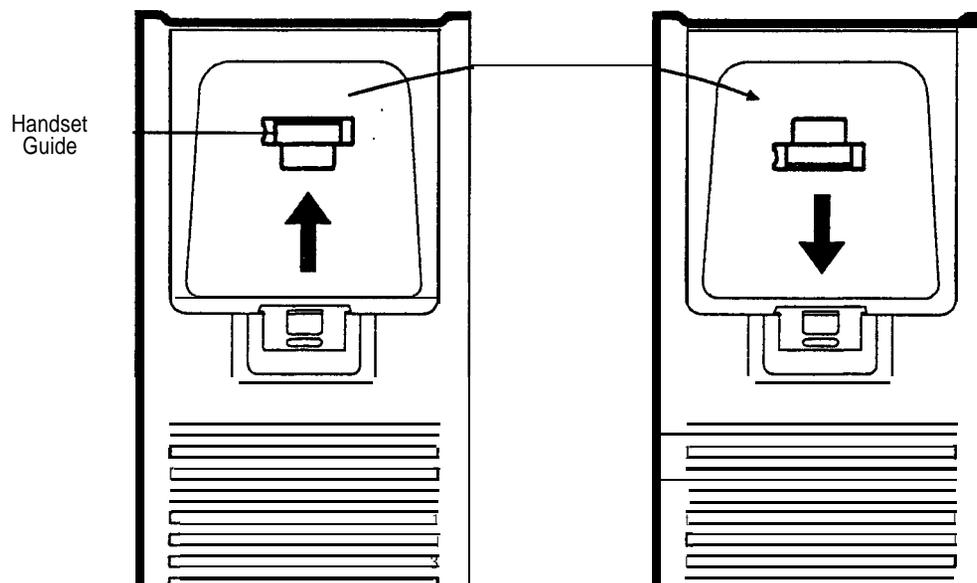
44-Series New Phone Features

Note: The new features introduced with these phones are supported by CPC-EX Version 1 .0, CPC-AII/B Version 8.0, and CPC-S/M Version 2.0. You can also use the 44-series phones with previous DBS versions, but the new features won't be supported.

Figure 5.   44-Series Small-Display Phone
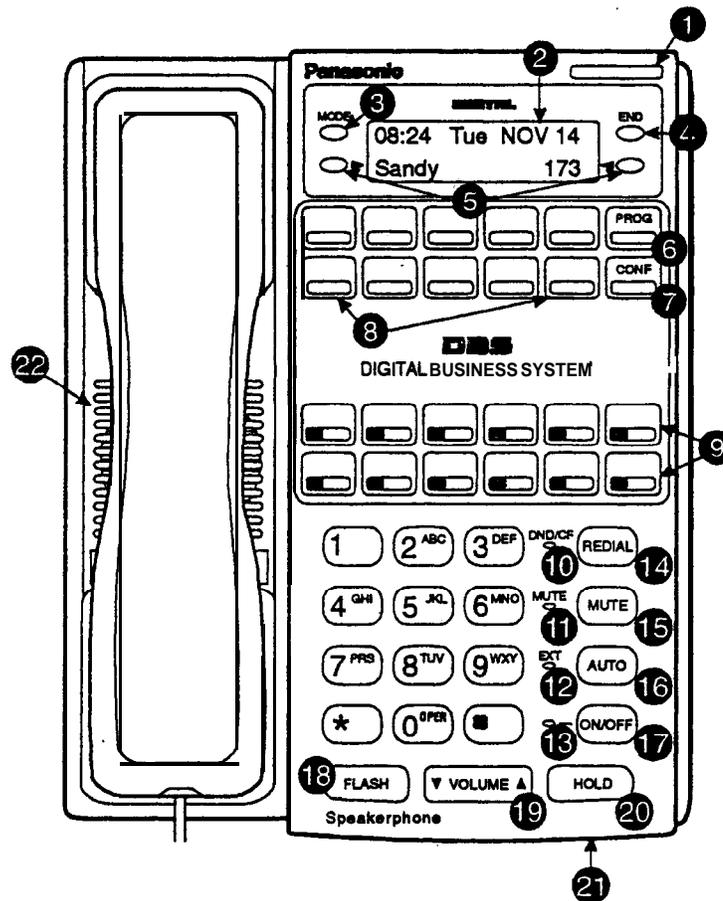
Table 2. Small-Display Phone Features

#	Feature	Description
1	Message Indicator	Indicates that you have a message.
2	Display	Displays information about phone's status, menus, dialing directories, and text message information.
3	Mode Key	Used to change display modes from default to directory mode.

#	Feature	Description
4	End Key	Used to exit directory mode and return display to default mode.
5	Select Keys	Used to select and dial System Speed Dial, Personal Speed Dial, and Extension numbers from a directory.
6	PROG Key	Used to program FF and one-touch keys and to adjust ringer volume. Depending on the setup of your system, may also be used to transfer calls.
7	CONF Key	Used to establish conference calls, check FF key and one-touch features, and scroll through messages.
8	One-Touch Keys	Used to make outside calls or to access call-handling features.
9	Flexible Function (FF) Keys	Used to access outside lines or to access call-handling features.
10	DND/CF Indicator	Indicates that Do-Not-Disturb, Call Forwarding, or Absence Message is set.
11	MUTE Indicator	Indicates that your voice is muted - i.e., party on the other end cannot hear you. Lights solid when your hands-free microphone is muted and flashes when your handset is muted.
12	EXT Indicator	Lights when you are on a call; flashes when you hold a cdl.
13	ON/OFF Indicator	Lights when ON/OFF key has been pressed.
14	REDIAL Key	Used to redial last outside number dialed.
15	MUTE Key	Used to activate/deactivate MUTE function. When activated, the party on the other end cannot hear you. (See item 11, MUTE Indicator.)
16	AUTO Key	Used to access speed dialing, enter account codes, or for message waiting answer/cancel.
17	ON/OFF Key	Used to make a call without lifting handset.
18	FLASH Key	Used to end an outside call and to restore dial tone without hanging up receiver.
19	VOLUME Key	Used to adjust level of tones, background music, ringing, receiver volume, and display contrast.
20	HOLD Key	Used to hold calls, to retrieve held calls, and to complete FF key programming.
21	Microphone	Used to talk with other party without using the handset.
22	Speaker	Outputs tones and voice at your extension.

Figure 6. 44-Series Large-Display Phone
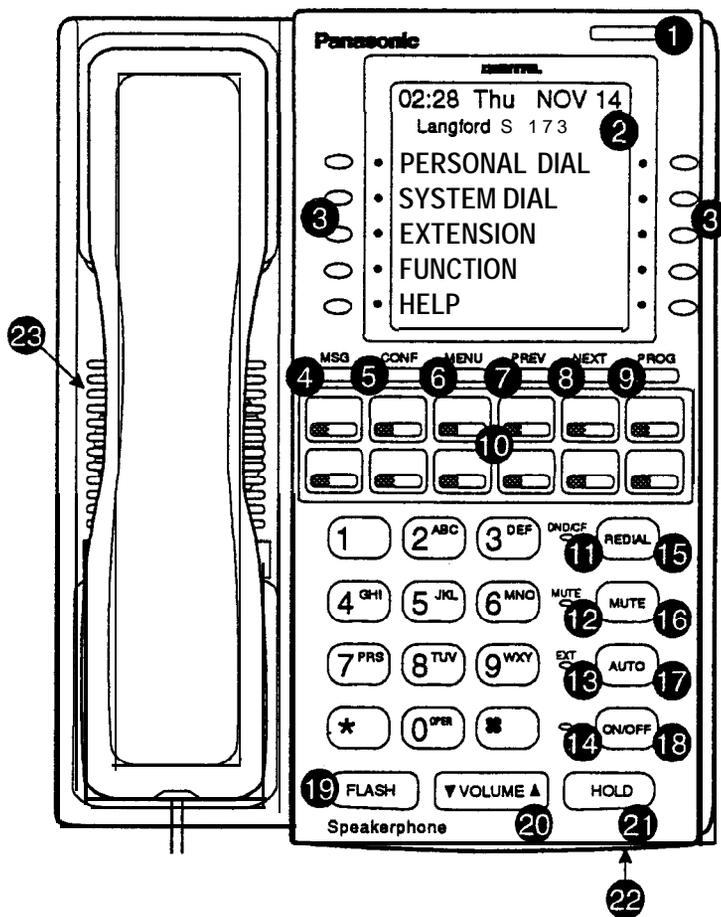
Table 3. Large-Display Phone Features

#	Feature	Description
1	Message Indicator	Indicates that YOU have a message.
2	Display	Displays information about phone's status, menus, dialing directories, and text message information.
3	Soft Keys	Used to make outside calls or to access call-handling features.
4	MSG Key	Used for Auto-CallBack to a telephone which has left a text message or to access voice messages.
5	CONF Key	Used to establish conference calls, check FF and one-touch key settings, and scroll through messages.

#	Feature	Description
6	MENU Key	Used to return to the Main Menu screen. The default Main Menu screen contains the following items: • PERSONAL DIAL • SYSTEMDIAL • EXTENSION • FUNCTION •
7	PREV Key	Used to return to the previous menu.
8	NEXT Key	Used to advance to the next menu.
9	PROG Key	Used to program FF and one-touch keys and to adjust ringer volume. Depending on the setup of your system, may also be used to transfer calls.
10	Flexible Function (FF) Keys	Used to access outside lines or to access call-handling features.
11	DND/CF Indicator	Indicates that Do-Not-Disturb, Call Forwarding, or Absence Message is set.
12	MUTE Indicator	Indicates that your voice is muted - i.e., party on the other end cannot hear you. Lights solid when your hands-free microphone is muted and flashes when your handset is muted.
13	EXT Indicator	Lights when you are on a call; flashes when you hold a call.
14	ON/OFF Indicator	Lights when ON/OFF key has been pressed.
15	REDIAL Key	Used to redial last outside number dialed.
16	MUTE Key	Used to activate/deactivate MUTE function. When activated, the party on the other end cannot hear you. (See item 12, MUTE Indicator.)
17	AUTO Key	Used to access speed dialing, enter account codes, or for message waiting answer/cancel.
18	ON/OFF Key	Used to make a call without lifting handset.
19	FLASH Key	Used to end an outside call and to restore dial tone without hanging up receiver.
20	VOLUME Key	Used to adjust level of tones, background music, ringing, receiver volume, and display contrast.
21	HOLD Key	Used to hold calls, to retrieve held calls, and to complete FF key programming.
22	Microphone	Used to talk with other party without using the handset.
23	Speaker	Outputs tones and voice at your extension.

Directory Mode

Description

This new feature applies to the 44-series small-display phone only (i.e., phones with a 2-line LCD display).

In Directory Mode, you can use the phone's select keys (as well as other keys) to scroll through a directory of existing System Speed Dial (SSD) names, Personal Speed Dial (PSD) names, or extension names -- and select one to dial.

- *For example, if you can't remember the party's extension number or speed-dial number to which you want to transfer a call on hold, you can use Directory Mode to find the number and execute the transfer.*

Operation

The select keys on the 44-series smaildisplay phone are located next to the display's 2nd line.   Pressing select key 1 (">" on the left) or select key 2 ("<" on the right) will access the displayed-directory.

To use Directory Mode:

1. Press the MODE key to turn Directory Mode on. The 2nd line of the LCD will display "SSD" on the left and "PSD"on the right.

    - Press the MODE key again to access the directory for extension names. The 2nd line of the LCD will display "EXT" on the left.

2. Press the > select key to access the directory of existing SSD or EXT names; or the < select key to access the PSD directory. The 2nd line will show two speed-dial or extension names at a time (the first 7 characters of each name), beginning with the A's.

3. To scroll through the names (two at a time), press the #key. To back-scroll, press the * key.

4. To jump to another letter in the directory, press the numeric key for it. For example, press the "6" key to jump to the M's, N's, and O's. The M's will appear first. Press "6" again to jump to the N's, and again to jump to the O's. (*Note:* This doesn't work for PSD names unless the system is a DBS 824 CPC-M Version 2.0 or higher, which allows up to 40 PSDs.)

    - For names beginning with Q or Z, use the 1 key.

5. When the correct speed-dial or extension name is displayed, you can execute the dialing of its speed-dial or extension number by pressing the select key that points to it (> if the name is displayed on the left; or < if the name is on the right).

- Or, to exit the directory without selecting a number to dial, press
  the END key or go on-hook.

Notes   *Incompatibility with older phone versions.*   Directory Mode is available on the
new 44-Series phones only.

Hot Dial Pad and Directory Mode.   The Hot Dial Pad feature (FF3 ExtPort# 48#)
will not work on an extension in Directory Mode.

Variable Mode

Description   This new feature applies to the 44-series small-display phone only (i.e., phones
with a 2-line LCD display).

When the phone is in Variable Mode, the features for Flexible Function Screen
select keys 1 and 2 will display during each of the following call states:

Call State	Existing Proaram Address*
• During an intercom call	FF3 (ExtPort)# 28# (25-39)#
• During CO dial·tone	FF3 (ExtPort)# 29# (25-39)#
• During a trunk call	FF3 (ExtPort)# 30# (25-39)#
• After dialing a busy extension	FF3 (ExtPort)# 33# (25-39)#

   **• In these addresses, you assign a Flexible Function Screen (2539) to appear on
   the extension while it is in the call state.**

Operation   The select keys on the 44-series small-display phone are labeled "**>**" and "**<**" to the
left and right of the display's 2nd line.   Pressing select key 1 ("**>**" on the left) or
select key 2 ("**<**" on the right) will perform the displayed feature.

To use Variable Mode:

1.   Activate Variable Mode by pressing **ON/OFF *61 ON/OFF.**
     - When you dial '61 in the above sequence, the 1st line of the LCD
       will display "Variable md ON". The display will return to normal
       when you press the second ON/OFF.
     - The ● 61 code toggles Variable Mode on and off. Press **ON/OFF ● 61
       ON/OFF** again to turn Variable Mode off.

2.   While the extension is engaged in an intercom call, the 2nd line will
     display select key 1 and 2 features from the Flexible Function Screen
     assigned to display in FF3 ExtPort# 28#.   The same applies when the
     extension receives CO dial tone (FF3 ExtPort# 29#); during a trunk

call (FF3 ExtPort# 30#); and after dialing a busy extension (FF3 ExtPort# 33#).

- Use existing addresses FF1 2# 7# 1# thru 4# to assign select key features to Flexible Function Screens.
- Use existing addresses FF1 2# 7# 2# to assign screen text.
- Select key features for *Fixed* Function Screens will not appear on small-display phones.

3. While the select key feature is displayed, you can execute the feature by pressing the **>** or **<** select key.

Notes

Toggling Variable Mode On/Off with an FF-Key. You can program the ● 6 1 code into an FF-key: In programming mode, press FF5 (ExtPort)# (KeyNo.)# (*61)#. The FF-key will toggle Variable Mode on/off while the extension is idle or in an off-hook/dial-tone state. The FF-key LED will remain lit (red) while Variable Mode is "On". (You can also use a one-touch key to toggle Variable Mode on and off; however, one-touch keys do not contain an LED to indicate when Variable Mode is on.)

Variable Mode After Power-Cycling. If Variable Mode is "On", the extension will stay in Variable Mode even after power-cycling (system is powered down, then powered back up).

Incompatibility with older phone versions. Variable Mode is available on the new 44-Series phones only.

Conditions under which Variable Mode does not work. Variable Mode will be temporarily overridden under the following conditions: during an incoming message state, hold state, message-waiting state, or call-waiting state. Incoming messages include:

CO Queuing
Incoming [trunk no.]
REV.[extension no.]
TRF.[trunk no.]
H-Recall
Call wait
REC.[trunk no.]
Recall Hnt [Hunt Group no.]
DISA Incoming
Call [extension no.]
Transf [extension no.]
Recall [trunk no.]
HOLD Recall

Handset Mute

Description

While using the handset (not on speaker) during a phone conversation, you can press the MUTE key to block audio path to the other party -- you can still hear them, but they can't hear you. This feature is called "Handset Mute."

Operation

1. To turn on Handset Mute while using the handset, press the MUTE key.
    - The MUTE indicator lamp (LED next to MUTE key) will flash.
    - The handset transmitter will be muted. You will still be able to hear the other party, but they can't hear you.

2. To turn off Handset Mute, do one of the following:
    -- press the MUTE key again,
    -- press HOLD to place the **call** on hold;
    -- replace the handset on-hook; or
    -- press the flashing FF-key to answer another call.
        - Note: This will drop the first call unless Key Bank Hold is enabled (FF1 2# 1# 9#).
    - The MUTE indicator lamp will stop flashing.

Notes

Headset Use. The Handset Mute feature also works if you are using a headset on the phone to handle calls (**#51** activates Headset mode).

Speakerphone Use. The MUTE key works the same as before (mutes the microphone) when you are on speaker. The MUTE lamp lights steadily when the microphone is muted, and flashes when the handset is muted.

Handsfree Answerback. The MUTE key enables or disables **Handsfree** Answerback the same as before. (Handsfree Answerback allows you to answer intercom calls on speaker, without picking up the handset. While the phone is idle, press the MUTE key to toggle between **Handsfree** Answerback On and Off. When the MUTE indicator lamp is unlit, Handsfree Answerback is ON. When the lamp is lit, Handsfree Answerback is OFF.)

Offhook Monitoring. This new feature and Handset Mute can both be ON simultaneously, so that both the speaker and handset transmitters are muted (but the speaker and handset receivers still operate). For more information about **Offhook** Monitoring, see page 19 of these Release Notes.

Barge-Ins During Handset Mute. If another phone barges in on your call while Handset Mute is ON, and you change to conference talk (but not by pressing HOLD), Handset Mute will remain ON.

FF-Key/One-Touch Key Restriction. Handset Mute cannot be assigned to an FF-key or a one-touch (soft) key.

Off-Hook Monitoring

Description   Off-Hook Monitoring lets you put a call on speaker while the handset is off-hook. You can still communicate with the outside party via the handset, but you will also be able to hear the other party on the phone's speaker. He/she will only be able to hear what is spoken through your handset, however - audio will not be transmitted through your microphone.

Operation

1.   During a call, press the ON/OFF key.

- Another receiver path is established on the phone's speaker -- you can now hear the outside party on the speaker as well as in the handset.
- Your phone's microphone is muted so that the outside party hears only what is spoken through your handset. (To mute handset transmission, press **MUTE.)**

2.   To turn off Off-Hook Monitor ("kill" the speaker but stay on the line with the outside party through the handset), press ON/OFF again.

Separate Speaker Volume for Internal vs. CO calls

Description   You can now establish separate volumes for internal (intercom) and external (CO) calls.

To adjust volume levels, press the VOLUME key (A or ▼) during the appropriate call state.

Notes   Adjusting speaker volume will affect only the speaker (i.e., not the handset), and vice-versa.

Analog Adapter

Description   The Analog Adapter (VB-44100) consists of a base adapter and PC board which is installed on the underside of the phone. It is used to connect the 44-series largedisplay phone to an analog device such as an SLT telephone, cordless phone, FAX machine, or modem. This **allows** the same phone line to be used to alternate between normal phone calls and analog communications. *(To install, see the instructions supplied with VB-44100).*

Programming

to register the installation of the Analog Adapter on an extension...

FF3 (ExtPort)# 51# (0 or 1)#

Extension Port where
VB-44225 Large-Display
Phone is installed

**O=Analog Adapter is not
installed on this extension.**

l=Analog Adapter is
installed on this extension.

---

to implement data security measures (interrupt tones, overrides)
For the Analog Port...

FF3 (ExtPort)# 52# (0 or 1)#

Extension Port where
VB-44225 Large-Display
Phone is installed

**0=Disable data security on the
Analog Adapter.**

l=Enable data security on the
Analog Adapter.

NOTE: This address will affect only the Analog Adapter, not the
Large-Display phone itself.

Operation

The first device to go off-hook will seize the line (off-hook is either lifting the
handset or pressing the ON/OFF key). If the analog device goes off-hook first, the
large-display phone will be unable to dial or go off-hook.

You can choose which device will ring by going off-hook at either the digital key
telephone or the analog device and dialing *71. The digital key telephone display
will reflect "Analog port RING" or "Key Tel RING", depending on which device
is selected - the default is "Key Tel RING".

You can still *answer* an incoming call from either device, regardless of which
device is ringing. For example, if the analog device is ringing, you can pick up the
call on the digital key telephone by going off-hook before the analog device does.
Similarly, if the digital key telephone is ringing or has not answered a voice call,
the analog device can pick up the call by going off-hook first.

You can program the *71 ring select comand into an FF key. Pressing the key toggles between "Analog Port RING" and "Key Tel RING". When the analog port is set to ring, the FF key LED lights red. When the key telephone is set to ring, the LED is off.

Notes

Phone Restrictions

- The Analog Adapter will work on the large-display phone only (VB-44225).
- A dial-pulse SLT will not function on the analog port.
- Stutter Dial Tone (indicating Call-Forwarding mode, Do-Not-Disturb mode, etc.) will not function on an SLT connected to the Analog Adapter.
- An analog phone connected to the Analog Adapter cannot program or access speed dials.

Incoming Calls

- You cannot program both devices to ring simultaneously.
- The "*71" code will not work if the other device is in use.
- The "*71" code will not work if FF3 (ExtPort)# 51# is set to "0".
- If set to "Analog port RING", the large-display phone will work like an SLT/OPX (no page announcements, no voice calls from other extensions, etc.).
- If the phone is in CF/DND (Call-Forward or Do Not Disturb), the phone will remain in CF/DND even if the ringing device is changed via the *7 1 code.
- The incoming ring pattern for the analog device is the same as for the digital key telephone (determined by the Extension Ring Pattern in FF3 (ExtPort)# 39# (0-9)#). If this address is set to "0" (determined by CO), the analog device will automatically default to "1 second ON, 3 seconds OFF."

Ring Patterns Not Applicable to Analog Device. The following ring pattern addresses *will not* affect the analog device:

Analog Transfer Ring Pattern FF1 2# 1# 31# (0-6)#
SLT DISA Ring Pattern   FF1 2# 1# 34# (0 or 1)#
Inbound Ring Pattern   FF2 (Trunk)# 17# (0-9)#

Flash Interaction. Any disconnect signal sent to the analog port must be greater than the SLT Flash Control; otherwise the disconnect signal will be interpreted as a flash and the call will be placed on hold.

Programming Addresses That Affect the Analog Device. The following addresses will control the analog device, but will not affect the digital key telephone:

AEC Disconnect Duration   FF1 2# 1# 35# (0-15)#
SLT Flash Control   FF1 2# 1# 11# (0 or 1)#

SLT Onhook Flash Timer	FF1 3# 14# (0-6)#
AEC Disconnect	FF3 (ExtPort)# 46# (0 or 1)#
Analog Port on Large-Display Phone (new)	FF3 (ExtPort)# 51# (0 or 1)#
Data Security on Analog Port (new)	FF3 (ExtPort)# 52# (0 or 1)#

MSG (Message) Key

Description

The new MSG key on the VB-44225 Large-Display Phone adds the following functionality to the phone:

- *Auto-Callback.* If a callback message has been left by another extension, you can press the MSG key to place an automatic callback to the extension that sent the message. If more than one callback message has been received, pressing the MSG key will perform auto-callback in the order received.

- *Auto-Answer Voice Message.* You can press the MSG key to automatically access your voice mailbox. The phone will dial your voice mailbox and send access codes (if programmed) for retrieving new messages.

Programming

Auto-Callback is always enabled for large display phones. Use the following to enable the MSG key for Auto-Answer Voice Message.

---

to enable the MSG key for Auto-Answer Voice Message...

FF3 (ExtPort)# 53# (0 or 1)#

Extension Port where
VB-44225 Large-Display
Phone is installed

0=Disable MSG key from returning
a "Message Waiting".

1=Enable MSG key for returning
a "Message Waiting".

Operation

To Program Voice Mailbox Access Codes into the MSG Key:

Press PROG MSG [16-digit number] HOLD

The display will reflect "Regist Data".

To Confirm a Voice Mailbox Access Code Programmed into the Message Key..

Press CONF MSG.

The programmed access code will be displayed.

Notes

Operation With Message Waiting Indicator. The Message Waiting Indicator on the phone's upper right comer will flash whenever a callback message or voice message has been received.

Operation During Call States. The MSG key will work only when the phone is idle, receiving dial tone, or in Directory Mode (via select key).

Operation If Phone Has Both a Callback Message from another Extension and a Voice Message. Messages are accessed in a First In, First Out order. If the callback message was received before the voice message, then pressing the MSG key will activate Auto-Callback first. Likewise, if the voice message was received before the callback message, pressing the MSG key will access your Voice Mailbox.

Interaction with Tone-Calling Mode. If an Auto-Callback is placed to a phone that is in tone-calling mode (i.e., not voice-calling), that phone must answer or the message canceled before another message can be accessed.

FF-Key Restriction. These new MSG features cannot be assigned to an FF-key.

Reprogramming the MSG key if Extension Number Digits is changed. If the DBS is reprogrammed to use a different extension numbering plan (i.e., changed from 2-digit to 3-digit extensions, 3-digit to 4-digit extensions, etc.), the Voice Mailbox Access Code must be reprogrammed into the MSG key.

DSS/72 Console - Key Arrangement

Description

The keys on the new DSS/72 Console (VB-44320) are arranged differently from the VB-43320 model. The new DSS console has 6 columns x 12 rows of keys (not 8 columns x 9 rows as in the previous version). This affects the following:

- *Name and Message Assignments (FF6 addresses).* The alphabetical arrangement of the keys is different.
- *FF-Keys.* The FF-keys on the DSS/72 console are numbered left-to-right, bottom row first.
- *DSS #I Defaults.* The default extension number assignments on DSS #1 are different.

The new DSS key arrangement is shown in Figures 7 **&** 8.

Figure 7. **DSS/72** *Console* **(VB-44320)** *key layout*

DSS/72 Key Layout (alphabetical)

DSS/72 Key Layout (FF-key numbering)

Figure 8. DSS/72 #I Default Extension Numbers
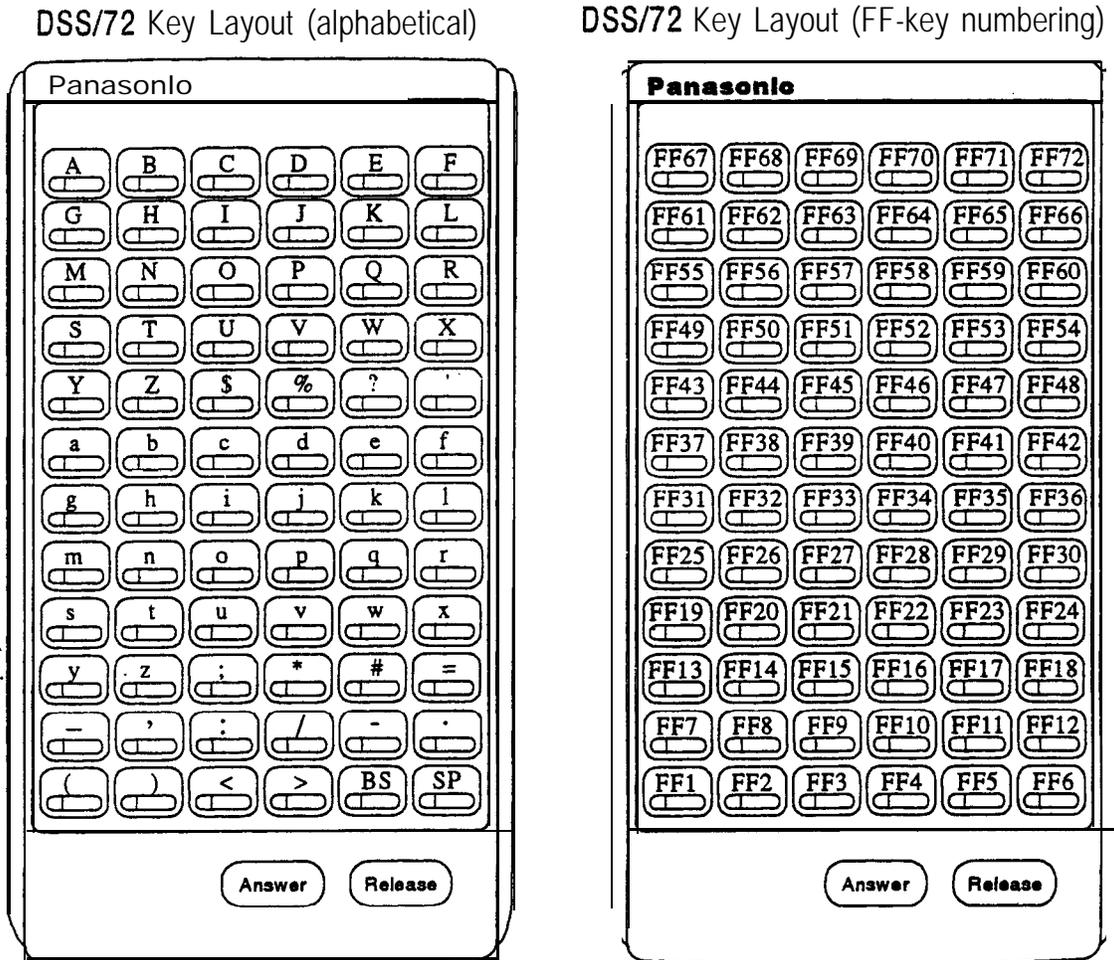
DSS #1 Default Extension Numbers
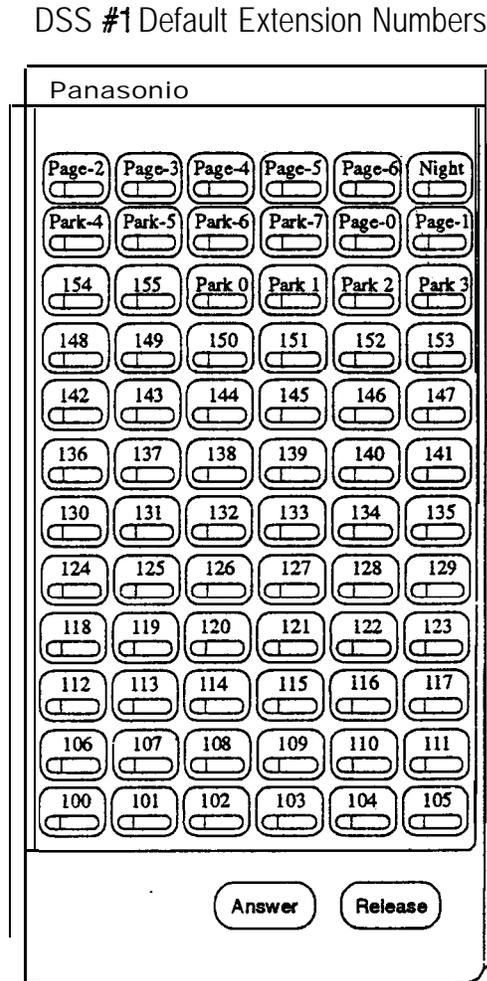
Programming

The DSS/72 console (DSS #1 . . . DSS #4) is assigned to its extension number in the same manner as before:

Terminal Type: FF3 (ExtPort)# 2# (11-14)#

where...
- 11 is the first DSS console for the first attendant
- 12 is the second DSS console for the first attendant
- 13 is the first DSS console for the second attendant
- 14 is the second DSS console for the second attendant

The DSS/72 console's FF-keys are assigned feature codes in the same manner as before (the only difference is the numbering arrangement of FF-keys l-72):

FF Key Assignments: FF5 (DSSPort)# CONF (l-72)# (Code)#

The Name and Message Assignment addresses work the same way as before on the DSS/72 console (the only difference is the placement of the keys when entering the characters of the text):

Extension Name: FF6 1# (ExtPort)# CONF (10 char.)#
SSD Name: FF6 2# (SSD)# CONF (16 char.)#
PSD Name: FF6 3# (ExtPort)# (PSD)# CONF (16 char.)#
Absence Message:FF6 4# (5-9)# CONF (15 char.)#
Trunk Name: FF6 5# (Trunk)# CONF (6 char.)#
Hunt Group Name: FF6 6# (HuntGrp)# CONF (10 char.)#
CW/OHVA Reply: FF6 7# (1-5)# CONF (15 char.)#
DID Name: FF6 8# (1-200)# (1/2)# (0000-9999)# (6 char.)#
DNIS Name: FF6 9# (1-200)# (1/2)# (0000-9999)# (6 char.)#

Note: If you use the 44-Series, DSS/72 for Name and Message assignment, you should use the 44-Series phone for the attendant.

Operation

The 44-Series DSS/72 operates the same as previous models.

EM/24 - Key Arrangement

Description

The keys on the new EM/24 unit (VB-44310) are arranged differently from the VB-43310 model., The new EM/24 unit has 2 columns x 12 rows of keys (not 3 columns x 8 rows as in the previous version). This affects the following:

* **FF-Keys.** The FF-keys on the EM/24 are numbered bottom-to-top, left column first.

The new EM/24 key arrangement is shown in Figure 9.

Figure 9. EM/24 Unit (VB-44310) keys
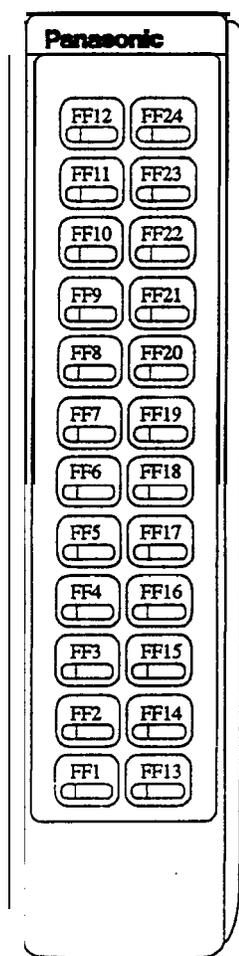
Programming

The terminal type for the EM/24 is specified in the same manner as before:

Terminal Type: FF3 (EM/24 ExtPort)# 2# (1-48)#

The EM/24 unit is linked to its extension phone in the same manner as before:

EM/24 Port Assignment: FF3 (EM/24 ExtPort)# 3# (phone ExtPort)#

The EM/24's FF-keys are assigned feature codes in the same manner as before (the only difference is the numbering arrangement of FF-keys l-24):

FF Key Assignments: FF5 (ExtPort)# (1-24)# CONF (Code)#

Operation

The 44-Series EM/24 operates the same as previous models.

Speed-Dial Enhancements

Description

The CPC-EX supports up to 500 SSD numbers (code range 000-499) for each system, and up to 10 PSD numbers (code range 900-909) for each extension.

With CPC-EX, you can chain up to 4 SSD codes together within a fifth SSD number. You can also chain up to 4 SSD or PSD codes together within a fifth PSD number. You can include both speed-dial codes and regular dialed numbers into the same speed-dial number.

The maximum length of any speed-dial number is still 16 digits.

Programming

*Figure 10. Assigning **SSDs** from programming mode*

to assign a System Speed Dial number from programming mode...

FF10 1# (000-499)# (up to 16 digits)#

3-Digit SSD Code

000 thru 499 = range for CPC-EX
Version 1 .O

Valid Entries (using a DSS console):
o-9	(digits O-9)
CONF	(to clear data)
< or BS	(to backspace)
>	(to forward-space)
P	(to insert a pause)
C	(to access trunk group)
AUTO	(to insert an SSD code)

EXAMPLE: To chain together SSD code 000 (C9-Pause), SSD code 001 (10288-Pause), and SSD code 002 (555-1212) within SSD code 003...
 FF10 1# 000## C9 P **#**
 FF10 1# 001# 10288 **P** **#**
 FF10 1# 002# 5551212 **#**
 FF10 1# 003# AUTO 000 **AUTO 001 AUTO 002 #**

EXAMPLE: To program SSD code 350 to access trunk group 81, then pause, then dial 555-1212...
 FF10 1# 350# C 1 P 5551212#

Figure 11. Assigning SSDs from the attendant phone

to assign a System Speed Dial number from the attendant phone...

1. Press ON/OFF.
2. Press PROG.
3. Press AUTO.
4. Enter the SSD code (000-499).
5. Enter the number to be dialed.
6. Press HOLD.
7. Press ON/OFF.

EXAMPLE: To chain together SSD code 000 (C9-Pause), SSD code 001 (10288-Pause), and SSD code 002 (555-1212) within SSD code 003...

1. Program SSD code 000 to dial "C9-Pause":
   a. Press ON/OFF, then PROG, then AUTO.
   b. Enter 000.
   c. Press CONF (to access a trunk group), then 9.
   d. Press REDIAL (to specify a "pause").
   e. Press HOLD.
2. Program SSD code 001 to dial "10288-Pause".
   a. Press ON/OFF, then PROG, then AUTO.
   b. Enter 001.
   c. Enter 10288.
   d. Press REDIAL (to specify a "pause").
   e. Press HOLD.
3. Program SSD code 002 to dial "555-12 12".
   a. Press ON/OFF, then PROG, then AUTO.
   b. Enter 002.
   c. Enter 5551212.
   d. Press HOLD.
4. Program SSD code 003 to chain dial all digits in SSD 000, SSD 001, and SSD 002.
   a. Press ON/OFF, then PROG, then AUTO.
   b. Enter 003.
   c. Press AUTO, 000, then AUTO, 001, then AUTO, 002.
   d. Press HOLD.

Figure 12. Assigning PSDs from programming mode

to assign a Personal Speed Dial number from programming mode...

FF10 2# (ExtPort)# (900-909)# (up to 16 digits)#

3-Digit PSD Code   Valid Entries (using a DSS console):

o-9	(digits O-9)
CONF	(to clear data)
< or BS	(to backspace)
>	(to forward-space)
P	(to insert a pause)
C	(to access trunk group)
AUTO	(to insert an SSD or PSD code)

EXAMPLE: To chain-dial SSD code 001 and PSD codes 901-902 together into PSD code 909 on extension port 033...
  FF10 2# 033# 909# AUTO 001 AUTO 901 AUTO **902#**

EXAMPLE: To program PSD code 906 on extension port 033 to access pooled trunk group 81, then pause, then dial 555-1212...
  FF10 2# 033# 906# C 1 P **5551212#**

Figure 13. Assigning PSDs from a key telephone

to assign a Personal Speed Dial number from a key telephone...

1. Press ON/OFF.
2. Press PROG.
3. Press AUTO.
4. Enter the PSD code (90-99 or 900-909).
5. Enter the number to be dialed.
6. Press HOLD.
7. Press ON/OFF.

EXAMPLE: To chain together SSD code 000 (C9-Pause) and SSD code 002 (555-1212) within PSD code 900...

1. Press ON/OFF, PROG, AUTO.
2. Enter 900.
3. Press AUTO, 000, then AUTO, 002.
4. Press HOLD.

Notes

1) Chain-Dialing Limitations and Restrictions:

- You cannot chain-dial any PSD codes within an SSD number, because the system would not be able to choose which extension to take the PSD code from (the same PSD code might exist on multiple extensions).

- You cannot "chain-within-a-chain". For example:

  -- SSD Code 001 = AUTO 002(will not dial out; returns busy tone instead)
  -- SSD Code 002 = AUTO 003(will dial out)
  -- SSD Code 003 = 555-1212(will dial out)

  (the above restriction applies to PSD codes as well)

- You cannot chain-dial PSD or SSD codes if they are both included in each other's speed-dial number. For example:

  -- SSD Code 000 = AUTO 001(will not dial out; returns busy tone instead)
  -- SSD Code 001 = AUTO 000(will not dial out; returns busy tone instead)

2) The programming address for SSD Display Restriction (FF1 2# 1# 5# [0 or 1]#) affects SSD codes 400-499.

- If disabled (i.e., set to "O"), the numbers assigned to SSD codes 400-499 will display during dialing. The default is "0".

- If enabled (set to "l"), the numbers assigned to SSD codes 400-499 will not display during dialing.

- Numbers associated with SSD codes 000-399 will always display during dialing.

Additional Serial Port on CPC Card

Description   The CPC-EX card contains an on-board serial port (Serial Port 2) which can be used for Bus Monitor/ Remote Maintenance. This serial port (labeled CN5) is located just above the LEDs on the front of the card (see the illustration on page 8). This additional serial port allows you to dial directly into the system for remote maintenance, without having to disconnect the SMDR cabling from the backplane serial port (Serial Port 1).

. Serial Port 1 (the backplane port) and Serial Port 2 have separate controls for baud rate, stop bit, parity, and data length

Installation   Serial Port 2 requires the CPC-EX Serial Port Adapter Cable (VB-43890). This cable connects to Serial Port 2 via a 10-pin connector, and to a programming terminal via a DB25 connector.

Figure 14. CPC-EX Serial Port 2

Serial Port Adaoter Cable End (Requires DB-25 Male)			Programming Terminal End (Requires DB-9 or DB-25 Male)		
Signal Name	Pin No. and Connection				Signal Name
	W/DB-25 Adapter		DB-9	DB-25	
TD	2		2	3	RD
RD	3		3	2	TD
N/C	4		1	8	CD
CTS	5				
DSR	6		4	20	DTR
SG	7		5	7	SG
N/C	8				
			8	5	RTS
DTR	20		6	6	DSR

. The standard DBS SMDR/Maintenance cable (normally connected to CN6) may be connected to the programming terminal.

Programming   The following new addresses apply to CPC-EX Serial Port 2. (The addresses that control the SMDR port remain at FF1 2# 2# 1# thru 9#.)

---

to program the DBS to perform **Parity Check** on Serial Port 2...

FF1 2# 2# 11# (0 or 1)#

O=Parity check OFF
1=Parity check ON

---

to specify **Parity Count** for Serial Port 2 (if Parity Check is ON in the above address)...

FF1 2# 2# 12# (0 or 1)#

O=Odd parity count,
l=Even parity count

---

to specify **Baud Rate** for Serial Port 2...

FF1 2# 2# 13# (1-4)#

1=300 bits per second (bps)
2=1200 bps
3=4800   bps
4=9600 bps

---

to specify **Stop Bit Length** for Serial Port 2...

FF1 2# 2# 14# (1-3)#

1=1 bit
2=2 bits

---

to specify **Data Length** for Serial Port 2...

FF1 2# 2# 15# (3 or 4)#

3=7 bits
4=8 bits
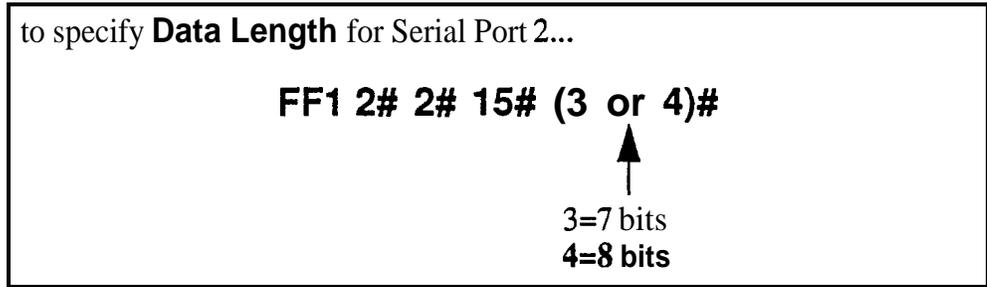
Notes

- Serial Port 2 requires a special interface cable.

- Serial Port 2 can be used for Bus Monitor/Maintenance only. You must continue to use the backplane port (Serial Port 1) for SMDR.

- Port selections are made from the Attendant phone as follows:

	to set Serial Port I for...	*and Serial Port 2 for...*
dial #90	Bus Monitor/Maintenance	no output
dial #92	SMDR	Bus Monitor/Maintenance
dial #93	SMDR/Maintenance	no output

- When Serial Port 2 is used.(i.e., #92 has been entered), the internal RAI modem cannot be accessed.

T1 Networking

> **NOTE:** *The following inform&on covers Tl Networking features that directly affect CPC-EX operation. For detailed information regarding T1 Networking, see "T1 Networking Reference Guide", Part No.550X10001, Section 540.*

CPC-EX allows up to 4 DBS's to be connected together via Tl interface to form a DBS phone network. Such a network provides the following new features:

- Network Extension to Extension Calling
- Call Forwarding to Network Extensions
- Paging across Network nodes
- Network Route selection
- Remote DBS CO Access
- SMDR Network Support
- Independent Node Attendant Assignment

These feature are described in greater detail in the following sections.

Hardware Requirements

Each site (node) must contain the following hardware:

- CPC-EX
- SCC-B
- T1 Trunk Card
- T1 MDF
- T1 Synch Unit
- External CSU (not provided by Panasonic)

The maximum number of nodes which can be connected together is 4. Each node can be either a single or double DBS cabinet configuration. The connection between these systems is accomplished via T1 talk paths, with the quantity determined during installation.

Network Extension to Extension Calling

Networked DBS's use a 4-digit extension numbering plan. The first digit determines the node being called. For example:

Node 1 - leading digit 1
Node 2 - leading digit 2

Node 3 - leading digit 3
Node 4 - leading digit 4

Figure 15. Tl Network Extension Numbering.
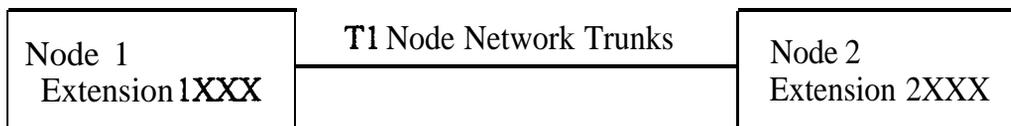
When an extension in one node is called via the intercom from an extension in a different node, the called extension rings - Intercom Voice Calling and OHVA do not work when calling from one node to another.

The DBS determines how to route the calls based on the network trunk group priorities established during programming. To allow optimum flexibility in a 4-node network, up to 3 different trunk group priorities can be established.

Figure 16. T1 Network Call Priority Routing
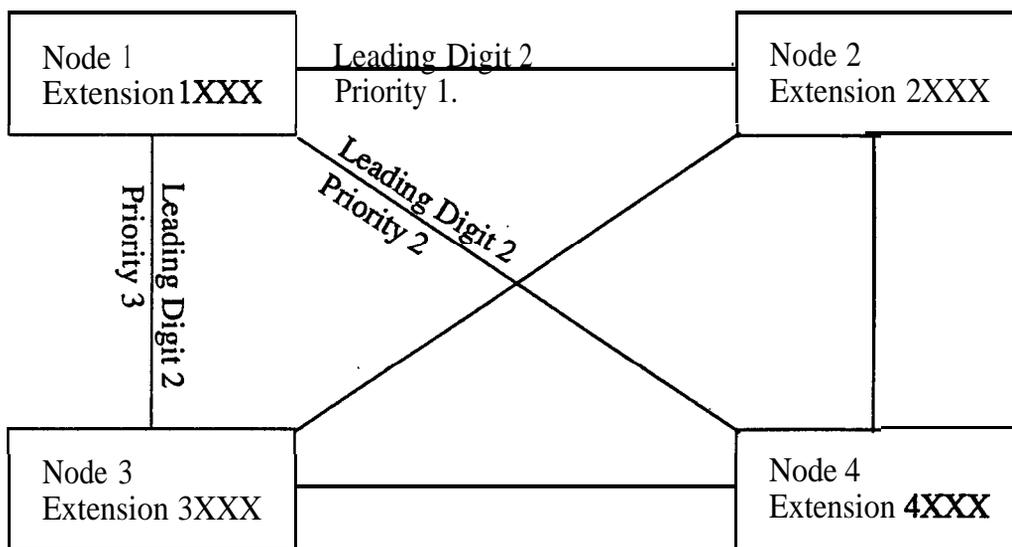
Call Forwarding to Network Extensions

Any call can forward to an extension on any node by assigning the targeted extension number in a Personal Speed Dial bin. To establish the call forward setting, the user follows normal call forwarding settings and uses the (AUTO)XXX personal speed dial number entry.

Paging Across Network Nodes

Every node can allow or deny network paging for each class of service.

Network Route Selection

A' new option is available for Forced Least Cost Routing to include network route selection. This option provides 50 6-digit entries which determine how dialed numbers are routed through the network for optimal cost performance.

For example, if Node 1 of a networked system is in the 20 1 area code and Node 2 is in the 2 12 area code, all calls from Node 1 to the 212 area code or surrounding area codes can be routed through the second node to the public network.

Remote CO Access

End users in one node can also place calls manually through a distant node by dialing the node number followed by a trunk group (9).

SMDR Network Support

New options are available in CPC-EX to support call accounting in networked systems. These options are:

Specifying the call record to be printed. A new field has been added:

FF1 2# 2# 6# (2#) - Incoming, Outgoing, Network

In the actual SMDR record output, network traffic will be indicated by the following new record types:

```
W = CO Outgoing to Network
w = CO Incoming from Network
t = Network Transfer
```

The following new data output is found in the extension number field:

```
#01-#64 - Network trunk number
```

Independent Node Attendant Assignment

A central network operator can be assigned for Dial 0 access from any node. Each node can independantly designate a network attendant. For example, Nodes 1, 2 & 3 can send Dial 0 calls to the attendant on Node 1, while Node 4 sends Dial 0 calls to its local attendant.

Settings Modified for Networking

The following programming addresses have been modified to add parameters necessary for T1 networking. (See *the T1 Networking Reference Manual **for** complete instructions)*

Extension Number Digits

Description

The CPC-EX card allows a 4-digit extension numbering plan to be used on networked DBS systems. The first digit of the extension determines on which DBS the extension is located - for example, extension 1321 will be on DBS 1, while extension 2547 will be on DBS 2. Each DBS routes calls based on the leading digit of the dialed extension.

A DBS operating in a network environment must use the 4-digit extension numbering plan. Stand-alone (non-networked) DBS systems, however, must continue to use 2 or 3 digit extensions.

Programming

to specify the length of extension numbers...

FF1 2# 1# 12# (0-2)##

0=2-digit numbering
1=3-digit numbering
new ➙ 2=4-digit numbering

Note: An extra "**#**" must be entered to confii the selection. (or press "*****" to cancel)

SMDR Printing Mode 1: Outbound and Inbound

Description   SMDR data sent to Serial Port 1 can now include Network Calls also.

Programming

to specify the call type to be included in SMDR...

FF1 2# 2# 6# (0 - 2)#

O=Include outbound calls only
1=Include both inbound and outbound calls
new ➤ 2=Include inbound, outbound, and network calls

T1 Trunk Type

Description   The setting for T1 Trunk Type now includes a parameter for E&M Network.

Programming

to determine the type of trunk signaling for each T1 channel...

FF1 8# 4# 6# (I-54) 1# (0-4)#

Trunk Number (l-64)

0=Loop start
1=Ground start 1 (used for all ground start trunks)
2=Ground start 2 (not currently used)
3=E&M
new-W 4=E&M Network

Extension Numbers

Description   The address for extension number assignments has been modified to allow for 4-digit extensions.

Programming

to assign extension numbers to ports...

FF3 (l-l 44)# 1# (1 0-69, 100-699, N100-N699)#

Extension Port   Extension Number
Defaults: Port 1=10, 100, or 1000
           Port 2=11, 101, or 1001
           Port 3=12, 102, or 1002
           etc.
Note: N=DBS network node number l-4

Forced LCR/NRS

Description   The address for Forced Least Cost Routing has been modified to include Network Node Route Selection (NRS).

Programming

to set individual extensions for forced LCR/NRS...

FF3 (1-l 44)# 4# (0/1)#

Extension Port   **0=Disabled (no forced LCR/NRS)**
           l=Enabled (forced LCR/NRS)

Note: If not in a network (NRS is not enabled),
then only forced LCR is enabled.

Other Changes to Programming Addresses

Flexible Function Screen Soft-Key Assignments (FF12# 7# 25-39# (1-10)# (xxxxxxxx)#) and FF Key Assignments have been modified to allow up to S-digit entries.

New Programming Addresses

New programming addresses have been added to support T1 Networking. These new addresses are applicable only in a networked environment and can be ignored in a stand-alone (non-networked DBS). Refer to the Tl Networking Reference Guide for detailed information.

Modification to Toll Restriction Service

Description

The program address for TRS Operator Access (FF7 1# 18#...) has been modified to allow an extension to dial "O+NXX" phone numbers, even if "O-only" dialing is denied.

Four settings are possible. See Table 5 for descriptions.

Programming

FF7 1# 18# (I-I 44)# (0-3)#

Extension Port   See Table 5
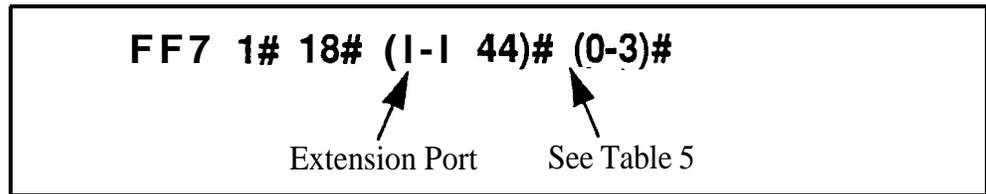
Table 5. TRS Operator Access settings

IF EQUAL ACCESS CODE FORMAT IS: 0 = Old Format (10XXX ONLY)			IF EQUAL ACCESS CODE FORMAT IS: 1 = New Format (101XXXX ONLY)		
Setting	Action	Type of Call	Setting	Action	Type of Call
0 (default)	Restrict	"O-only" and "00-only" calls. "10XXX0-only" calls.	0 (default)	Restrict	"O-only" and "00-only" calls. "101XXXX0-only" calls.
	Allow/Deny	"0" + additional digits per TRS tables. "00" + additional digits per TRS tables. "01" + additional digits per TRS tables, Overseas Access Switch, and International Calls Switch. "10XXX0" + additional digits per TRS tables. "10XXX01" + additional digits per TRS tables, Overseas Access Switch, and International Calls Switch.		Allow/Deny	"0" + additional digits per TRS tables. "00" + additional digits per TRS tables "01" + additional digits per TRS tables, Overseas Access Switch, and International Calls Switch. "101XXXX0" + additional digits per TRS tables. "101XXXX01" + additional digits per TRS tables, Overseas Access Switch, and International Calls Switch.
continued...					

IF EQUAL ACCESS CODE FORMAT IS: 0 = Old Format (**10XXX** ONLY)			IF EQUAL ACCESS CODE FORMAT **IS:** 1 = New Format (**101XXXX** ONLY)		
Setting	Action	Type of Call	Setting	Action	Type of Call
1	Allow	"O-only" and "OO-only" only calls. "**10XXX**0-only" calls.	1	Allow	"O-only" and "**00-only**" calls. "**101XXX**0-only" calls.
	Allow/Deny	"**0**" + additional digits per TRS tables. "**00**" + additional digits per TRS tables. "**01**" + additional digits per TRS tables, Overseas Access Switch, and International Calls Switch. "**10XXX0**" + additional digits per TRS **tables.** "**10XXX01**" + additional digits per **TRS** tables, Overseas Access Switch, and International Calls Switch.		Allow/Deny	"**0**" + additional digits per TRS tables. "**00**" + additional digits per TRS tables "**01**" + additional digits per TRS tables, Overseas Access Switch, and International Calls Switch. "**101XXX0**" + additional digits per TRS tables. "**101XXX01**" + additional digits per TRS tables, Overseas Access Switch, and International Calls Switch.
2	Restrict	"O-only" and "OO-only" calls. "**10XXX**0-only" calls.	2	Restrict	"O-only" and "00-only" calls. "**101XXX**0-only" calls.
	Allow	"**0**" + additional digits. "**00**" + additional digits. "IOXXXO" **+** additional digits.		Allow	"**0**" + additional digits. "**00** +** additional digits. • "**101XXX0**" + additional digits.
	Allow/Deny	"01" + additional digits per Overseas Access Switch and International **Calls** Switch. "**10XXX01**" + additional digits per Overseas Access Switch and International Calls Switch.		Allow/Deny	"**01**" + additional digits per Overseas Access Switch and International Calls Switch. "**101XXX01** +** additional digits per Overseas Access Switch and International Calls Switch.
3	Allow	"O-only" and "OO-only" calls. "**10XXX**0-only" calls. "0" + additional digits. "**00** +** additional digits. "**10XXX0**" + additional digits.	3	Allow	"O-only" and "**00-only**" calls. "**101XXX**0-only" calls. "0" + additional digits. "**00** +** additional digits. "**101XXX0**" + additional digits.
	Allow/Deny	"**01**" + additional digits **per** Overseas Access Switch and International Calls Switch. "**10XXX01**" + additional digits per Overseas Access Switch and International Calls Switch.		Allow/Deny	"**01**" + additional digits per Overseas Access Switch and International Calls Switch. "**101XXX01**" + additional digits per Overseas Access Switch and International Calls Switch.

Notes

- The Operator Access address applies only to DBS systems using the new (1995) NANP dialing plan (FF7 1# 17# 1#), and to TRS types 2-6 (TRS types 0 and 1 do not allow outbound dialing; TRS type 7 allows all dialing).

- If "O-only", "00-only", "10XXX0-only", or "101XXXX0-only" calls are restricted (settings 0 or 2), the system will wait 6 seconds before automatically disconnecting the call. However, if the user dials additional digits within 6 seconds, the DBS will check other switches to determine whether to allow or deny the call.

- For all settings (0-3), the system will check the Equal Access Code Format switch (FF7 1# 21#...) if a CIC (carrier identification code) is dialed to reach a preferred inter-exchange carrier.

- For all settings (0-3), the system will check the international calls switches (FF7 1# 1# and FF7 1# 19#) if "01", "10XXX01", or "10XXXX01" is dialed.

- For settings 2 and 3, the system will not consider TRS settings for the trunk.

Maximum Time Priority Route Tables

Description   CPC-EX allows a maximum of 8 Time Priority Route Tables to be used during LCR programming. (CPC-AII/B allows a maximum of 16 Time Priority Route Tables. This number is reduced with CPC-EX since very few systems require more than 3 of these tables and the saved memory space will allow for a planned future enhancement.)

The DBS uses Time Priority Route Tables to route calls to the least expensive carrier based on the time of day the call is placed. The following program addresses use Time Priority Route Tables:

- FF8 1#...LCR Area Codes
- FF8 2#...LCR Office Codes
- FF8 4#...Special LCR Office Code Tables
- FF8 5#...Time Priority Route Tables

. ISDN Support

Description

CPC-EX supports ISDN-PRI (Integrated Services Digital Network -- Primary Rate Interface). This ISDN Interface provides 23 voice channels ("B" channels) and a control channel ("D" channel) over a 4-wire circuit.

One program address, for Trunk Circuit Type (FF2 (trunk #)# 21#), has been modified to allow for ISDN. This modification is described below. In addition, CPC-EX provides several new programming addresses to support ISDN. The new program addresses, as well as additional detail on ISDN, are described in the *ISDN Reference Manual, Part No. 504X00301A, Section 530.*

Hardware Requirements

The following are the minimum hardware requirements for ISDN support in the DBS:

- ISDN Trunk Card (VB-43571)
- CPC-EX (VB-43415)
- SCC-B (VB-43421) (with ROM 1.3 or later)
- MDF Card (VB-43562)
- Sync Unit (VB-43563)
- External CSU (not provided by Panasonic)

Setting Modified for ISDN

Programming

to specify the Trunk Circuit Type...

FF2 (1-64)# 21# (0-5)#

Trunk Number

0=Loop start
1=Ground start
2=DID
3=T1
4=CID
5=ISDN

Modifications to SMDR

Description   Station Message Detail Recording (SMDR) provides detailed call records of outgoing calls. SMDR records can be output to a printer or an external call accounting system. Additional call record types have been added to the SMDR feature to support network calls and ISDN calls.

Figure 17 shows the SMDR format for CPC-EX. New values added for CPC-EX are shaded.

Figure 17. SMDR Format for CPC-EX

```
0         1         2         3         4         5         6         7
0123456789012345678901234567890123456789~234567890~2345678901234567890~234567


1   2      3       4     5                6                         7      8   9
 T MM/DD HH:MM:SS HH:MM.SS NNN DDDDDDDDDDDDDDDDDDDDDDDDDDDDDD AAAAAAAAAA VWW NN
```

1=Call type
  S=Inbound DISA
  s=Outbound DISA
  I=Incoming
  O=Outgoing
  T=Transfer (See Note 1)
  N=DNIS
  D=DID
  N=CO outgoing to Network
  w=CO incoming from network
  t=Network Transfer
  r=ISDN incoming call
  R=ISDN outgoing call

2=Date
  MM=month
  DD=day

3=Call start time
  HH=hours
  MM=minutes
  SS=seconds

4=Call duration
  HH=hours
  MM=minutes
  SS=seconds

5=Extension number (or network trunk)
  10-69, 100-699=extensions
  CO number=DISA
  n01-n04=virtual port 1 to 4
  #01-#64=network trunk number

6=Dialed digits, Caller ID or ANI
  DD=digits O-9 or symbols • or#
  (See Note 2)

7=Account code
  A=0-9999999999

8=Verified account code or walking
  COS code
  V0000-V9999=verified account codes
  W0000-W9999=walking COS codes

9=Trunk Number
NN=number   (01-64)

Notes:
1. Transferred calls include direct and group call pickups and conference calls. If a station call is transferred to an outside number, an SMDR record is also created for the station that is transferred.
2. The • symbol appears as a greater-than sign (>) on the SMDR printout; the # symbol appears as a less-than sign (<). Centrex and PBX codes, as well as LCR access codes, do not appear as dialed digits. If the Caller ID Feature is installed and enabled, "Private" appears with calls that have restricted Caller ID display and "Out of Area" with long distance calls that do not provide Caller ID information.

Setting Modified for SMDR

Values have been redefined for the SMDR Start Timer. The following table shows the new values.

Note: These new values apply to CPC-EX only.

Programming

```
to specify the SMDR Display Start Timer for CO Calls...

        FF1 2# 1# 2# (O-1 0)#
                        ↑

              0 = 4sec      6 = 16 sec
              1 = 6 sec     7 = 18 sec
              2 = 8 sec     8 = 20 sec
              3 = 10 sec    9 = 25 sec
              4 = 12 sec   10 = 30 sec
              5 = 14 sec
```

Related Programming

- FF1 (System): SMDR Print

- FF1 (System): Parity Check

- FF1 (System): Odd/Even Parity

- FF1 (System): Baud Rate

- FF1 (System): Stop Bit Length

- FF1 (System): Data Length

- FF1 (System): Serial Port Flow Control (X On/ X Off)

- FF1 (System): SMDR Display Start Timer for CO Calls

- FF1 (System): SMDR Printing Mode 1: Outbound, Inbound, Network

- FF1 (System): SMDR Printing Mode 2: Long Distance and Local Calls

- FF1 (System): SMDR Printing Mode 3: Header Title

- FF3 (Extension) Station Message Detail Recorder (SMDR) Report

Hardware Requirements

- A printer or external call accounting system is required to receive SMDR data.
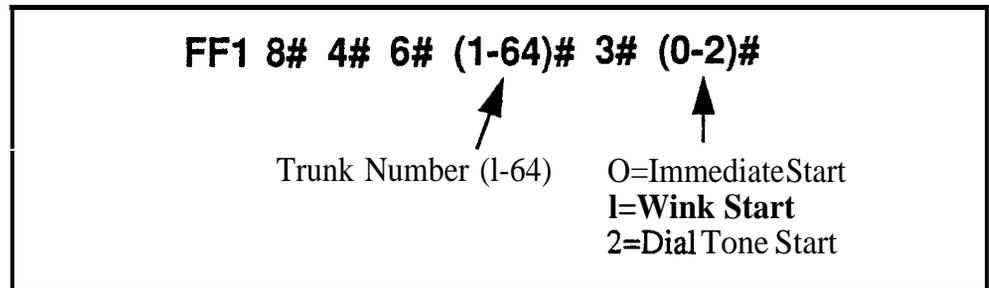
Considerations

- Unlike other CPC circuit cards, the CPC-EX supports two serial ports. Serial Port 1 is labeled CN4 and is located on the backplane. Serial Port 2 is labeled **CN5** and is located on the front of the CPC-EX card. Serial Port 2 requires a special interface cable.

- Be sure to select the correct port to output SMDR data. From the Attendant's phone:

  - dial **#90** to set Serial Port 1 (the backplane port) to output Bus Monitor/Maintenance and Serial Port 2 to no output.

  - dial **#92** to set Serial Port 1 to output SMDR and Serial Port 2 to output Bus Monitor/Maintenance data.

  - dial **#93** to set Serial Port 1 to output SMDR data and Serial Port 2 to no output.

Modification to T1 Signaling Types

Description   The default values for T1 Incoming and Outgoing Signal Types have been changed to set "Wink Start" as the default. This will allow easier programming of E&M trunks.

Outgoing Signaling Type

Programming

> **FF1 8# 4# 6# (1-64)# 3# (0-2)#**
>
> Trunk Number (l-64)   O=Immediate Start
> **l=Wink Start**
> 2=Dial Tone Start

Incoming Signaling Type

'Programming

> **FF1 8# 4# 6# (1-64)# 4# (0 or 1)#**
>
> Trunk Number (l-64)   O=Immediate Start/Ringdown
> **l=Wink Start**