

FUJITSU

**FUJITSU BUSINESS
COMMUNICATION SYSTEMS**

SERIES 3

OVERVIEW

Package 2

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NEW HARDWARE

The following new hardware is available for use with Package 2 of the Series 3 system:

Common Control Kits

- SC2P2B (P/N E08B-1039-K001)
Kit for two-cabinet basic system. Contains CPU card and required memory daughter board.
- SC2P2E (P/N E08B-1039-K002)
Kit for two-cabinet enhanced system. Contains CPU card and required memory daughter board.

NOTE: The first number (SC2P2B, SC2P2E) designates that the card is used in a two-cabinet system. The second number (SC2P2B, SC2P2E) shows that these cards are for Package 2. The last letter (SC2P2B, SC2P2E) shows in which type of system (basic or enhanced) the card is used.

- SC4P2B (P/N E08B-1039-K003)
Kit for four-cabinet basic system. Contains CPU card and required memory daughter board.
- SC4P2E (P/N E08B-1039-K004)
Kit for four-cabinet enhanced system. Contains CPU card and required memory daughter board.

NOTE: The first number (SC4P2B, SC4P2E) designates that the card is used in a four-cabinet system. The second number (SC2P2B, SC2P2E) shows that these cards are for Package 2. The last letter (SC2P2B, SC2P2E) shows in which type of system (basic or enhanced) the card is used.

Memory Cards

- SM2E2 (P/N E20B-9518-R141)
Daughter board for two-cabinet system.
- SM4E2 (P/N E20B-9518-R571)
Daughter board for four-cabinet system.

NOTE: The first number (SM2E2, SM4E2) designates whether the card is used in a two-cabinet or a four-cabinet system. The second number (SM2E2, SM4E2) shows that these cards are for Package 2.

Positive Disconnect Line Card (8PDL)

A new line card is available with the Series 3 Package 2. This card (P/N E20B-9900-R360) provides disconnect supervision in conjunction with voice mail and dictation devices, as well as external conference bridge equipment.

NEW SOFTWARE

The software version number is **P20 x.x #5**. The "#5" shows the country number (U.S.A.). If this is displayed as "??," this indicates that the software package is either a foreign version or has been illegally modified.

SYSTEM FEATURES

Automated Attendant - Single Digit Dialing

An enhancement to the Automated Attendant feature allows incoming calls to reach a destination by dialing a single digit code, which can be assigned on a per tenant basis.

An outside caller may dial the DISA-S trunk destination number. The system will then answer the call with a recorded voice announcement to prompt the entering of a specific single digit code. If the caller does not enter any information, the call may be routed to a predetermined destination, such as an extension or the Attendant Console.

Automated Attendant - Single Digit Dialing is on a per tenant basis (not system-wide). Refer to CMC 434, P6. DISA-S is required to implement this feature.

Numbering Plan Enhancement

In order to comply with the North American Numbering Plan change, the following functions are enhanced:

- Expanded area codes (NXX, where N = 2-9, and X = 0-9).
- Expanded Carrier Access Codes (CACs) to 10XXXXX
- Expanded number of digits for an international call (from 15 to 18, including 01 code).

The application of the NXX area code is determined by setting the required system flag using CMC 102. When dialing a long distance call, the dialing pattern is CTP or OTP + NXX – NXX + XXXX. When dialing a local call, the dialing pattern is (OTP) + NXX + XXXX + (inter-digit timeout). Refer to Table 2-1 for more information.

Carrier access codes may now be either five digits or seven digits in length. A total of ten 5-digit and 7-digit CACs may be assigned per system.

International call digits are determined by setting the desired system flag (CMC 102).

Installation of the North American Numbering Plan load is as follows:

1. Perform a Form Save as outlined in the PcMP Data Base Management Manual.

NOTE: The system is fully operational at this point.

2. Turn system power OFF.

Numbering Plan Enhancement (Cont'd)

3. Remove the old version SCPN2M/4M card set. This consists of a mother board (CPU) and a daughter board (memory). Replace with the new version SCPN2M/4M card. The new version will be identified with a plastic designation guide attached to the daughter board, and labeled as follows:
 - SC2P2B: Two cabinet basic package.
 - SC2P2E: Two cabinet enhanced package.
 - SC4P2B: Four cabinet basic package.
 - SC4P2E: Four cabinet enhanced package.
4. Restore power to the system.
5. Perform a Form Load to install the modified ODDB on the system. This is described in the PcMP Data Base Management Manual. The system will remain non-operational during the Form Load process.
6. Upon successful completion, it is recommended that a Save be executed. This procedure is described in the PcMP Data Base Management Manual ("Saving the ODDB to Floppy Disk").
7. The ODDB can be modified on-line via the PcMP or directly using a Master Control Telephone (MCT). There are up to five CMCs which may need to be updated to include the new area code assignments. They are:
 - CMC 402: N0/1X Conflicting Area/Office Code Assignment.
 - CMC 413: Area Code Restriction Assignment.
 - CMC 414: Area/Office Code Restriction Assignment.
 - CMC 423: LCR Area Code Assignment.
 - CMC 424: LCR Area/Office Code Assignment.

The new area codes which are currently assigned are:

- 334 (Alabama; effective 1/15/95).
- 360 (Washington State; effective 1/15/95).
- 520 (Arizona; effective 3/19/95).

Select the desired CMC. For Conflicting Area/Office Code Assignments (CMC 402), assign the restriction digit flag (P3) and the restricted digits (P4).

For Area Code and Area/Office Code Restriction Assignments (CMC 413 and CMC 414), select the affected restriction group number (P1), and input the affected area code(s) in P4.

For LCR Area Code Assignments and LCR Area/Office Code Assignments (CMC 423 and CMC 424), select the desired route table number in P1, and input the affected area code(s) in P2.

8. After all updates have been made to the data base, perform a Save to save the final version of the data base.

Table 2-1. Dialing Patterns

CTP	OTP	TYPE OF DIALING	DIALING PATTERN	
			N0/1X AREA CODE	NXX AREA CODE
Yes	Yes	Toll operator	No digit	No digit
		Service code	Not permitted	Not permitted
		Area code	Not permitted	Not permitted
		Office code	Not permitted	Not permitted
		International call	Not permitted	Not permitted
Yes	No	Service code	N11 or 11X	N11 or 11X
		Area code	N0/1X + XXX + XXXX	N0/1X + XXX + XXXX
		Office code	NNX + XXXX N'XX + XXXX N0/1X + XXXX	Not permitted
		International call	Not permitted	Not permitted
No	Yes	Service code	N11 or 11X	N11 or 11X
		Area code	N0/1X + XXX + XXXX N0/1X + X1,...,Xi + ITO (i ≤ 6)	N0/1X + XXX + XXXX N0/1X + X1,...,Xi + ITO (i ≤ 6)
		Office code	NXX + XXXX N'XX + XXXX N0/1X + XXXX NNX + X1,...,Xi + ITO N'XX + X1,...,Xi + ITO N0/1X + X1,...,Xi + ITO (i ≤ 3)	NNX + XXXX + ITO NXX + XXXX + ITO N0/1X + XXXX + ITO
		International call	Not permitted	Not permitted
		Others	X + ITO XX + ITO	X + ITO XX + ITO
		International call	Not permitted	Not permitted
No	No	Service code	N11 or 11X	N11 or 11X
		Area code	N0/1X + XXX + XXXX	Not permitted
		Office code	NNX + XXXX N'XX + XXXX N0/1X + XXXX	NNX + XXXX N'XX + XXXX N0/1X + XXXX
		International call	01 + X1,..., + X13 01 + X1,..., + Xi + ITO (i ≤ 12)	01 + X1,..., + X16 01 + X1,..., + Xi + ITO (i ≤ 15)

NOTES:

- 0/1 = 0 to 1, N = 2 to 9, X = 0 to 9, N' = 1 to 9, ITO = interdigit time out. N'XX office codes are assigned using CMC 408; N0/1X office codes are assigned using CMC 402.
- If an OTP is dialed, any digits following will be regarded as an area code. Therefore, office code restriction will not be effective.

Phantom Stations

Phantom Station assignment allows the designation of a phantom or secondary station number in addition to the normal station number. CMC 200 assigns this feature. Equipment numbers may now be assigned as *000 - *095 for phantom lines that will be assigned as appearances on a multi-station telephone.

Phantom stations can be assigned on up to sixteen OSL appearances on DS/CT DSS stations.

Positive Disconnect for Single Line Interface

This new feature enables the system to send a loop disconnect signal to an SLT or other equipment connected to the 8PDL card (e.g., VMS) when the other party disconnects from the call.

Conditions:

The loop disconnect signal is not sent when:

- The other party presses the **Privacy Release** button, then hangs up.
- The other party breaks into a conversation by using the Privacy Release button, and then hangs up.
- The other party calls the SLT using the OSL button, and then hangs up after the conversation.
- The other party enters the FDC menu mode, and then hangs up.

STATION FEATURES**Paging (Station)**

This feature allows the Attendant Console to page one of nine station paging zones or an all page to all zones. Paging is accomplished through the speakers in digital and electronic stations. Paging can be activated from a station or the attendant. This feature may be assigned to a programmable button on the Attendant Console, DS, or CT telephone. A new enhancement to the Paging feature enables internal (station) paging to be blocked when the other station has registered Do Not Disturb (FNO = 71 or 137), depending on the assigned system flag (CMC 102). If the system flag is set to "restrict paging access to DND extensions," the paging access is not executed. However, if there is an extension which has not registered DND in that same zone, that extension will hear the page. This restriction is applied to "one zone" or "all zone" paging access.

Nine zones with 36 stations/zone maximum are available.

Pick-Up The Group Pick-Up feature allows station users to answer calls directed to another station, in the same pick-up group. A station alphanumeric display, integrated into a station using this feature, provides a display of the calling station number when picked up by a second station.

A new enhancement enables 64 members maximum to be assigned per group.

Station Prefix Codes Station prefix codes (not including any additional dialed numbers) may now be up to four digits in length. In addition, station prefix codes may be dialed after the entry of a feature access code. Also, when accessing Voice Mail, the system will send the station prefix code as a part of the entered mail box number. (For example, a user can dial 200 or 300; the system can add a 3 (or other number) to the beginning of each number, which will cause 3200 or 3300 to be dialed.)

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SYSTEM PARAMETER ASSIGNMENT (CMC 102)

Use the System Parameter Description (**CMC 102**) table to set system flags that govern how the system will interpret user input.

NOTE: The new or modified FLGN values in this command are:

- FLGN 112.
- FLGN 201.
- FLGN 212.
- FLGN 213.
- FLGN 218.
- FLGN 223.
- FLGN 224.
- FLGN 225.
- FLGN 226.
- FLGN 227.

Table 3-1 lists these new/changed FLGN values.

Table 3-1. New System Parameter Assignment Default Values (CMC 102)

System Parameter Assignment		
Flag No. (P1)	Flag Function	Available Values
112	Number of station/trunk digits sent for VMS integration	2 to 8 (includes extension prefix code) An entered value greater than 8 will mean a value of "0." Default = 4 (Please see Table 3-2)
201	Front desk console and BS coding flag	0 = Mu-law 1 = A-law
212	Name and DN display for 4-line display digital telephone	0 = Do not apply 1 = Apply
213	Name and display for attendant	0 = Do not apply 1 = Apply
218	Off-hook call announcement when PSL is busy	0 = Not allowed 1 = Allowed
223	NXX area code flag	0 = Apply 1 = Not apply
224	CAC digit flag	0 = 5 digit CACs only 1 = Both 5 digit and 7 digit CACs 2 = 7 digit CACs only
225	International call digit flag	0 = 15 digits 1 = 18 digits
226	Extension prefix application flag	0 = Standard (extension call only) 1 = Extend (extension call, DN for FAC, VMS integration digits)
227	Paging access for DND registering extension	0 = Allow 1 = Restrict

NOTE: Default values are shown in **bold** type.

CMC 102 (Cont'd)

A note regarding the station prefix application has been added to this table, as shown below (Note 4).

Table 3-2. Voice Mail Integration Patterns

SERVICE		SLT INTERFACE (DTMF)				
CALL TYPE	SRCE/DEST	STV = 0	STV = 1	STV = 2	STV = 3	STV = 4
Direct call (IND1)	from extension	"C1" + (SA) + "#"	"C1" + "#"	None	"#" + (SA)	"*" + (SA)
	from outside	"C2" + (TA) + "#"			None	None
Forwarded call (IND2)	Busy (from ext)	"C3" + (SA) + "#" + (SB) + "#"		(SB)	(SB)	(SB)
	N/A (from ext)	"C4" + (SA) + "#" + (SB) + "#"		(SB)	(SB)	(SB)
	All (from ext)	"C5" + (SA) + "#" + (SB) + "#"		(SB)	(SB)	(SB)
	Busy (from out)	"C8" + (SA) + "#" + (SB) + "#"		(SB)	(SB)	(SB)
	N/A (from out)	"C9" + (SA) + "#" + (SB) + "#"		(SB)	(SB)	(SB)
	All (from out)	"C0" + (SA) + "#" + (SB) + "#"		(SB)	(SB)	(SB)
Message pick-up (IND3)	—	"C1" + (SA) + "#"	"C1" + "#"	None	"#" + (SA)	"*" + (SA)
Transferred call (IND4)	from extension	None	None	None	None	None
	from outside					
Ack. of MWI	—	CFT/ROT	CFT/ROT	CFT/ROT	CFT/ROT	CFT/ROT
MWI (IND5, IND6)	Lamp on	FAC + (DN)		FAC + (DN)		
	Lamp off	FAC + (DN)		FAC + (DN)		
Outgoing call (IND7)	to outside	FAC + (DN)		FAC + (DN)		
	to extension	(DN)		(DN)		
VMS trans. call (IND8)	to attendant	FL + (DN)		FL + (DN)		
	to extension					

SA: Calling extension number (2, 3, or 4 digits, fixed)
 SB: Called extension number (2, 3, or 4 digits, fixed)
 TA: Incoming trunk number (2, 3, or 4 digits, fixed)

FAC: Feature access code
 TAC: Trunk access code
 DN: Directory number
 FL: Hookflash

NOTES:

- The same number may be assigned to SA, SB, and TA. For example, a station and a trunk number may both be 2100.
- Number of digits sent for VMS integration is programmable by this CMC command, FLGN = 112.
- The filler value is programmable by CMC command (CMC 102, FLGN = 49; default set to 8). For example, when the filler value is "8":
 2 digits: 81, 10
 3 digits: 882, 811, 100
 4 digits: 8883, 8881, 8121, 1231
 In the case of the Attendant Console, the attendant access code plus the attendant number is sent.
- If the enhanced station prefix application flag (CMC 102, FLGN = 226) is set to "1," 2 to 8 digits are applied for SA/SB.

**GROUP PICK-UP MEMBER
ASSIGNMENT (CMC 302)**

Use the Group Pick-Up Member Assignment (**CMC 302**) table to assign or remove stations from specified pick-up groups. Group pick-up allows a station user to answer calls for other stations in the same pick-up group using a feature button or an access code. A station with an alphanumeric display shows the originating trunk or station which was originally called. Each station can only belong to one pick-up group.

NOTE: An enhancement to this feature increases the maximum number of member stations per group to 64.

**ACD (AUTOMATIC CALL
DISTRIBUTION) GROUP
ASSIGNMENT (CMC 308)**

The possible cause for the NOT RGTR error code has been modified, as shown below.

ERROR CODES

ERROR CODE	CAUSE	CORRECTION
NOT RGTR	The EN that corresponds to the entered DN has not been installed.	Enter a correct (installed) DN.
	The specified DN is assigned as PS.	
	The terminal that corresponds to the entered DN is not an extension.	Enter a correct DN.

**N0/1X CONFLICTING AREA/
OFFICE CODE ASSIGNMENT
(CMC 402)**

Use the Conflicting Area/Office Code Assignment (**CMC 402**) table to register conflicting area and office codes. This list is limited to 30 conflicting codes in each dialing group.

An enhancement to this feature specifies that when the NXX area code is applied by using a system flag (CMC 102, FLGN = 223), the registered code assigned at this CMC is not valid.

In order to allow area codes to be used as office codes beyond the system capacity (30), make the following entries (always enter the toll prefix code for long distance calls):

P1: 0	P1: 1
P2: 1	P2: 1
P3: 0	P3: 1
P4: Blank	P4: Blank

CARRIER IDENTIFICATION CODE (5-DIGIT CACs) RESTRICTION CHECKING ASSIGNMENT (CMC 415)

In equal access areas, the system assigns each secondary carrier a five-digit carrier access code (CAC), 10XXX. **CMC 415** allows stations in a restriction group within a class of restriction access to specific secondary carriers by manually dialing the CAC.

If a station is restricted from area codes, office codes, etc., through class of restriction and restriction group assignment and/or by least cost routing assignment, programming a carrier access code for that class of restriction and restriction group through CMC 415 overrides all other restrictions. However, the station user must manually dial the 10XXX code to access the desired secondary carrier. This feature can be used to force stations to use a secondary carrier for outgoing trunk calls. Up to ten total (5-digit CACs and 7-digit CACs) can be registered. All ten may be assigned to one COR.

Please note that seven-digit CACs are assigned using CMC 470.

TOLL RESTRICTION 2 ASSIGNMENT (CMC 417)

Use **CMC 417** to override the toll restriction when 10XXX/10XXXXX is dialed. Refer to the Note of Table 3-3 for further information. Note the difference between 5-digit and 6-digit access codes.

Table 3-3. Toll Restriction Default Values (CMC 417)

ID	Description	Flag Value (P4)
1	CAC (10XXX/10XXXXX) + OTP1	1 = Allow
2	CAC (10XXX/10XXXXX) + OTP2	1 = Allow
3	Toll Free Dial (1 + 800)	1 = Allow
4	CAC (950) + 0XXX	1 = Allow
5	CAC (10XXX/10XXXXX) + CTP	1 = Deny
6	CAC (950) + 1XXX	1 = Deny
7	CAC (10XXX/10XXXXX) + International Direct Dial (001)	1 = Deny

NOTE: When FVA = 0, there is no allowance or denial for its type of calls. Further restrictions assigned by CMCs 411, 412, 413, 414, and 416 will determine whether or not a call should go through, based on the rest of the dialed number. When FVA = 1, this command has priority over other restrictions assigned by CMC 411, 412, 413, 414, and 416.

**LCR CARRIER ACCESS
CODE (5-DIGIT CACs)
ASSIGNMENT (CMC 425)**

Use the LCR Carrier Access Code Assignment (**CMC 425**) table to record 5-digit carrier access codes which will be outputted to the CO if LCR selects an alternate carrier in an equal access area. If the specified CAC is one that has been registered as having seven digits, it cannot be registered using this CMC.

Please note that seven-digit CACs are assigned using CMC 471.

ERROR CODES

ERROR CODE	CAUSE	CORRECTION
PARA. ERR	The specified CAC is not correct.	Check the CAC.
DENIED	The specified LCN is registered as a seven digit CAC.	Check the CAC.

**PERSONAL ACCOUNT CODE
FOR 5-DIGIT CACs
ASSIGNMENT (CMC 426)**

Use the Personal Account Code for CAC Assignment (**CMC 426**) table to assign the personal account code, the sending position of the personal account code, and length of outgoing call to the LCR feature. Each 5-digit carrier identification code contains this information.

Please note that seven-digit CACs are assigned using CMC 472. A maximum of ten 5-digit and 7-digit CACs can be registered per system.

**AUTOMATED ATTENDANT
ANSWERING MESSAGE AND
OVERFLOW STATION
ASSIGNMENT (CMC 434)**

Use this CMC to assign the Automated Attendant answering message and overflow station. The Automated Attendant feature allows incoming calls to reach the desired station without operator or attendant assistance. The system will answer an incoming call with a recorded voice announcement which prompts the caller to enter the desired station number. The caller dials the number on the touch tone keypad and the call is transferred to the appropriate station. The trunk must be defined as ground start and DISA-S in CMC 250. An enhancement to this feature enables the assignment of single digit automated attendant capability, using the new parameter, P6.

P#	MNEM.	DESCRIPTION	DATA RANGE	DEFAULT
P6	ODF	Single digit automated attendant flag	0 or blank = Not applied 1 = Applied	0

Parameter Descriptions

P6 (ODF):

Enter whether or not the Single Digit Automated Attendant feature has been assigned. This assignment is made at CMC 480.

0 or blank = Not applied (default)

1 = Applied

**CARRIER IDENTIFICATION
CODE (7-DIGIT CACs)
RESTRICTION CHECKING
ASSIGNMENT (CMC 470)**

In equal access areas, the system assigns each secondary carrier a seven-digit carrier access code (CAC), 10XXXXX. This new command, **CMC 417**, allows stations in a restriction group within a class of restriction access to specific secondary carriers by manually dialing the CAC.

If a station is restricted from area codes, office codes, etc., through class of restriction and restriction group assignment and/or by least cost routing assignment, programming a carrier access code for that class of restriction and restriction group through **CMC 417** overrides all other restrictions. However, the station user must manually dial the 10XXXXX code to access the desired secondary carrier. This feature can be used to force stations to use a secondary carrier for outgoing trunk calls. Up to ten total (5-digit CACs and 7-digit CACs) can be registered. All ten may be assigned to one COR.

Please note that five-digit CACs are assigned using **CMC 415**.

This CMC requires a HIGH level security code.

P#	MNEM.	DESCRIPTION	DATA RANGE	DEFAULT
<u>P1</u>	<u>RGN</u>	Restriction group number	1 to 3	None
<u>P2</u>	<u>COR</u>	Class of restriction	1 to 16	None
<u>P3</u>	<u>CIC</u>	Carrier identification code	7 digits (10XXXXX)	None

Parameter Descriptions

P1 (RGN):

Enter the restriction group to which you wish to assign secondary carrier information (required).

- 1 to 3

P2 (COR):

Enter the class of restriction which will apply to this restriction group (required).

- 1 to 16

P3 (CIC):

Enter the carrier identification (access) code which stations in this restriction group must dial to access the secondary carrier.

- 7 digits, in the 10XXXXX format

Display

1. Enter an RGN and COR at P1 and P2.
2. Press **DSP**.

NOTES:

1. Pressing **DSP** repeatedly displays subsequent data in numerical order of COR and CIC within each class. If the COR is not entered, or after all CICs have been displayed, pressing **DSP** will display a blank line. Pressing **DSP** again will recycle the list.
2. Each RGN must be displayed separately.

CMC 470 (Cont'd)

- Add**
1. Enter the required parameters.
 2. Use the cursor controls or **Return** to move the cursor to the parameter to be added.
 3. Enter the new value.
 4. Press **ADD/CHG**.

- Remove**
1. Enter the required parameters or press **DSP**.
 2. Press **RMV**.

ERROR CODES

ERROR CODE	CAUSE	CORRECTION
NO AREA	An attempt was made to add a CIC combination when no more system memory was available.	Remove one or more CIC combinations from any RGN.
OVERLAP	An attempt was made to add a CIC combination which is already registered.	Check the entry and try again, or abandon the attempt.
NO FOUND	An attempt was made to remove a CIC combination which is not currently registered.	Check the entry and try again, or abandon the attempt.

LCR CARRIER IDENTIFICATION CODE (7-DIGIT CACs) ASSIGNMENT (CMC 471)

Use the new LCR Carrier Identification Code Assignment (CMC 4715) table to record 7-digit carrier access codes which will be outpulsed to the CO if LCR selects an alternate carrier in an equal access area. If the specified CIC is one that has been registered using CMC 425, it cannot be registered using this CMC.

Please note that five-digit CACs are assigned using CMC 425.

This CMC requires a HIGH level security code.

P#	MNEM.	DESCRIPTION	DATA RANGE	DEFAULT
P1	LCN	Least cost routing carrier	1 to 10	None
P2	CIC	Carrier identification code	7 digits (10XXXXX)	None

Parameter Descriptions

P1 (LCN):

Enter the number that will be used for this Least Cost Routing carrier access (required).

- 1 to 10

P2 (CIC):

Enter the carrier identification (access) code.

- 7 digits (10XXXXX)

Display

1. Enter an LCN at P1.
2. Press **DSP** to display the corresponding CIC.

NOTES:

1. Press **DSP** repeatedly to display CIC data in numerical order of LCNs. Five-digit CACs are not displayed.
2. The system releases this CMC when the LCN value exceeds 10.

Change

1. Enter an LCN at P1.
2. Enter a CIC at P2.
3. Press **ADD/CHG**.

NOTE: Five-digit CACs are not changed.

Remove

1. Enter an LCN at P1.
2. Press **DSP**.
3. Press **RMV**.

ERROR CODES

ERROR CODE	CAUSE	CORRECTION
PARA. ERR	The specified CIC is not correct.	Check the CIC.
DENIED	The specified LCN is registered as a five-digit CIC.	Check the CIC.

PERSONAL ACCOUNT CODE FOR 7-DIGIT CACs ASSIGNMENT (CMC 472)

Use the new Personal Account Code for CAC Assignment (CMC 472) table to assign the personal account code, the sending position of the personal account code, and length of outgoing call to the LCR feature. Each 7-digit carrier identification code contains this information. Up to ten 5-digit and 7-digit CACs can be registered.

Please note that five-digit CACs are assigned using CMC 426.

This CMC requires a HIGH level security code.

P#	MNEM.	DESCRIPTION	DATA RANGE	DEFAULT
P1	CIC	Carrier identification code	7 digits (10XXXXXX)	None
P2	FLG	Flag value	0 = Send personal account code after dialed number 1 = Send personal account code before dialed number	None
P3	PAC	Personal account code	1 to 15 digits Blank = Not assigned	None
P4	TIM	Personal account code send timing	4 digits	None

Parameter Descriptions

P1 (CIC):

Enter the carrier identification (access) code (required).

- 7 digits (10XXXXXX)

P2 (FLG):

If necessary, enter a value to determine the send position of the personal account code, entered below.

- 0 = Send after dialed number
- 1 = Send before dialed number

P3 (PAC):

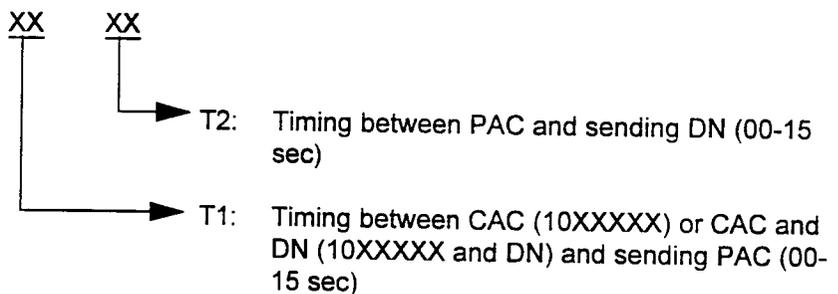
Enter the personal account code.

- 1 to 15 digits
- Blank = Not assigned

P4 (TIM):

Enter the personal account code send timing.

- 4 digits



CMC 472 (Cont'd)

Parameter Descriptions
(Cont'd)

NOTE: The outgoing digit sending patterns in LCR are as follows:

	P2	SENT DIGITS
Pattern 1	0	CAC + DN + T1 + PAC
Pattern 2	1	CAC + T1 + PAC + T2 + DN

Display

1. Enter the CIC.
2. Press **DSP** to display FLG, PAC, and TIM data.

NOTES:

1. If **DSP** is pressed without entering a CIC, the lowest CIC and associated parameters will be displayed.
2. Press **DSP** repeatedly to display the parameters corresponding to the next CIC.
3. The system releases the CIC when the last CIC has been displayed.

Change

1. Enter all parameters.
2. Press **ADD/CHG**.

NOTE: Press **ADD/CHG** to change the parameters corresponding to a specified CIC.

Remove

After the display, or, after entering the necessary parameters, press **RMV** to remove FLG, PAC and TIM.

ERROR CODES

ERROR CODE	CAUSE	CORRECTION
NO FOUND	The specified CIC is not assigned (Remove command).	Enter a correct CIC.
PARA. ERR	The specified CIC or TIM is not correct.	Assign a correct CIC or TIM.
NO AREA	There is no area available for CIC registration.	
NOT RTGR	The specified CIC is not assigned (Display command).	Enter a correct CIC.

**SINGLE DIGIT AUTOMATED
ATTENDANT ASSIGNMENT
(CMC 480)**

Use this new table (CMC 480) to assign the single digit automated attendant mode and destination for each attendant. DISA-S is required for this feature.

This CMC requires a HIGH level security code.

P#	MNEM.	DESCRIPTION	DATA RANGE	DEFAULT
P1	TNN	Tenant number	0 to 63	None
P2	DNO	Dial number	0 to 9, *, #	None
P3	MID	Automated attendant in day mode	0 = Listen to answering message again 1 = Terminates to destination assigned below 2 = Manual dial	0
P4	DID	Destination in day mode (when P3 = 1)	When MID = 0 or 2, leave blank When MID = 1, enter extension DN, attendant access code, or system speed calling FAC + code	Blank
P5	MIN	Automated attendant in night mode	0 = Listen to answering message again 1 = Terminates to destination assigned below 2 = Manual dial	0
P6	DIN	Destination in night mode (when P5 = 1)	When MIN = 0 or 2, leave blank When MIN = 1, enter extension DN, attendant access code, or system speed calling FAC + code	Blank

Parameter Descriptions

P1 (TNN):

Enter the tenant number (required).

- 0 to 63

P2 (DNO):

Enter the one-digit dial number.

- 0 to 9, *, #

P3 (MIN):

Enter how the automated attendant in day mode operation will interpret the single digit dial number entered in P2.

- **0 = Listen to answering message again** (default).
- 1 = Terminates to destination specified in P4.
- 2 = Manual dial

P4 (DID):

Enter the day mode destination routing number, when P3 = 1

- Extension directory number.
- Attendant access code.
- System speed calling number + code
- **Default = Leave blank**

CMC 480 (Cont'd)

Parameter Descriptions
(Cont'd)

P5 (MIN):

Enter how the automated attendant in night mode operation will interpret the single digit dial number entered in P2.

- 0 = Listen to answering message again (default).
- 1 = Terminates to destination specified in P6.
- 2 = Manual dial

P6 (DIN):

Enter the night mode destination routing number, when P5 = 1

- Extension directory number.
- Attendant access code.
- System speed calling number + code
- **Default = Leave blank**

NOTE: When a speed calling number is assigned as a destination and the call is blocked via an all trunks busy, the incoming call is not transferred to the attendant console or the assigned extension. The caller will hear reorder tone.

Display

1. Enter the TNN.
2. Press **DSP**.

NOTES:

1. Press **DSP** repeatedly to display the MID, DID, MIN, and DIN data corresponding to the next assigned DNO.
2. If no TNN or DNO information is entered, data corresponding to TNN = 0 and DNO = 0 is displayed.
3. Pressing the DSP key after DNO " # " is displayed will show the parameters corresponding to the next assigned TNN.

Change

1. Enter all parameters.
2. Press **ADD/CHG**.

ERROR CODES

ERROR CODE	CAUSE	CORRECTION
NO PARA	The required TNN parameter is not entered.	Enter a TNN value.
PARA. ERR	The specified parameter is not correct.	Enter a correct value.

**SMDR OUTGOING DIGITS
SCREENING ASSIGNMENT
(CMC 506)**

Use the SMDR Outgoing Digits Screening Assignment (CMC 506) table to mark each digit group as subject to or exempt from SMDR. The data range for this command has been newly defined for P1, as shown below.

P#	MNEM.	DESCRIPTION	DATA RANGE	DEFAULT
P1	FLAG	Flag value	0 = SMDR output unnecessary 1 = SMDR output necessary	None

**DISTRIBUTED PROCESSOR
VERSION ID DISPLAY (CMC
907)**

Use the Distributed Processor Version ID Display (CMC 907) command to display the processor version of cards installed in card slots 00-18 in each cabinet of the system. The new 8PDL card is displayed in P2 as "1."

P#	MNEM.	DESCRIPTION	DATA RANGE	DEFAULT
P2	TYP	Card type	1 = 8SLC/16SLC/8PDL 2 = 4BWC 3 = 2TTE/2TE4 4 = 2TTL 5 = 4DMR 6 = 4CHT 7 = RVAC 8 = 4SLE 9 = 2APIA 10 = Reserved 11 = ISDN 23PT 12 = FIPN 23PT 13 = Reserved 14 = 24T1 15 = 6DID 16 = Reserved 17 = Reserved 18 = 8BWC 19 = 4TE4	None

INTRODUCTION

Site log forms are used to assist in the successful implementation of the Series 3 system into the customer's environment. The Site Log Manual (Section 123-200-002) is intended as a tool for:

- Identifying and recording the customer's data base information.
- Providing a permanent record of the customer's data base.
- Programming the system according to the customer's requirements.

The following CMC's programming forms have been either updated for Package 2, or have had new forms created for them.

- CMC 102.
- CMC 302.
- CMC 415.
- CMC 417.
- CMC 425.
- CMC 426.
- CMC 434.
- CMC 470.
- CMC 471.
- CMC 472.
- CMC 480.
- CMC 506.

This chapter is intended as a reference only. To record any new or pertinent customer data for a specific site, please refer to the Package 2 Site Log Manual.

SYSTEM PARAMETERS
CMC 102 (NOTE: Default values are shown in bold type.)

P1 Flag No.	Flag Definition	Available Values	P2 New Value
112	Number of station/trunk digits sent for VMS integration	2 to 8 (includes extension prefix code) An entered value of greater than 8 will mean a value of "0." Default = 4	
201	Front desk console and BS coding flag	0 = Mu-law 1 = A-law	
212	Name and DN display for four-line display digital telephone	0 = Do not apply 1 = Apply	
213	Name and display for attendant	0 = Do not apply 1 = Apply	
218	Off-hook call announcement when PSL is busy	0 = Not allowed 1 = Allowed	
223	NXX area code flag	0 = Apply 1 = Not apply	
224	CAC digit flag	0 = 5 digit CACs only 1 = Both 5 digit and 7 digit CACs 2 = 7 digit CACs only	
225	International call digit flag	0 = 15 digits 1 = 18 digits	
226	Extension prefix application flag	0 = Standard (extension call only) 1 = Extend (extension call, DN for FAC, VMS integration digits)	
227	Paging access for DND registering station	0 = Allow 1 = Restrict	

**TOLL RESTRICTION 2 ASSIGNMENT
CMC 417**

P1 = Restriction Group Number =

P2 = Class of Restriction =

P3 = Flag ID

ID	Description	P4 = Flag Value	Value
1	CAC (10XXX/10XXXXXX) + OTP1	0 = Deny 1 = Allow	
2	CAC (10XXX/10XXXXXX) + OTP2	0 = Deny 1 = Allow	
3	Toll Free Dial (1 + 800)	0 = Deny 1 = Allow	
4	CAC (950) + 0XXX	0 = Deny 1 = Allow	
5	CAC (10XXX/10XXXXXX) + CTP	0 = Allow 1 = Deny	
6	CAC (950) + 1XXX	0 = Allow 1 = Deny	
7	CAC (10XXX/10XXXXXX) + International Direct Dial (001)	0 = Allow 1 = Deny	

NOTE: When FVA = 0, there is no allowance or denial for its type of calls. Further restrictions assigned by CMCs 411, 412, 413, 414, and 416 will determine whether or not a call should go through, based on the rest of the dial number. When FVA = 1, this command has priority over other restrictions assigned by CMC 411, 412, 413, 414, and 416.

FIVE-DIGIT LCR CARRIER ACCESS CODE ASSIGNMENT
CMC 425

P1 LCR Carrier Number 1 to 10	P2 Five-Digit Carrier Access Number (10XXX)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

AUTOMATED ATTENDANT ANSWERING MESSAGE AND OVERFLOW STATION ASSIGNMENT
CMC 434

P1 Tenant Number 0 to 63	P2 Answering Message ID (Day Mode)	P3 Overflow Station DN (Day Mode)	P4 Answering Message ID (Night Mode)	P3 Overflow Station DN (Night Mode)	P6 Single-Digit Flag 0 = Not Applied 1 = Applied

**SEVEN-DIGIT LCR CARRIER ACCESS CODE ASSIGNMENT
CMC 471**

P1 LCR Carrier Number 1 to 10	P2 Seven-Digit Carrier Access Number (10XXXXXX)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

This is the last page of the document.

FUJITSU

**FUJITSU BUSINESS
COMMUNICATION SYSTEMS**

SERIES 3

SYSTEM DESCRIPTION/FEATURES MANUAL

Package 2

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**SECTION 123-001-002
Issue 1, May 1995**

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SYSTEM OVERVIEW

The Fujitsu Business Communication Systems' state-of-the-art hybrid digital PBX (Private Branch Exchange) Series 3 system offers cost effective voice and data telecommunications services for small to medium-size switching applications. Figure 1-1 shows various cabinet configurations.

A major advantage of this integrated voice and data system is that it offers typical businesses a variety of user-friendly features that incorporate the high technology architecture usually found only in the more expensive PBX systems for larger businesses.

Designed for companies requiring from 16 to 480 telephone lines, the Series 3 combines key system and PBX features into one sophisticated, easy to use business communications system and uses highly advanced digital switching technology for both voice and data communications. Signaling tones are in accordance with the North American Standard precise tone plan. System dual-tone multi-frequency signaling conforms to the EIA Standard RS-470 requirements.

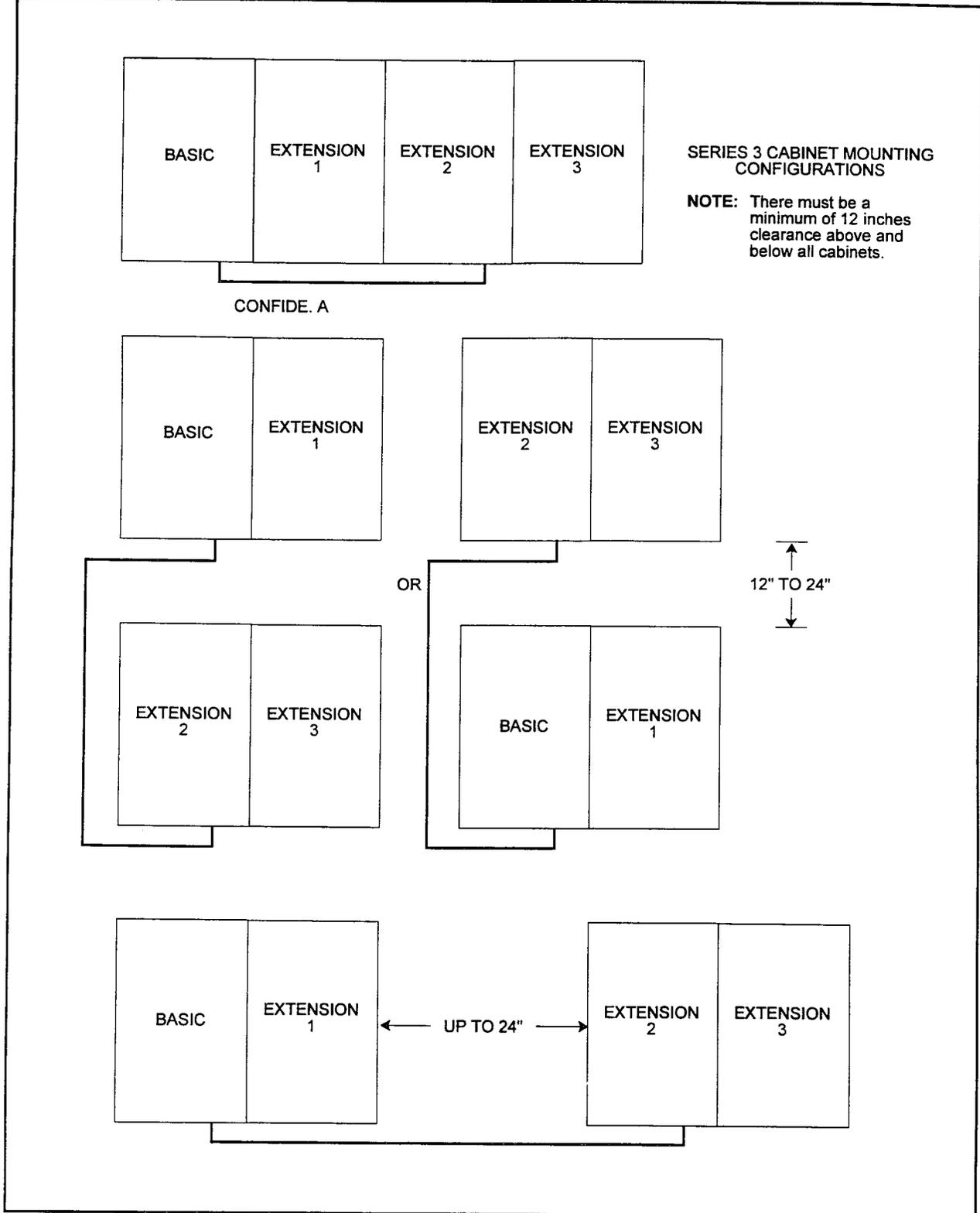
The system is available in flexible configurations which may range from 16 to 480 stations and from 4 to 240 trunks. This flexibility is designed into the system's universal card slots, which allow either line or trunk cards to be used in most card slot locations. A 16-bit microprocessor and distributed 8-bit or 16-bit processor card architecture provide the power required for future expansion. Refer to Chapter 2, System Configuration, for more details on the cabinets, card locations, and system capacities.

The Series 3 offers a variety of cost control features including Least Cost Routing and Multi-Digit Toll Restriction, as well as the ability to include or exclude various features on any individual station.

Other features allow users to provide call coverage for each other and to route calls to an individual or to a destination they select. The system provides feature buttons which can be programmed for Call Forward, Camp-On, Call Park, and many other functions.

The system offers a full range of voice communications features, enhanced business features, and support for industry standard and proprietary multi-line telephones. (See Figure 1-2 for a general system overview.) Simultaneous voice and data transmission over single-pair wiring and multi-function attendant and front desk console services are also provided.

Figure 1-1. Series 3 Configurations



Digital Telephones

The following digital telephones can be used with the Series 3 system:

- CSD digital telephones which provide data communication and system programming capabilities.
- DS20, DS20S, DS20SD, and DS32SD digital stations, which also provide programming capabilities, along with variable calendar display (English or Spanish) and other features.

CSD digital voice/data telephones, Digital Stations, and Data Interface Units (DIUs) are supported by the one of the following configurations:

- Connected to an 8DTC card over single-pair wiring which provides:
 - Eight CSDs (voice only).
 - Eight DIUs (Data Interface Units).
 - Six CSD telephones with DTAs (Data Terminal Adapters), plus two voice only CSDs.
 - Eight Digital Stations with optional 30-button DSS modules (refer to the Data Base Manual for the system DSS 30-button capacity).
- Connected to a 16DTC card over single-pair wiring which provides:
 - Sixteen CSDs (voice only).
 - Sixteen Digital Stations.
 - Sixteen DIUs.
 - Sixteen Digital Stations with optional 30-button DSS modules (refer to the Data Base Manual for the system DSS 30-button capacity).

Analog Telephones

Other telephone instruments unique to the system include:

- Attendant Consoles.
- CT-10s, CT-20s, CT-30s, and Direct Station Selection Consoles with Busy Lamp Fields.

Users can program the system to meet their individual needs. System programming and diagnostics can take place either on-site or from a remote facility.

CT-10s, CT-20s, and CT-30s, as well as DSS/BLF (Direct Station Selection/Busy Lamp Field) modules and Attendant Consoles are connected with 8EKC (Electronic Key Telephone) cards or MUFN * card EKT circuits using two-pair wiring; one pair for voice signals and the other for control signals. Standard single line telephones can also be connected to the system using 8SLC (8 Circuit Single Line Telephone) cards or 16SLC (16 Circuit Single Line Telephone) cards. An off-premise extension can be connected through a four-circuit 4SLE card.

* MUFN cards are a future Series 3 option

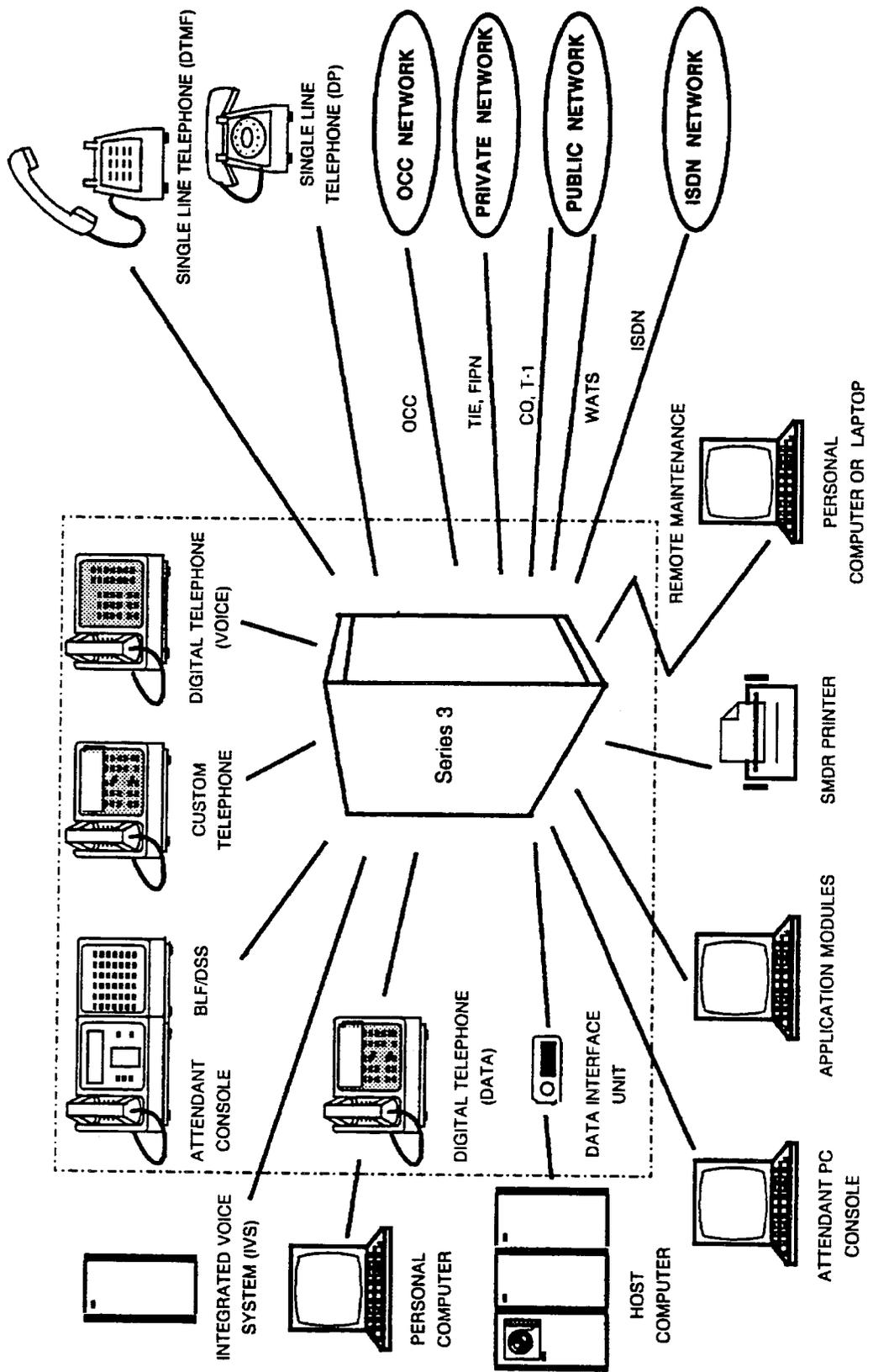


Figure 1-2. System Overview

Types of Lines The system can communicate with the Public Switched Telephone Network (PSTN) over the following types of lines:

- CO (Central Office) lines.
- WATS (Wide Area Telecommunications Service) lines.
- FX (Foreign Exchange) lines.
- DID (Direct Inward Dialing) lines.
- Tie lines.
- T-1 lines.
- ISDN lines.

NOTE: A description of each type of line can be found in Chapter 2.

There are two circuits per card on the 2TTL card. The 2TE4 card has two circuits, and the 4TE4 card has four circuits. The 4TE4 supports four-wire lines.

The 4BWC (Bothway Trunk) card has four circuits per trunk card, and the 8BWC card has eight circuits per trunk card. Both cards support CO, WATS, and FX lines. DID trunks are supported on the 2TTL and 6DID cards. The 6DID card has six circuits and supports incoming DID only.

The 4CHT (Character Trunk) card adds Hotel/Motel printing and keyboard dialing from a data terminal. The RVAC (Recorded Voice Announcement) card adds recorded voice announcements. Each T-1 card has 24 circuits. The 23PT card provides an ISDN PRI or Fujitsu ISDN Private Network (FIPN) interface.

SYSTEM BENEFITS

Additional benefits of the system include:

- Improved productivity.
 - Full range of programmable voice features can be configured to suit individual user needs
 - Digital telephones providing a high degree of performance
 - Proprietary Telephone support provides additional functionality for station users
 - Multi-function Attendant Console provides greater call processing capability
 - System/station programmability provides users with the ability to quickly perform adds/changes to meet changing user requirements
 - Integrated Voice Server (IVS)

**SYSTEM BENEFITS
(Cont'd)**

- Efficient operation.
 - Low power requirements
 - Compact unit takes up little office space
 - System software provides highly reliable and efficient call handling capabilities
 - Digital switching technology provides increased switching capacity without increasing the system cabinet's physical size
 - Combined voice and data transmission over one-pair wiring eliminates need for separate data distribution (using 8DTC)
- Cost management/control.
 - LCR (Least Cost Routing) ensures most economical route selection
 - Multi-digit toll restriction permits customized toll restriction for greater cost control
 - SMDR (Station Message Detail Recording) provides a record of telephone usage for budget/planning purposes
 - Expandable modular system (universal card slots) permits flexibility and easy growth
 - Local/remote maintenance and administration provides economical service and support, reducing maintenance expense
 - Automated attendant reduces staffing requirements for attendant position
 - Optional Call Manager supports call accounting functions

AVAILABLE FEATURES

The following charts show all the available features for the Business Package and the Enhanced Network Package. These features are explained in the chapters that follow.

SYSTEM FEATURE	FEATURE PACKAGE	
	Business	Enhanced
Alarms	X	X
ACD (Automatic Call Distribution)	X	X
ACD Agent	X	X
ACD Report Manager		X
ACD Route Queuing	X	X
ACD Route Table	X	X
ACD Supervisor	X	X
API Loop Back Test	X	X
Automated Attendant	X	X
Calling/Called Party Name Display	X	X
Call Diversion to Attendant	X	X
Call Manager	X	X
Call Progress Tones	X	X
Change Work Time by ACD Group	X	X
Class of Service/Class of Restriction	X	X
Conferencing (Three-Party)	X	X
Day/Night DISA	X	X
Diagnostics (Local/Remote)	X	X
Dial Outgoing Restriction	X	X
Dial Pulse/DTMF Stations	X	X
Dialed Number Identification Service (DNIS)		X
Dictation Access	X	X
(DID) Direct Inward Dialing	X	X
Direct-In Dial/Direct Out Dial Service	X	X
Direct Inward Trunks	X	X
Direct Station Selection/Busy Lamp Field 30/40/80	X	X
Direct Station Selection 100	X	X
Direct Station Selection as Room Status Indicator	X	X
Directory Number to Equipment Number Display	X	X
(DISA) Direct Inward System Access	X	X

SYSTEM FEATURE	FEATURE PACKAGE	
	Business	Enhanced
Display Character Assignment	X	X
Distinctive Ringing	X	X
DNIS for Day/Night Call	X	X
DTMF After Account Code Entry	X	X
DTMF Sending During Conference	X	X
Equal Access	X	X
Flexible Numbering Plan	X	X
Hold Message per Tenant or DNIS Number	X	X
Hotel/Motel and Healthcare Applications	X	X
Hunt Groups	X	X
Increase in Proprietary Telephone Capacity	X	X
Least Cost Routing (LCR)	X	X
LCR for International Calls	X	X
Line Button Copy	X	X
Local/Remote Maintenance (Adds, Moves, Changes)	X	X
Maintenance Trunk Busy	X	X
Modular Common Equipment Expansion	X	X
Multi-Digit Toll Restriction	X	X
Multi-Station Appearance Enhancement	X	X
Music on Hold/Tone on Hold	X	X
Night Service	X	X
Office Codes (NXX)	X	X
Off-Premise Extensions (OPX)	X	X
Phantom Station	X	X
Pound (#) Code Dialing	X	X
Power Failure Restart	X	X
Power Failure Transfer	X	X
Recorded Voice Announcement	X	X
Silent Monitor	X	X
Simultaneous Voice/Data Transmission	X	X

SYSTEM FEATURE	FEATURE PACKAGE	
	Business	Enhanced
Single Stage Nonblocking Voice Path	X	X
(SMDR) Station Message Detail Recording	X	X
Station Alternate Position	X	X
Specialized Common Carrier (SCC) Access	X	X
System Call Park	X	X
System Speed Calling	X	X
T-1 Interface		X
Tenant Service	X	X
Tie Trunks	X	X
Time Out Disconnect for Ring/No Answer (DISA-S)	X	X
Traffic Measurement	X	X
Trunk Busy Signal	X	X
Trunk Individual Access	X	X
Trunk Priority on ACD Queuing	X	X
Trunk Types	X	X
Variety of Stations	X	X
Voice Mail Integration	X	X
Zero " 00 " Operator Toll Prefix	X	X

STATION FEATURE	FEATURE PACKAGE	
	Business	Enhanced
Account Code	X	X
Alarms	X	X
Analog Modem Port	X	X
Attendant Park Pick-Up	X	X
Call Announce	X	X
Call Announce Off-Hook	X	X
Call Forward	X	X
Call Forward - Busy	X	X
Call Forward - Follow Me	X	X
Call Forward - Internal/External	X	X
Call Forward - Other Extension	X	X
Call Forward to Station Speed Call Number	X	X
Call Park	X	X
Call Park Recall	X	X
Call Splitting	X	X
Call Status Display	X	X
Call Waiting	X	X
Camp-On, Station	X	X
Camp-On, Trunk	X	X
Conferencing (Three-Party)	X	X
Consultation	X	X
Data Security	X	x
Direct Station Selection/Busy Lamp Field (DSS/BLF)	X	X
Directed Pick-Up (Station Pick-Up)	X	X
Direct Trunk Access	X	X
Do Not Disturb	X	X
Do Not Disturb Override	X	X
Elapsed Time	X	X
Executive Override	X	X
Exclusive Hold	X	X

STATION FEATURE	FEATURE PACKAGE	
	Business	Enhanced
FLASH from SLT	X	X
FLASH/New Call Button	X	X
Flexible Button Assignment	X	X
Floating Loop Line Terminations	X	X
Forced Account Code	X	X
Full Handsfree Operation	X	X
Group Pick-Up	X	X
Hotline Station	X	X
Intercom Groups	X	X
Least Cost Routing (LCR)	X	X
LED Illumination	X	X
Lost Call Recall	X	X
Message Cancellation	X	X
Message Pick-Up	X	X
Message Selective Cancellation	X	X
Message Waiting	X	X
Message Waiting (SLTs)	X	X
Monitor	X	X
Multiple Classes of Service	X	X
Multiple Group Pick-Up	X	X
Mute	X	X
Night Answer	X	X
Off-Hook Incoming Call Signaling	X	X
Primary Station Line	X	X
Program	X	X
Ringing Line Preference	X	X
Save/Last Number Redial	X	X
Selective Secretarial Override Assignment	X	X
Self Extension Ringing	X	X
Silent Messages	X	X

STATION FEATURE	FEATURE PACKAGE	
	Business	Enhanced
Speakerphone	X	X
Speed Calling (Station)	X	X
Station Page Access	X	X
Station-to-Station Calls	X	X
Terminal Password	X	X
Time and Date	X	X
Time Reminder	X	X
Tone Ringer	X	X
Touch (Key) Tone	X	X
Transfer	X	X
Transfer Camp-On	X	X
Transfer Release	X	X
Transfer with AUTO HOLD	X	X
Trunk Group Access	X	X
Voice Calling/Handsfree Answer	X	X
Walking Class of Service	X	X

ATTENDANT FEATURE	FEATURE PACKAGE	
	Business	Enhanced
ACD (Automatic Call Distribution) Access	X	X
Account Code Entry	X	X
Alarm	X	X
Alphanumeric Display	X	X
Attendant Overflow	X	X
Attendant Password	X	X
Attendant Priority	X	X
Attendant Station BLF/DSS	X	X
Attendant Transfer	X	X
Attendant Voice Message	X	X
Automatic Recall	X	X
Break-In	X	X
Call Announce	X	X
Call Park	X	X
Call Splitting	X	X
Call Waiting Indicator	X	X
Camp-On	X	X
Conference	X	X
COS/COR	X	X
Digital Clock Display	X	X
Directed Call Pick-Up	X	X
Do Not Disturb Override	X	X
Drop/Cancel	X	X
FLASH Button	X	X
Floating Loop Keys	X	X
Hold	X	X
INCOMING Button	X	X
Individual Trunk Access	X	X

ATTENDANT FEATURE	FEATURE PACKAGE	
	Business	Enhanced
Message Leaving	X	X
Multiple Attendants	X	X
Night	X	X
Paging (External)	X	X
Paging (Station)	X	X
Position Busy	X	X
Position Release	X	X
Programming	X	X
Save/Last Number Redial	X	X
Serial Call	X	X
STATION Button	X	X
Station Lockout	X	X
Station Speed Calling	X	X
Supervised Release	X	X
System Speed Calling	X	X
Through Dialing	X	X
Trunk Camp-On	X	X
Trunk Group Busy/Trunk Group Access	X	X
Trunk Priority	X	X
Trunk-to-Trunk Connection	X	X
Volume Control	X	X

KEY TELEPHONE SYSTEM FEATURE	FEATURE PACKAGE	
	Business	Enhanced
Alternate DSS	X	X
Common Hold with I-Use Indication	X	X
Delayed Ringing	X	X
DSS Camp-On	X	X
DSS Line Terminations	X	X
DSS Park	X	X
DSS Speed Calling	X	X
FLASH/New Call	X	X
Headset	X	X
Idle Line/Ringing Line Preference	X	X
Intercom Line Origination/Termination	X	X
One-Touch Selection	X	X
Postselection/Preselection	X	X
Prime Line Preference	X	X
Privacy/Privacy Release	X	X
Programming from Station	X	X
Repertory Dialing	X	X
Ringing Line Preference	X	X
Square Configuration	X	X

HOTEL/MOTEL FEATURE	FEATURE PACKAGE	
	Business	Enhanced
Automatic Wake-up	X	X
Call Charge Message Registration	X	X
Call Controlled Restriction	X	X
DND/DND Override by FDC or ATT	X	X
Front Desk Program	X	X
Hotel/Motel Printers	X	X
Hotline to Attendant	X	X
Message Registration	X	X
Message Waiting	X	X
Property Management System	X	X
Room Information for Multi-Language Wake-Up	X	X
Room Information for Room Restriction	X	X
Room Number Correlation	X	X
Room Status	X	X
Room Status Indicator	X	X
Room-to-Room Blocking	X	X
Service Call Routing	X	X
Single Digit Dialing	X	X
Special Service Codes	X	X
Time Out Routing to Attendant	X	X
Vacant Room Restriction	X	X

DATA SWITCHING FEATURE	FEATURE PACKAGE	
	Business	Enhanced
Add Data Call		X
Alternate Telephone/Keyboard Dialing		X
Alternate Voice/Data Communications		X
Automatic Answer		X
Call Control Mode		X
Data Call Detail Recording		X
Data Call Setup by Voice Port		X
Data Call Setup via Modem Pooling		X
Data Call Setup with CSD and DIU		X
Data Call Setup with Terminal Keyboard		X
Data Class of Service		X
Data Hotline		X
Data Least Cost Routing		X
Data Station Flexible Numbering Plan		X
Data Status Attribute Change		X
Data Terminal Group Hunting		X
Data Traffic Measurement		X
Individual Modem Access		X
Simultaneous Voice/Data Communications		X
Subordinate Data Call		X

ISDN FEATURE	FEATURE PACKAGE	
	Business	Enhanced
Calling Line Identification Display (CLID)		X
Calling Line Identification Display (CLID) Enhancement		X
Calling Line Identification Presentation (CLIP)		X
Calling Line Identification Restriction (CLIR)		X
CBC Service		X
ISDN Numbering Plan		X
ISDN PRI Interface		X
Maintenance		X

FIPN FEATURE	FEATURE PACKAGE	
	Business	Enhanced
Attendant Break-In		X
Attendant Call Transfer		X
Attendant Camp-On		X
Attendant Supervised Loop		X
Attendant Termination		X
Calling Party Number Display		X
Connected Party Number Display		X
Connected Party Status Display		X
Distinctive Ringing		X
Extension Break-In		X
Extension Call Transfer		X
Extension Camp-On		X
Trunk Signaling Check		X

SYSTEM SOFTWARE

The operating system incorporates an advanced software design for switching systems. It utilizes a high level programming language, CHILL, which has the following features:

- Designed specifically to meet multi-national standards.

CHILL (an acronym for CCITT High Level Language) was developed according to a recommendation of the CCITT (International Consultative Committee for Telephony and Telegraphy). This international organization defined technical standards to govern the operation of the world's telecommunications systems.

- Designed specifically for stored program control systems.

CHILL was designed primarily for programming stored program control telephone exchanges. With the increasing use of this type of system control, generic software has become very large and complex.

- Enhances system reliability.

CHILL's advanced software design provides a language processing tool which enables the switch to operate faster and the equipment to support more telephone processing than a similar switch with a different operating system.

- Provides applications flexibility.

CHILL provides powerful programming tools which make it easy to perform new applications and to exploit various kinds of hardware. In addition, CHILL supports a wide range of other applications (i.e., message switching, packet switching, etc.).

The generic software for the system utilizes the proper programming tools to achieve the maximum benefit of this telephone technology.

The software resides in ROM located on the CPU card. This card also contains the switching matrix. The optional disk drive can be located on the right side of the basic cabinet and is available for customer data saving purposes.

FCC REGISTRATION INFORMATION

In compliance with FCC regulations, the following information is provided:

1. Before connecting the telephone network, the user must notify the local telephone company of this intention and provide the telephone company with the number of the particular lines on which the system is to be used, and shall provide the telephone company the FCC registration number, the Ringer Equivalence Number (REN), and the model number of the system. This information is located on the registration plate. The FCC registration number for the system is **BJ885Z-60084-KF-E** (used as a Key System), **BJ8USA-75355-PF-E** (used as a PBX), or **BJ8USA-60083-MF-E** (used as a multi-function system).
2. The end user must inform the local telephone company of the quantities and type of Universal Service Order Code (USOC) jacks which are required as shown in the following charts.
3. When private line ports are connected to the telephone network, the user must provide the following information to the telephone company:
 - Service Order Code and Facility Interface Code.
 - The quantities and USOC numbers for the required jacks.
 - For each jack, list the sequence in which the lines are to be connected, giving technical description codes by position and the ringer equivalence number or service code where applicable.
4. Since the system does not have signal power limiting, it can only be used with FCC registered, grandfathered devices, or devices which otherwise comply with Section 68.308.
5. The system complies with the following U.S. standards:
 - FCC Part 68.
 - FCC Part 15, Class A.
 - UL 1459 telephone equipment.
 - EIA RS-464-1.

NOTE: The 6DID, 8BWC, 24T1, 23PT, 2TE4, and 4TE4 cards meet UL Type I protection. The 4BWC, 2TTL, and 2TTE cards require Type II protection at the MDF.

MTS/TS Interface

TRUNK	INTERFACE	REN	NO. OF LEADS	USOC
4BWC	2-Wire Loop	0.2A	2	RJ21X
4BWC	2-Wire G.S.	0.2A	2	RJ21X
8BWC	2-Wire Loop	0.6A	2	RJ21X
8BWC	2-Wire G.S.	0.6A	2	RJ21X
6DID	02RV2-T	0.0B	2	RJ21X

Digital Interface

TRUNK	PRIVATE LINE FACILITY INTERFACE CODE	SERVICE CODE	NO. OF LEADS	USOC
24T1	04DU9-BN 04DU9-DN 04DU9-1KN 04DU9-1ZN	6.0Y	4	RJ48C
23PT	04DU9-BN 04DU9-DN 04DU9-1KN 04DU9-1ZN	6.0Y	4	RJ48C

Private Line Interface

TRUNK	PRIVATE LINE FACILITY INTERFACE CODE	SERVICE CODE	NO. OF LEADS	USOC
2TE4	TL11M	9.0F	4	RJ21X, RJ2FX (2W E&M TYPE 2 SIG) RJ2EX (2W E&M TYPE 1 SIG) RJ2GX (4W E&M TYPE 1 SIG) RJ2HX (4W E&M TYPE 2 SIG)
	TL31M		6	
	TL12M TL32M		8	
4TE4	TL11M	9.0F	4	RJ21X, RJ2EX (2W E&M TYPE 2 SIG) RJ2FX (2W E&M TYPE 2 SIG) RJ2GX (4W E&M TYPE 1 SIG) RJ2HX (4W E&M TYPE 2 SIG)
	TL31M		6	
	TL12M TL32M		8	

Off-Premise Extension Interface

OPX CARD	FACILITY INTERFACE CODE	SERVICE CODE	NO. OF LEADS	USOC
FS35SO-4SLE	OL13A	9.0F	2	RJ21X

**FCC REGISTRATION
INFORMATION (Cont'd)**

6. FCC rules provide that, should the equipment cause harm to the telephone network, the telephone company shall, where practicable, notify the customer that temporary discontinuance of service may be required; however, where prior notice is not practicable, the telephone company may temporarily discontinue service immediately, if such action is reasonable in the circumstances.
7. FCC rules provide that the telephone company may make changes in its communications facilities, equipment operations, or procedures where such action is reasonably required in the operation of its business and is not inconsistent with the rules and regulations of the FCC. If such changes render any customer terminal equipment incompatible with the telephone company's facilities or require modification, or alteration of such terminal equipment, or otherwise materially affect its use or performance, the customer will be given adequate notice in writing to allow the customer an opportunity to maintain uninterrupted service.
8. The user shall not attempt to repair or modify this equipment. Instead, any necessary service or repair shall only be initiated and performed by the manufacturer or its authorized agent.
9. If trouble is experienced, disconnect this equipment from the telephone line to determine if it is causing the malfunction. If the equipment is determined to be malfunctioning, its use shall be discontinued until the problem has been corrected.
10. This equipment shall not be used on party lines or coin telephone lines.
11. The local telephone company must be notified when this equipment is permanently disconnected.
12. Allowing this equipment to be operated in such a manner as to not provide for proper answer supervision is a violation of part 68 of the FCC's rules.

Proper answer supervision is when:

- A. This equipment returns answer supervision to the Public Switched Telephone Network (PSTN) when DID calls are:
 - Answered by the called station.
 - Answered by the attendant.
 - Routed to a dial prompt.
 - Routed to a recorded announcement that can be administered by the CPE user.
- B. This equipment returns answer supervision on all DID calls forwarded to the PSTN. Permissible exceptions are:
 - A call is unanswered.
 - A busy tone is received.
 - A reorder tone is received.

**REFERENCE
DOCUMENTATION**

The system is complemented by a complete list of reference documentation. The following is a list of documents available or necessary:

Fujitsu Documentation

Attendant PC Console User Manual (Section 117-025-002). Describes the operations of the Attendant PC Console.

Applications Manual (Section 123-015-002). Used to assist in the feature programming of the system.

Attendant Console User Guide (Section 123-040-002). Describes Attendant Console operating instructions. A Quick Reference Guide (Section 123-045-002) is also available.

DIU User Manual (Section 123-044-002). Describes the operations of a Data Interface Unit.

Front Desk User Guide (Section 123-049-002). Describes the Front Desk Console operating instructions.

Digital Station User Guide (Section 123-050-002). Describes the operations of the Digital Stations. A Quick Reference Guide (Section 123-051-002) is also available.

CT-10/20/30 User Guide (Section 123-052-002). Describes CT-10, CT-20, and CT-30 telephone operating instructions. A Quick Reference Guide (Section 123-053-002) is also available.

DSS Quick Reference Guide (Section 123-055-002). Describes user operations for the DSS/BLF. Refer to the CT-10/20/30 User Guide for more detailed information on feature operation using the DSS.

Installation Manual (Section 123-056-002). Provides complete instructions for installing the Series 3 system.

ACD Agent/Supervisor Quick Reference Guide (Section 123-058-002). Describes user operation of Automatic Call Distribution (ACD) features.

Maintenance Manual (Section 123-060-002). Provides programming and hardware information for maintaining the Series 3 system.

Single Line Telephone User Guide (Section 123-063-002). Describes single line telephone operating instructions. A Quick Reference Guide (Section 123-054-002) is also available.

Data Base Manual (Section 123-080-002). Provides information necessary for installation programming and maintenance of the system.

Site Log (Section 123-200-002). Provides the forms necessary to document the programming for the system.

Related Documentation

The Integrated Voice Server (IVS) is a voice messaging system that is designed to complement the Series 3 system. The following is a complete list of documentation for the IVS:

IVS System Manual (Section 117-011-002). Provides complete programming information for installing and maintaining the IVS.

IVS Installation/Maintenance Manual (Section 117-012-002). Provides hardware installation and maintenance information for the IVS.

IVS User Guide (Section 117-014-002). Describes user operation of the IVS features.

IVS Administrator Manual (Section 117-015-002). Provides maintenance programming information for on-site administration of the IVS.

Call Manager is an integrated call accounting system designed to operate with the Series 3 and its Station Message Detail Recording (SMDR) capability. The following is a complete list of documentation for the Call Manager:

Call Manager Polling Document (Section 117-036-001). Provides information on the collection, storage, and pricing of call records.

Call Manager Report Writer System Manual (Section 117-037-001). Provides information on call record buffering and pricing, archiving onto the hard disk, and enhanced PC-based reporting capabilities.

Call Manager System Manual - Commercial (Section 117-038-001). Provides information on collecting SMDR data, storage of formatted call records into system memory, and the pricing of the call records as system reports are generated.

Call Manager System Manual - Lodging (Section 117-039-001). Provides information on collecting SMDR data, storage of formatted call records into system memory, and the pricing of the call records as system reports are generated. In addition, housekeeping, maintenance, and occupancy information is included for the Lodging system.

The ACD Report Manager enables ACD users to interface to an external, PC-driven reporting system. On-screen and printed reports are available, to aid in making effective use of Automatic Call Distribution capabilities. The following is a complete list of documentation for the ACD Report Manager:

ACD Report Manager Platform Manual (Section 117-029-007). Provides information about the Acer 486 PC and its add-on components to be used with the ACD Report Manager system.

ACD Report Manager User Guide (Section 117-040-007). Describes user operation of the ACD Report Manager.

ACD Report Manager System Manual (Section 117-043-007). Describes the system configuration, available features, generation of reports, and installation information.

SYSTEM CONFIGURATION

The Series 3 system has full universal card slot architecture which allows either line or trunk cards to be used in most card slot locations. Figure 2-1 shows a general system configuration with accompanying telephones and other peripherals.

As with all communications systems, the configuration of the system depends on the user's line and trunk requirements.

NOTE: Line/trunk card replacement does not require reprogramming the system features.

Figure 2-2 shows the internal card slot configuration used for both basic and expansion cabinets. Certain card slots are dedicated for the common control cards and the Power Failure Transfer (6PFA) card.

The basic system configuration utilizes one equipment cabinet and provides up to 120 stations or 80 trunks. The expanded system configuration can add up to three additional universal equipment cabinets. Therefore, the system can consist of one, two, three, or four cabinets. The maximum system capacities are:

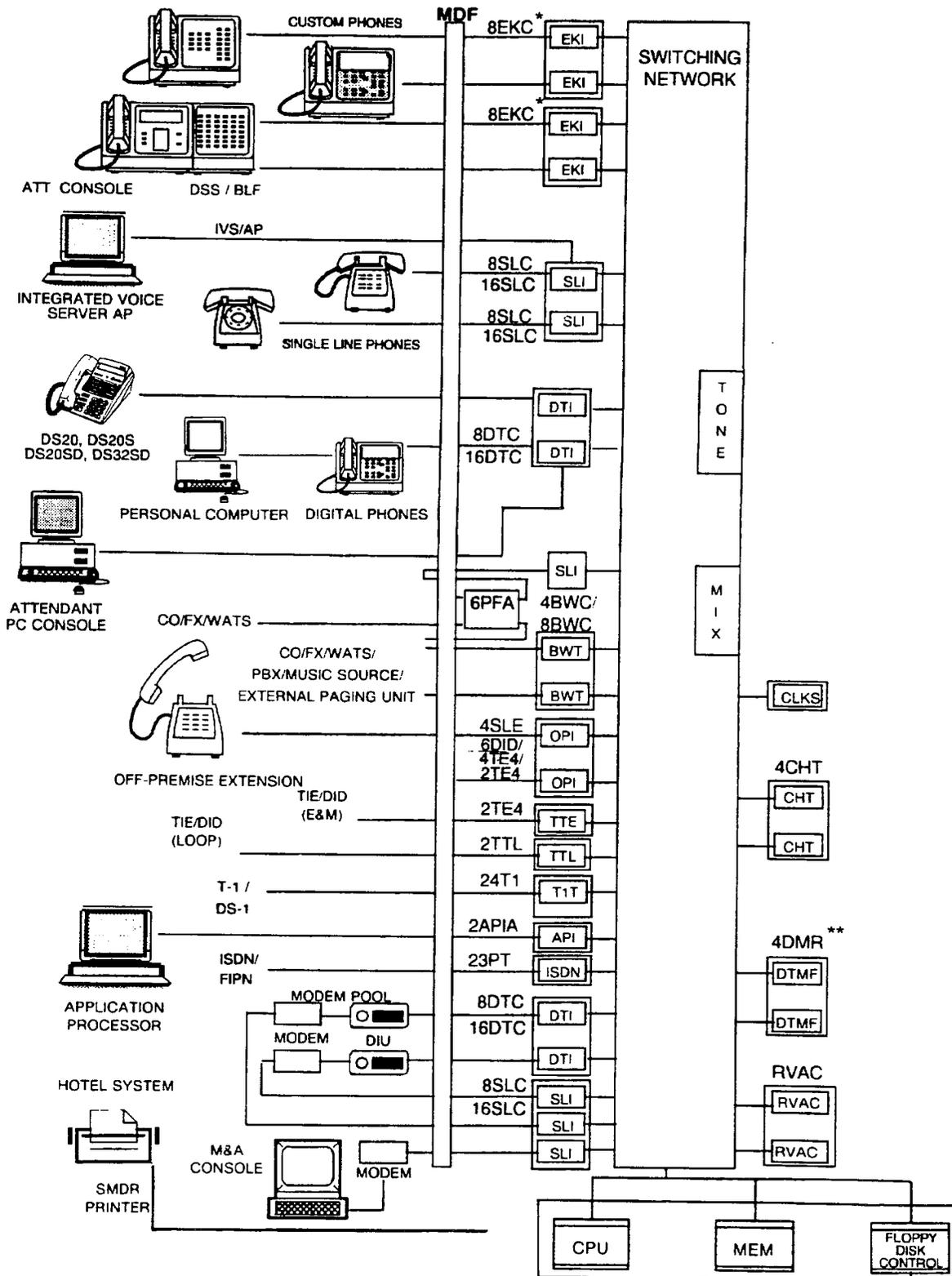
NUMBER OF CABINETS	TRUNKS	STATIONS
1	80	120
2	160	240
3	240	360
4	240	480

Card Slots Table 2-1 and Table 2-2 lists the card slots available for the various types of cards. Table 2-1 shows the differences between physical and logical card slots, with installation restrictions for each card. Table 2-2 lists in which physical slot each circuit card can be installed (by cabinet), and total system capacities.

Cards per Cabinet Maximums Table 2-3 lists the maximum number of cards per cabinet for trunks, stations, data stations, etc., for the system.

System Capacities Refer to Table 2-4 for maximum system capacities (listed per feature). This table is used to describe all system maximums. All system maximums cannot be utilized simultaneously in the Series 3.

Figure 2-1. System Configuration Overview



* EKC portion of MUFN card (future option) may be used.

** DMR portion of MUFN card (future option) may be used.

Table 2-1. Card Slot Usage

Physical Slot	00	01	02	03	04	05	06	07	08	09	10 ¹
Logical Slot ²	0 1	2 3	4 5	6 7	8 9	10 11	12 13	14 15	16 17	17	18
16DTC	X	X	X	X	X	X	X	X	3	-	-
16SLC	X	X	X	X	X	X	X	X	3	-	-
8DTC	4	4	5	4	4	5	4	5	5	5	-
8EKC	X	X	X	X	X	X	X	X	X	X	-
8PDL	X	X	X	X	X	X	X	X	X	X	-
8SLC	X	X	X	X	X	X	X	X	X	X	-
8BWC	X	X	X	X	X	X	X	X	X	X	-
4BWC	X	X	X	X	X	X	X	X	X	X	-
4SLE	X	X	X	X	X	X	X	X	X	X	-
6DID	X	X	X	X	X	X	X	X	X	X	-
4TE4	X	X	X	X	X	X	X	X	X	X	-
2TE4	X	X	X	X	X	X	X	X	X	X	-
2TTE	X	X	X	X	X	X	X	X	X	X	-
2TTL	X	X	X	X	X	X	X	X	X	X	-
4DMR	X	X	X	X	X	X	X	X	X	X	10
4CHT	X	X	X	X	X	X	X	X	X	X	-
2APIA	X	X	X	X	X	X	X	X	X	X	-
24T1	6	7	-	6	7	-	6	8	-	-	-
23PT	6	7	-	6	7	-	6	8	-	-	-
RVAC	X	X	X	X	X	X	X	X	X	X	-
CLKS	-	-	-	-	-	-	-	-	-	9	-
CACC/H	X	X	X	X	X	X	X	X	X	X	10
MUFN ¹¹	X	X	X	X	X	X	X	X	3	-	-

Refer to next page for explanation of notes.

Notes for Table 2-1

- Note 1 Physical slot 10 is not available in the Basic cabinet (cabinet 0).
- Note 2 When a 2, 4, 6, 8 circuit card, a 24T1, or a 23PT card is assigned, the logical slot number shown as bold in the table is used for the equipment numbers. An 8EKC assigned to physical slot 2 of cabinet 2 (the first expansion cabinet) will use equipment numbers 2040 to 2047. An 8EKC assigned to physical slot 1 of cabinet 2 will use equipment numbers 2030 to 2037. The equipment numbers of a 24T1 card in physical slot 3 of cabinet 2 are 2060 to 2067, 2070 to 2077, and 2080 to 2087.
- When a 16 circuit card is assigned, two logical slot numbers are used. If a 16DTC is installed in physical slot 2 of the basic (first) cabinet, the equipment numbers are 0040 to 0047, and 0050 to 0057.
- Note 3 When a 16 circuit card (16DTC, 16SLC, or MUFN) is installed in physical slot 8, physical slot 9 must be empty, unless occupied by a CACC/H card or CLKS card.
- Note 4 The first six circuits of the 8DTC card can be used for simultaneous voice and data on CSD phones.
- Note 5 Simultaneous voice and data is not available for CSD with DTA phones.
- Note 6 When a 24T1 or 23PT is installed in physical slot 0, 3 or 6, the next physical slot (1, 4, or 7) can be used only for 1, 2, 4, 6, or 8 circuit card or another 24T1 or 23PT card.
- Note 7 When either a 24T1 or 23PT is installed in physical slot 1 or 4, the next physical slot (2 and 5) must be empty. **Clock extraction can be made from the basic (0) cabinet only.**
- Note 8 When either a 24T1 or a 23PT card is installed in physical slot 7, the next three physical slots (8, 9, and 10) must be empty. Clock extraction cannot be made on this card.
- Note 9 CLKS card can be installed only in physical slot 9 of the Basic cabinet.
- Note 10 This card slot is used in the expansion cabinet(s) only.
- Note 11 The first eight circuits of the MUFN card are EKC circuits, although only circuits 0, 2, 4, and 6 may be used (circuits 1, 3, 5, and 7 are not available). The next four circuits are used for the DTMF receiver function. The quantity of DTMF receiver circuits and EKC circuits on this card must be taken into account along with circuits on any other 4DMR and 8EKC cards when calculating system maximum capacities.
- When installed in a two-hiway card slot, the EKC portion of the MUFN card occupies the first hiway and logical card slot. The DMR portion of the MUFN occupies the second hiway and logical card slot. Any required M&A commands should reference the appropriate commands used for the 4DMR and 8EKC cards.

Table 2-2. Available Card Slots (Physical Slots)

CARD TYPE	INTERFACE	BASIC CAB.	EXPAN. CABINET 1	EXPAN. CABINET 2	EXPAN. CABINET 3	TOTAL SYSTEM CAPACITY
2APIA	Application Processor	00-09	00-09	00-09	00-09	2
2TTL	Loop Tie Lines, Loop DID Lines	00-09	00-09	00-09	00-09	40*
6DID	Direct Inward Dialing Trunks	00-09	00-09	00-09	00-09	40*
2TE4	E&M Tie Lines	00-09	00-09	00-09	00-09	40*
4TE4	E&M Tie Lines	00-09	00-09	00-09	00-09	40*
4BWC	Loop/Ground Bothway Trunk; FX, WATS, CO	00-09	00-09	00-09	00-09	40*
8BWC	Loop/Ground Bothway Trunk; FX, WATS, CO	00-09	00-09	00-09	00-09	30*
4CHT	Hotel/Motel Printer or Data Terminal	00-09	00-09	00-09	00-09	4
CLKS	T-1 Digital Trunk	09	--	--	--	1
4DMR	DTMF for Single Line Stations	00-09	00-10	00-10	00-10	8
4SLE	OPX Circuits	00-09	00-09	00-09	00-09	40
6PFA	Power Failure Stations	Dedicated	Dedicated	Dedicated	Dedicated	4
8EKC (CTs require Rev 13D or higher)	CT-10, CT-20, CT-30, DSS/BLF, RSIs, Attendant Consoles	00-09	00-09	00-09	00-09	40
MUFN	CT-10, CT-20, CT-30, DSS/BLF, RSIs, Attendant Consoles	00-08	00-08	00-08	00-08	8
8DTC	CSD w/DTA/, DSS 30, DS20, DS20S, DS20SD, DS32SD, Attendant PC Console	00, 01, 03, 04, 06	00, 01, 03, 04, 06	00, 01, 03, 04, 06	00, 01, 03, 04, 06	20

* Maximum of combined circuits is 240.

** The sum of installed MUFN cards and 8EKC cards may not exceed 40.

Table 2-2. Available Card Slots (Physical Slots) (Cont'd)

CARD TYPE	INTERFACE	BASIC CAB.	EXPAN. CABINET 1	EXPAN. CABINET 2	EXPAN. CABINET 3	TOTAL SYSTEM CAPACITY
8DTC	CSD w/o DTA/DIU/ DS20, DS20S, DS20SD, DS32SD	00-09	00-09	00-09	00-09	40
8SLC	Single Line Stations, IVS Interface	00-09	00-09	00-09	00-09	40
16DTC	CSD w/o DTA/DIU/ DS20, DS20S, DS20SD, DS32SD, Atten- dant PC Console	00-08	00-08	00-08	00-08	32
16SLC	Single Line Stations, IVS Interface	00-08	00-08	00-08	00-08	32
24T1	Digital Trunk	00, 01, 03, 04, 06, 07	00, 01, 03, 04, 06, 07	00, 01, 03, 04, 06, 07	00, 01, 03, 04, 06, 07	10*
23PT	ISDN Trunk	00, 01, 03, 04, 06, 07	00, 01, 03, 04, 06, 07	--	--	10*
SC2P2B / SC2P2E / SC4P2B / SC4P2E	Central Processor/ Memory/ Switch Control	Dedi- cated	--	--	--	1
SSDEC	Signal Distributor	--	--	Dedicated	--	1
RVAC	Recorded Voice Announcement	00-09	00-09	00-09	00-09	8
CACC**	Call Manager (Commercial)	00-09	00-10	00-10	00-10	1
CACH**	Call Manager (Hospitality)	00-09	00-10	00-10	00-10	1

* Maximum of combined circuits is 240.

** These cards can be placed in any of the indicated card slots, except when the slot is next to either a 24T1 or 23PT card installed in slot 01, 04, or 07.

Table 2-3. Cards per Cabinet Maximums

CARD TYPE	INTERFACE	BASIC CABINET	EXPAN. CABINET 1	EXPAN. CABINET 2	EXPAN. CABINET 3	TOTAL SYSTEM CAPACITY
2APIA	Application Processor	2	2	2	2	2
2TTL	Loop Tie Lines, Loop DID Lines	10	10	10	10	40*
6DID	Direct Inward Dialing Trunks	10	10	10	10	40*
2TE4	E&M Tie Lines	10	10	10	10	40*
4TE4	E&M Tie Lines	10	10	10	10	40*
4BWC	Loop/Ground, Bothway Trunk; FX, WATS, CO	10	10	10	10	40*
8BWC	Loop/Ground, Bothway Trunk; FX, WATS, CO	10	10	10	10	30*
4CHT	Hotel/Motel Printer or Data Terminal	2	2	2	2	4
CLKS	T-1 Digital Trunk	1	0	0	0	1
4DMR / MUFN**	DTMF for Single Line Stations	8	8	8	8	8
4SLE	OPX Circuits	10	10	10	10	40
6PFA	Power Failure Stations	1	1	1	1	4
8EKC (Rev 13D or higher)	CT-10, CT-20, CT-30, DSS/BLF, RSIs, Attendant Consoles	10	10	10	10	40
8DTC	CSD w/DTA, Attendant PC Console	5	5	5	5	20
8DTC	CSD w/o DTA/ DIU/ DS20, DS20S, DS20SD, DS32SD, Attendant PC Console	10	10	10	10	40

* Maximum of combined circuits is 240.

** Totals include both 4DMR and MUFN cards. The MUFN card is a future Series 3 option.

Table 2-3. Cards per Cabinet Maximums (Cont'd)

CARD TYPE	INTERFACE	BASIC CABINET	EXPAN. CABINET 1	EXPAN. CABINET 2	EXPAN. CABINET 3	TOTAL SYSTEM C'PACITY
8SLC	Single Line Stations, IVS Interface	10	10	10	10	40
16DTC	CSD w/o DTA/ DIU/ DS20, DS20S, DS20SD, DS32SD, Attendant PC Console	9	9	9	9	32**
16SLC	Single Line Stations, IVS Interface	9	9	9	9	32**
24T1	Digital Trunk	5	5	5	5	10*
23PT	ISDN Trunk	5	5	0	0	10*
SC2P2B / SC2P2E / SC4P2B / SC4P2E	Central Processor/ Memory/ Switching	1	0	0	0	1
SSDEC	Signal Distributor	0	0	1	0	1
RVAC	Recorded Voice Announcement	2	2	2	2	8
CACC/H	Call Manager	1	1	1	1	1

* Maximum of combined circuits is 240.

** Each cabinet can accommodate up to nine cards, but only thirty-two cards total can be activated.

Table 2-4. System Maximum Capacities

SUBJECT	BASIC CABINET	EXPAN. CABINET 1	EXPAN. CABINET 2	EXPAN. CABINET 3	SYSTEM MAXIMUM
Ports	144	292	440	588	588
Total Trunks	80	160	240	240	240
Trunk Groups	44	44	44	44	44
SCC Routes	10	10	10	10	10
Terminating Trunk Groups	63	63	63	63	63
Trunk Dialing Groups	3	3	3	3	3
Trunk Restriction Groups	3	3	3	3	3
Trunk Queuing/ Simultaneous	20	20	20	20	20
Total Stations	120	240	360	480	480
DS20, DS20S, DS20SD, DS32SD/ CSD (voice only)	120	240	360	480	480
Proprietary Stations (CS, CT, and CSD telephones)	80	160	240	320	320
Single Line Stations	120	240	360	480	480
Master Control Telephones	20	20	20	20	20
Attendant Consoles	8	8	8	8	8
30 Button DSS/BLF	16	16	16	16	16
40 Button DSS/BLF	16	16	16	16	16
80 Button DSS/BLF	8	8	8	8	8
100 Button DSS/BLF	2	2	2	2	2
CSD w/DTA	30	60	90	120	120
Speaker Paging	9 zones + all zone				
Tenants	63	63	63	63	63

NOTE: DSS 30, 40, 80, and DSS 100 cannot exceed 640 buttons total. (DSS 30s count as DSS 40s for total button count.)

Table 2-4. System Maximum Capacities (Cont'd)

SUBJECT	BASIC CABINET	EXPAN. CABINET 1	EXPAN. CABINET 2	EXPAN. CABINET 3	SYSTEM MAXIMUM
Power Fail Transfer Lines	6	12	18	24	24
Voice Mail	1*	1*	1*	1*	1*
ACD Call Waiting Indicator	10	10	10	10	10
Room Status Indicators	18	18	18	18	18
DIU	80	152	152	152	152
DID Trunks	120	240	240	240	240
DID Trunk Groups	6	6	6	6	6
DTMF Receivers	32	32	32	32	32
Mixers	10	10	15	15	15
SLT Ringing	6/ring phase	12/ring phase	18/ring phase	24/ring phase	24/ring phase
SLT MW Lamps Lit	50	100	150	200	200
Speaker Use	96	192	288	384	384
Time Slots	512	512	1024	1024	1024

* One Voice Mail per system is supported with no limitation on the maximum number of voice mail ports.

CARD GROUPS

The Series 3 incorporates common control cards, interface cards, and power modules.

Common Control Cards

The following cards belong in the common control card group:

- SCPN2M/ SCPN4M (System Control card).
- SSDEC (Signal Distributor card).

Interface Cards

The cards listed below constitute the new interface cards:

- 8BWC (High density bothway trunk card).
- 16DTC (High density 16-circuit digital telephone card).
- 16SLC (High density 16-circuit single line telephone card).
- 24T1 (T-1 digital trunk card).
- 6PFA (Power failure transfer card).

The additional interface cards are covered in detail in the System Interface Card Group section in this chapter.

Power Modules

The five power modules are as follows:

- ACPD (AC Power Distribution Box).
- DCPD (AC/DC Power Distribution Box).
- MPSU (Main Power Supply Unit).
- RGMW (Ring and Message Waiting Unit).
- -48V PS (-48V Power Supply).

CPU (Central Processing Unit)

The CPU (SCPN2M / SCPN4M card) contains the system microprocessor, memory, network switching, one optional floppy disk drive interface circuit, an internal 8 or 16 MHz clock, calendar, input/ output communications interface, visual indicators, and other control circuits. The CPU card also performs time slot switching for voice and data path connections.

The SCPN2M card is equipped with an 8 MHz Proprietary Fujitsu Processor CPU and 512 channels multiplex, while the SCPN4M card has a 16 MHz Proprietary Fujitsu Processor CPU and 1,024 channels multiplex.

The CPU cards have installed daughter boards (SM2E2 or SM4E2) used for memory (ROM and RAM) and an optional floppy disk controller. If the Series 3 system should lose power or should the card be unplugged, the battery that resides in the card retains the system ODDB in RAM of the memory board. Refer to Table 2-5 for a list of CPU card specifications.

The main components and their functions are as follows:

- An 8- or 16-bit Proprietary Fujitsu Processor acting as the central processing unit.
- ROM (Read Only Memory), which contains the system program and stores the ODDB (Office Dependent Data Base) information. The system program contains the specific feature package and the ODDB contains the customized, customer-specific data base.
- One optional floppy disk drive control circuit acts as an interface unit to the floppy disk drive. The floppy disk drive is used to store the customer ODDB only.
- RTS (Real-Time Source) acts as an internal system clock and displays time and data on proprietary telephones with LCD displays.

CPU (Central Processing Unit) (Cont'd)

- A Serial Communication Interface consisting of two RS-232C input/output transmission ports for communications outside the system.
 - One port is equipped with a 2400 bps modem which may be used for data interchange with a maintenance device, such as a PC using the PcMP™ software program connected to a remote maintenance center.
 - One port may be used for SMDR (Station Message Detail Recording) output to the Call Manager integrated call accounting application.

Both ports are data base programmable and support full duplex transmission.

Table 2-5. Specifications of the CPU Cards

SPECIFICATION	SCPN2M	SCPN4M
CPU	Proprietary Fujitsu	Proprietary Fujitsu
Clock	8 MHz	16 MHz
Network	512 ch TDM	1024 ch TDM
System Memory	ROM: 2 Mb (max. 3 Mb) SRAM: 1.5 Mb (max. 2 Mb)	ROM: 2 Mb (max. 3 Mb) SRAM: 1.5 Mb (max. 2 Mb)
Floppy Disk Drive (optional)	3.5 inch 1.44 Mb IBM DOS format	3.5 inch 1.44 Mb IBM DOS format

System Memory

The daughter board is a component of the various CPU cards, and holds the system program and the customer data base (ODDB). It consists of ROMs and static RAMs (SRAM).

The daughter board components and their functions are as follows:

- ROM (Read Only Memory) is the storage address for the system program.
- SRAM (Static Random Access Memory) is the storage address for the customer data base and more system program information.

NOTE: The daughter board consists of 1 Mb ROM chips and 256 Kb SRAM chips.

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System Memory (Cont'd)

The software revision is identified on the daughter board by a label in the following manner:

- C2P2B: This indication means that the SCPN2M card is equipped with the Basic software package.
- C2P2E: This indication means that the SCPN2M card is equipped with the Enhanced software package.
- C4P2B: This indication means that the SCPN4M card is equipped with the Basic software package.
- C4P2E: This indication means that the SCPN4M card is equipped with the Enhanced software package.

The software version is displayed as P20 x.x #5. The "#5" shows the country number (U.S.A.). If this is displayed as "??," this indicates that the software is either a foreign version or has been illegally modified.

System Interface Card Group

The System Interface Card Group controls the interactions of the system peripherals (telephones, etc.) with the system hardware, PBXs, and the public switched telephone network. The card slots available for line and trunk connections are as follows:

- Cabinet one: 10 slots (0-9).
- Cabinet two: 11 slots (0-10).
- Cabinet three: 11 slots (0-10).
- Cabinet four: 11 slots (0-10).

The cards which make up the System Interface Card Group and their functions are listed below.

- **4SLE Card (Single Line Loop Extender Card)**
 - Switch selectable: provides option for loop limits of up to 1600 ohms/1300 ohms (long line), including the telephone equipment, or 600 ohms (short line). Setting both switches to "long" allows use of the card for off-premise extensions
 - Provides -48 VDC interface when required
 - Allows personnel in an off-premise location to make business calls using an extended loop from the system
 - Maximum of 40 cards per system
- **8SLC (Single Line Telephone Card)**
 - Provides interface circuitry between standard SLTs and the system
 - Provides interface circuits for the IVS
 - Eight circuits per card
 - One-pair wiring
 - Performs real-time processing for interface circuits via 8-bit microprocessor
 - Loop resistance of up to 600 ohms, including telephone set
 - Maximum of 40 cards per system
- **16SLC (Single Line Telephone Card)**
 - Provides interface circuitry between standard SLTs and the system
 - Provides interface circuits for the IVS
 - Sixteen circuits per card
 - Loop resistance of 600 ohms
 - Battery feeding; current limiting circuit, less than 35mA with 500 type telephone
 - Insertion loss: -3 dB (\pm 0.4 db)
 - Maximum of 32 cards per system
- **8PDL (Positive Disconnect Line Card)**
 - Provides disconnect supervision in conjunction with voice mail and dictation devices, as well as external conference bridge equipment.
 - Eight circuits per card

**System Interface Card Group
(Cont'd)**

- **8DTC (Digital Telephone Card)**
 - Provides interface circuitry between a CSD, DS station, DSS 30 button, and/or a DIU and the system
 - Provides interface circuitry for the Attendant PC Console
 - Eight circuits per card (six of which may be used for voice and data transmission with a CSD with Data Terminal Adapter)
 - One-pair wiring for voice/data transmission, control data transmission, and power feeding
 - Loop limit of 2,000 feet with 24 AWG wire
 - Maximum of 40 cards per system

- **16DTC (Digital Telephone Card)**
 - Provides interface circuitry for the digital stations such as the DS20, DS20S, DS20SD, DS32SD (Digital Telephone), Attendant PC Console, DIU, DSS 30 button, and CSD without DTA.
 - Sixteen circuits per card
 - One-pair wiring
 - Loop limit of 2,000 feet with 24 AWG wire
 - Maximum of 32 cards per system

- **8EKC (Electronic Key Telephone Card)**
 - Provides interface circuitry between the CT-10, CT-20, CT-30, DSS/BLF Console (40, 80, 100 button), Attendant Console and the system
 - Eight circuits per card
 - Two-pair wiring; 1 pair for data and power control transmission and 1 pair for voice transmission
 - Loop limit of 2,000 feet with 24 AWG wire (DSS with one control pair is 1,000 feet; with two control pairs, 2,000 feet)
 - Maximum of 40 cards per system

- **MUFN (Multi-Function Card)**
 - Provides EKC interface circuitry between the CT-10, CT-20, CT-30, DSS/BLF Console (40, 80, 100 button), Attendant Console and the system
 - Four EKC circuits per card; four DMR circuits per card
 - Two-pair wiring; 1 pair for data and power control transmission and 1 pair for voice transmission
 - Loop limit of 2,000 feet with 24 AWG wire (DSS with one control pair is 1,000 feet; with two control pairs, 2,000 feet)
 - Includes 4DMR function (receives DTMF tones from pushbutton SLTs and converts them into dialed numbers)
 - 8-bit microprocessor control
 - Maximum of 40 cards per system

- **4BWC (Central Office Bothway Trunk Card)**
 - Provides interface circuitry for communications between the public switched telephone network and the system
 - Four circuits per card
 - 8-bit microprocessor on each card
 - Loop and ground start signal supervision
 - Loop resistance of 3200 ohms, including central office equipment
 - Maximum of 40 cards per system

**System Interface Card Group
(Cont'd)**

- **8BWC (Central Office Bothway Trunk Card)**
 - Provides interface circuitry for communications between the public switched telephone network and the system
 - Eight circuits per card
 - 8-bit microprocessor on each card
 - Loop and ground start signal supervision
 - Loop resistance of 3200 ohms, including central office equipment
 - Maximum of 30 cards per system
- **2TE4 (E&M Tie Trunk Card)**
 - Provides 2-wire or 4-wire interface circuitry between the common carrier signaling equipment and DID (Direct Inward Dialing) trunks and the system
 - Provides for tie lines between PBXs
 - Two types of signaling interface; type 1 - up to 150 ohms, type 2 - up to 300 ohms
 - Supports DID
 - Maximum of 40 cards per system (in combination with 2TTL/4TE4 cards)
- **4TE4 (E&M Tie Trunk Card)**
 - Provides 4-wire interface circuitry between the common carrier signaling equipment and DID (Direct Inward Dialing) trunks and the system, and tie lines between PBXs
 - Four circuits per card
 - Two types of signaling interface; type 1 - up to 150 ohms, type 2 - up to 300 ohms
 - Supports DID
 - Maximum of 40 cards per system (in combination with 2TTL/2TE4 cards)
- **2TTL (Loop Dial Tie Trunk Card)**
 - Provides interface circuitry between the common carrier signaling equipment and DID trunks and the system
 - Two circuits per card
 - 8-bit microprocessor on each card
 - Loop resistance of 3000 ohms
 - Supports DID
 - Maximum of 40 cards per system (in combination with 2TE4/4TE4 cards)
- **6DID (Direct Inward Dialing Trunk Card)**
 - Provides interface for direct inward dialing lines (incoming calls only)
 - Loop or battery and ground pulsing
 - Six circuits per card
 - Maximum of 40 cards per system

**System Interface Card Group
(Cont'd)**

- **4DMR (Dual-Tone Multi-Frequency Receiver Card)**
 - Receives DTMF tones from pushbutton SLTs and converts them into dialed numbers
 - Four circuits per card
 - 8-bit microprocessor control
 - Maximum of 8 cards per system
- **RVAC (Recorded Voice Announcement Card)**
 - Records and provides voice message or announcement
 - One port for recording and seven ports for playing messages per card
 - 8-bit microprocessor on each card
 - Supports up to seven simultaneous calls
 - Maximum of eight cards per system
 - Capacity is 14 message blocks of 4 seconds each; 56 seconds total
- **2APIA Card (Application Processor Interface Card)**
 - Provides the interface to an external application processor;
 - ACD Report Manager, Hotel/Motel system interface, or Property Management System
 - Two circuits per card
 - Maximum of 2 cards per system
- **CLKS Card (Clock Card)**
 - Synchronizes the system clock to the clock from an outside network for the T-1 digital trunk interface and the 23PT card
 - Input signal frequency is 8 kHz (Duty 50%)
 - Output signal frequency 16.384 MHz (Duty 50%)
 - TTL signal frequency
 - Maximum of one card per system
- **24T1 Card (24 Channel Digital Trunk Card)**
 - Provides a digital trunk interface to connect to a facility under the North American T-1 standard
 - DS-1 interface
 - Maximum of 10 per system (maximum number of channels: 240)
- **4CHT (Character Trunk Card)**
 - Transmits/receives up to 19.2 kbps asynchronous ASCII data
 - Provides message output to the printer for Hotel/Motel applications
 - Provides keyboard dialing for data communication
 - Maximum of 4 cards per system

**System Interface Card Group
(Cont'd)**

- **23PT Card (ISDN Trunk Card)**
 - Provides a digital trunk interface to connect to a facility under the North American T-1 standard
 - Provides a FIPN connection to link systems together
 - Clock card is necessary to synchronize the system clock to an outside network
 - ISDN PRI protocol signaling (4ESS, 5ESS, DMS 100, DMS 250)
 - Maximum of 10 cards per system (maximum number of channels: 230)

- **6PFA (Power Failure Transfer Card)**
 - Transfers six CO trunks to predetermined single line telephone sets in the event of a power failure or interruption in system call processing
 - 6PFA cards are installed in dedicated areas in the system cabinet(s). It does not require a separate card slot.
 - Provides MAJOR/MINOR alarm indication signal on the MDF connector
 - Supports both Loop and Ground Start trunks
 - Automatically generates the Ground Start pulse upon detecting an off-hook for an outgoing call
 - Circuits can be individually identified as either Loop or Ground Start
 - Maximum of 4 cards per system

4DMR / MUFN Cards To give users additional flexibility in station instruments, industry standard SLTs (Single Line Telephones) may be used instead of the proprietary electronic telephones. Using pushbutton SLT sets requires that the system configuration includes DTMF (Dual-Tone Multi-Frequency) receivers. These DTMF receivers convert DTMF tones into dialed numbers and dialed numbers into DTMF tones. A Ring Generator is also required. The 4DMR / MUFN card is also used for the IVS interface, in addition to DTMF tie lines, DID, and T-1.

As can be seen in Table 2-6, the number of DTMF cards required for SLTs depends on the traffic handling capabilities of the system measured by CCS (Hundred Call Seconds), a standard line usage measurement.

Table 2-6. DTMF Receiver Requirements

TRAFFIC	0 TO 49 DTMF STATIONS	OVER 50 DTMF STATIONS	OVER 60 DTMF STATIONS	OVER 90 DTMF STATIONS	OVER 150 DTMF STATIONS	OVER 200 DTMF STATIONS
Normal (6 CCS)	1	1	1	2	2	2
Heavy (9 CCS)	1	1	2	2	2	3
Very Heavy (12 CCS)	1	2	2	2	3	3

For example, if the system is configured for 60 stations at greater than 9 CCS; two 4DMR / MUFN cards are needed. If the system is configured for 60 stations at less than 6 CCS, one 4DMR / MUFN card is needed.

Power Modules

- **ACPD/DCPD:** The AC Power Distribution Box or the AC/DC Power Distribution Box is the primary power input to the Series 3 system. This unit is available in two versions; AC for AC only operation, and AC/DC for AC with battery back-up operation. To protect batteries, the low voltage disconnect function is added to the AC/DC unit. The Basic cabinet and Cabinet 3 are equipped with an ACPD or DCPD.
- **MPSU:** The Main Power Supply Unit (MPSU) provides +5V, -5V and -24V DC power from 115V AC or -48V DC for common control cards and interface cards. Each cabinet includes its own MPSU.

- Power Modules (Cont'd)**
- **RGMW:** The Ring Generator supplies 20Hz ring voltage and DC message waiting voltage for single line telephones. One RGMW mounted in cabinet one supplies ring voltage and message waiting power for cabinets one and two. One RGMW in cabinet three supports cabinets three and four. RGMW will provide four-phase ring voltages by a signal from the system common control unit. The fourth phase can be configured for either Ringing or Message Waiting. Three ringing patterns will be generated:
 - 1 on/3 off for internal calls
 - 4 on/0.2 off/0.4 on/3 off for trunk calls
 - 1 on/1 off for recalls

No more than 2.0 REN can be connected to one circuit per 8SLC/16SLC card. Each phase of the ring generator can support up to twelve RENs.

- **-48V PS:** The -48V PS supplies -48 volts for 4SLE, 6DID and 4TE4 cards and recharging back-up batteries. The -48V PS is installed in each cabinet. If battery back-up is installed in the system, the -48V PS module will provide current to recharge the batteries.

Table 2-7 lists the electrical characteristics of the three power supply units.

Table 2-7. Electrical Characteristics of Power Supply Units

	MPSU				RGMW		-48V PS
	+5VA	+5VB	-5V	-24V	RG	MW	
Input Volts	115V AC/-48V DC				-24V DC	-24V DC	115V AC
Output Volts	+5V	+5V	-5V	-24V	85V (20Hz AC)	-110V	-48V
Output Amps	5.0	8.3	1.6	2.5	0.24	0.10	3.00

SYSTEM DEFAULTS**3 and 4 Digit Numbering Plan
(Defaults)**

The system provides two different default numbering plans:

- 3-digit numbering plan.
- 4-digit numbering plan.

You may chose the desired default numbering plan by selecting certain DIP switch settings on the CPU card.

Once the system is initialized, the selected default data base assigns station numbers to all active voice stations and data terminals in the system. Voice station number assignments are as follows:

- 3-digit numbering plan = numbers 200 through 439.
- 4-digit numbering plan = numbers 2000 through 2777.

See the Data Base Manual for details on how to set the DIP switch for these numbering plans.

**Feature Button Assignment
(Default)**

The system assigns lines and features to the feature buttons of the proprietary telephones based on the system configuration. If an Attendant Console is installed in the system, the default feature/line assignments are PBX arrangements. If there is no Attendant Console installed, the system assigns key telephone features to the instruments.

SYSTEM OPTIONS**Call Manager**

Call Manager is an integrated call accounting system designed to operate with the system and its Station Message Detail Recording (SMDR) capability. Call Manager collects SMDR data, stores formatted call records into system memory, and then prices the call records as printed reports are generated. Printed reports may be generated either automatically or on-demand with the use of a terminal device such as an optional touchpad or programming terminal. Call record information is sent to a serial printer. For more information, refer to Chapter 4 of this manual.

**External Calls Waiting
Indicator**

The ACD Calls Waiting Indicator provides a visual indication of the approximate number of calls waiting in the ACD queue. The indicator panel contains four pairs of yellow and red lamps corresponding to four ACD groups. The lamps are dark if the queue size is less than the first threshold. The yellow lamp lights if the queue size is greater than or equal to the first threshold but less than the second threshold. The red lamp lights and the yellow lamp goes dark when the second threshold is reached. One 4BWC card (or four circuits from an 8BWC card) is required for each ACD Calls Waiting Indicator installed.

ACD Report Manager™

The ACD Report Manager enables ACD users to interface (via a 2APIA card) with an external, PC-driven reporting system. On-screen or printed reports are available.

ACD Report Manager™ is a trademark of Fujitsu Business Communication Systems.

Integrated Voice Server (IVS)

The Integrated Voice Server can be configured for two to twelve ports (in two port increments) and two to forty hours of voice storage. Additionally, the IVS includes software features such as full integration, auto attendant, paging, message waiting indication, and audiotext. Other options include AMIS analog networking and fax publishing applications.

EQUIPMENT CABINETS

Figure 2-3 illustrates the front view of a single (Basic) cabinet configuration and a two cabinet configuration.

The cabinets contain system hardware and card slots for:

- System operation.
- Power failure transfer.
- Line/trunk assignments.

Located beneath the card slots are:

- Two serial communications ports.
- One optional Power Failure Transfer card slot.
- One optional floppy disk drive located at the right side of the cabinet.
- One standard 1200/2400 baud modem.
- Amphenol cable connections to the MDF.

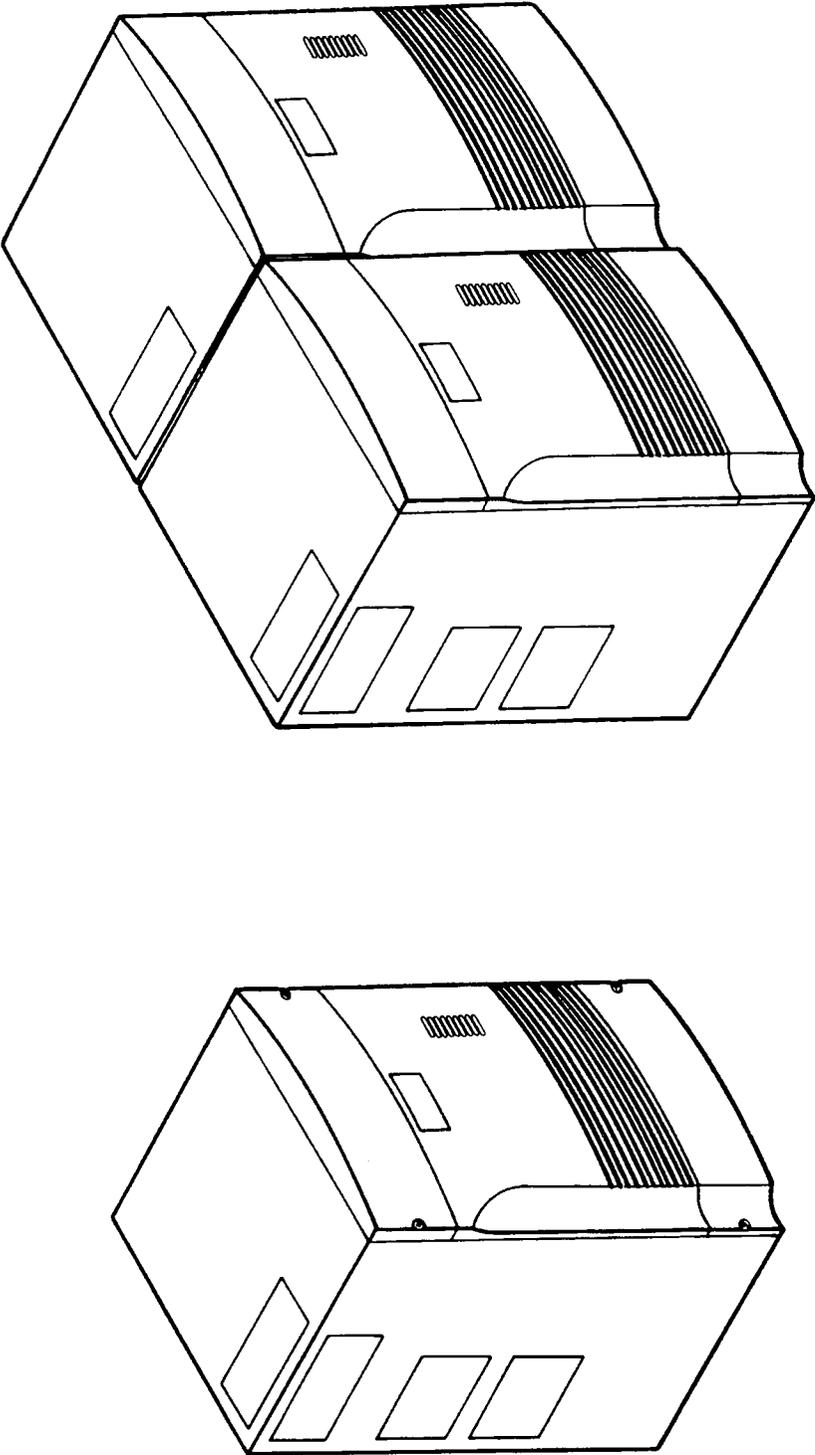
Each equipment cabinet offers the following features:

- Each cabinet measures 14.68"x 14.61"x 19.91".
- Universal card slots for easy system expansion/upgrade.
- Lightweight cabinets. Total weight in pounds are approximately as follows:

	Empty:	Fully loaded:
One cabinet	45	55
Two cabinets	90	110
Three cabinets	135	165
Four cabinets	180	220

- Power requirements:
 - 110/120 VAC
 - 60 Hz approximately
 - 1400 watts power consumption
- Convection cooled, self-ventilating, requiring no fans.
- Environmental conditions:
 - 32° to 104° F/0 to 40° C
 - 10 to 90% relative humidity without condensation.

Figure 2-3. Series 3 Equipment Cabinets (Basic Cabinet and Two-Cabinet Configurations)



SYSTEM BACK-UP AND RECOVERY

Three components of the system ensure back-up and recovery of communications service in the event of commercial power failure or major system malfunction:

- 6PFA (Power Failure Transfer) card.
- Memory back-up battery.
- RVAC (Recorded Voice Announcement) card back-up battery.

Power Failure Transfer Card

When the system is functioning normally, the 6PFA card directs the termination of selected CO (central office) lines and SLTs to CO trunks and line circuits. In the event of power or system failure, the 6PFA card provides a direct connection between the selected CO trunks and SLTs to enable the user to maintain communications with the outside world. These cards permit the transmission of alarm signals. The MAJ (Major) or MIN (Minor) alarm signals are sent to the MDF for use with external devices.

Characteristics of each Power Failure Transfer card are:

- Six circuits.
- Allows transfer of six loop start or ground start CO trunks to six predetermined SLTs.

RVAC Card Back-Up Battery

A nickel-cadmium battery provided on the RVAC card protects recorded messages in the card's RAM. The battery is trickle charged when system power is on. This battery is capable of maintaining the RAM up to two weeks when fully charged.

The nickel-cadmium life expectancy is five years. The system monitors the status of the battery and shows the appropriate message on the CPU card's display when the RVAC card battery must be replaced. All messages are lost when the battery is replaced. When the back-up battery becomes fully charged, the alarm indicator goes off.

CPU Cards Memory Back-Up

Nickel-cadmium battery is provided on the CPU card. This battery protects the card from losing RAM and the Real-Time Source (RTS) for up to two weeks when fully charged. The life expectancy of this battery is five years. An alarm display on the front of the card(s) displays when the battery needs to be replaced.

SYSTEM TERMINALS

The system accommodates a wide selection of terminals/peripherals to provide a broad range of voice and data communication services. All proprietary telephones have programmable feature buttons which are changeable. Most programmable buttons can be reprogrammed at any time. Figures 3-1 through 3-15 show:

- Terminal and peripheral designs.
- Major components of each terminal and peripheral.
- Feature button assignments.

For further information on feature button assignment, refer to the Data Base Manual.

To offer the user a full spectrum of voice capabilities, the system interfaces with:

- Digital Stations:
 - DS20, DS20S, DS20SD (Figure 3-1)
 - DS32SD (Figure 3-2)
 - CSD (Figure 3-4)
- EKTs:
 - CT-10, CT-20 (Figure 3-6)
 - CT-30 (Figure 3-7)
- Industry standard DTMF (Dual-Tone Multi-Frequency) SLTs (Single Line Telephones).
- Industry standard dial pulse SLTs.

To provide optional communications enhancements, the system interfaces with:

- Attendant Consoles (Figure 3-9).
- DSS/BLF 30, 40, 80 and 100 (Direct Station Selection/Busy Lamp Field) Consoles (Figures 3-10, 3-11, 3-12, and 3-13)

To utilize data switching capabilities, the system interfaces with:

- DIUs (Data Interface Unit) (Figures 3-14 and 3-15).
- DTAs (Data Terminal Adapter) mounted into CSD telephones.

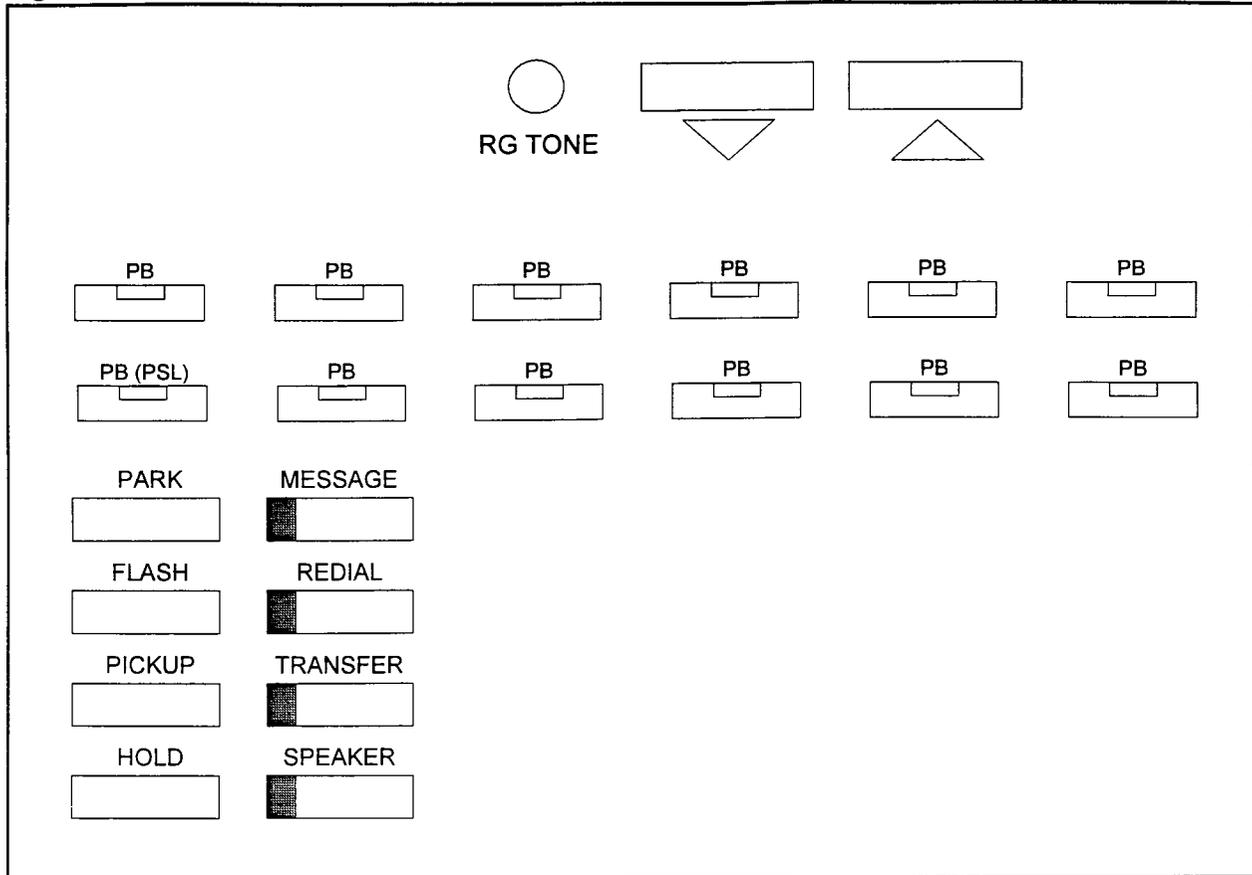
Digital Stations The DS20, DS20S, DS20SD, and DS32SD characteristics are summarized in the chart below. Button assignments for each station are shown on the following pages.

Characteristic	DS20	DS20S	DS20SD	DS32SD
Display	None	None	20 char x 2 lines	20 char x 2 lines
Speakerphone	Monitor only	Speakerphone	Speakerphone	Speakerphone
Fixed Buttons	8	8	8	8
Programmable Buttons	12	12	12	24
Volume Control	8 levels for speaker and 5 levels for handset adjustment by UP/DOWN button			
LCD Contrast	N/A	N/A	Adjusted by UP/DOWN button in idle	
Ringer Volume	4 levels adjusted by UP/DOWN button in ringing mode			
Ringer Tone	3 levels adjusted by RG TONE button in ringing mode			
Analog Modem Port	None	None	Yes	Yes
Dimensions	180 x 220 x 80 mm			

All DS telephones are also equipped with the following:

- A coiled handset cord (six feet in length when uncoiled) available in two colors; black and ivory.
- A standard seven-foot line cord with modular connectors at each end.
- Hearing-aid compatible handsets as required by the American Disabilities Act of 1990.
- A custom faceplate with space for fifteen 10-point characters for the instruments assigned telephone number.

Figure 3-1. DS20, DS20S, and DS20SD Button Assignments

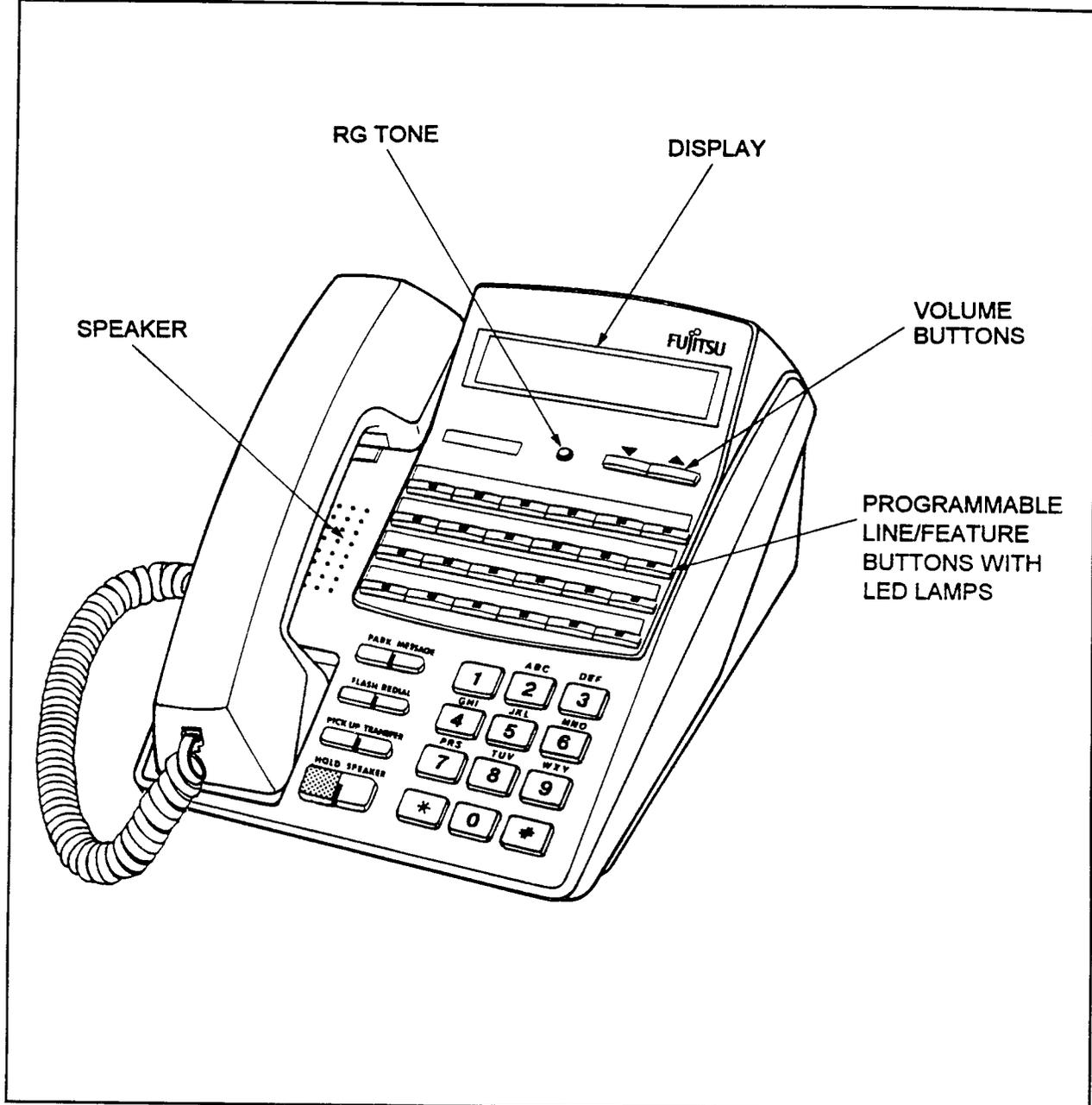


Abbreviations used: PSL = Primary Station Line
 PB = Programmable Button
 RG TONE = Ringer Tone

The Digital Station has the following characteristics:

- 12 programmable line/feature buttons.
- Associated two-color LED indicators.
- **RG** (ring) **TONE** and Up and Down controls.
- Monitor (DS20 only) or internal speaker.
- 20 character x 2 line display (DS20SD only).
- Eight fixed buttons: **SPEAKER, TRANSFER, REDIAL, MESSAGE, HOLD, PICK UP, FLASH, PARK.**
- Analog modem port (DS20SD only).

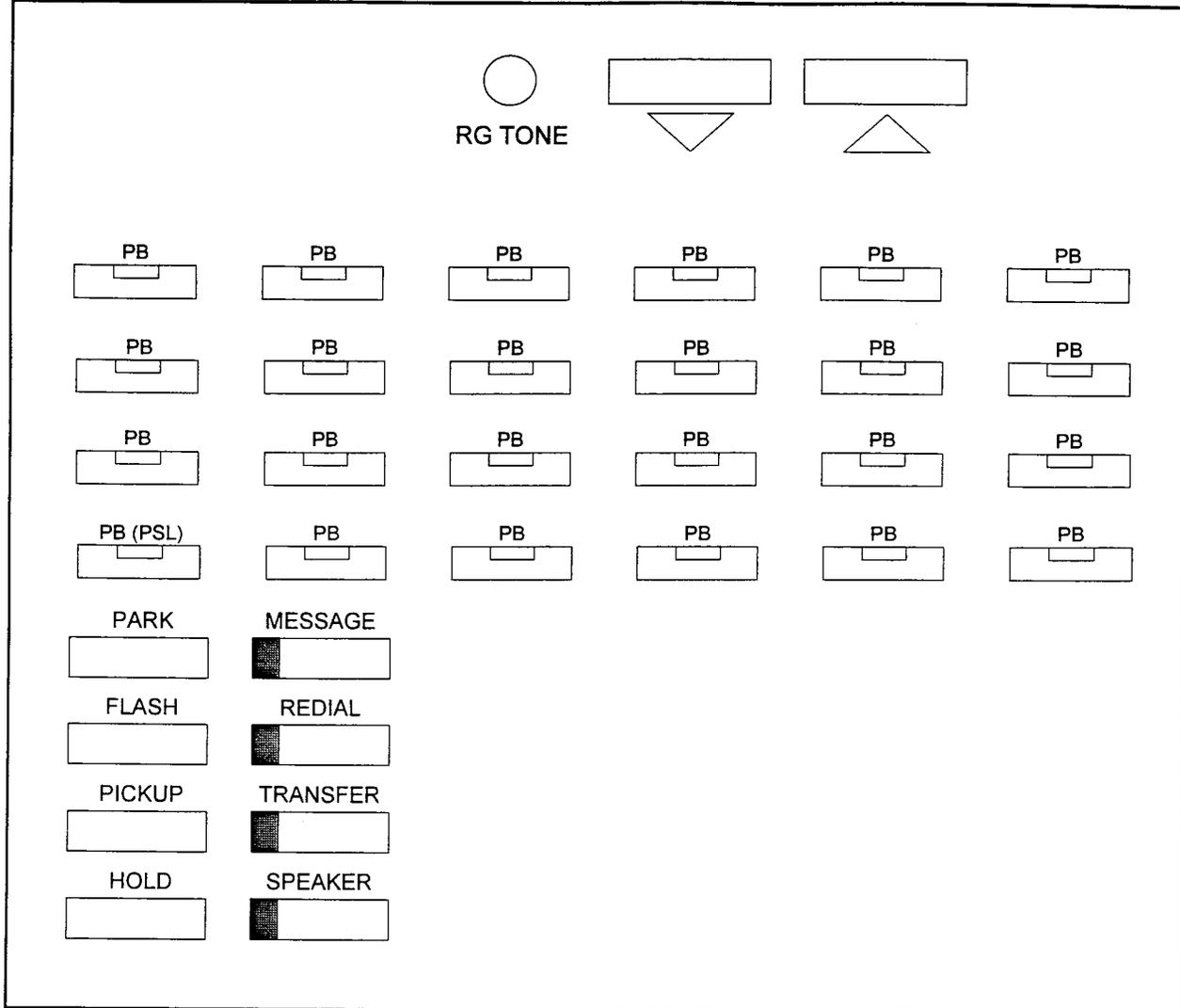
Figure 3-2. DS32SD



The DS32SD has the following characteristics:

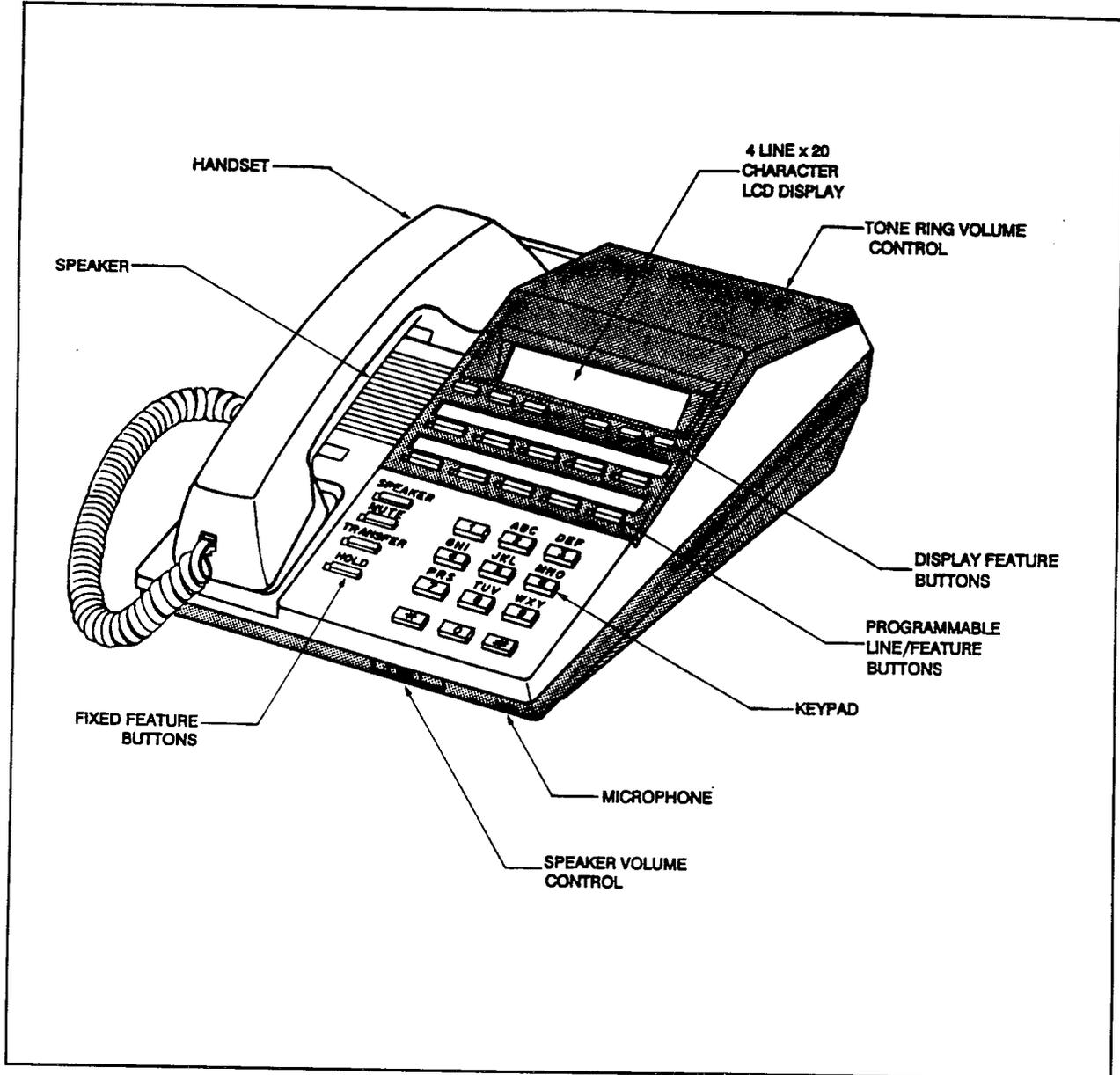
- 24 programmable line/feature buttons.
- Associated two-color LED indicators.
- **RG** (ring) **TONE** and Up and Down controls.
- Internal speaker.
- 20 character x 2 line display.
- Eight fixed buttons: **SPEAKER**, **TRANSFER**, **REDIAL**, **MESSAGE**, **HOLD**, **PICK UP**, **FLASH**, **PARK**.
- Analog modem port.

Figure 3-3. DS32SD Button Assignments



Abbreviations used: PSL = Primary Station Line
 PB = Programmable Button
 RG TONE = Ringer Tone

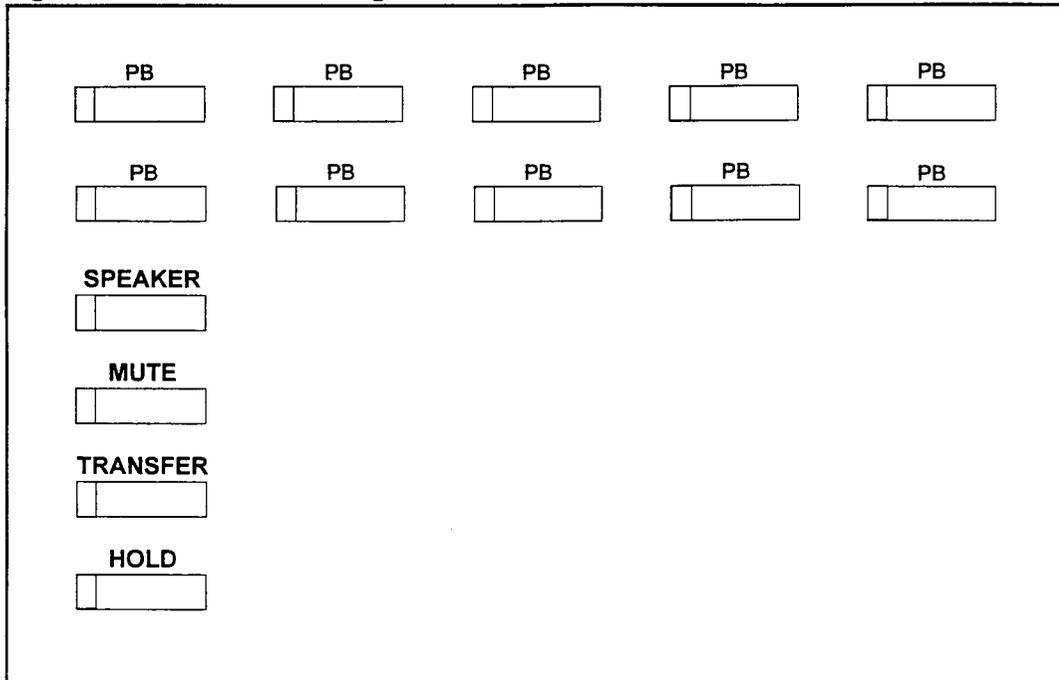
Figure 3-4. CSD



The CSD has the following characteristics:

- Ten programmable line/feature buttons.
- K-style handset.
- Speakerphone.
- 20 character x four-line display.
- Single pair wiring.
- Four fixed buttons: **SPEAKER, MUTE, TRANSFER, HOLD.**
- Six display feature buttons.
- Modular plug.

Figure 3-5. CSD Button Assignments

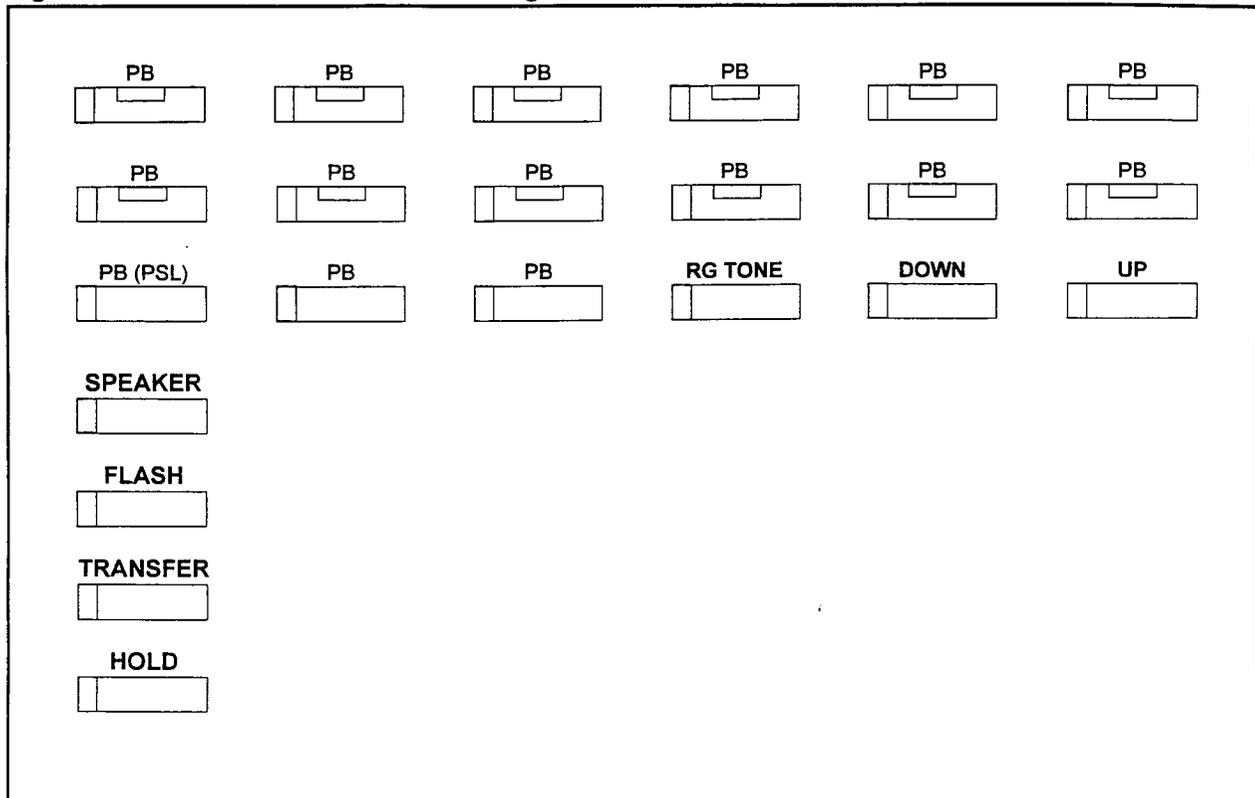


PB = Programmable Button

CT-10, CT-20, CT-30 The CT-10, CT-20, CT-30 characteristics are summarized in the chart below. Button assignments for each station are shown on the following pages.

CHARACTERISTIC	CT-10	CT-20	CT-30
Display	None	20 char x 2 lines	20 char x 2 lines
Speakerphone	Monitor only	Speakerphone	Speakerphone
Fixed Buttons	4	4	4
Programmable Buttons	15	15	27
Volume Control	8 levels for speaker and 5 levels for handset adjustment by UP/DOWN button		
LCD Contrast	N/A	Adjusted by UP/DOWN button in idle mode	
Ringer Volume	4 levels adjusted by UP/DOWN button in ringing mode		
Ringer Tone	3 levels adjusted by RG TONE button in ringing mode		
Analog Modem Port	None	Yes	Yes

Figure 3-6. CT-10 and CT-20 Button Assignments

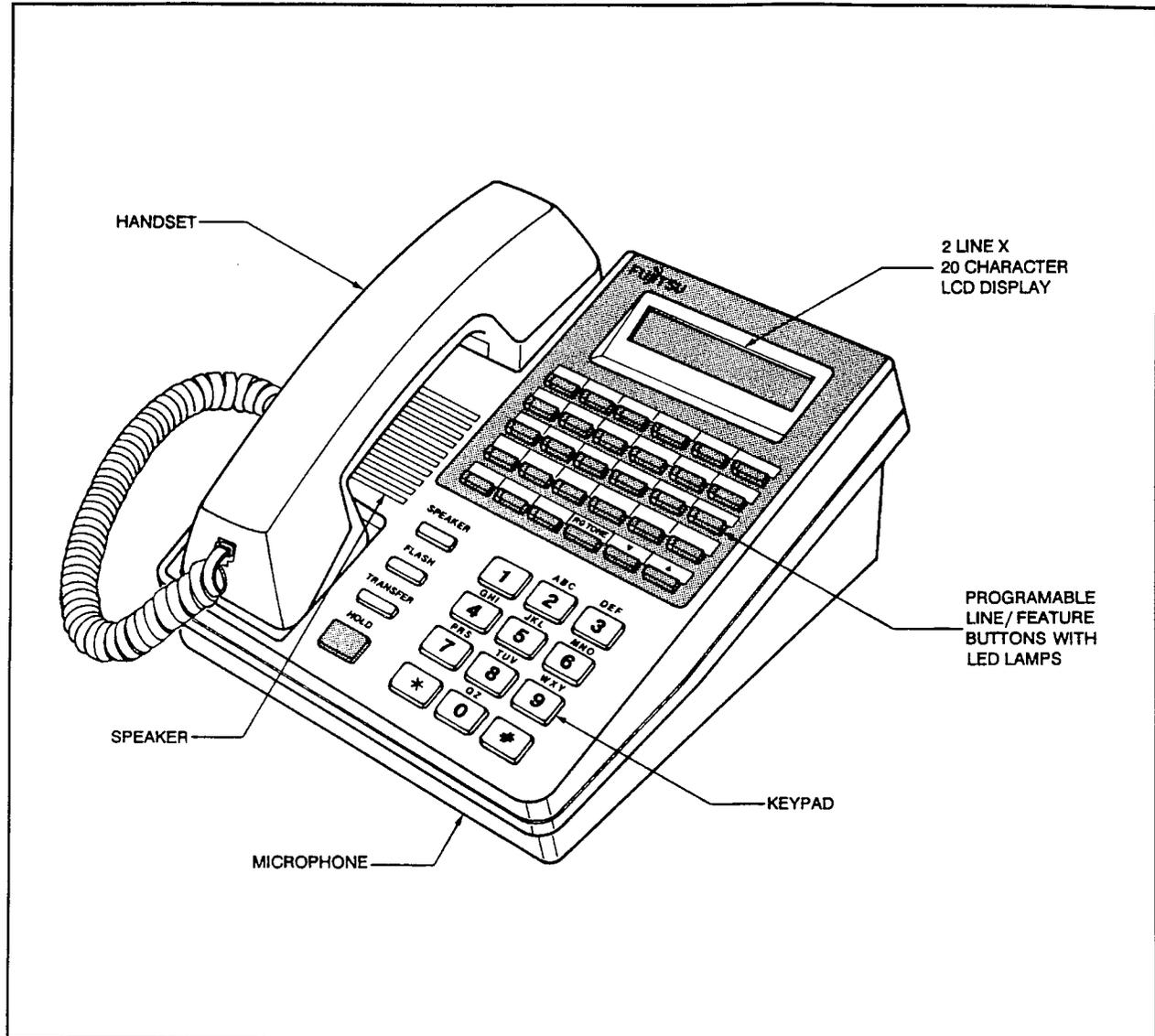


Abbreviations used: PSL = Primary Station Line
PB = Programmable Button
RG TONE = Ringer Tone

The CT-10 and CT-20 have the following characteristics:

- 15 programmable line/feature buttons.
- Associated two-color LED indicators.
- Monitor (CT-10) or internal speaker (CT-20).
- Two-pair wiring.
- K-style handset.
- Two-lines x 20 character alphanumeric display (CT-20 only).
- Seven fixed buttons: **SPEAKER**, **FLASH**, **TRANSFER** (with one-color LED), **HOLD**, **RG** (ring) **TONE**, Up and Down controls.
- Analog modem port (CT-20 only).

Figure 3-7. CT-30

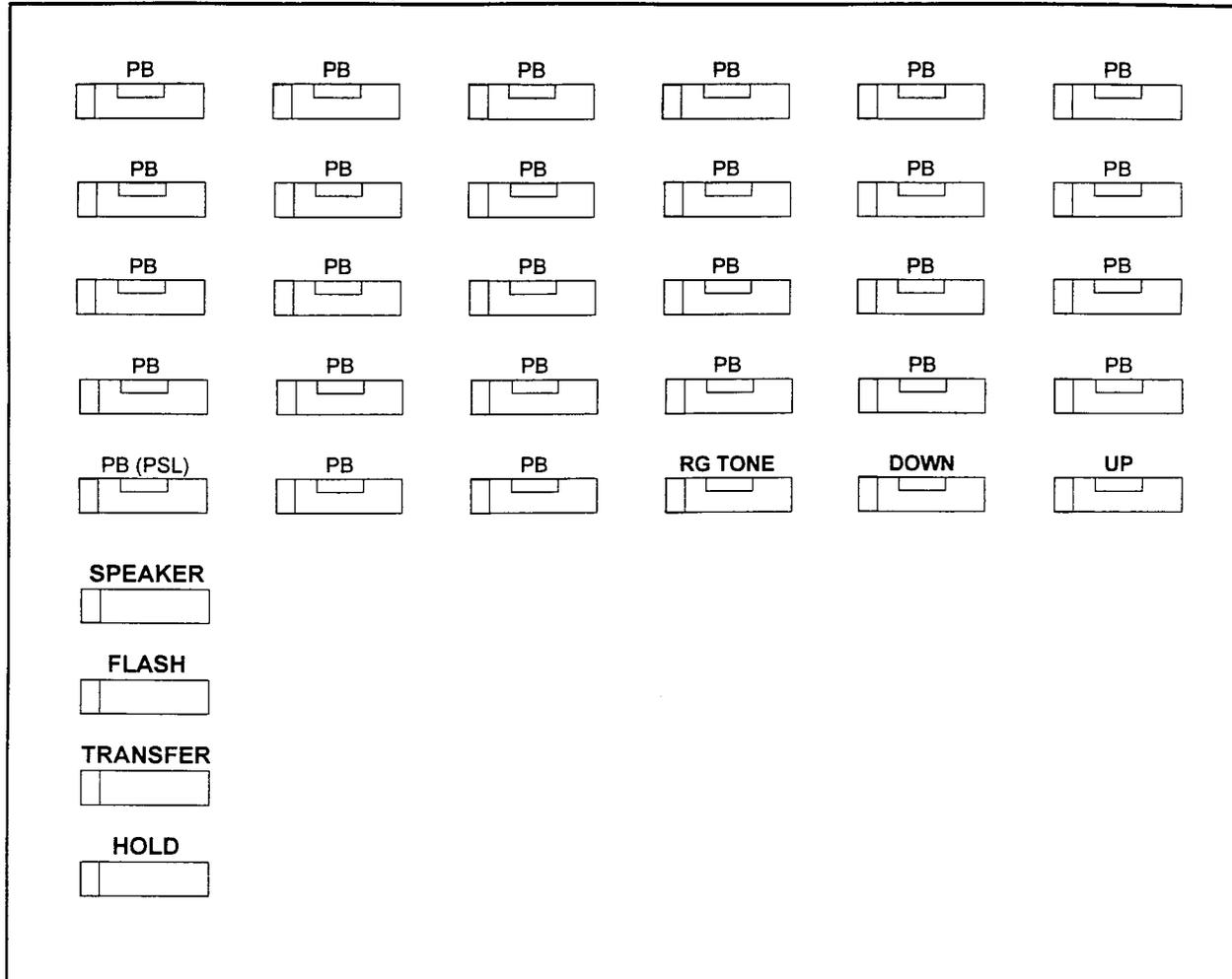


The CT-30 has the following characteristics:

- 27 programmable line/feature buttons.
- Associated two-color LED indicators.
- Built-in speakerphone.
- K-style handset.
- Two-lines x 20 character alphanumeric display.
- Seven fixed buttons: **SPEAKER**, **FLASH**, **TRANSFER** (with one-color LED), **HOLD**, **RG** (ring) **TONE**, Up and Down controls.
- Analog modem port.
- Six wire - Two pair necessary (optional extra pair needed for Off-Hook Call Announce).

NOTE: Using six-wires with the CT-30 reduces the capacity on the EKC card by one-half.

Figure 3-8. CT-30 Button Assignments



Abbreviations used: PSL = Primary Station Line
 PB = Programmable Button
 RG TONE = Ringer Tone

DS/CT RG TONE, Up/Down Buttons

These terminals have three fixed buttons on the right side of the keypad that control volume and LCD contrast. The three fixed buttons are:

- ^ (Up).
- v (Down).
- **RG (ring) TONE.**

Changes to volume and contrast can be made under certain conditions when using the Up and Down buttons. Table 3-1 shows what changes can be made during different conditions.

Table 3-1. DS/CT Volume and Contrast Controls

STATE	^ (UP)	v (DOWN)
Idle	LCD contrast - increase	LCD contrast - decrease
Speakerphone	Speaker volume - increase	Speaker volume - decrease
Off-Hook by Handset	Handset volume - increase	Handset volume - decrease
Ringing	Ring volume - increase	Ring volume - decrease

The **RG TONE** button to the left of the Up and Down buttons controls the ringing tone of the telephone. There are three different patterns that can be set by the **RG TONE** button.

Additionally, the telephone can be set to no ring. A terminating call in such a case is identified by a flashing PSL.

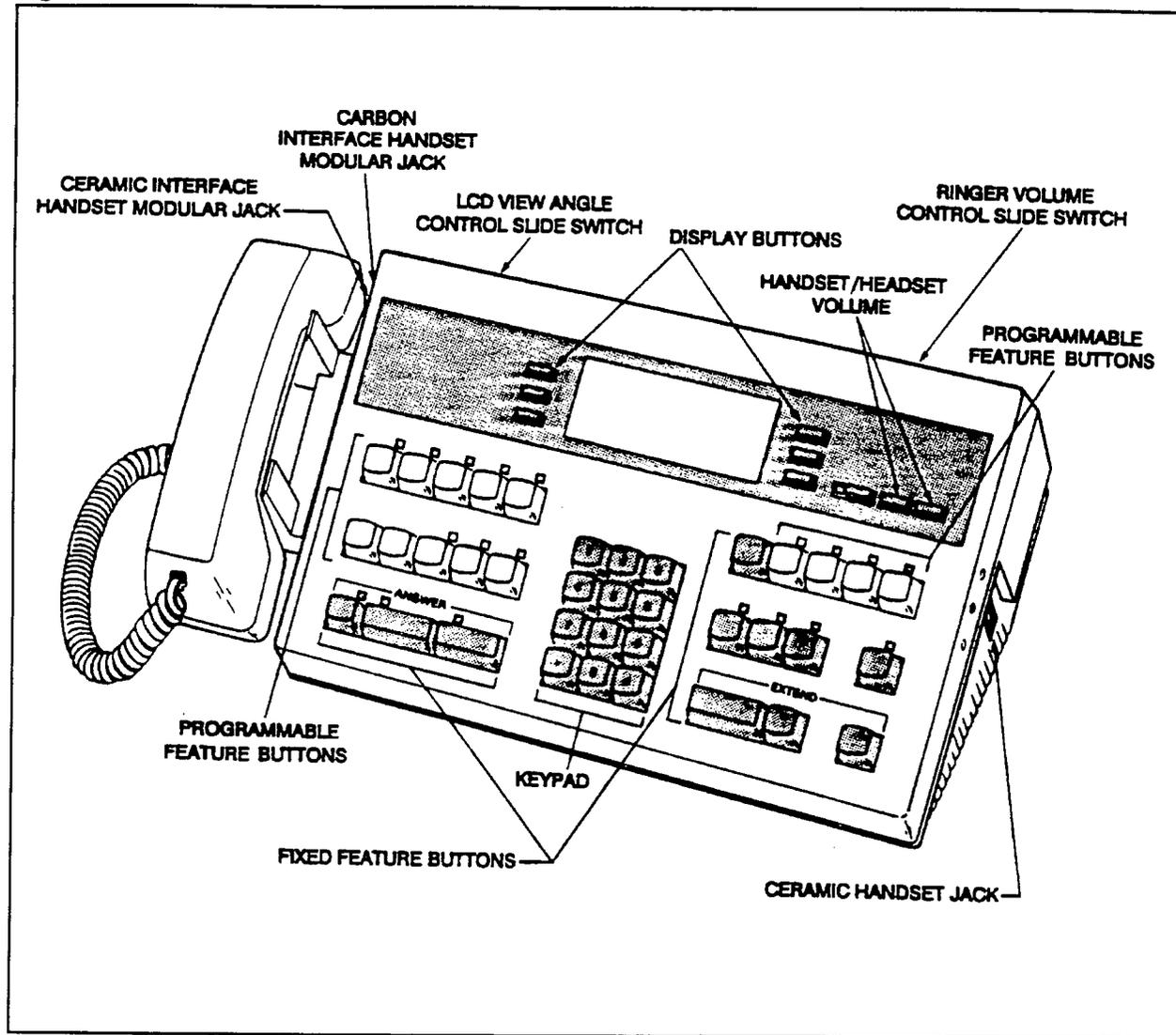
DS/CT Two-Color LEDs

The DS and CT stations have two-color LEDs. The colors associated with different conditions are:

- Red:
 - Line is ringing
 - Line called in use
 - Line is recalling
 - Line placed on common hold
- Green:
 - Line is in use
 - Call is on exclusive hold
 - Call is on common hold

For the display patterns and all other specifics on the DS/CT telephones, refer to the appropriate User Guide.

Figure 3-9. Attendant Console



The Attendant Console has the following characteristics:

- 28 non-locking line/feature buttons.
- Associated single LED indicators (26 feature buttons).
- Four-line x 20 character alphanumeric display.
- Two-pair wiring (up to 300 feet from cabinet).
- or
- Six wires (up to 2,000 feet from cabinet).
- 14 programmable buttons.
- Modular plug.
- K-style handset.
- Headset jack.
- Handset modular jack:
 - (1) carbon interface
 - (2) ceramic interface

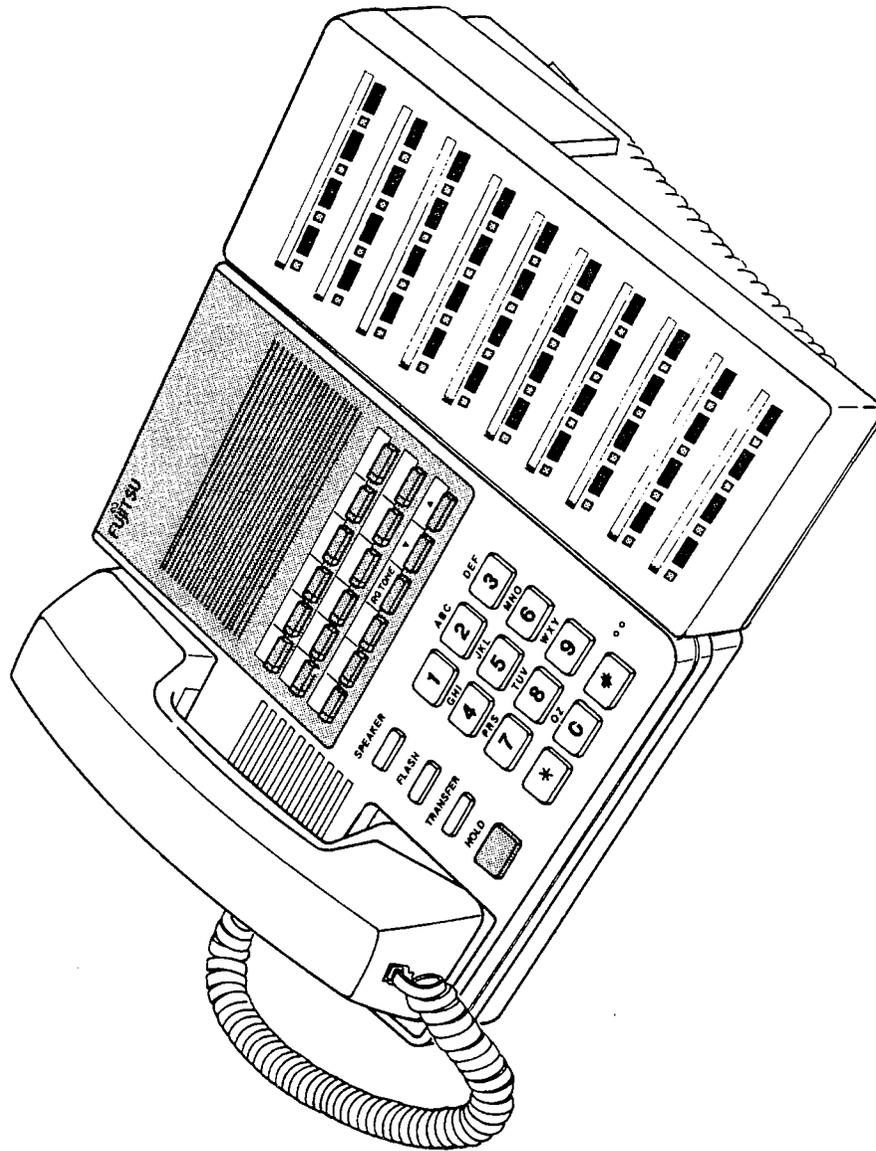
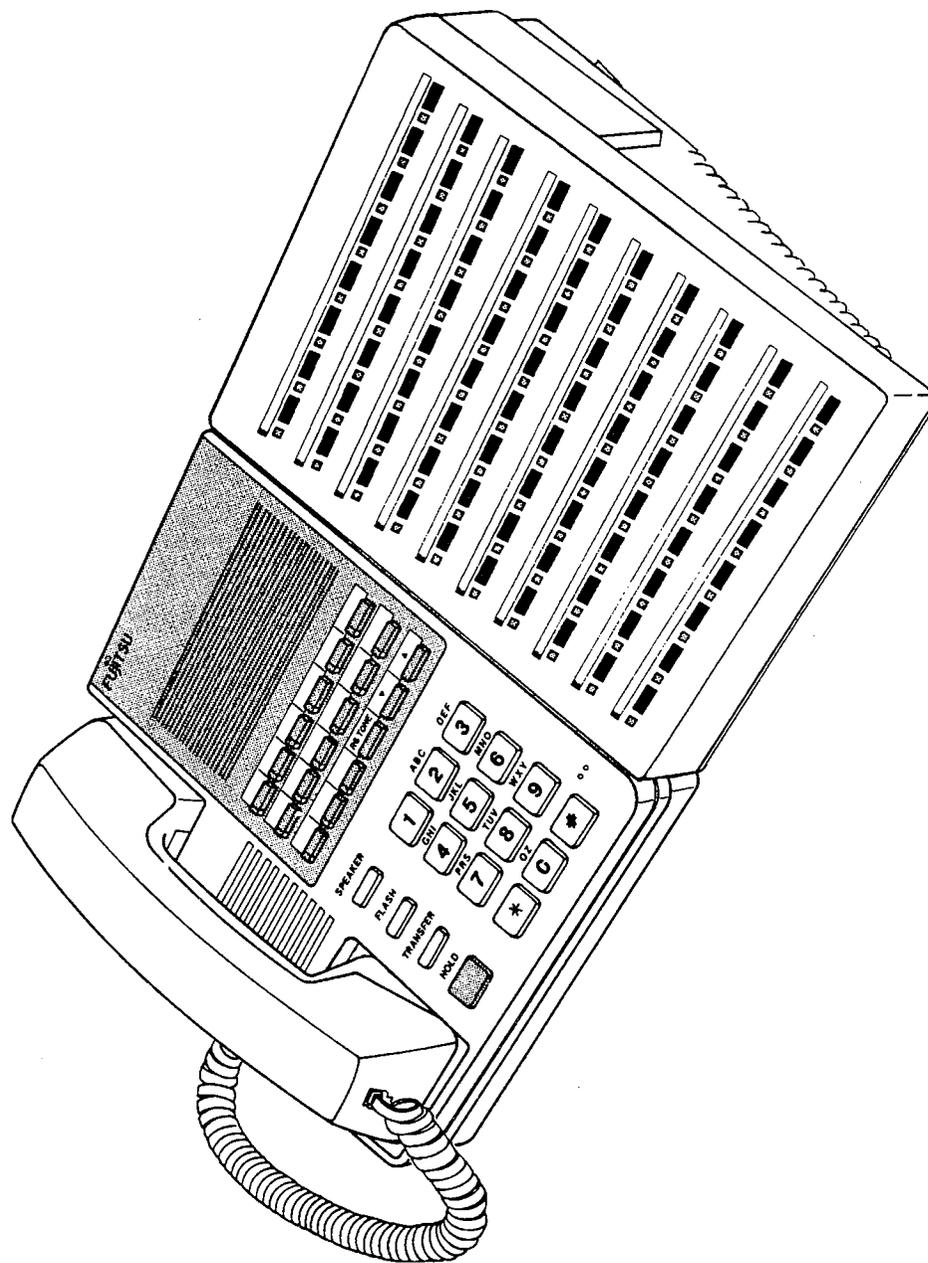


Figure 3-10. CT-10 with 40-Button DSS/BLF

NOTE: The 40-button DSS/BLF can also be used with an Attendant Console.

Figure 3-11. CT-10 with 80-Button DSS/BLF

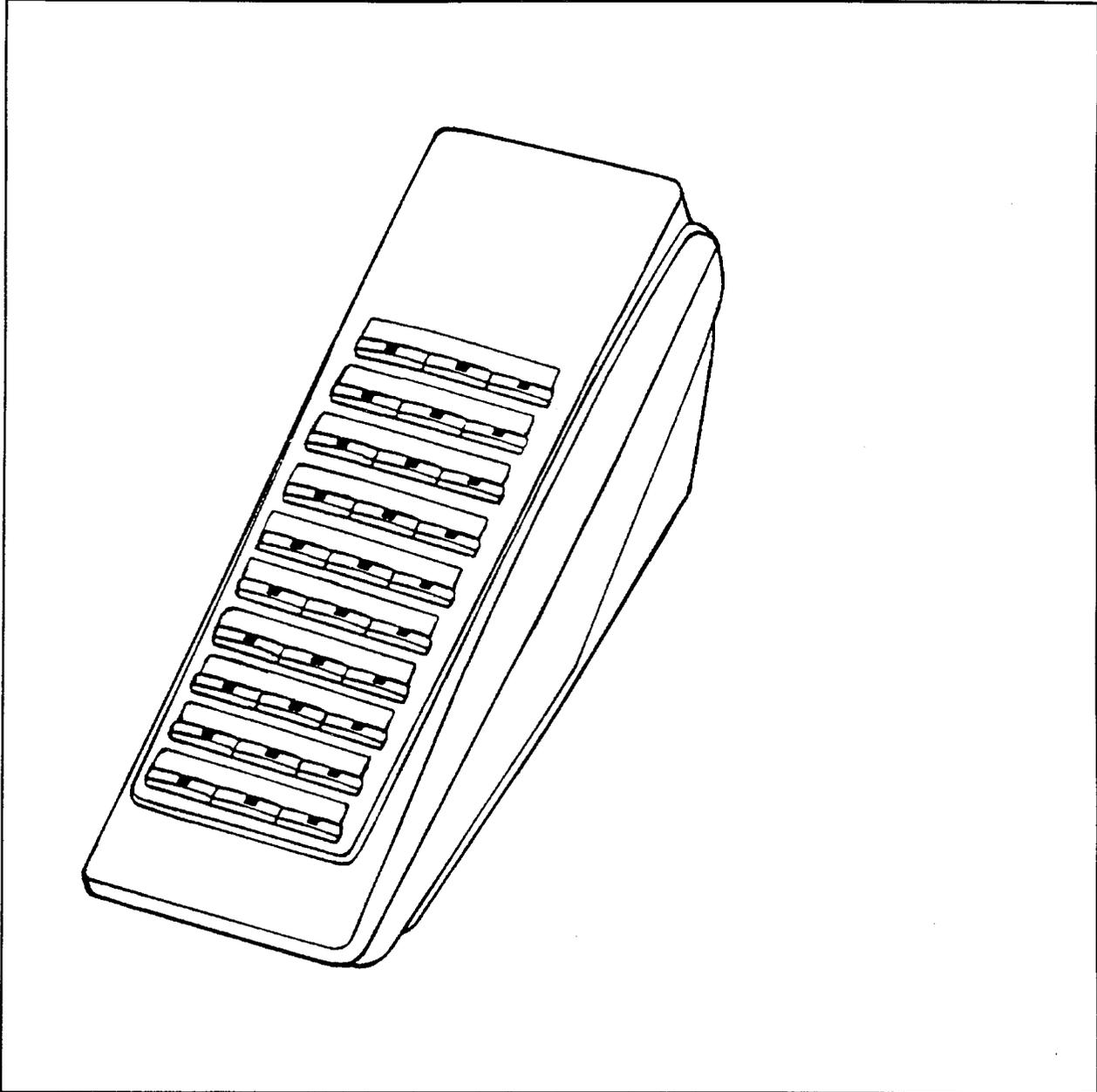


NOTE: The 80-button DSS/BLF can also be used with an Attendant Console.

DSS 30 The DSS 30 (Figure 3-12) is equipped with 30 Direct Station Selection (DSS) buttons with a red/green lamp on each button. A Digital Station can be paired with one or two DSS 30s.

Each DSS 30 uses one circuit on a DTC card.

Figure 3-12. DSS 30

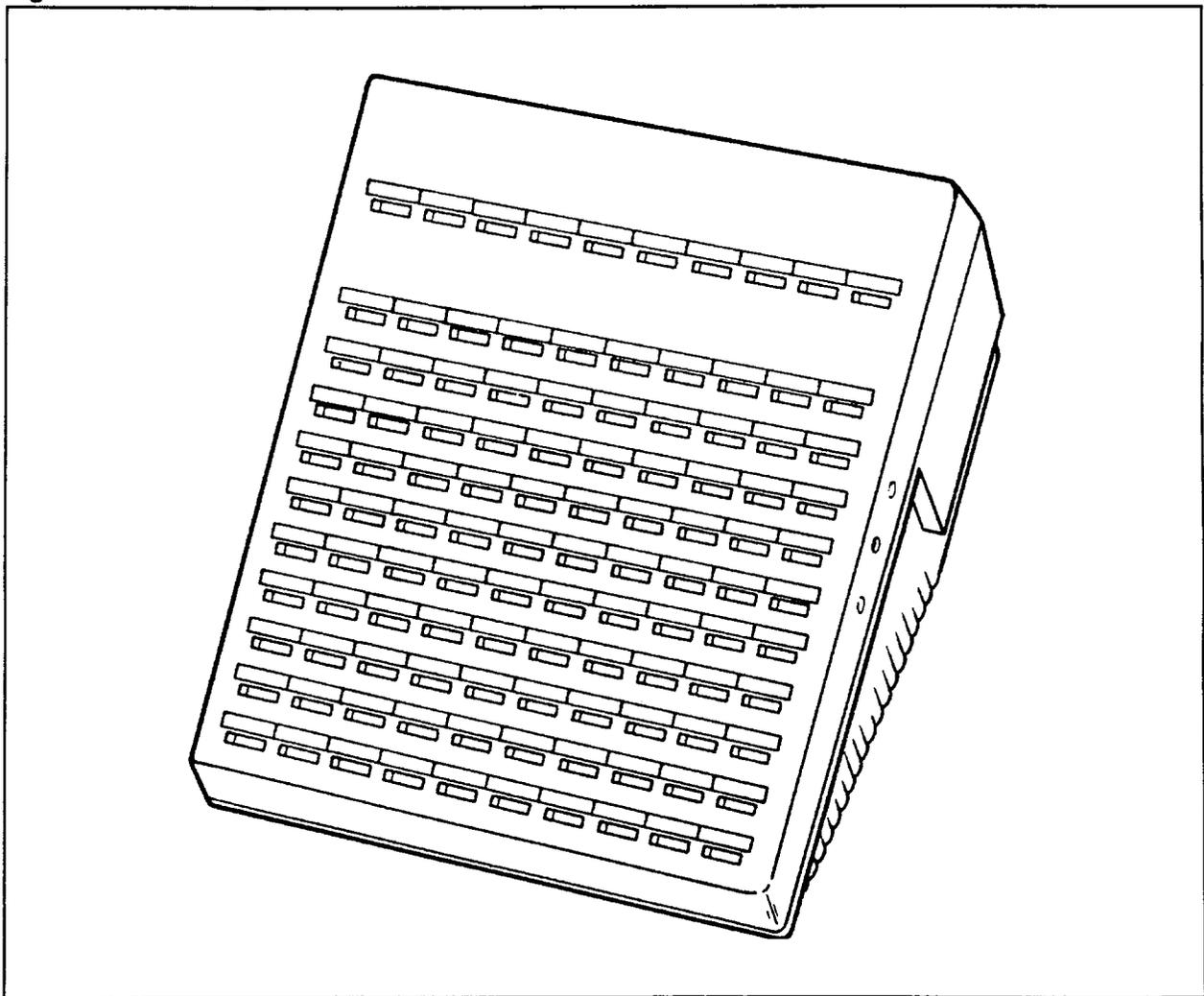


DSS 100 The DSS 100 provides the Direct Station Selection (DSS) function and the Room Status Indicator (RSI) function. The DSS shows the status of all stations registered in the system. The DSS 100 has one hundred DSS/BLF buttons and ten screen change buttons (refer to Figure 3-13). Other service buttons, such as DSS Camp-On, cannot be assigned.

Each DSS/BLF button has one one-color LED. If a button is assigned as a DSS/BLF button, the paired LED indicates the state of the station assigned to that DSS button. The ten screen change buttons have one-color LEDs.

Two DSS 100s may be installed per system on separate Attendant Consoles. If the DSS 100 functions as an RSI, up to three may be installed per system. Each DSS 100 must be paired with an Attendant Console only.

Figure 3-13. DSS 100



Data Interface Unit Figures 3-14 and 3-15 show the Data Interface Unit used in the data switching operation. This is more fully explained in Chapter 9.

Figure 3-14. Data Interface Unit (DIU) Front View

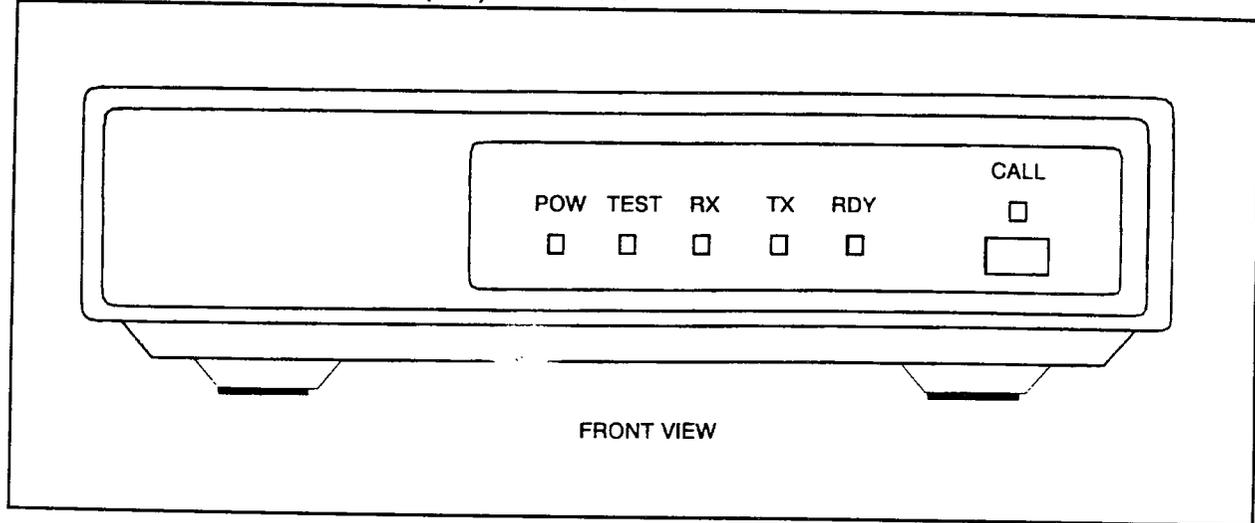
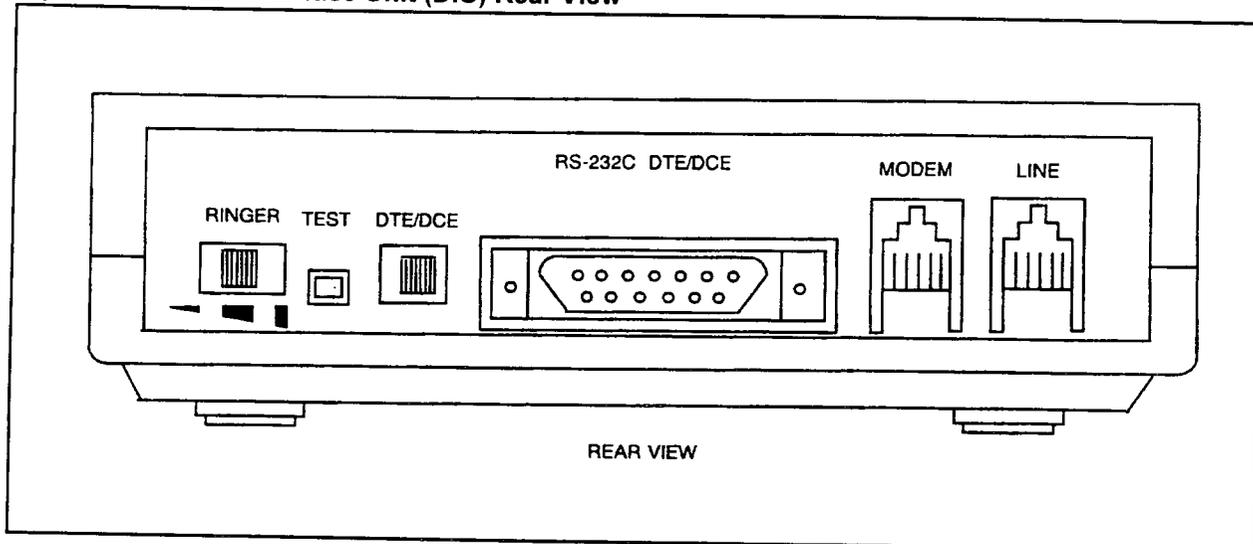


Figure 3-15. Data Interface Unit (DIU) Rear View



**MAINTENANCE AND
ADMINISTRATION
PERIPHERALS**

The testing of system functions and the programming of changes to the ODDB (office dependent data base) can be accomplished either on-site or at remote location by entering CMC (Change and Maintenance Command) codes.

Reliable and easy maintenance and administration can be performed using any of the following devices:

- CT-20 or CT-30 as MCT (Master Control Telephone).
- CSD as an MCT.
- DS20SD/DS32SD as an MCT.
- Attendant PC Console as an MCT.
- PcMP (Personal Computer Maintenance Program).

The system can support a maximum of twenty MCTs. Only one MCT may be used at a time for programming.

**CT-20 or CT-30 as MCT
(Master Control Telephone)**

In addition to functioning as a station instrument, a CT-20 or a CT-30 can also serve as an MCT (Master Control Telephone) for programming the customer data base by the entry of CMC commands. A CT as an MCT is assigned in the data base to access the system programming mode when the appropriate access code is entered from the instrument. For full details on using a CT-20 or a CT-30 as an MCT, refer to the Data Base Manual.

**CSD as MCT (Master Control
Telephone)**

In addition to functioning as a station instrument, the CSD telephone can also act as an MCT for programming the customer data base. The CSD as MCT is assigned in the data base to access the system programming mode when the appropriate access code is entered from the instrument. For full details on using a CSD as an MCT, refer to the Data Base Manual.

**DS20SD/DS32SD as MCT
(Master Control Telephone)**

In addition to functioning as a station instrument, a DS20SD or DS32SD can also serve as an MCT (Master Control Telephone) for programming the customer data base by the entry of CMC commands. A DS20SD or DS32SD as an MCT is assigned in the data base to access the system programming mode when the appropriate access code is entered from the instrument. For full details on using an DS20SD or DS32SD as an MCT, refer to the Data Base Manual.

**Attendant Console as MCT
(Master Control Telephone)**

In addition to functioning as the primary answering position, the Attendant Console can function as an MCT programming and maintenance device. The Attendant Console performs system programming by first activating the Position Busy mode, which removes the attendant from active status. The required security code is then entered to access the system programming mode. For full details on using an Attendant Console as an MCT, refer to the Data Base Manual.

**PcMP (Personal Computer
Maintenance Program)**

This user friendly, menu-driven software program runs on an IBM-PC or compatible computer. The PC can be connected to the RS-232C port on the equipment cabinet. The PcMP software (available in either the 3 1/2-inch or 5 1/4-inch floppy disk format) allows users to:

- Add new station lines.
- Install new features or users.
- Update, save, and load customer data bases.
- Upgrade customers from one release to another.
- Gain complete upload and download capabilities.
- Print out an entire customer data base.
- Perform off-line edits of a customer data base without having to communicate with remote system.

In addition, the PcMP maintenance data base features multiple security codes and an on-screen, context-sensitive HELP command. For complete details on this software, see the PcMP Data Base Management User Guide (117-055-001).

SYSTEM FEATURES

This chapter describes the major system features and their functions and also lists benefits and market applications.

Alarms

Alarms are located on the CPU card in the equipment cabinet. An **alarm** button can be programmed as a feature button on Digital Stations, electronic telephones, Attendant Consoles, or DSS/BLF Consoles. Some alarms are turned off by maintenance personnel; some occur only momentarily and are turned off by the system (e.g., recovered data error); others reset when the condition clears (e.g., an unplugged telephone). External alarms can also be activated through contact closures on the Power Failure Transfer card (6PFA).

Benefits:

- Reduces/eliminates downtime.
- Speeds troubleshooting and warns of fault conditions before major problems occur.

Applications:

- Organizations that cannot tolerate downtime; health care, telemarketing, service bureaus, travel agencies.

ACD (Automatic Call Distribution)

ACD (Automatic Call Distribution) provides automatic distribution of incoming trunk and internal calls to idle agent stations in the ACD group. If all stations in the ACD group are busy, the call is placed in the ACD call queue to await the next available station.

The ACD feature also maintains an idle agent station queue. An incoming call is connected to the agent station that has been idle the longest. Monitoring or timing of each idle agent station begins at the termination of the last call handled by that station.

ACD treatment is activated for calls to the pilot number for CO and DID trunks, calls forwarded to the pilot station (e.g., Call Forward Busy/No Answer, Call Forward-Busy, Call Forward-No Answer, and Call Forward-All Calls), and calls transferred from the Attendant Console.

ACD (Automatic Call Distribution) (Cont'd)

ACD service is activated for the following types of calls terminating at the pilot station:

- Station call.
- Transferred call.
- Forwarded call.
- Tie line call.
- DID line call.
- Direct-in line termination call.
- Personal line termination call.
- Pooled incoming trunk (one appearance).
- Pooled bothway trunk (one appearance).
- Key system line (one appearance).

When the system contains an RVAC card and a call is placed in the ACD calling queue on a CO or DID line, the caller hears a recorded voice announcement. The caller then hears a hold tone or music until the call is answered. If the hold condition exceeds a predetermined time, the system issues a second voice message (the second recorded voice announcement may be different from the first recorded voice announcement). The caller again hears a hold tone or music. The second recorded announcement is heard again if the call remains on hold long enough. Calls transferred to the pilot number that are held in queue only hear the second voice message.

If the initial predetermined time period expires but the voice message is busy, the caller continues to hear the hold tone or music until the voice message is idle. The second announcement may be repeated an unlimited number of times.

Connect supervision is returned when the caller is connected to the recorded announcement or an ACD agent.

Any ACD call transferred by the Attendant Console to a pilot number returns to the Attendant Console if it is not answered within a predetermined time. The transferred call is removed from the ACD calling queue when it returns to the Attendant Console.

Wrap-up codes may be entered by the agent to further define and classify each incoming call. The optional ACD Report Manager application processor is required for wrap-up codes.

The overflow feature operates when calls in the primary ACD calling queue are not answered within a predetermined time. The overflow feature handles only CO, tie, and DID lines and transferred calls. The system sends calls to a predetermined station, attendant, or pilot in a secondary ACD group or the Integrated Voice Server (IVS). If the secondary ACD group is also busy, the calls are sent a recorded voice message (when the system is equipped with the RVAC card) and placed in the secondary ACD calling queue. When a call overflows from the primary ACD group, the system removes the call from the primary ACD calling queue.

ACD (Automatic Call Distribution) (Cont'd)

When Call Forward-All Calls (CFA) is activated from the pilot station, the system forwards all calls to a predetermined destination. No calls are routed to the pilot of the group forwarding the calls.

Variable work time for ACD agents may be set on a per group basis (see the Change Work Time by ACD Group feature in this chapter).

Benefits:

- Incoming customer calls are routed directly to individual departments, improving the professional image of the business using the system.
- Cost effective ACD eliminates or reduces the need for call handling by an attendant, thereby reducing costs.
- ACD speeds communications in high-traffic operations, improving customer service and employee productivity.

Applications:

- Mail order houses and businesses handling diversified product lines.
- Newspapers.
- Advertising departments.
- Government agencies.
- Service bureaus.
- Customer service.
- Travel-related industries with a high volume of customer communications.
- Order entry departments.
- Any department (or person) handling a high volume of calls.

Capacity:

- 20 ACD groups. Total 240 agents per system; no limit on the number of agents per group.

ACD Agent The ACD agent position offers specialized station features to handle ACD calls effectively. The agent position function is programmed into one of the ACD groups. The following features are available at the ACD agent position:

- **Agent Consultation:** This feature permits private consultation with an internal or external party while the initial calling party is on hold.
- **Agent Transfer:** This feature allows transfer of an ACD call to another station or ACD group.
- **Agent Handsfree Operation:** This feature provides handsfree operation for agents with Digital Stations and electronic stations having a built-in handsfree speaker and microphone. The feature is activated automatically by the Voice Calling - Handsfree Answer feature when a supervisor's voice call is received. (Handsfree operation is also available when headsets are used.)
- **Agent Instrument:** Proprietary telephones and SLTs (Single Line Telephones) can be agent instruments to receive ACD calls. Each agent instrument is assigned a station directory number. If an SLT is used as an agent instrument, the following ACD features are not available:
 - Incoming Call Identification
 - Message Waiting
 - Silent Messages
 - Emergency Call
 - Call Waiting Indicator (station)
 - Auto Answer
- **Agent Received Non-ACD Incoming Calls:** This feature allows the agent instrument to receive calls other than ACD calls.
- **Agent Three-Party Conference Call:** This feature permits the addition of a third party to a two-party call. This can be used to add a supervisor to an existing call.
- **Automatic Answer:** This feature allows the agent to answer incoming calls automatically through the speakerphone, or by hearing a tone through the headset.
- **Automatic Disconnect:** This feature forces the agent into the idle queue or into automatic work mode when the calling party disconnects.
- **Call Hold:** This feature places an incoming call on exclusive hold. No other station can access the call.

- ACD Agent (Cont'd)**
- **Direct Outward Dialing:** This feature allows an agent instrument to originate an external call using the PBX facility. This feature is regulated by the agent instrument's COS (Class of Service) and COR (Class of Restriction).
 - **Incoming Call Identification:** This feature provides visual indication in the LCD display of Digital Stations and electronic stations (if equipped) of the internal calling party, name, station directory number, trunk number, trunk name, or DNIS name. The calling party is displayed to indicate an ACD call. The pilot number of the ACD group called is displayed on the LCD.
 - **Intercom Dialing:** Allows ACD agents to dial internal stations via their line appearance or intercom appearance on Digital Stations or electronic stations.
 - **Message Display:** This feature allows the reception of:
 - A message from the supervisor
 - Silent Messages on display-equipped telephones
 - **Position Unstaffed:** This feature allows registering the DND (Do Not Disturb) feature when an agent is temporarily unable to answer any incoming calls
 - **Sign-On/Sign-Off:** This feature allows ACD agents to sign on to the system to allow incoming ACD calls. Sign-off is used to sign off from the system. Agent ID's are used to sign on and sign off, allowing multiple agents to use the same agent instrument. Sign-On/Sign-Off is used only when the ACD Report Manager system is installed.

NOTE: Voicemail ports assigned as ACD members are automatically set for Ready mode so that no agent Sign-On/Sign-Off is required.
 - **Supervisor Assistance:** This feature, when used with the Silent Message feature, allows the agent to alert the requested supervisor of the need for assistance.
 - **ACD Work Mode (Automatic):** This feature provides a programmable time setting for an agent to perform follow-up paper work after an ACD call. During this work time, the agent is not placed in the ACD agent idle queue and does not receive ACD calls. When the work time interval has elapsed, the agent is again placed in the available queue and can start receiving calls. Non-ACD calls can be received and the agent can originate calls during the work interval.
 - **ACD Work Mode (Manual):** Depending on the agent instrument COS, unlimited work time is provided. Pressing the programmable **work** button toggles the work time feature on and off.

- ACD Agent (Cont'd)**
- **ACD Wrap-Up:** This feature is used for the purpose of updating statistics in the ACD Report Manager. The wrap-up code can be entered during a conversation or after the call has been disconnected. After the wrap-up code has been entered, the ACD Report Manager receives the information and the statistical report is updated.
 - **Call Waiting Indicator:** This feature provides the agent a visual indicator of the number of calls waiting. Two call waiting thresholds can be set via CMC command. The feature button indicator lights steadily when the number of calls waiting reaches the first threshold. The indicator flashes when the number of calls waiting reaches the second threshold.
 - **External Call Waiting Indicator:** The display panel is mounted to be visible by the ACD groups served. Each display can serve up to four ACD groups and consists of four pairs of red and yellow lamps. The yellow lamp lights when the first ACD calls waiting threshold is reached, the red when the second threshold is reached.

Benefits:

- Allows handling of calls in a timely manner.
- User friendly.

Applications:

- Reservation desks, catalog sales, ticket agents, customer service.

Capacity:

- 20 ACD groups. Total 240 agents per system; no limit on the number of agents per group.

ACD Report Manager™

ACD users can interface (via the 2APIA card) to an external, PC-driven reporting system. The ACD Report Manager system can provide the following on-screen (via CRT) or printed report to aid in making effective use of Automatic Call Distribution capabilities.

- **Real-Time, On-Demand Reporting via CRT**
 - Group summary monitor
 - Individual agent status monitor
 - System status monitor
- **Hard Copy Statistical Reporting**
 - System status report
 - Source group report
 - Agent status report
 - Group trend report
 - System percentage report
 - Individual agent staffing report

When the ACD Report Manager is installed, a Sign-On/Sign-Off feature for agents is used to make agents available to receive ACD calls. To sign on, the agent presses the programmable **sign-on** button and enters a 4-digit code (3-digit Agent ID and 1-digit check sum) into the agent instrument. The Report Manager application verifies the ID and records the agent status. Signing off is accomplished by pressing the **sign-on** button. At this point the agent is not available to receive ACD calls and the Report Manager records the agent status.

The ACD Report Manager system requires an 80386 or 80486 PC. The following PCs are certified:

- ACER 1120.
- ACER 1125.
- ACER ACROS 486/33DX.
- Hewlett Packard QS 20 Model 46.
- Hewlett Packard VECTRA 486/25N.

Please see the ACD Report Manager System Manual (117-043-002) for all the requirements needed for the ACD Report Manager system to function properly.

Benefits:

- Enables ACD users to effectively staff agent positions.
- Provides traffic information to determine trunking requirements.
- Quantifies lost or abandoned calls.

Capacity:

- Maximum of 240 agents.
- Maximum of 20 ACD agent groups.
- Maximum of 47 agents per ACD agent group.

ACD Report Manager™ is a trademark of Fujitsu Business Communication Systems.

ACD Route Queuing ACD Route Queuing is provided by assigning a Queue Active step in the ACD Route Table at CMC 370 or by the ACD AP that corresponds to an ACD group. ACD agents will not receive any incoming ACD calls until this step is activated in the Route Table.

When ACD Route Queuing is applied, an "ACD Call" message will be sent to the AP after an ACD call is received. Then, the "Port in Queue" message is sent to the AP when the ACD Queue Active Step is complete. Regardless of whether the "Port in Queue" message has been sent to the AP, one of two messages will follow. Either a "Port Abandoned" message (when the call is abandoned) or an "Interflow" message (when a call is transferred) will be sent to the AP.

If a route table is not registered to an ACD group, or the Queue Active Step is not registered to a route table, or the route table activation flag is not set to "route table active" in the system flag command, then this feature is not available. In this case, an ACD call will terminate to a vacant agent immediately.

ACD Route Table Route tables provide users with the ability to determine the action of incoming ACD pilot or attendant transferred calls to busy agents, until an agent in the group is able to answer the call. The system has four route tables per ACD group. Two of these tables are day and night tables, automatically selected by either the day or night system mode. The remaining two tables are maintained and transferred either automatically or manually via the ACD Report Manager. The following steps are available:

- Send ACD message.
- Send ACD message, and then transfer the call to a specified extension.
- Send ACD music.
- Send ACD music, and then transfer the call to a specified extension.
- Send a tone.
- Send a tone, and then transfer the call to a specified extension.
- Forced disconnect.
- Loop process in the route table.
- Jump process initiated by the number of waiting calls.
- Queue active.

Benefits:

- Allows specific types of calls to be assigned to specially configured route tables, thus enabling different routing actions when busy agents are encountered.

Capacity:

- Maximum of four route tables per ACD group.
- Maximum of 80 route tables available per system.
- Maximum of ten route steps per route table.

ACD Supervisor

To effectively manage ACD group(s) and assist agents, the ACD Supervisor has access to several extra features in addition to those available to agents. The supervisor station can be programmed with the following features:

- **System Administration Function:** The supervisor uses this feature to administrate the ACD group. The supervisor station must be a DS20SD, DS32SD, CSD, CT-20, or CT-30 configured as an MCT (Master Control Telephone). The supervisor can reassign or remove agent stations from the ACD group using Change and Maintenance Commands (CMC).
- **Call to an Agent Station:** With this feature, the supervisor can call any agent station by dialing the station directory number. A call can be placed to the agent's prime line, a secondary line, or an intercom station number.
- **Three-Party Conference:** This feature allows the supervisor to assist the agents when requested for training purposes.
- **Message to an Agent Station:** With this feature, the supervisor can send a silent message to an agent station that has an LCD display.
- **ACD Status:** With this feature, the supervisor station can receive the following information (programmed on feature buttons on a CSD telephone only):
 - Number of idle agents in the group
 - Number of busy agents in the group
 - Number of work agents in the group
 - Number of DND (Do Not Disturb) agents in the group
 - Number of CO calls in the queue
 - Number of tie line calls in queue
 - Number of station calls in queue
 - ACD group number
- **Calls Waiting Indicator:** This feature provides the supervisor with a visual indicator of the number of calls waiting on Digital Stations and electronic telephones via a button appearance. Two calls waiting thresholds are available and programmable on a system-wide basis. The indicator lights steadily when the number of calls waiting reaches the first threshold. The indicator flashes when the number of calls waiting reaches the second threshold. Additionally, an external calls waiting indicator is available.
- **Silent Monitor:** This feature provides the supervisor with the ability to monitor an agent's call while in conversation, conference, etc., without an interrupt tone to either party. The supervisor's voice is not heard by either the agents or calling party while using this feature.

ACD Supervisor (Cont'd)**Benefits:**

- Allows supervisor monitoring of more than one group.
- Reduces number of lost calls.
- Allows more than one supervisor for each group.
- Assists in training agents.
- Improves employee productivity.
- Allows the monitoring of agents to meet staffing needs.
- Allows the reconfiguration of ACD group or trunk lines to facilitate call handling.

Applications:

- Reservation desks, ticket offices, customer service, telemarketing, dispatchers, newspaper advertising departments.

Capacity:

- Maximum of 20 MCTs per system when used as a Supervisory position telephone.

API Loop Back Test

This service provides the loop back test for the 2APIA card used in the ACD Report Manager and the Property Management System (PMS) interface applications.

The loop back test is made initially when using CMC 280 to assign the 2APIA card in the system. The loop back is automatically released during the following conditions:

- Assigning AP types by CMC command.
- Automatic loop back test by CMC 811.
- Restart or API failure.

Automated Attendant

This feature allows incoming calls to reach the desired station without operator or attendant assistance. Using this feature, the system answers the incoming call with a recorded voice announcement which prompts the caller to enter the desired station number. The caller dials the station number and completes the call. The Recorded Voice Announcement card (RVAC) is used for this application. The RVAC card allows seven calls to be answered simultaneously. Ten different messages can be recorded for the Automated Attendant (one for each of the ten tenants).

Day, night, or 24-hour recordings are also available with the RVAC card. (Automated Attendant can also be turned off or on with a programmable **night** button on a station or Attendant Console, allowing calls to be answered automatically by a general greeting used for both day and night use.)

If the called station is busy, if the caller does not dial the station number within a predetermined time, or if the caller dials an incorrect station number, the system transfers the call to an Attendant Console or other designated station.

Automated Attendant (Cont'd)**Benefits:**

- Reduces staffing requirements for attendant position.
- Allows attendant to perform other work while on duty.
- Provides faster service to calling party.

Applications:

- Reservation desks, ticket offices, customer service, telemarketing, dispatchers, newspaper advertising departments.

Single Digit Dialing

This feature allows incoming calls to reach a destination by dialing a single digit code, which can be assigned on a per tenant basis.

An outside caller may dial the DISA-S trunk destination number. The system will then answer the call with a recorded voice announcement to prompt the entering of a specific single digit code. If the caller does not enter any information, the call may be routed to a predetermined destination, such as an extension or the Attendant Console.

Automated Attendant - Single Digit Dialing is on a per tenant basis (not system-wide). Refer to CMC 434, P6, in the Data Base Manual (Section 123-080-002). DISA-S is required to implement this feature.

Time-Out Disconnect for Ringing/No Answer of DISA-S

This feature allows a DISA-S CO trunk to be released by a system time-out if not answered within a predetermined time. DISA-S is used for Automated Attendant applications.

Benefits:

Prevents a DISA-S trunk from being locked out of the system.

Applications:

- This feature is available only for voice communication.
- This feature is available for DISA-S calls that are terminated to an extension or an attendant.

Capacity:

- Timing for this feature may be assigned between 1 to 256 seconds. Default is set at 61 seconds.

Calling/Called Party Name Display

This feature displays the name of the person called and the name of the person who placed the call on both the originating and terminating telephones. Trunk names can also be displayed, if assigned.

An enhancement to this feature allows both the name and directory number to be shown on the 4-line display of an attendant console or CSD telephone.

Up to fifteen characters may be used. The trunk name may also be up to fifteen characters.

Restrictions:

- When the extension party name is not registered, only calling and called numbers are displayed.
- When using programmable buttons on a CSD (FDC, three-way conference menus, etc.), the extension party name is not displayed.
- Call duration is displayed on the last 5 digits of the first line.
- When using the **message waiting pick-up** button, the name is displayed only if it is registered. Otherwise, the DN is displayed.
- When the attendant answers the station call by pressing either the STA or RECALL button, the display gives caller identification while the RECALL button is continuing to be pressed.
- The attendant returns to conversation with the first party by:
 - Pressing the SRCE button after conversing with the second party or hearing ROT/BT while calling the second party
 - Pressing the DROP/CNCL button after conversing with the second party, hearing ROT/BT while calling the second party, or calling the second party without performing any additional service (i.e., camp-on)
- When the call terminates to the attendant by using call forward features, the transferring factor (CFA, CFB, etc.) is not displayed.
- If the DN is less than 4 digits, it is displayed at the right side without a space.

Call Diversion to Attendant

Incoming call diversion to the Attendant Console is automatically provided when the call is not answered within a predetermined time, or the call terminates to a busy extension or to one that has registered do not disturb (when the call comes in through the Automated Attendant feature of the RVAC card).

Benefits:

- Reduces lost or abandoned calls.

Call Manager Call Manager is an optional integrated call accounting system designed to operate with the system and its Station Message Detail Recording (SMDR) capability.

The Call Manager collects SMDR data, stores the formatted call records into system memory, and then prices the call records as printed reports are generated. Printed reports may be generated either automatically (in batch mode), or on demand, with the use of a terminal device such as an optional touchpad, programming terminal, or station set (via DTMF) with the appropriate COS. Call record reports are delivered to a serial printer.

An optional service module may be included to permit remote data base maintenance and system diagnostics.

There are two versions of Call Manager, each requiring a specific circuit card (refer to Chapter 2):

- Commercial (with a maximum capacity of 42,000 call records).
- Hospitality (with a maximum capacity of 1,000 call records).

In addition, the commercial version of Call Manager also has the Report Writer option available. This PC-based software application enables call record buffering and pricing, archiving onto hard disk, and enhanced reporting capabilities.

Further information can be found in the following manuals:

- Call Manager - Report Writer Manual (117-037-001).
- Call Manager - Commercial Manual (117-038-001).
- Call Manager - Lodging (117-039-001).

Call Progress Tones Call progress tones are provided by the system to indicate call status as shown in Table 4-1.

Timing:

- Busy tone, Reorder tone; 1 sec to 255 sec

Benefits:

- Provides automatic audible indication of calling status.
- Prompts station user for feature activation.

Table 4-1. Call Progress Tones

TONE	ABBREVIATION	DESCRIPTION	FREQUENCY				INTERVAL	dB (*1)
			350	440	480	620		
Dial tone	DT	Proceed to dial	X	X			Continuous	-16
Ringback tone	RBT	Called party is ringing		X	X		1.0 sec on/ 3.0 sec off	-16
Busy tone	BT	Called party is busy			X	X	0.5 sec on/ 0.5 sec off	-21
Reorder tone	ROT	Service unobtainable			X	X	0.25 sec on/ 0.25 sec off	-21
Recall dial tone	RDT	Proceed to second dial	X	X			3 bursts of: 0.1 sec on/ 0.1 sec off, then DT	-16
Confirmation tone	CFT	Request is acknowledged	X	X			3 bursts of: 0.1 sec on/ 0.1 sec off, then no tone	-16
Distinctive busy tone	DBT	Called party busy; camp-on, override services available	X	X			0.2 sec on/ 0.1 sec off, 0.1 sec on/ 0.1 sec off	-21
Call waiting tone	CWT	Call is waiting		X			1 burst of 0.1 sec on	-14
Hold tone	HT	Call is held					No tone (*2)	--
LCR warning burst tone	LCR 1	The most expensive route is selected	X	X	X	X	0.5 sec on/ 0.5 sec on	-21
LCR warning burst tone	LCR 2	Other than the least cost route is selected	X	X			1.0 sec on	-16
Cut through warning burst tone		Cut through is available	X	X			1 burst of 0.1 sec on	-16
Zip tone		Auto answer is executed	X	X			3 bursts of: 0.1 sec on/ 0.1 sec off, then no tone	-16

NOTES: *1 Level (dB) at the trunk interface.

*2 This tone is replaced by music source if music on hold feature is activated.

Change Work Time by ACD Group

Variable work times for ACD agents may be set on a per group basis.

Benefits:

- PBX users with multiple ACD groups can tailor the automatic work time on a per group basis allowing more efficient operation.

Applications:

- Any user requiring multiple ACD groups.

Conferencing (Three-Party)

The Three-Party Conferencing feature allows a station to establish a connection with another station while engaged in a two-party call or trunk call.

If the trunks (in any trunk connection) are ground start trunks, the system is allowed to receive disconnect supervision from the Central Office; therefore, the system is able to automatically disconnect a trunk-to-trunk connection. This means that the internal station may disconnect from the call without disrupting the trunk-to-trunk conversation.

DTMF tones may be sent during three-party conferences. This enables access to voice mail systems, etc. Only the transferring station can send DTMF tones to the other parties.

Benefits:

- Provides three-way communications for conference calls.
- Eliminates time and money spent traveling for traditional conferences.
- Eliminates/reduces costly call backs.
- Expedites decisions/information.

Applications:

- Teleconferencing situations for businesses.

Capacity:

- Maximum number of mixers is 10 (with a SC2P2x card) or 15 (with a SC4P2x card).

**COS/COR (Class of Service/
Class of Restriction)**

This feature provides multiple classes of service to restrict stations from accessing certain features. A COS is assigned to each station/trunk and the station/trunk has access to all the features allowed for that class. Default COS and customized COS are available through the data base.

COR is used to restrict the dialing capabilities of a station, such as outside calls, long distance, etc.

Benefits:

- Provides customization of features to meet the unique needs of a user by allowing sixteen classes of service and sixteen classes of restriction.

Applications:

- Business operations in a tenant service environment.
- Organizations with a need for more control over feature assignment than is normally offered in COS designations.

Capacity:

- 16 classes of service.
- 16 classes of restriction.

Day/Night DISA

The DISA-S mode of each trunk in the system can be set to day only, night only, or all day. This feature is also available for the automated attendant.

Benefits:

- DISA-S mode can be set on each trunk independently.

Applications:

- Users that require remote system access to PBX features or capabilities such as WATS or FX lines.

Diagnostics (Local/Remote)

The system uses on-line diagnostic routines to provide detailed information on system operation and fault locations. Users obtain a visual display of type of fault, location of defective card or instrument, time of fault, etc., by entering CMC (Change and Maintenance Command) codes on a Master Control Telephone (DS20SD, DS32SD, CSD, CT-20, CT-30, or Attendant Console). Use these devices on-site for troubleshooting activities. Faults are displayed on the segment display of the CPU card.

Benefits:

- Reduces costly on-site service calls by providing diagnostic capability at the user site or from a remote maintenance center.
- Reduces time spent in troubleshooting activities by providing a visual display of diagnostic data.
- Enhances the maintenance function by providing a periodic check of system status during system restart or call processing routines.
- Saves time and money by allowing on-line testing of Proprietary telephones.

Applications:

- Businesses that require 24-hour telephone service.
- Emergency type service; e.g., fire, rescue, etc.
- Remote sites requiring part-time service support.

Dial Outgoing Restriction

Trunk calls can be restricted by COS and COR as well as multi-digit restriction.

Benefits:

- Allows the user to limit access to outside lines.
- Provides savings on outside call costs.
- Prevents unauthorized outside calls.

Applications:

- Offices with a need to regulate and control outside calling.

Capacity:

- Three restriction groups per system.
- 16 classes of restriction.

Dial Pulse/Dual-Tone Multi-Frequency (DP/DTMF) Stations

The system supports both rotary dial and DTMF single line telephones. Dial pulses and DTMF tones are received by the system and translated to allow access to station features, system features, and trunks. A DTMF receiver (4DMR / MUFN* card) must be installed in the system to support DTMF single line telephones.

Benefits:

- Allows the use of existing SLTs (rotary dial or DTMF) by providing DP/DTMF conversion.
- Allows the use of station instruments most appropriate to user needs and working environment.
- Dial access to features available to all SLTs.

Applications:

- Offices with working environments in which SLTs are more practical or cost-effective than digital or electronic stations; e.g., warehouse, stockroom, etc.

Capacity:

- Eight 4DMR / MUFN cards per cabinet, with a maximum of eight 4DMR / MUFN cards per system.

NOTE: Traffic density will dictate how many cards are required. Further information can be found in Chapter 2 of this manual.

Dialed Number Identification Service (DNIS)

DNIS allows digits to be received from a long distance carrier across T-1 or DID type service, and then automatically routed to predetermined stations in the system. DNIS service is divided into four categories:

- **DNIS Routing:** The system automatically routes DNIS calls to a predetermined extension, the attendant, or an outside party via a CO/tie line.
- **DNIS Name Display:** When a DNIS call is terminated to a display station, the name corresponding to the DNIS number is displayed.
- **DNIS Reporting:** When a DNIS call is terminated to an ACD group, the DNIS number is transferred to the AP.
- **DNIS Priority:** When DNIS calls terminate to an ACD pilot, ACD queuing is done on a DNIS priority level.
- **DNIS Day/Night Call:** A different destination can be assigned for day or night mode for calls that terminate through DNIS.

Benefits:

- Enables quick identification of types of incoming calls, so that each call may be specifically handled.

* The MUFN card is a future Series 3 option.

Dialed Number Identification Service (DNIS) (Cont'd)**Capacity:**

- Maximum of 1,000 DNIS codes.
- Maximum of 10 DNIS digits per code.
- Maximum of nine characters per DNIS name.
- Maximum of eight DNIS priority levels.

Dialed Number Identification Service (DNIS) for Day/Night Call

A different destination can be assigned for day or night mode for calls that terminate through DNIS. DNIS digits can be from one to ten digits in length. DNIS digits received are translated by the system to allow termination to a station directory number, attendant access code, or system speed calling number. Day and night priority levels (1-8) are also provided.

Benefits:

- This feature is available for analog DID trunks, T-1 DID and ISDN trunks.
- Provides greater answering flexibility for termination of DNIS trunks.

Applications:

- Customer service, 24-hour service related companies.

Dictation Access

This feature provides a station user with proprietary telephone dial access to a user-provided dictation machine.

Accessing a dictation machine is accomplished by dialing an access code, usually the station number.

If the dictation machine line terminates, connection is made to the ring back tone before the machine answers.

The dictation machine should answer automatically.

NOTE: Setting P6 in CMC 204 will prevent reorder tone from being sent to the dictation machine when the calling party hangs up.

After successfully accessing the dictation machine, use the telephone key pad to send multi-digit commands to the machine. Consult the dictation machine manual for specific commands.

Benefits:

- Cost effective by allowing the use of existing dictation equipment.
- Shared usage of dictation equipment.
- Retraining of personnel on use of "new" dictation equipment is not necessary.

Applications:

- Organizations with telephone dictation requirements.
- Offices requiring off-site access to dictation equipment.

Direct-In Dial/Direct-Out Dial Service

This feature allows calls to be received using DID service and DOD calls to be sent out over the same trunks. This application is generally used for DNIS applications with T-1 spans.

Direct Station Selection/Busy Lamp Field (DSS/BLF) 30/40/80 Button

The DSS/BLF contains individual programmable buttons for accessing some or all internal stations. The direct station selection feature enables the user to place a call to an assigned station by pressing the associated DSS button. Unassigned buttons on the DSS/BLF can be programmed for specific features. The DSS/BLF will accommodate a maximum of five **park** buttons, five **camp-on** buttons, and one button each for **alarm**, **night answer**, and **alternate**. Up to forty speed call buttons or forty trunk buttons can be programmed on a DSS/BLF.

The Busy Lamp Field feature on the DSS/BLF provides an updated status display of associated stations. LED indicators display the Idle, Do Not Disturb, Ring, Busy, or Recall state of associated DSS station buttons.

Three types of DSS/BLF – DSS/BLF 30 (for Digital Stations), DSS/BLF 40 and DSS/BLF 80 (for CT stations and Attendant Consoles) – are available with thirty, forty, and eighty lamp (LED)/button combinations, respectively.

Benefits:

- Provides a constantly updated visual display of station status.
- Efficient call processing reduces network costs.
- Improved professional image.
- Reduced hardware costs.
- Provides single-button access (instead of dialing) to a desired station.
- Allows telephone coverage at an alternate DS/CT station via an **alternate** feature button.
- Provides easy activation of call handling features via DSS **park** and **camp-on** feature buttons.

Applications:

- Offices where receptionist uses the intercom frequently.
- Offices with a need for centralized answering capability.
- Offices that use DID and do not need a full console.
- Offices with a need for more than one answer point to cover absences, vacations, etc.

**Direct Station Selection/Busy
Lamp Field (DSS/BLF) 30/40/
80 Button (Cont'd)****Capacity:**

- Sixteen 30-button DSS/BLFs.
- Sixteen 40-button DSS/BLFs.
- Eight 80-button DSS/BLFs.

- NOTES:**
1. Two DSS/BLFs may be assigned to one station. Digital 30-button DSS/BLFs only work with Digital Telephones (DS).
 2. A digital 30-button DSS/BLF counts as 40 buttons.
 3. Thirty-button DSS/BLFs are connected to a 16DTC or 8DTC card. Forty- and eighty-button DSS/BLFs are connected to 8EKC cards utilizing the data pair.
 4. The system DSS maximum is 16. DSS button maximum is 640 total.

The following features are available using the DSS/BLF:

DSS Camp-On

This feature allows a station with a DSS/BLF to extend a held call to a busy station by pressing a programmable **DSS camp-on** feature button. Upon DSS Camp-On registration, a burst of tone alerts the busy station of a waiting call. The waiting call is extended to that station when the busy station becomes idle. A camp-on recall condition can be programmed to recall to the originating station DSS after the camp-on recall timer expires (recall time programmable up to 255 seconds). This condition is indicated on the DSS/BLF by the flashing of the **DSS camp-on** button and station button lamp, and audible recall tone ringing. If the DSS/BLF is paired with a DS20SD, DS32SD, CT-20, CT-30, or CSD, the LCD shows the calling station/trunk number and the camped-on station number.

Benefits:

- Saves time and improves productivity by eliminating repeated dialing to gain access to busy stations.
- Reduces number of callbacks.
- Assures that callers are not left waiting for extended periods of time by providing automatic return of a camped-on call to the DSS answering position after a predetermined time interval.
- Improves call handling by providing visual and audible indications of camp-on recall.

Applications:

- Centralized answering positions.

Capacity:

- Maximum of 5 **DSS camp-on** buttons per DSS/BLF.

DSS Park This feature allows the user to activate or retrieve calls parked at the DSS/BLF. Each programmable **park** button holds one call. DSS parked calls can be retrieved from a station by using the parking number assigned at the DSS/BLF.

Benefits:

- Increases call handling capability by allowing the DSS/BLF operator to place calls in a hold status.

Applications:

- Offices with a high volume of calls.

Capacity:

- Five **park** buttons per DSS/BLF.

Alternate DSS If the DSS/BLF has a button programmed as **alternate**, an alternate position is assigned in the data base. Calls are transferred to the alternate position when the user presses the designated feature button.

Benefits:

- Prevents unanswered calls.
- Allows calls to be automatically routed to an alternate position.
- Prevents a back-up of calls at the DSS/BLF.

Applications:

- Offices that require coverage for vacant stations.
- Businesses with a high volume of calls.

Capacity:

- One button on each DSS/BLF.

DSS Alarm An alarm can be programmed to appear at a DSS/BLF. When an error in the system occurs, the alarm button lights. The alarm button turns off when the fault is corrected.

Benefits:

- Automatically alerts the user to problems within the system.
- Reduces downtime.

DSS Night Night mode indication can be given by the programmable **night mode** button on a DSS/BLF. This button activates/ deactivates day and night mode.

Benefits:

- No training of personnel in day/night conversion required.
- Permits easy one-button conversion from day to night modes of operation.

Applications:

- Any business utilizing a DSS/BLF.

Capacity:

- One per DSS/BLF.

DSS Speed Calling Forty buttons on the DSS/BLF can be assigned for Station Speed Calling. A maximum of twenty digits can be registered for each Station Speed Call button. Only trunk calls can be assigned as station speed call numbers.

Benefits:

- Reduces the need to record and look up numbers.
- Vacant DSS/BLF buttons may be used for Station Speed Calling.
- Single-button access to frequently dialed numbers.
- Addresses the needs of station users requiring a large number of Station Speed Call buttons.

Applications:

- Executives requiring more than ten Station Speed Call numbers.
- Telemarketing groups who frequently call the same customers.
- Secretaries responsible for establishing calls for executives.
- Station users who frequently dial multi-digit numbers; e.g., long distance, SCC (Special Common Carrier), and personal authorization codes, etc.

Capacity:

- 20 digits per number.
- 40 numbers per DSS/BLF; if two DSS/BLFs are paired with a station, only the first DSS/BLF can have speed calling numbers assigned.

DSS Line Terminations This feature allows trunks to be terminated on buttons on the DSS/BLF Console. Call origination and answering functions are identical to those of lines appearing on the button of a station. A maximum of 31 lines may be terminated on a DSS/BLF. The LED associated with each button provides line status (ringing, hold, and busy). Any line may have a combined total of 52 appearances in the system on station or DSS buttons. This parameter applies to any kind of trunk termination group, e.g., key system, but is not applicable to pooled facilities for hold/busy indication. In addition, the DSS can have OSL appearances.

Benefits:

- Utilization of vacant buttons on DSS/BLF.
- Expanded line appearances to accommodate medium size businesses and departments.

Applications:

- Businesses requiring multiple answering positions.
- Sales and service departments requiring multiple trunk appearances.

Capacity:

- 31 lines per DSS/BLF, first DSS/BLF only assigned on the first 30 buttons.

DSS External Paging This feature provides direct access to customer-provided external loudspeaker paging equipment by activating (pressing) a feature button on the DSS/BLF.

Benefits:

- Assists attendant in locating individuals who receive urgent calls.
- Provides access to paging systems external to the telephone system.

Applications:

- Warehouses, remote sites, parts departments.

Station Alternate Position This feature allows a digital or electronic station associated with a DSS/BLF to direct all calls to a preassigned station. The station must be a digital or electronic station with an appearance of the same trunks. A programmable **alternate** button must be assigned on the DSS/BLF.

Benefits:

- Allows calls to be automatically routed to one alternate position.
- Prevents a back-up of calls at the DSS/BLF.

Capacity:

- One alternate digital or electronic station per DSS/BLF.

**Direct Station Selection
(DSS) 100 Button**

The DSS 100 provides Direct Station Selection (DSS) function and Room Status Indicator (RSI) function. The DSS shows the status of all stations registered in the system.

The DSS 100 has ten screen change buttons for station directory number hundreds groups and one hundred (100) station buttons. This means that up to one thousand (1,000) different stations can be assigned to one DSS 100. A screen change button specifies the current screen number. Only station button assignment is allowed. Other features, such as DSS Camp-On, cannot be assigned.

Two DSS 100s may be installed per system. Each DSS 100 can be paired with an Attendant Console only.

DSS 40 and DSS 80s cannot be used in combination with a DSS 100. This means that when you pair a DSS 100 with an Attendant Console, you cannot add additional DSS/BLFs.

Benefits and Applications:

Same as those listed for the DSS 40 and DSS 80.

**Direct Station Selection
(DSS) 30, 40, 80, 100 as
Room Status Indicator**

This feature allows room status to be visually identified. This is accomplished in the data base by assigning the DSS/BLF as a Room Status Indicator. The LED buttons on the console are used to identify the room status. As many as eighteen DSS/BLFs may be used as RSIs a maximum of three may be DSS 100s). Only six of the ten screen change buttons on a DSS 100 may be used. Therefore, the maximum number of Room Status screens is 18; three DSS 100s times six screens per console.

If a DSS/BLF 100 is assigned as an RSI it may only be used for that purpose, as a Room Status Indicator. You may, however, assign DSS/BLFs in different combinations. For example, one DSS/BLF may function as a RSI, while the others function as regular DSS/BLFs.

Applications:

Hotels/Motels

Capacity:

- Up to eighteen 30-, 40-, and 80-button DSS/BLFs.
- Up to three 100-button DSS/BLFs.
- Maximum RSI screens: 18.
- One DSS/BLF 100 cannot be used as both a DSS and an RSI.

**Directory Number to
Equipment Number Display**

This system maintenance feature allows an MCT to enter a DN (directory number) with a command that references an EN (equipment number). This feature is accessed via CMC 909.

Benefits:

- Improves troubleshooting.
- Speeds up installation time.
- Reduces man-hours required to perform data base changes and other maintenance tasks.

Applications:

- Reduces the time required to identify the hardware associated with an individual station instrument.

DISA (Direct Inward System Access)

DISA provides access to stations, features, and trunks from remote locations. The remote caller must be using a touch call telephone. Bothway trunks (ground start only) are designated as dedicated remote access trunks. If a bothway trunk is utilized, it must be configured for ground start.

Authorization codes are used for security purposes. One to eight digits may be assigned as authorization codes for bothway trunks. Each authorization code can be assigned on a trunk group basis and have a specific COS/COR. Call information (authorization/security code) can be output to the incoming and outgoing SMDR.

DID-DISA access is provided for DID applications. A DISA directory number (up to four digits) is assigned in the data base. The DISA directory number must be a valid DID number sent by the serving CO. Additionally, DID-DISA authorization codes can be assigned. One to four digit authorization codes are allows with DID-DISA service. A COS/COR is also assigned for each DISA DID directory number or DID-DISA authorization code.

Features accessible with DISA trunks include:

- Stations.
- Attendant.
- Dictation.
- Outgoing trunks.
- SCC (Specialized Common Carrier) routes.
- System speed call list.
- Paging access (internal and external).
- LCR (Least Cost Routing).

The remote caller dials the listed directory number which terminates on a DISA trunk in the system. The caller hears a distinctive tone and inputs the appropriate authorization code. System dial tone is then sent to the remote caller and system facilities are accessible. The internal station user can transfer the call to any other station in the system. Calls directed to a vacant station number or to an invalid feature code are sent a busy tone.

DISA (Direct Inward System Access (Cont'd))**Benefits:**

- Access to system and station features for field personnel.
- Centralization of network facilities.
- Access to system features after hours.

Applications:

- Sales personnel in the field.
- Access to features (i.e., dictation and SCC trunk groups) from a remote location or after business hours.

Capacities:

- DISA bothway trunk authorization codes: 500
- DID-DISA authorization codes: 500

Display Character Assignment

Information displayed on the LCD screens of equipped stations and the Attendant Console can be programmed in any language available using standard ASCII characters.

Distinctive Ringing

The Distinctive Ringing feature allows station users to audibly identify the source of incoming calls that are characterized by distinctive ringing signals.

Distinctive ringing tones can be used to identify the following types of calls:

- Station call from within the system.
- Incoming call from outside the system.
- Call that has been forwarded to the station from another station or is a callback (recall) from the system.

NOTE: Distinctive Ringing is not applicable to off-premise stations.

Benefits:

- Provides single line stations with key telephone station features.
- Identifies the type of call for stations without a visual display.

DTMF After Account Code Entry DTMF codes can be sent from digital and electronic telephones after an account code is entered while engaged in any CO or tie line conversation.

DTMF Sending During Conference This feature enables users to send DTMF tones during three-way conferences. This capability is useful in the event the user needs to access the voice mail feature when on a conference call.

Equal Access The system can accommodate users in areas where Equal Access is available. Regardless of the primary (and alternate) access carrier selected by the user, the system data base can easily be programmed to use the carrier access codes for feature operation; i.e., LCR (Least Cost Routing), Multi-Digit Toll Restriction, and SMDR (Station Message Detail Recording). Carrier access codes can also be incorporated in speed call lists.

Benefits:

- Enhances system operations by allowing the user to easily incorporate carrier access codes into the data base for cost management and control.
- User friendly; user dials single access code no matter which route selected by LCR.

Applications:

- Businesses in areas where Equal Access is available.

Capacity:

- 10 SCC Equal Access codes.

-
- Flexible Numbering Plan** Flexible Numbering allows the user to assign station numbers in accordance with a specified numbering plan. Number assignments are made through the software and can easily be reassigned using CMC (Change and Maintenance Command) codes. Station numbers consisting of one to four digits can be integrated in the station numbering plan.
- Benefits:**
- Room number correlation for Hotel/Motel and healthcare applications.
 - Enhances system operations by allowing the user to quickly and easily assign or change station numbers to suit individual requirements.
- Applications:**
- Organizations that need to reassign station numbers because of personnel relocations or installation of new systems.
 - Hotel/Motel applications; e.g., room number correlation and single-digit service.
- Capacity:**
- One- to four-digit numbering plan.
- Hotel/Motel and Healthcare Applications** Hotel/Motel and healthcare features are provided in the Business and Enhanced Network packages. Refer to Chapter 8 in this manual for a detailed description of hotel/motel and healthcare features. A Property Management System interface provides integrated features for Hotel/Motel management. Chapter 8 details this interface to enhance the Hotel/Motel feature capabilities.
- Hunt Groups** When a call encounters a busy station, this feature allows the caller to hunt the first idle station in a defined hunt group. Each group is defined as circular, terminating, or pilot type.
- **Circular Hunt Group:** The hunting sequence for a busy station starts with the called station and then searches in a prearranged order through all stations in the hunt group to find an available station. The hunt continues in a full circle back to the original station and will try that station again before returning a busy tone.
 - **Terminating Hunt Group:** The hunting sequence for a busy station starts with the called station and then proceeds through the hunt group to find an available station. The hunting sequence ends at the last station in the hunt group; therefore, a call placed to any hunt group station except the first one will not make a complete search of all available stations.
 - **Pilot Hunt Group:** The hunting sequence for a busy station begins only when the pilot number is dialed. The pilot number is assigned as the first number in the hunt group. The hunting sequence ends at the last station in the hunt group. The pilot station is not rung a second time.

Hunt Groups (Cont'd)**Benefits:**

- Improved productivity.
- Reduced attendant intervention in locating an idle station.
- Improved customer service.

Applications:

- Sales departments, catalog sales operations, parts departments.

Capacity:

- 50 voice hunt groups per system/10 data hunt groups per system.
- 16 members per group.

LCR (Least Cost Routing)

With LCR, the system chooses the most cost effective outgoing trunk based on the outside number dialed. After the outgoing destination number is dialed, the LCR stores and examines the number on the basis of the area and/or office code used. The LCR then chooses the proper trunk from a programmed route table which can contain up to ten trunk group choices. The system contains two types of routing:

- Office code routing tables.
- Office code routing and area/office code routing tables.

NOTE: Area/office code routing contains 63 routing tables and is used for either area codes or office codes within an area code (area/office codes).

Routing tables are assigned for office codes and for area/office codes. They contain ten possible routes. Routes are assigned to specific trunk group numbers.

The station class of service levels determine the caller's ability to advance immediately through the trunk groups listed in the route table.

NOTE: With LCR, trunk queuing cannot be activated.

Station class of service (COS) allows access:

- Only to the first trunk group in the route table.
- To all trunk groups, except the last trunk group in the table.
- To all trunk groups in the table.

**LCR (Least Cost Routing)
(Cont'd)**

Multi-Digit Toll Restriction and Toll Restriction are applied to outgoing calls through this feature. Additionally, time of day and type of day LCR routing is available. LCR calls can be routed by time of day (day, night, midnight), and type of day (weekday, holiday, special holiday; e.g., Saturday and Sunday). A time and type of day route table number is assigned to an area/office code route table for least cost routing. Nine separate time tables can be assigned per system.

Carrier access codes can be assigned to CO trunks in an LCR routing table for specialized call handling.

The following types of extensions can place LCR type calls:

- Stations.
- Attendants.
- Data stations.
- Tie trunks.
- DID-DISA.
- DISA-S.
- ISDN tie trunks.
- ISDN CO trunks.

This feature can be used with:

- Manual dial.
- Save/repeat.
- Speed calling (system, station, DSS all, partial).
- Keyboard dialing.
- Repertory dial.

Benefits:

- Provides cost control of communications service by allowing the user to define routing of outgoing calls.
- Improves management of telephone expenses by providing automatic routing of outgoing calls over the most economical facility available.
- User friendly; single-digit access codes may be entered, regardless of the route selected.

NOTE: For more information on LCR, refer to the Least Cost Routing feature in Chapter 5 of this manual.

Applications:

- Organizations which need to ensure employees use the most economical route for outgoing calls.
- Offices with more than one type of trunk access, (e.g., WATS, tie lines, FX, etc.).

**LCR (Least Cost Routing)
(Cont'd)**

Capacity: Two types of routing tables per system; area code and office code. Within these tables, the following capacities are:

- LCR area code routing tables/system: Maximum 63.
- LCR codes/routing table: Maximum 10.
- LCR area codes/routing table: Maximum 160.
- LCR office code routing tables/system: Maximum 15.
- LCR codes/routing table: Maximum 10.
- LCR office codes/routing table: Maximum 800.
- LCR area/office codes/routing table: Maximum 800 office codes/ 8 area codes.
- LCR time of day routing tables: Maximum 63.
- LCR time tables: Maximum 9

LCR for International Calls

LCR service can be provided for international calls (01X +). Calls are routed by the digit dialed after the 01 international access code. Ten LCR (01X) international codes can be assigned to one of the LCR international routing tables.

Capacity:

- LCR international code routing tables: Maximum 63
- Maximum of ten LCR routes can be assigned per international code.
- International codes: Maximum 10.

Line Button Copy

This feature allows all buttons (except ALARM, D-ICM, and Personal Line buttons) to be copied from an original station to a secondary station via data base (CMC) code. The command also copies the ringing mode as is from the original station. The following conditions apply:

- If you exceed the capacity of buttons you can assign, a warning message appears on your maintenance terminal display.
- The command does not copy the lamp state from the original station. (That is, if the lamp on the original button is lit, the lamp on the copied button will be idle.)
- The **ACD status** button is copied as an **ACD queue size** button. The Call Waiting Indicator lamp is not copied.
- DSS line buttons are not copied.

Benefits:

- Reduces time required to install proprietary telephones.
- Effective in group situations with similar feature requirements (ACD, Management, etc.).

**Local/Remote Maintenance
and Diagnostics**

The Local/Remote Maintenance and Diagnostics feature allows changes to be made in the office dependent data base and is done either locally (on-site) or remotely via the public telephone network and the standard modem installed in the system. Maintenance functions to read alarm status and run diagnostic processes are implemented by entering CMC (Change and Maintenance Command) codes using one of the following methods:

- Master Control Telephone (MCT) - DS20SD and DS32SD, CSDs, CT-20s/-30s.
- Attendant Console as MCT.
- IBM PC or compatible using PcMP software.

The MCT can be used on-site to enter commands. The PcMP can be used either on-site or remotely (via a modem).

Benefits:

- Saves time and money by providing an in-house capability to make data base additions/changes and perform troubleshooting.
- Eliminates costly on-site service calls by allowing data base changes via a remote maintenance facility.

Applications:

- Businesses with switches at multiple sites.
- Organizations in which operations involve many moves and changes.

Capacity:

- 20 MCTs.
- Two Attendant Consoles as MCTs.

Maintenance Trunk Busy

When a problem occurs with a trunk, this feature allows maintenance personnel to take the trunk out of service and busy out the trunk with the MCT or PcMP. The system automatically sends an off-hook signal to the serving central office to prevent incoming calls while maintenance is performed. Any station user trying to access the trunk will receive a busy signal.

Benefits:

- Saves time in eliminating repeated calls to a bad trunk.
- Allows maintenance personnel to place a trunk out of service until it can be repaired.

Modular Common Equipment Expansion

The system can be expanded by adding station and trunk cards as required. Additionally, cabinets (up to a maximum of four) can also be added for further expansion.

Because each cabinet is identical, any cabinet may be removed from one location and moved to another as a stand-alone system simply by adding a common control card and the appropriate power distribution and power units (if required). Expansion at the new location can be accomplished up to the maximum of four cabinets.

Benefits:

- System expansions can be made rapidly without significant downtime.
- Moves to secondary locations can be accomplished with a minimum of downtime and is very cost effective.

Applications:

- Businesses that are growth oriented.

Capacities:

- 120 stations per cabinet.
- 80 trunks per cabinet.
- 4 cabinets maximum.

Multi-Digit Toll Restriction

The Multi-Digit Toll Restriction feature allows the system to control area and office code calling on outside trunk groups. The system provides the option of setting various levels of restriction which can be assigned to each station in the system.

These COR (Class of Restriction) levels are defined by programming area code, office code, and area/office code tables when the system data base is generated. These tables are assigned to a certain COR levels on an allowed or denied basis. The system provides for sixteen COR levels.

When a station user initiates an outgoing call, the Multi-Digit Toll Restriction feature examines the first three or six digits (except for the operator toll prefix, customer toll prefix, and carrier access code) of the dialed number and compares them with the area/office code registered for that station. Calls placed to restricted area or office codes are blocked and the station user is provided with reorder tone.

Benefits:

- Controls toll calling expenses by allowing the user to define individual station COR levels, preventing use of outside trunk groups.
- Prevents toll abuse by providing automatic blocking of calls placed to restricted area and/or office codes.

Applications:

- Cost conscious organizations with a need to control telephone expenses.

Capacity:

- 1,500 maximum entries of area, office, and area/office codes.
- 3 restriction groups.
- 16 classes of restriction.

Multi-Station Appearance Enhancement

With this feature, the same extension number can appear on more than one digital or electronic station. Each DS/CT station has one PSL (Primary Station Line) and may have OSLs (Other Station Lines) assigned to it. Calls may be originated through either a PSL or OSL line.

OSLs are an appearance of another station's PSL or a phantom station assigned as a button on any of sixteen telephones.

Benefits:

- Provides efficient call coverage capabilities.
- Allows other stations to pick up incoming calls, increasing efficiency and productivity.

Applications:

- Secretary responsible for answering other lines.
- Telemarketing departments.

Capacity:

- 16 line appearances/station.

Music on Hold/Tone on Hold

This feature allows the connection of an external music or recorded/playback device source to the 4BWC or 8BWC card. The calling party hears the output of the music or playback device when placed on hold. The RVAC (Recorded Voice Announcement) card may also be used to provide an on hold source. RVAC recordings may contain music or voice announcements for advertising on hold applications.

A hold tone may be designated from the system call progress tone patterns. The default hold tone is silence if music on hold or the RVAC card are not utilized.

Benefits:

- Customer service for incoming calls.
- Improved professional image.
- Reduced abandon rate.

Applications:

- Advertisement on hold.

NOTE: Music on hold per DNIS number or tenant takes precedence over this feature.

Capacity:

- One music on hold source for system-wide on hold or recorded/playback music source.

**Hold Message per Tenant or
DNIS Number**

Each specific DNIS number or tenant can have a custom hold message assigned (music on hold, tone, or voice message). The DNIS message is different than the hold message used for non-DNIS calls. If music on hold is utilized, a trunk circuit must be assigned for each DNIS number or tenant. Voice messages are programmed via the RVAC card. Combinations of music on hold, tones, and voice messages are permitted in the system.

Night Service

While the system is in night mode, incoming outside calls or station calls may be directed to specific stations and/or bells. PNA (Predetermined Night Answer) or UNA (Universal Night Answer) are available for all tenants or are split for each tenant group. Any station may answer an incoming call by dialing the night answer access code (if allowed by COS). Night Service is activated at the Attendant Console, DSS/BLF, or at any station so allowed by COS.

Refer to Table 4-2 for day/night change feature specifications.

Benefits:

- Users without DID lines can receive after-hours calls.
- Night bell alerts staff to incoming calls when central answering position is unstaffed.

Applications:

- Businesses without DID service.
- Offices with employees on site when central answering position is unstaffed.

Capacity:

- 32 night answer groups.
- 8 destinations/night answer group.

Table 4-2. Day/Night Change Feature Specifications

TENANT	CHANGE	SITUATION	RESULT OF THE OPERATION		
			COMMON TENANT	OWN TENANT	OTHER
COMMON	DAY to NIGHT	---	Night	Night	Night
	NIGHT to DAY	---	Day	Day	Day
INDIVIDUAL	DAY to NIGHT	Only own and common tenant in DAY mode	Night	Night	No change
		Several individual tenants in DAY mode	No change	Night	No change
		All tenants in DAY mode	No change	Night	No change
	NIGHT to DAY	Only own tenant in NIGHT mode	No change	Day	No change
		Several individual tenants in NIGHT mode	No change	Day	No change
		All tenants in NIGHT mode	Day	Day	No change

Numbering Plan Enhancement

In order to comply with the North American Numbering Plan change, the following functions are enhanced:

- Expanded area codes (NXX, where N = 2-9, and X = 0-9).
- Expanded Carrier Access Codes (CACs) to 10XXXXX
- Expanded number of digits for an international call (from 15 to 18, including 01 code).

The application of the NXX area code is determined by setting the required system flag using CMC 102. When dialing a long distance call, the dialing pattern is CTP or OTP + NXX – NXX + XXXX. When dialing a local call, the dialing pattern is (OTP) + NXX + XXXX. + (inter-digit timeout). Refer to Table 4-3 for more information.

Carrier access codes may now be either five digits or seven digits in length. A total of ten 5-digit and 7-digit CACs may be assigned per system.

International call digits are determined by setting the desired system flag (CMC 102).

Table 4-3. Dialing Patterns

CTP	OTP	TYPE OF DIALING	DIALING PATTERN	
			N0/1X AREA CODE	NXX AREA CODE
Yes	Yes	Toll operator	No digit	No digit
		Service code	Not permitted	Not permitted
		Area code	Not permitted	Not permitted
		Office code	Not permitted	Not permitted
		International call	Not permitted	Not permitted
Yes	No	Service code	N11 or 11X	N11 or 11X
		Area code	N0/1X + XXX + XXXX	N0/1X + XXX + XXXX
		Office code	NNX + XXXX N'XX + XXXX N0/1X + XXXX	Not permitted
		International call	Not permitted	Not permitted
No	Yes	Service code	N11 or 11X	N11 or 11X
		Area code	N0/1X + XXX + XXXX N0/1X + X1,...,Xi + ITO ($i \leq 6$)	N0/1X + XXX + XXXX N0/1X + X1,...,Xi + ITO ($i \leq 6$)
		Office code	NNX + XXXX N'XX + XXXX N0/1X + XXXX NNX + X1,...,Xi + ITO N'XX + X1,...,Xi + ITO N0/1X + X1,...,Xi + ITO ($i \leq 3$)	NNX + XXX + ITO NXX + XXXX + ITO N0/1X + XXXX + ITO
		International call	Not permitted	Not permitted
		Others	X + ITO XX + ITO	X + ITO XX + ITO
		International call	Not permitted	Not permitted
No	No	Service code	N11 or 11X	N11 or 11X
		Area code	N0/1X + XXX + XXXX	Not permitted
		Office code	NNX + XXXX N'XX + XXXX N0/1X + XXXX	NNX + XXXX N'XX + XXXX N0/1X + XXXX
		International call	01 + X1,..., + X13 01 + X1,..., + Xi + ITO ($i \leq 12$)	01 + X1,..., + X16 01 + X1,..., + Xi + ITO ($i \leq 15$)

NOTES:

- 0/1 = 0 to 1, N = 2 to 9, X = 0 to 9, N' = 1 to 9, ITO = interdigit time out. N'XX office codes are assigned using CMC 408; N0/1X office codes are assigned using CMC 402.
- If an OTP is dialed, any digits following will be regarded as an area code. Therefore, office code restriction will not be effective.

**Numbering Plan
Enhancement (Cont'd)**

Installation of the North American Numbering Plan load is as follows:

1. Perform a Form Save as outlined in the PcMP Data Base Management Manual.

NOTE: The system is fully operational at this point.
2. Turn system power OFF.
3. Remove the old version SCPN2M/4M card set. This consists of a mother board (CPU) and a daughter board (memory). Replace with the new version SCxP2x card (as shown below). The new version will be identified with a plastic designation guide attached to the daughter board, and labeled as follows:
 - SC2P2B: Two cabinet basic package.
 - SC2P2E: Two cabinet enhanced package.
 - SC4P2B: Four cabinet basic package.
 - SC4P2E: Four cabinet enhanced package.
4. Restore power to the system.
5. Perform a Form Load to install the modified ODDB on the system. This is described in the PcMP Data Base Management Manual. The system will remain non-operational during the Form Load process.
6. Upon successful completion, it is recommended that a Save be executed. This procedure is described in the PcMP Data Base Management Manual ("Saving the ODDB to Floppy Disk").
7. The ODDB can be modified on-line via the PcMP or directly using a Master Control Telephone (MCT). There are up to five CMCs which may need to be updated to include the new area code assignments. They are:
 - CMC 402: N0/1X Conflicting Area/Office Code Assignment.
 - CMC 413: Area Code Restriction Assignment.
 - CMC 414: Area/Office Code Restriction Assignment.
 - CMC 423: LCR Area Code Assignment.
 - CMC 424: LCR Area/Office Code Assignment.

The new area codes which are currently assigned are:

- 334 (Alabama; effective 1/15/95).
- 360 (Washington State; effective 1/15/95).
- 520 (Arizona; effective 3/19/95).

Select the desired CMC. For Conflicting Area/Office Code Assignments (CMC 402), assign the restriction digit flag (P3) and the restricted digits (P4).

For Area Coder and Area/Office Code Restriction Assignments (CMC 413 and CMC 414), select the affected restriction group number (P1), and input the affected area code(s) in P4.

Numbering Plan Enhancement (Cont'd)

For LCR Area Code Assignments and LCR Area/Office Code Assignments (CMC 423 and CMC 424), select the desired route table number in P1, and input the affected area code(s) in P2.

8. After all updates have been made to the data base, perform a Save to save the final version of the data base.

Office Codes (NXX)

This feature allows numbers such as 811 to be used as assignable office numbers. (Normally, such numbers are recognized as special service codes.) When this feature is initiated, N may be from 2-9 and X may be from 0-9.

When NXX is assigned as an office code, that code is no longer recognized as a special service code. This feature is subject to multi-digit restrictions and toll restrictions. NXX office code is the same dialing pattern as a normal office code.

The dialing patterns of an NXX area code is as follows:

- For a long distance call: CTP or OTP + NXX + NXX + XXXX
- For a local call: NXX + XXXX

The following priorities are established in the case of an overlap:

RD>CAC>CTP/OTP>NXX

RD: routing digit

CAC: carrier access code

CTP: customer toll prefix code

OTP: operator toll prefix code

Off-Premise Extensions (OPX)

This feature allows industry-standard SLTs (Single Line Telephones) at off-premise locations to be connected to the system. This may be accomplished by using one of the following methods:

- **Loop Extenders:** These are available in the commercial marketplace and are used to extend station lines (using 16SLC or 8SLC line cards).
- **CO Conditioned Leased Lines:** A 600 ohms limit includes the telephone (using 16SLC or 8SLC line cards).
- **OPX line (4SLE Card):** The system proprietary off-premise extension card provides up to four circuits used in a long line connection (1600 ohms).
- **T-1 OPX:** A 24T1 card can support up to 24 off-premise extensions. The T-1 span at the off-premise location must be connected to channel bank equipment to provide digital to analog conversion and connection to single line telephones. Additionally, the channel bank must supply ringing voltage to allow ringing of single line telephones.

**Off-Premise Extensions
(OPX) (Cont'd)**

With the exception of the 4SLE card, this equipment is mounted and powered externally to the equipment cabinet. The 4SLE provides a -48 VDC connection for OPX stations.

The distinctive ringing pattern cannot be used on an off-premises station. Because of this, there is a flag that may be set in the data base to identify off-premise stations. Changing that CMC allows the setting of one of three different ringing patterns (station call, incoming call, recall).

Benefits:

- Provides easy access to dial-up features of a company's communications system for employees who are working at off-site locations.
- Reduces need for duplicate systems; i.e., centralized network or centralized control of facilities.
- Reduces equipment cost and space requirements.

Applications:

- Businesses with branch offices using SLTs.
- Businesses requiring connection to any off-premise location.

Phantom Station

Phantom Station assignment allows the designation of a phantom or secondary station number in addition to the normal station number. CMC 200 assigns this feature. Equipment numbers are assigned as *000 - *095 for phantom lines that will be assigned as appearances on a multi-station telephone.

Phantom stations can be assigned on up to sixteen OSL appearances on DS/CT DSS stations.

This feature is useful when a pilot station receives and distributes all ACD calls. By designating a phantom line to the pilot, a pilot telephone is then not required. This eliminates having to install an extra telephone just for the pilot number.

Features that are not available to phantom stations include:

- Message Waiting.
- Night Answer.
- Attendant Overflow.
- Make Busy.

Benefits:

- Additional stations can be assigned without additional hardware.

Phantom Stations (Cont'd)**Applications:**

- ACD agent groups.
- Businesses needing more stations without the need for all features on every line.
- Pilot number for a voice mail system ACD group.

Capacity:

- A maximum of 96 per system.

Positive Disconnect for Single Line Interface

This feature enables the system to send a loop disconnect signal to an SLT or other equipment connected to the 8PDL card (e.g., VMS) when the other party disconnects from the call.

Conditions:

The loop disconnect signal is not sent when:

- The other party presses the **Privacy Release** button, then hangs up.
- The other party breaks into a conversation by using the Privacy Release button, and then hangs up.
- The other party calls the SLT using the OSL button, and then hangs up after the conversation.
- The other party enters the FDC menu mode, and then hangs up.

Pound (#) Code Dialing

Pound (#) code dialing is available for CO or tie trunks as one of the address signals if the system is so arranged. This arrangement is useful when the system works as a key system behind a PBX.

Benefits:

- Increases the number of features available to a user.

Applications:

- Any organization with a key system operating behind a PBX.
- Tie line applications.

Power Failure Restart

This feature provides automatic reinitialization of the system after a power failure. The Office Dependent Data Base (ODDB) is also restored. Because all updates to the system memory are stored in the battery backed-up memory, the system is able to return to the same call processing configuration that existed before power loss. Features which have been temporarily activated by a station user, e.g., Station Camp-On, must be reinitiated after power is restored.

Three types of automatic system restarts are provided:

- **Reset Restart** (Short Power Restart): When commercial power is restored within one to three seconds after power failure, call processing resumes at point of interruption.
- **Hot Restart** (Power Failure Restart - battery backed-up RAM): When commercial power is restored after a power failure of more than three seconds, the system restarts call processing by using the customer data base stored in the battery backed-up RAM or optional floppy disk drive. This restart puts all stations and trunks in an idle state and cancels certain activated features; e.g., Station Camp-On, Trunk Camp-On, and Call Park.
- **Cold Restart** (Power Failure Restart - ROM): When commercial power is restored after a power failure that has depleted the RAM back-up battery (back-up battery can hold RAM memory for up to two weeks), the system restarts by using the default data base stored in ROM, or may be restarted using the optional disk drive with the ODDB floppy disk in place.

Benefits:

- Provides automatic regeneration of system and office dependent data base information after power outage.

Applications:

- All businesses and telecommunications operations.

Power Failure Transfer

When a major fault occurs, the system will activate preprogrammed connections between CO lines and single line telephone sets. The optional Power Failure Transfer card (6PFA) must be installed to support power failure transfer. The 6PFA card provides six connections for CO lines to single line telephones. The 6PFA card supports both ground and loop start operation. This eliminates the need for external ground start equipment or buttons.

Benefits:

- Enables outside communications in the event of a power failure.

Capacity:

- One 6PFA card per cabinet.
- Maximum 24 power failure transfer stations per system.

**Recorded Voice
Announcement**

This feature allows the system to play recorded messages to a caller. The RVAC (Recorded Voice Announcement) card controls this feature. The card has eight ports. Seven of these ports are for transmitting the recorded message; the remaining port is used only when recording the actual message.

One card:

- Has fourteen four-second message blocks.
- Allows extension of messages over blocks.
- Does not permit messages to extend to a second card.
- Supports voice messages of lengths up to 56 seconds.

The System Administrator can call and change the recorded message on the RVAC card. Messages provided by the system are as follows:

- 20 ACD answering messages.
- 20 ACD waiting messages.
- 1 DID vacant number message.
- 1 DISA authorization code entry message.
- 1 DISA invalid authorization code message.
- 1 Hotel/Motel wake-up message.
- 10 multiple language Hotel/Motel wake-up messages.
- 1 time reminder message.
- System on hold message.
- ACD on hold message.
- 10 Automated Attendant Messages.
- 10 hold messages for tenant or DNIS numbers.

Benefits:

- Provides advertising while customers wait on hold.
- With ACD, reduces call abandon rates.
- Increases sales.
- Provides multi-language wake-up services and time reminders for Hotel/Motel applications.

Applications:

- Hotel/Motel operations, customer service, airline reservations, or reservation desks.

Capacity:

- Two RVAC cards per equipment cabinet.
- Maximum of eight RVAC cards per system.

Silent Monitor This feature allows a supervisor, or any station allowed through COS, to silently monitor a conversation on a station. While the call is being monitored, the supervisor may break-in to the conversation and return to the monitoring state. Once a station is monitored, the monitoring continues regardless of the station's status; i.e., on- or off-hook, dialing, conference, etc. The station activating the monitoring must be allowed through Class of Service and the station being monitored must be allowed to be monitored through data base programming.

Benefits:

- Provides the ability to perform quality checks on agents interacting with the public.
- The Silent Monitor feature can be activated on any call involving a station.
- Allows training of new employees by supervisors or trainers.

Applications:

- This feature is primarily intended for ACD applications, such as travel and airline reservation offices and customer service departments, although it can be used with any station within the system provided access to this feature has been allowed in station Class of Service.

Simultaneous Voice/Data Transmission

Simultaneous voice and data can be transmitted over one pair of wires. Both asynchronous and synchronous data terminals can be connected with the system. See Simultaneous Voice/Data Communications in Chapter 9 for further information.

Single Stage Nonblocking Architecture

The system utilizes time-division multiplexing techniques with pulse code modulation for transmission of voice communications. This digital switching technology uses a speech hiway to transmit all voice traffic to the switching network. Various voice channels are separated from each other by time, with each channel alternately being connected to a transmission line. The microprocessor samples line and trunk circuits 8,000 times per second. When an incoming port and an outgoing port are to be connected, time slot information associated with these ports is exchanged momentarily. This method of system operation makes efficient use of a communications channel and provides capability for nonblocking voice communications.

Benefits:

- Allows all system users full access to line or trunk circuits for voice and data communications.

Capacity:

- SC2P2X card: up to 512 time slots (in one and two cabinet configurations)
- SC4P2X card: up to 1,024 time slots (in three and four cabinet configurations)

**SMDR (Station Message
Detail Recording)**

The SMDR (Station Message Detail Recording) feature provides a printed copy of the following information for every outgoing call:

- Time of call origination.
- Duration of call (hours, minutes, seconds).
- Originating station number.
- Trunk access code.
- Trunk identification.
- Trunk number.
- Identification of calling party; e.g., station/attendant.
- Directory number dialed.
- Account code.
- Tenant number.
- SMDR group number.

SMDR has the additional capacity to screen outgoing calls and limit a printout to:

- Outgoing calls through CO lines only.
- Outgoing calls through tie lines only.
- Account code calls only.
- Toll calls only.
- Overtime calls only.
- Trunk group selection.
- COR selection.
- Tenant selection.

Incoming SMDR information is printed out for every call that terminates to a station, attendant, or data terminal. If a trunk (CO or tie) to trunk (CO or tie) call is abandoned by encountering trunk blocking, this information will be printed out on the SMDR printer. This feature can be disabled using a data base command and in the default mode is not active.

As an option, a Call Manager system can be used in conjunction with SMDR. Refer to the specific Call Manager manual for more information.

If an outgoing call satisfies all the screening items, detailed information on the call is automatically sent to a printer connected to the RS-232C port on the equipment cabinet. The service applies to all calls originated through the following features:

- Personal/private lines.
- Key system lines.
- Pooled outgoing lines.
- Pooled bothway lines.
- Tie trunk access.
- System speed calling/station speed calling.
- LCR access.
- SCC access.
- Save/last number redial.
- Individual trunk access.
- Trunk group access.
- DSS speed calling.
- Repertory dialing.

**SMDR (Station Message
Detail Recording) (Cont'd)**

When an incoming or outgoing call is transferred to another station, depending on the system flag set at CMC 102, FLGN 4, a single or multiple record is produced. When the flag at CMC 102 is set to zero (default), an SMDR record is generated every time a call is transferred. If the flag is set to one, an SMDR record is only generated for the last station caller connected to the trunk call at the time the call disconnected. SMDR provides a programmable threshold for call duration. Incomplete calls (busy tone, reorder tone, or no answer) are not recorded unless they exceed the programmed threshold.

Benefits:

- Provides record of telephone usage for billback to departments or tenants.
- Provides an accounting management tool for allocation of telephone expenses.
- Identifies areas for system or feature upgrade.
- Provides record of telephone call duration which can be used in making budgetary and planning forecasts.
- Prevents telephone abuse and misuse by identifying unauthorized outgoing calls.
- Provides an evaluation tool to measure amount of employee's time spent on the telephone.

Applications:

- Individuals whose operation requires call tracking capabilities; e.g., lawyers, consultants, etc.

**Specialized Common Carrier
(SCC) Access**

This feature allows access to SCC networks (e.g., US SPRINT®, MCI®) by dialing a special access code and destination number. The system automatically dials the local access number and authorization code. SCC access is subject to COR (Class of Restriction). This feature can also be used with the Least Cost Routing feature, and system and station speed calling. If programmed in the data base, a two- or three-digit personal authorization code must be entered.

Benefits:

- User friendly.
- Saves money by reducing number of DDD (Direct Distance Dialing) calls.
- Saves time by enabling the user to dial an abbreviated code for simple and easy access to the SCC network.
- Applications:
- Businesses that use US SPRINT, MCI, or other common carriers.

System Call Forward

This feature provides Call Forward features, i.e.; Call Forward - All Calls, Call Forward - Busy, Call Forward - Don't Answer, Call Forward - Busy/Don't Answer, to be assigned in the customer's data base to allow automatic call forwarding based on programming. The station can change the call forwarding destination and condition if allowed in the station class of service.

Benefits:

- A Call Forward feature can be assigned in a semi-permanent fashion, so that the station user does not have to manipulate this feature. Call Forwarding can also be activated from the station.
- Call Forwarding can be regulated by a System Administrator rather than the user, in the case where one particular user is not responsible for the operation of a given telephone.

Applications:

- Business offices, hospital nurses stations, retail stores, hospitality, healthcare, integrated voice mail server.

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System Speed Calling

This feature is similar to Station Speed Calling, but is applied system-wide. Frequently used numbers may be programmed into the system to be accessed by users who have this included in their Class of Service.

A system speed call list can contain dial code entries for up to one thousand numbers. Each number, including pauses, may have up to twenty digits.

To use system speed calling, dial an access code and either dial the designated entry code or press an assigned feature button. Only one speed calling code may be assigned to each feature button.

Benefits:

- Saves time and increases productivity by allowing station user to dial an abbreviated number sequence to access frequently called numbers.

Applications:

- Telemarketing businesses.
- Sales organization.
- Purchasing departments.

Capacity:

- 1,000 system speed call numbers.

Tenant Service

Soft Tenant: This feature allows the same PBX communications system to be shared by as many as 63 tenants and as many as eight Attendant Consoles. A typical tenant situation is a professional building where different firms use the same PBX. Each tenant shares the system equipment, but retains control of individual stations and trunks. The numbering plan must be the same for all tenants, but trunking may be tailored for each tenant. There are three system options available in the Tenant Service feature:

- Outgoing/incoming tenant.
- Outgoing only tenant.
- Incoming only tenant.

Station-to-station calls may be made between different tenants.

Common Tenant: In addition to the 63 possible tenants another tenant, termed a common tenant, is available. Any station, attendant, or trunk can be registered as a common tenant. The common tenant may be shared by all the tenants. Thus, if a station or an attendant is assigned as the common tenant, that position may receive and originate calls for all the tenants.

Hard Tenant: Implementing this feature prevents users in one tenant group from calling a station in another tenant group by dialing the station number. Station-to-station calls in the same tenant group are allowed.

If a station or an attendant is assigned to a hard tenant, the station is allowed to use only the trunks belonging to its own tenant and common tenant(s).

A Front Desk Console for Hotel/Motel services must belong to the common tenant when hard tenant service is registered.

Benefits:

- Resale of services; increased profit, reduced expenses.
- Reduces telephone expenses by allowing small businesses in close geographical proximity to each other to use same communications system.

Applications:

- Shopping centers.
- Professional office buildings (e.g., doctors, lawyers, accountants).

Capacity:

- 63 tenants per system, plus one common (shared) tenant.

Traffic Measurement This feature provides a measurement of traffic density according to TGN (Trunk Group Number). Measured traffic density is stored in the system memory and displayed by MCTs or through the PcMP interface. Information is stored based on a traffic measurement period of one to ten hours. Ten separate traffic measurement groups can be programmed simultaneously. Traffic is measured on a traffic density basis during the reporting period. The traffic measurement is displayed in percentage of traffic density only (0 - 100%).

Benefits:

- Provides a method of measuring the amount of traffic on specific trunk lines.

Applications:

- Offices with a need to control the use of telephone services by their employees.

Capacity:

- 10 traffic measurement groups per system.

Trunk Busy Signal The Trunk Busy Signal allows the system to send a trunk busy signal to another system when one of the following trunks are made busy by data base command:

- 4BWC.
- 8BWC.
- 2TTL.
- 2TTE.
- 2TE4.
- 4TE4.
- 6DID.

Benefits:

- Provides automatic busy signals to other systems when the trunks are being repaired.

Trunk Individual Access The Trunk Individual Access feature allows system users to access a specified trunk from the user's telephone by dialing an access code, followed by a trunk directory number.

NOTE: This feature does not include tie trunks.

Benefits:

- Allows users access to specific trunks.
- Used for maintenance purposes.

**Trunk Priority on ACD
Queuing**

ACD queued calls can have priority assigned on a per trunk group (CO and tie) basis. A call with a higher priority will terminate to an agent before a call having a lower priority. Also, calls waiting over a specified time will default to the highest priority in the ACD queue.

Internal calls default to the lowest priority level.

Benefits:

- Reduces the number of lost calls due to an excessive wait time.
- Allows personalized configuration of types of calls into priority levels.
- Gives priority to 800 lines thereby reducing cost.

Capacity:

- Maximum number of levels available is eight.

Trunk Types The following trunks are defined in this feature description:

- DID trunks.
- Terminating trunks.
- T-1 trunks.
- Tie trunks.
- DIL trunks.

**DID Trunks (Direct Inward
Dialing)**

DID allows calls to ring directly to a station, bypassing the attendant position. The last one to four digits of the DID number must correspond to a specific station number. Listed directory numbers ring directly to the Attendant Console. DID calls may also directly access a tie/FIPN line.

Calls to busy stations receive a busy tone; however, if the busy station is in a hunt group, the call receives hunting treatment. Calls to stations in the "do not disturb" mode receive a busy tone. Calls directed to vacant station numbers are directed to the attendant or receive a busy tone or a recorded voice announcement. DID calls can also be answered with the Group/Directed Pick-Up features.

Numbers that are registered in the data base can terminate to an attendant or a specified night station. This Listed Directory Number (LDN) feature allows calls to access an attendant. This is useful when a company wants to use a specific number to reach the attendant instead of stations. Additionally, assigning a specified night station to answer unattended calls makes certain no calls go unanswered.

Benefits:

- Reduces call load to attendant.
- Allows station users to have direct/individual incoming lines.
- Allows listed directory numbers to terminate to an attendant.

Applications:

- Large volume of incoming calls to station users.
- Sales departments requiring direct access.
- Service departments requiring direct access.

Capacity:

- 240 per system.
- 6 DID trunk groups.
- 100 LDN per trunk group.

- Terminating Trunks** Terminating trunks are incoming, outgoing, or bothway CO trunks that have an appearance on buttons on Digital Stations, CT-10s, CT-20s, CT-30s, and CSDs. A maximum of 96 of these stations can have the same terminating trunk assignment. A maximum of 63 terminating trunk groups may be programmed into the system. Tie lines and DID trunks cannot be assigned to a terminating trunk group.
- **Pooled Incoming:** Incoming trunk calls can be directly pooled together and connected to a button on a Digital Station or electronic station without going through the attendant.
 - **Key System:** One or more buttons on a Digital Station, CT-10/20/30, or DSS can be assigned to give access to a given trunk (one per button). These terminations generally appear on some or all stations.
 - **Personal Line:** Used to assign a private line on one button of one station. Access to a personal line is allowed only from the station on which it appears.
 - **Pooled Bothway:** A button on a Digital Station, CT-10/20/30, or DSS can be used to access pooled bothway trunk groups directly. Incoming and outgoing service is provided. There is no limit on the number of trunks that can be assigned to one trunk group.
 - **Pooled Outgoing:** Trunks can be pooled together for outgoing access only. Pooled outgoing trunks are assigned on buttons on Digital Stations, CT-10/20/30 telephones, and DSS consoles.

T-1 Trunks T-1 trunks provide a digital connection with a 1.544 Mbps facility under the North American T-1 standard. The 24T1 card provides 24 channels for use with DID, CO, tie, or DNIS multiple services. Eight channels may be assigned per application. The following hardware is required:

- 24T1 card kit (includes 24T1 adapter).
- CLKS card kit (includes all cables).

The T-1 feature supports the following interface functions:

- Loopback and non-loopback testing.
- DS-1 interface (includes equalizer adjustment).
- D4 and ESF format.
- AMI or B8ZS coding.
- FXS/SAS capability.

FXS/SAS is designated in the data base. All other options are set by the hardware switch on the 24T1 card.

Slip errors and bipolar violations are indicated by an alarm on the 24T1 card. A slip error is indicated when more than 30 errors are detected per hour; a bipolar violation is when more than 1,536 such errors are detected in a 1,000 second period.

The T-1 adapter provides a direct connection to the Network Interface Unit (NIU), eliminating the need for external Carrier Service Units (CSU).

The following functions (designated by an "X" in the applicable column) are provided by the T-1 Interface (Table 4-4):

Table 4-4. T-1 Interface Functions

FUNCTION	CO INTERFACE	TIE INTERFACE	OPX INTERFACE
Voice call	X	X	X
Data call	-	-	-
Data call via modem	X	X	-
Existing voice features	X	X	X
Existing data features	X	X	-

Capacity:

- Maximum of five cards per cabinet (maximum of 240 channels per system)

Applications:

- Key systems.
- Large volume of incoming calls to station users.
- Sales departments requiring direct access.
- Service departments requiring direct access.

Tie Trunks This feature allows tie trunks to be installed between another PBX and the system. The system treats a tie line call as an incoming station call.

Five types of tie line interfaces are available:

- 24T1 card digital tie lines.
- 2TE4 card 4 wire tie lines (2 circuits).
- 4TE4 card 4 wire tie lines (4 circuits).
- 2TTE card 2 wire tie lines (2 circuits).
- 2TTL card loop tie lines (2 circuits).

Benefits:

- Saves money by allowing users to create an internal communications network, reducing use of costly outside facilities.

Applications:

- Offices that frequently call one or more specific cities.
- Businesses that have multiple locations (inter- or intra-city installations).

Capacity:

- 20 tie trunk groups.

DIL (Direct-In Line) This feature provides for the direct termination of separate CO (Central Office) trunks to SLTs (Single Line Telephones), digital and electronic stations, or phantom stations used as pilot numbers for hunt groups or ACD groups, bypassing the Attendant Console. Calls on these trunks can be transferred to or conferences with other trunks or stations. These trunk calls can also be call forwarded, can receive hunting treatment, or can be included in group/directed pick-up.

A DIL can be directed to only one station; however, any station can have multiple DILs. Calls to a busy station that is not located in a hunt group can camp-on to the station. ACD calls directly route to the appropriate station(s).

Benefits:

- Reduces the amount of call traffic to the Attendant Console.
- Improves professional image.
- Provides efficient call processing.
- Increases productivity by increasing the number of direct-in trunk calls.

Applications:

Organizations with a requirement to direct incoming calls to specialized groups or stations, such as purchasing departments, catalog sales, customer service, sales departments.

A summary of the terminating trunk groups is found in Table 4-5.

Table 4-5. Terminating Trunk Capacity

TYPE	MAX NO. OF BUTTONS/DS, CT, DSS	NO. OF MULT. APPEARANCES	NO. OF TRUNKS ASSIGNABLE TO KEYS	MAX. NO. OF TRUNK GROUPS	REMARKS
Key system line	Buttons other than feature access buttons	72/96 per trunk *	1 trunk group per button	63	1 trunk per group
Personal line	Buttons other than feature access buttons	1 per trunk	1 trunk per button	63	1 trunk per group
Pooled incoming	Buttons other than feature access buttons	72/96 per trunk group *	1 trunk group per button	63	Bothway trunks cannot be simultaneously assigned to a pooled incoming group
Pooled bothway	Buttons other than feature access buttons	72/96 per trunk *	1 trunk group per button	63	Bothway trunks can be assigned
Pooled outgoing	Buttons other than feature access buttons	72/96 per trunk *	1 trunk group per button	63	Outgoing trunks only

* The SC4P2X card is recommended for a maximum of 96 lines (even for a one or two cabinet system).

Variety of Stations The Variety of Stations feature allows the system to use industry standard single line telephones as well as the following types of proprietary telephones:

- DS20.
- DS20S.
- DS20SD.
- DS32SD.
- CSD.
- CT-10.
- CT-20.
- CT-30.

Table 4-6 summarizes the specifications for the types of proprietary telephones:

Table 4-6. Proprietary Telephone Specifications

TYPE	NO. OF FEATURE BUTTONS	LED NO. AND COLOR	HANDSFREE	DISPLAY	NO. OF WIRES
DS20	20*	12 Red/Green 04 Red	Monitor only	None	2
DS20S	20*	12 Red/Green 04 Red	Available	None	2
DS20SD	20*	12 Red/Green 04 Red	Available	20 characters x 2 lines	2
DS32SD	32*	24 Red/Green 04 Red	Available	20 characters x 2 lines	2
CSD	14	14 Red	Available	20 characters x 4 lines	2
CT-10	22**	15 Red/Green 03 Red	Monitor only	None	4
CT-20	22**	15 Red/Green 03 Red	Available	20 characters x 2 lines	4
CT-30	34**	27 Red/Green 03 Red	Available	20 characters x 2 lines	6***

- * Includes eight fixed buttons.
- ** Includes four fixed buttons.
- *** Includes 2-wires for off-hook call announce feature.

Voice Mail Integration

This feature allows integration of the integrated voice mail server (IVS) and voice mail systems from other vendors. The voice mail feature sends and receives information between the PBX system and the IVS or other voice mail systems. The information is sent and received via a single line interface using DTMF.

Services provided by the Series 3 system include:

- **Direct Call Service:** This service allows the caller to dial the IVS or voice mail system directly to retrieve or leave messages. The caller's directory number is sent to the IVS or voice mail system automatically, allowing the caller to skip the step of entering a mail box number when the IVS is accessed.
- **Call Answering Service:** If a station is set to forward to the IVS or voice mail system, the call is forwarded and the IVS answers with appropriate message. The caller can then leave a message for the called station.
- **Message Waiting Service:** The IVS or voice mail system issues a message waiting lamp indicator when messages are queued for the station. Retrieval of waiting messages initiates a direct call to the IVS or voice mail system.

Benefits:

- Reduces attendant staffing requirements.

Capacity:

- One per system.

Zero "00" Operator Toll Prefix

The "00" Operator Toll Prefix provides users with a "00" dialing pattern for long distance operator assistance in equal access applications.

Benefits:

- User friendly.
- Greater system flexibility
- Allows access to the operator at the common carrier or long distance carrier

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STATION FEATURES

This chapter describes the system's station features and lists the benefits, market applications, and capacities of each feature.

Account Code

This feature relates to the SMDR (Station Message Detail Recording) feature discussed in Chapter 4.

The Account Code feature allows a station user to enter:

- A cost accounting code.
- A client billing code (up to 15 digits).

Account codes are entered by one of two methods:

- Pressing a programmable **account code** feature button on a Digital Station or CT-10/20/30.
- Dialing an access code and the account/client billing code.

The dialed account code appears on the station alphanumeric LCD of display telephones. The SMDR call record logs the call. When entering an access code prior to entering an account code, the user hears a confirmation tone and sees "ACCT" displayed on the telephone (if equipped), prompting the user to enter the account code. Once the account code is entered, "DONE" is displayed.

The account code can be reentered or canceled at any time until the call is terminated. The last account code entered appears in the SMDR call record.

Two types of account codes entry are available in the system:

- Standard.
- Forced.

Standard Account Codes

Standard account codes can be entered any time a call is in progress.

Forced Account Codes Forced account codes force the input of an account code when a station originates a call via a trunk access code, speed call, LCR SCC, DSS speed call, save/repeat, or trunk individual seizure. Forced account code is not activated if a call is originated via a terminating CO or tie line.

When forced account code is active for a given station, the originator of a call hears recall dial tone and ACCT appears on the station LCD display. Following the entry of the account code, dial tone from the CO is heard, confirming that the account code was entered and permitting the call to be dialed.

Two types of forced account entry are available:

- Verified.
- Non-verified.

Non-verified account codes allow the user to enter any account code without verification by the system.

It is possible in the data base to activate forced account code in verify mode so that the entered account code is compared against valid account codes. 1,024 account codes (up to fifteen digits in length) can be programmed in the system. Additionally, an account code may be assigned to a trunk group to restrict specific access to certain trunk groups. Trunk camp-on call back does not require reentry of account code.

For LCR access, the system will automatically use a registered personal account code if no other account code is input.

Benefits:

- Enhances cost management capabilities.
- Improved ability to track outgoing calls.
- Provides a cost accounting tool to allocate telephone expenses (outgoing calls) to specific clients/departments.
- Provides verification of correct entry by displaying the account code on the station alphanumeric display.
- Provides record keeping without interruption to ongoing conversation.

Capacity:

- Up to 1,024 verifiable account codes may be set up in the system; each code may contain up to fifteen digits.

Applications:

- Individuals who want to track outgoing calls for billback to clients or expense allocation purposes; e.g., lawyers, accountants.

Alarms An alarm can be programmed to appear at a station button on a digital or electronic station, Attendant Console, or DSS/BLF. When an error in the system occurs, the alarm button lights. The alarm button turns off when the fault condition is corrected.

Benefits:

- Automatically alerts the user to problems with the system.
- Reduces downtime.

Analog Modem Port This feature allows a user to originate a data call from a PC equipped with a modem via an analog modem port on a DS20SD, DS32SD, CT-20, or CT-30. The analog modem port, located on the back of equipped telephones, eliminates the need for an additional analog line to a PC. The PC connects to the analog modem port by an RJ-11 cable.

PC keyboard dialing and the off-hook function is easily accessed by the PC's communication software. An example is an AT command such as "ATDT 9,5551212". Performing such a communication command allows the user to dial:

- A trunk access code.
- A destination number.

When off-hook, this port functions by sending DTMF signals to the 4DMR card. The modem must not require loop current in order to dial.

Using the analog modem port is only possible when the telephone is idle. This port does not accommodate simultaneous voice/data communications. The telephone is not considered idle when:

- A line button is pressed.
- The **FLASH** or programmable **release** button is pressed.
- Calls are terminating and ringing preference is set for that station.

To make a voice call, the user must go back on-hook from the PC. Going back on-hook is done by using PC software communication commands similar to those which established the off-hook condition. This feature may allow PC users to utilize software programs that automatically dial client numbers from their PC. The software must have the ability to allow the modem to go on-hook with a keystroke or command. The handset must be off-hook prior to the PC's modem going on-hook. Once the modem is on hook, the voice connection is transferred to the telephone handset.

Performing any of the following actions will not interrupt a data call while the analog modem port is in an off-hook condition:

- Picking up the handset.
- Pressing the **SPEAKER** button.
- Accessing a headset.

Analog Modem Port (Cont'd)

Feature buttons are available when off-hook from the PC. For example, the user could utilize the Call Forward feature button. If, however, the user uses the keypad for any function, subsequent dialing from the analog modem port is ignored. When the analog port initiates dialing, however, the keypad on the telephone is still operational.

Additional features of the analog modem port include:

- Going off-hook from the modem port has higher priority than handset, headset, and speaker communication.
- Dialed number displays after all digits are received.
- Ringing signal is not provided to the analog modem port. (If the telephone is set for ringing line preference, the analog modem port can manually answer terminating calls.)

Benefit:

- May allow dialing of phone numbers with PC software programs.
- Eliminates the need for an extra analog line to the PC.

Call Announce

The Call Announce feature provides the calling station with a choice of signaling options on internal calls. The call signaling option (tone ringing or voice announcing) is programmed on a system-wide basis; however, an individual station user may elect to change the system option using the programmable **call announce** feature button. This feature is only available with digital and electronic stations, and with the Attendant Console.

If the system calling method is programmed for tone ring signaling, the station user at the calling station can change the calling method to voice announcing by pressing the **call announce** feature button. (This feature operation requires that both stations be programmed for voice calling.) If a speakerphone feature button is programmed, talkback from the called station is made automatically available during the call announce mode. If the station called is a DS20 or CT-10, the speaker is activated to announce the call. However, the called station must pick up the handset to talk to the calling station.

If the system calling method is programmed for voice announcing and the called station is programmed for call announce, the station user at the calling station can change the calling method to tone ringing by pressing the **call announce** button. Call Announce can be disabled at a station that otherwise would not want to receive call announce. A call announce on/off access code can be entered to enable or disable the feature.

Call Announce (Cont'd)**Benefits:**

- Allows internal stations to obtain advance notice of waiting calls.
- Feature is available on DS20, DS20S, DS20SD, DS32SD, CSD, and CT sets. (Some stations must answer by lifting the handset.)
- Allows flexibility when placing internal calls by providing the station user with a choice of calling methods.

Applications:

- Individuals who want station-to-station message communication where verbal response is required (e.g., boss/secretary situations).

Call Announce Off-Hook

Another type of call announce is Off-Hook Call Announce. This feature allows users to receive an intercom voice call via the speaker while conversing using the handset or a headset. A CT-30 telephone is the only type of station that can receive an off-hook call announce. Any digital or electronic station can activate off-hook call announce to the CT-30 equipped with this feature. Off-Hook Call Announce works when the called station is engaged in any of the following situations:

- Conversation via handset or headset.
- Data call via the analog modem port.
- Displaying ACD queue size.
- Call Forward - All Calls display.
- Message Waiting.
- Wake-Up/Time Reminder.
- Postselection state using a handset.

To respond to an off-hook call announcement, simply talk in the direction of the microphone.

This feature requires an additional voice port on the 8EKC card connected to the CT-30 station. This means that six wires are necessary for the CT-30 to have the Call Announce Off-Hook feature. This feature works in conjunction with the Intercom feature only. A programmable **intercom** button must be assigned to the originating digital or electronic telephone and to the terminating CT-30 station. Additionally, a **call announce** button must be programmed on the originating station.

Off-hook call announce does not work whenever the speaker on the telephone is already in use. If the speaker is in use when attempting to utilize this feature, the call rings at that station as it would normally.

**Call Announce Off-Hook
(Cont'd)**

Additional conditions of this feature:

- Disconnecting from off-hook call announce can only be done by the calling party.
- Placing an existing call on hold, or disconnecting from it, changes the off-hook call announcement to a regular voice call.
- A tone alerts the user immediately prior to receiving an off-hook call announcement.
- The Attendant Console may not initiate an off-hook call announce to a CT-30 station.

Benefits:

- Allows announcing of important calls while off-hook on another call.
- Enables receiving of internal voice calls while on a data call (Analog modem port).

Call Forward

This user- or system-programmable feature automatically reroutes incoming calls to internal destinations. There are four Call Forward conditions:

- All calls - CFA.
- Busy - CFB.
- Busy/No Answer - CFBN.
- No Answer - CFN.

Each condition is programmed via a separate access code. In addition, Call Forward-All Calls mode can be accessed using a feature button on a digital or electronic station. On the CSD, the user can also use the **program** button to implement Call Forwarding.

The system data base can be programmed to provide fixed destinations for different call forward conditions and for internal or external calls or over tie lines. Users can invoke Call Forward-All Calls to override all other conditions in the data base programming.

Call Forward (Cont'd) Restrictions:

- Call Forward-Busy and Call Forward-Busy/No Answer cannot be assigned at the same time. However, Call Forward-Busy and Call Forward-No Answer can be assigned concurrently. A call may be forwarded a maximum of two times within the system. A key tone sounds as a registration reminder when users go off-hook while in a Call Forward-All Calls condition.
- A calling extension may be allowed to override an assigned call forward (depending on their class of service).
- If a station equipped with an alphanumeric display activates a call forward condition, the display shows:
 - The type of forwarding condition.
 - The station number which receives the forwarded call.
- If a station equipped with an alphanumeric display receives a forwarded call, the display shows:
 - The called number.
 - The calling party's number.
 - An indication of a forwarded call condition.

Benefits:

- Allows calls to be automatically routed to the appropriate destination by providing four types of call forward conditions.
- Provides user friendly operation by visually displaying each forwarded destination and provides key tone upon activation of Call Forward - All Calls.
- Allows calls to be answered in a personal manner by visually displaying at the forwarded to station the calling station number, the called station number, and the forwarded condition.
- Allows calls to be automatically routed to an Integrated Voice Server (IVS).

Applications:

- Businesses that require call coverage for busy or unattended stations.

The following call forwarding features are also provided:

- Call Forward-Follow Me.
- Call Forward to Station Speed Call Number.
- Call Forward-Other Extension.

Call Forward - Follow Me

Call Forward-Follow Me (CFF) allows users to forward calls from any station to the station where they implement this feature. If Call Forward-All Calls is already implemented from the station being call forwarded, canceling that function is necessary before implementing CFF. If calls are being forwarded on busy or no answer (CFB or CFN), using this feature overrides the previous function and all calls are then forwarded to the new destination.

Users must have the correct Class of Service to implement this feature. Calls may be forwarded a maximum of two times within the system. Canceling Call Forward-Follow Me may be done by either the originating station or the forwarded to station.

In the case of a hard tenant, this feature cannot be registered unless either the source or the destination extension belongs to a common tenant, or both belong to the same tenant.

This feature is not available:

- From an Attendant Console.
- When Do Not Disturb is registered at a forwarded-to station.
- When Call Forward-All Calls is registered at the original station.

Benefits:

- Freedom to move about the office without missing calls.

**Call Forward to Station Speed
Call Number**

The Call Forward to Station Speed Call Number feature allows users to forward all calls to outside trunks via tie (trunk lines) and CO (Central Office) lines.

This feature works only when the registered station is the station called, not a call forwarded from another station. The station user must program the telephone number as one of their ten station speed call entries. The entry must include the trunk access code (typically 9). Calls are then forwarded to the entry programmed.

The following types of terminating calls can forward to the station speed call number:

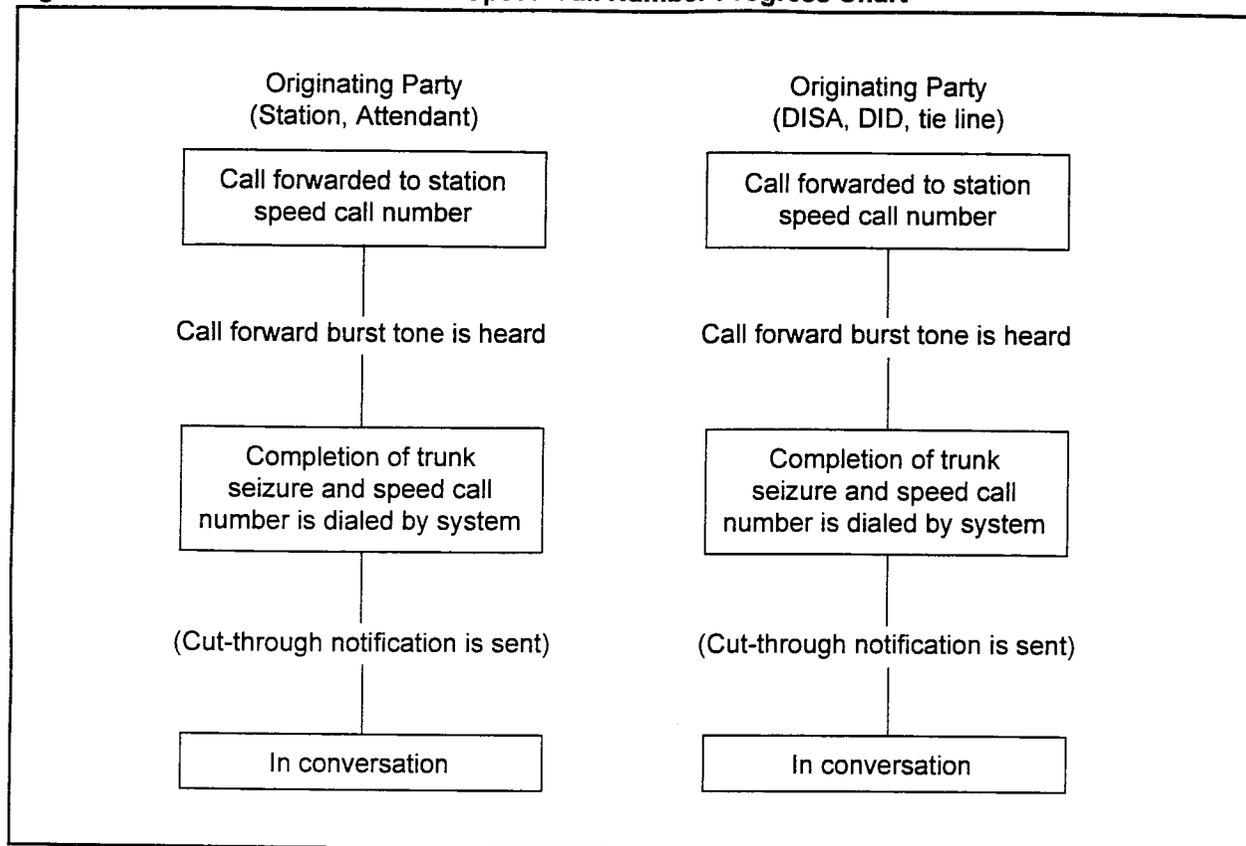
- Personal line termination call.
- Direct-in line termination call.
- Direct line termination call (terminating trunk) (with one appearance).
- Automated Attendant (DISA-S).
- DID.

**Call Forward to Station Speed
Call Number (Cont'd)**

The following conditions apply:

- Incoming trunks should be ground start.
- When a station or attendant user makes a call to a call forward to speed call number registered station, the calling party hears a burst tone for notification of forwarding prior to the PBX transmitting a destination number to the trunk. The destination number and speed call number appear on the caller's internal digital or electronic station display (if equipped).
- When a call coming in from a CO or tie line (except DISA-S) is directly forwarded due to this feature, transmission is after the transmission of the registered number is completed.
- The system waits for disconnection of the calling party if the answer signal has not been returned.
- For Automated Attendant (DISA-S) termination, the system sends reorder tone when restriction is encountered or when all the trunks are busy.
- When a station or attendant transfers a CO or tie line call to a call forwarding registered station, the same restriction condition is applied as that for an individual transfer.
- If a station or attendant that tries to transfer a call to a call forwarding registered station releases the call before completing transmission of all the digits of destination number, the held call returns to the station or attendant as a lost call.
- The call charge for originating via a CO is billed to the caller calling a call forwarding registered station.
- Forced account code entry is not required in the case of origination due to call forwarding.
- Call forwarding can be registered or canceled by soft-key operation of a CSD telephone.
- Transmitting timing of the burst tone can be changed in the data base.
- Manual or automatic trunk camp-on is not applied.

Figure 5-1. Call Forward to Station Speed Call Number Progress Chart



Call Forward - Other Extension

This feature allows an extension to register or cancel the Call Forward - All Calls feature of another extension. If Call Forward was registered to a station in error, the receiving party can cancel the Call Forward from their own station.

An extension number, attendant access, or speed calling access can be registered as a forwarding destination number.

Benefits:

- Should a user leave their station for an extended period of time, another user can activate/cancel the Call Forward feature for them without leaving their station.

Applications:

- Business office environments.

Call Forward - Internal/External This feature allows the user to register different destinations using the Call Forward features for an internal or external call termination.

Benefits:

- Users are able to differentiate answering positions between inside and outside calls.

Applications:

- Business office environment, 24-hour service centers who may only take either internal or external calls after regular business hours.

Call Park The Call Park feature allows a station user to place an in-progress call in a specific parking orbit, so that additional calls can be made from the station. There is no limit on the number of calls that can be parked by stations in the system. Users can retrieve a parked call from the originating station or from any other station in the system (except a hotline).

The **PARK** button is fixed on DS20, DS20S, DS20SD, and DS32SD stations. Call Park can be assigned to a feature button on the CT-10, CT-20, CT-30, and CSD telephones. This feature is also available using the Attendant Console.

This feature permits the station user to:

- Place a call in a parked state (music, tone or message on hold is heard by the parked caller).
- Associate the call with any station directory number even if the directory number is not an equipped station.

Users can park and retrieve calls by the following methods:

- Single line stations can momentarily press the hookswitch and dial an access code for call park.
- Press the **TRANSFER** button and enter the call park access code (digital and electronic stations only).
- Press the **PARK** feature button (digital and electronic stations only).

Next, enter the parking orbit number (one to four digits). If the parked call is not answered within a predetermined time interval, the call automatically returns to the parking station.

Call Park (Cont'd)

Benefits:

- Increases call handling capability by allowing the station user to place calls in a holding status under a parking number and originate or receive other calls.
- Improves call processing by allowing any station user within the system to retrieve a parked call at another station.
- Reduces the number of callbacks.
- Assures that callers are not kept waiting for extended periods of time by automatically returning the parked call to the parking station after a predetermined time interval.

Applications:

- Offices where personnel frequently must go to other locations to obtain information.

Capacity:

- Unlimited calls can be parked by stations

Attendant Park Pick-Up

This feature allows a station user to retrieve a call parked by the attendant.

Benefits:

- Provides greater accessibility to attendant-parked calls by station users.

Applications:

- Most business environments.

Call Park Recall

This feature allows parked calls that remain unanswered for a predetermined time to be recalled to the station that parked them. At that time, visual indications, including the type of recall, are provided on the station alphanumeric display of the recalled station.

Benefits:

- Visually reminds users of unanswered calls.
- Helps screen calls.

Applications:

- Professional offices.
- Advertising agencies.

Call Splitting/Consultation

The Call Splitting feature allows a station user to privately converse with an internal or external party while another party is held on the line. The station user may alternate between parties. Call splitting is accessed through the **TRANSFER** feature button on digital and electronic station plus soft buttons on the CSD. Call splitting can also be assigned to a feature button on DS20, DS20S, DS20SD, DS32SD, and CT-10, CT-20, CT-30 telephones.

Benefits:

- Enhances call handling capabilities by giving the station user flexibility to talk with either of two parties.

Applications:

- Realtors, lawyers, doctors, etc., who need to converse with two individuals but do not want either party to hear the other conversation.
- Office operations that involve ordering and order status situations; e.g., catalog sales, service order processing, etc.

The Consultation feature allows the station user to place calls on hold by flashing the hookswitch (SLT) or pressing the **TRANSFER** button. A three-party conference can be established by flashing the hookswitch (SLT) or pressing the **TRANSFER** button a second time.

Benefits:

- Improves call management by allowing station users to place an internal or external call on hold and place another call to consult or obtain additional information.
- Allows person transferring calls to inform the called party to whom they will be speaking.
- Allows the person transferring calls to confirm that the called party is available before transferring calls.

Applications:

- Doctors, lawyers, stock brokers, securities dealers, etc.

Call Status Display This feature provides call status information and call progress information on the LCD (if equipped). On internal calls, the display shows the calling party station number, type of call, and call status information (see Table 5-1). On external calls, the display gives the trunk types and/or trunk name (CO, FX, etc.) and equipment number. The dialed number is also displayed along with a timer.

Call status information can be modified in the data base to allow for multi-language capabilities. Only valid ASCII characters may be entered. Displayed information is provided on a system-wide basis on all stations with displays.

Benefits:

- Improves call answering capabilities by providing an advance identification of call status information.

Elapsed Time This feature, available on DS20SDs, DS32SDs, CSDs, CT-20s, and CT-30s, shows the amount of time elapsed during outgoing or incoming calls. The display indicates call duration in minutes and seconds. The time returns to 00:00 after the conversation has exceeded one hour. Any call hold condition does not affect the elapsed time clock.

Benefits:

- Provides useful cost accounting tool for professionals by displaying duration of incoming or outgoing calls in minutes and seconds.
- Improves time management since users are visually reminded of time spent in telephone conversations.

Applications:

- Individuals who need to bill their clients on an hourly basis; e.g., lawyers, accountants, consultants.

Table 5-1. Call Status Displays

MESSAGE								DESCRIPTION		
B	U	S	Y					Busy (extension and trunk)		
R	I	N	G					Ringing (for called party)		
T	A	L	K					Talking		
X	F	E	R					Transfer		
H	O	L	D					Hold (for proprietary telephone)		
V	O	I	C	E				Voice call		
R	E	T	R	Y				Misdial		
C	O	N	F					Three-way conference		
O	V	R	D					Override		
D	O	N	E					Feature activated		
C	N	C	L					Feature canceled		
	R	P	D					Repertory dial		
	S	C	C					Secondary common carrier access		
	L	C	R					Least cost routing access		
S	A	V	E					Saved number redial		
	S	P	D					Speed dialing (speed calling)		
A	C	C	T					Account code input		
	A	I	A					Automatic intercom access		
P	A	R	K					Call park		
	D	N	D					Do not disturb (DND)		
	M	S	G					Message waiting		
S		M	S	G				Silent message		
C	A	L	L		B	A	C	K	Extension camp-on call back	
N	O		A	N	S	W	E	R	No answer recall	
P	R	K		R	E	C	A	L	L	Park recall
L	O	S	T		C	A	L	L	Lost call recall	
C	A	L	L		B	A	C	K	Trunk camp-on call back	
	A	C	D						ACD termination	
	A	L	T						Alternate	
	C	F	A						Call forward - all calls	
	C	F	B						Call forward - busy	
	C	F	N						Call forward - no answer	
H	U	N	T						Hunt group termination	
C	A	L	L						Calling (for called party)	
T	I	E							Trunk name (tie)	
C	O	T							Trunk name (CO)	
F	X								Trunk name (FX)	

Table 5-1. Call Status Displays (Cont'd)

MESSAGE										DESCRIPTION
W	A	T	S							Trunk name (WATS)
	S	E	C	T						Secretary register
	P	A	G	E						Proprietary phone/external page access
N	I	G	H	T		C	A	L	L	Night call
P	A	G	E							Proprietary telephone/external paging answer
			C	A	M	P		O	N	Camp-on register
	D	A	T	A						Data communication
*										Data number receiving
	M	-	I	D						Modem connection
			P	R	O	G	R	A	M	Proprietary telephone program mode
			A	T	B		C	H	G	Attribute change
P	K		U	P						Pick-up
		A	T	T		O	V	F	L	Attendant overflow
V	.	M	S	G						VMC register
	P	L	A	Y						VMC playing
		R	E	C						VMC recording
M	-	A	C	T						Modem activate
		V	-	D						Voice/data change
A	A	-	T	O						Automated attendant time-out (recall)
A	A	-	V	N						Automated attendant (vacant number - recall)
A	A	-	B	L						Automated attendant (busy recall)
		V	M	S						VMS information sending
		A	C	D						ACD queuing (calling party)
V	M	S								VMS calling
		P	S	W						Password register
	S	I	G	N						ACD sign-on register
		C	F	F						Call forward - follow me

Table 5-1. Call Status Displays (Cont'd)

MESSAGE										DESCRIPTION
		L	D	N						Listed directory number termination
	M	A	I	D						Maid room status
F	P	N								Trunk name (FIPN)
D	V	S		N						Call diversion (no answer)
D	V	S		B						Call diversion (busy)
D	V	S		D						Call diversion (do not disturb)
	S	E	L	F		R	I	N	G	Self extension ringing
	D	N	I	S						DNIS termination
	W	R	A	P						Wrap-up code register
	P	E	R	M	A	N	E	N	T	Semi-permanent connection
C	M	P		R	E	C	A	L	L	Camp-on recall
S	-	M	N	T						Silent monitor
S	-	O	V	R						Silent monitor break-in

Call Waiting When an incoming call terminates at a busy extension, a call waiting tone is heard by the station. The station user can then do one of the following (using the **FLASH** button, the hookswitch, or the **TRANSFER** button):

- Complete the existing call and hang up.
- Place the existing call on hold and answer the waiting call.
- Alternate between the original call and the waiting call.
- Transfer the connected party and return to the call on hold.

Call waiting tone length can be adjusted in the system data base. Stations will hear call waiting tone unless disabled on a station-by-station basis in the data base.

Benefits:

- Calls are not missed due to a busy line.
- Multiple calls can be handled using one extension line.

Camp-On There are two types of camp-on in the system:

- Station.
- Trunk.

Station Camp-On If a station user encounters a busy signal when dialing an internal station, the user can dial an access code or press a feature button to be placed in a waiting queue for the busy station. The user may then return to the on-hook position. When the busy station becomes idle, the system automatically busies the originating station from receiving or making calls and rings the camp-on originator. When the camp-on originator answers, the system automatically rings the camped-on station.

Benefits:

- Reduces "telephone tag".
- Saves time by allowing users to access busy stations without constant redialing.

Applications:

- Organizations with a high volume of internal and external call traffic.
- Businesses with a high volume of internal call traffic between departments; e.g., sales department and shipping department.

Capacity:

- 30 stations can be simultaneously camped-on in the system.

Trunk Camp-On This feature allows stations to go into queues for an available trunk (camp-on) when a particular trunk group is busy. Trunk camp-on is on a first in, first out basis and is accomplished either on-hook or off-hook. In on-hook queuing, the station alphanumeric display shows CALL BACK when the station is rung to indicate trunk availability.

NOTE: This feature is not applicable to Least Cost Routing.

Benefits:

- Reduces employee frustration.
- Reduces network requirement.
- Saves time and improves productivity by eliminating the need for a station to make repeated attempts to gain access to trunk facilities

Applications:

- Organizations with peak calling periods.
- Businesses that have many stations vying for a limited number of circuits; e.g., FX, WATS, tie trunk circuits.

Capacity:

- 20 calls can be simultaneously camped-on to trunk groups in the system.

Conferencing (Three-Party) This feature allows a connection between two trunks and one station, two stations and one trunk, or three stations. Three-party conferences cannot be initiated by a trunk party.

If the trunks (in any trunk connection) are ground start, the system receives disconnect supervision from the central office, so the system is able to automatically disconnect a trunk-to-trunk connection.

If equipped with a CSD, the station user can transfer a three-party conference call using the appropriate display feature button.

DTMF tones may be sent during three-party conferences. This enables access to voice mail systems, etc. Only the transferring station can send DTMF tones to the other parties.

Benefits:

- Increases flexibility in conferencing connections and system operation.

Applications:

- Sales, customer service, field offices, lawyers, and accountants.

Capacity:

- 10 three-party conferences (using SC2P2x); 15 three-party conferences (using SC4P2x).

Data Security

Stations assigned this feature through data base programming are protected from call interruption by warning tones such as call waiting tone. Camp-on to a protected station can still take place although the camp-on indication tone is not sent to the station.

Benefits:

- Saves time and money by preventing inadvertent interruption of costly data calls.
- Ensures accurate transmission of information from facsimile devices, data terminals, and remote maintenance stations because other calls cannot gain access to the line or send tones.
- Improves BER (Bit Error Rate).

Applications:

- Organizations that transmit/receive data.
- Individuals who do not want their conversations interrupted by camp-on or other warning tones.

**Direct Station Selection/Busy
Lamp Field (DSS/BLF)
(Digital and Electronic
Stations)**

This feature allows a station user to program individual feature buttons for one-step dial access to station numbers. The quantity of programmable DSS/BLF buttons is limited only by the available buttons on the DS or CT station.

Benefits:

- Saves time by allowing the station user one-step access to frequently called station numbers.

Applications:

- Individuals who desire traditional boss/secretary direct communication.

Busy Lamp Field The Busy Lamp Field function can be assigned to a DSS button on proprietary telephones. Pressing this button rings internal stations that have been programmed in the data base.

Additionally, the LED accompanying the DSS button indicates the status of that station. There are three possible status indications:

- Idle: Lamp off.
- Busy: Lamp lights steadily.
- Do Not Disturb: Lamp flashes.

Benefits:

- Users can see when the intercom is available.

Capacity:

- A maximum of 24 stations can utilize the BLF capability.
- A maximum of 24 stations can utilize this capability.
- A maximum of 200 buttons can be assigned system-wide.

Direct Trunk Access Direct Trunk Access allows a user to select a specific trunk (CO, FX, or WATS) by dialing an access code and the desired trunk directory or equipment number (1 to 4 digits). For troubleshooting and other maintenance operations, this feature provides the capability to determine the operational status of a specific trunk within a trunk group. This feature is restricted by COS (Class of Service) assignment.

Benefits:

- Provides on-site maintenance capabilities by allowing users to verify operational interface between the Bothway Trunk card and the central office.

Application:

- Maintenance purposes.

Do Not Disturb This feature allows station users to make the station appear busy to incoming callers. Although callers receive a busy tone, users may still originate calls. A station is assigned the Do Not Disturb feature through its COS (Class of Service) level. A key tone sounds as a registration reminder when users go off-hook while in a do not disturb condition.

This feature can be activated by dialing an access code or by pressing a programmable **DND** button on a digital or electronic station.

Do not disturb can be registered for a station by an originating station (if allowed in class of service). The originating station can register do not disturb with or without a silent message. A registered do not disturb can also be canceled and/or verified by the originating station.

Benefits:

Users may busy out their station and not be distracted by telephone calls when quiet worktime is needed.

Applications:

- Conference meetings.
- Business executives.

Do Not Disturb Override This feature allows the user to override a do not disturb condition to an internal station by pressing the associated button. The station returns to do not disturb condition upon completion of the phone conversation. A feature button on any digital or electronic station may be assigned the Do Not Disturb Override feature. Additionally, a station user can allow a specific station to override do not disturb by dialing a feature access code and the allowed station directory number. Canceling do not disturb override can also be accomplished with a feature access code.

Benefits:

- Allows access to a busy station to announce important calls or handle emergency situations.

Applications:

- Business executives who want their secretaries to advise them of important telephone calls or messages.

Capacity:

- One-at-a-time override per station.

Do Not Disturb Silent Message The Silent Message feature also allows station users to implement Do Not Disturb and leave a message on the display of the registering telephone. When another station attempts to call that station, the silent message will appear on the calling station's display when busy tone is received. To activate this feature:

1. Press the **DND SILENT MSG** feature button.
2. Dial the feature access code and input the appropriate two-digit message identification code (00 to 50).

Executive Override This feature allows a user to gain access to a station in a two-way conversation by dialing an access code or by pressing a feature button; or on a CSD, by pressing a display feature button. A warning tone sounds during the existing conversation before access is permitted. The warning tone can be omitted by reprogramming the data base. This feature is restricted by COS (Class of Service) assignment.

Benefits:

- Provides communication with busy stations in emergency situations by allowing the station user to interrupt an existing conversation.

Applications:

- Business executives who wish to be notified of important calls while engaged in other telephone conversations.

Exclusive Hold This feature permits station users to maintain private and exclusive access to a call on hold. Only the station placing the call on hold can access the held call again. Exclusive Hold is available for PSL/OSL (Primary Station Lines/Other Station Lines) and CO lines.

If the station does not have an OSL or PSL line appearance, the station must then have an **ICM hold answer** button programmed to retrieve the call from hold.

When a call is placed on exclusive hold by pressing the **HOLD** button on a digital or electronic station, it automatically returns (recalls) after a predetermined period of time. The station receives a recall tone, LED indication of recall, and visual display of the type of recall on the station alphanumeric display. The recall may be answered by pressing the ringing and rapidly flashing line button. For key system lines, Exclusive Hold is activated by pressing the **HOLD** button twice.

Because this is an exclusive hold, the held call cannot be retrieved from another proprietary telephone or SLT.

Additional conditions include:

- Held calls return after a predetermined period of time (1-255 seconds).
- Only one call may be placed on hold at a time.
- CO line buttons are not affected by Exclusive Hold.

Benefits:

- Enhances call handling capabilities by allowing station users to retrieve held internal calls.
- Allows privacy on trunk calls by providing the station user with sole access to the trunk facility.
- Prevents inadvertent interruption by other stations via a busy indication on other stations having the same line appearance.

Applications:

- Sales departments, parts departments, service departments, airline reservation operations.
- Organizations that require confidentiality in telephone conversations; e.g., financial institutions.

FLASH/New Call Button

When the system is operating behind a PBX, Centrex, or Centranet, users can press the **FLASH/new call** feature button while on an external call. The action sends a flash indication to the PBX or CO.

If the system is not operating behind a PBX or Centrex/Centranet, pressing the **FLASH/new call** button disconnects the call in progress. If the call was internal, internal dial tone is returned to the user. This feature may be used during dialing, and during the no answer or busy states, as well as during a two-way conversation (with or without a held call). Timing is determined via data base programming.

Pressing the **FLASH/new call** button:

- Once activates flash.
- Twice activates new call.

Benefits:

- Increases operations capabilities by providing access to a full complement of PBX and Centrex/Centranet features.
- Reduces need for multiple operations by station users when placing successive calls.

Applications:

- Station users originating successive calls (telemarketing groups).
- Individuals who want access to features provided by the PBX or Centrex/Centranet system.

Flash from SLT

Flash signals may be sent via CO lines from any industry-standard single line telephone. An access code is dialed by the single line telephone after a hookswitch flash to activate the flash to a CO.

Benefits:

- Gives single line telephone users the ability to send flash signals over CO trunks to access Centrex or Centranet features.

Flexible Button Assignment

With this feature, the buttons on proprietary telephones can be programmed either for termination of any type of line circuit or for feature operation. Alterations and rearrangements of button assignments can be accomplished via a PcMP (Personal Computer Maintenance Program), CSD as MCT (Master Control Telephone), DS20SD, DS32SD, or Attendant Console as MCT. Buttons can also be assigned or changed by digital or electronic station users

Benefits:

- Increases operating efficiency by allowing each station instrument to be programmed to suit the particular needs of the user.

Applications:

- Businesses that need flexibility in assigning features and line circuits to station instruments.

NOTE: Terminating trunk and station line buttons cannot be changed or assigned by station users.

Floating Loop Line Terminations

This feature provides the capability for DID and pooled line terminations. This feature accommodates both incoming and outgoing call service for trunks assigned to floating loop line terminations.

Full Handsfree Operation

This feature provides speakerphone-type handsfree operations for internal station and outside trunk calls to proprietary digital or electronic station users (DS20S, DS20SD, DS32SD, CT-20, CT-30, and CSD) whose stations have:

- Built-in handsfree speakers.
- Microphones.

A speaker button is assigned to digital or electronic sets to activate the handsfree capability.

Benefits:

- Allows users to take notes, type at their computers, etc., while conversing on their phone.

Applications:

- Conference calls.
- Professional offices; financial, medical.

Hotline Station A Hotline station is assigned to a specific internal station in the data base. When the Hotline station goes off-hook, its terminating station is automatically rung.

Benefits:

- Speeds clearance of visitors.
- Facilitates exchange of information when time is a major factor.
- Eliminates the need for visitors to look up building directory numbers.

Applications:

- Information telephones on retail floors.
- Hospital/healthcare facilities and Hotel/Motel.
- Elevator phones.
- Businesses that require clearance of visitors.
- Offices that receive deliveries on a regular basis.

Capacity:

- 20 voice Hotline stations.
- 40 data Hotline stations.

Intercom Groups This feature allows users to ring an internal station by pressing a programmable **intercom** button on a digital or electronic station, followed by dialing a specific assigned number.

The Intercom Groups feature may also be used to establish a private intercom feature that permits one- to four-digit dialing to other intercom group members. Single line telephones can receive intercom calls from digital and electronic stations, but cannot initiate intercom group calls. The feature is required to access CT-30s with off-hook call announce.

Benefits:

- User friendly.
- Fewer keystrokes to access a specified station.
- Provides a secondary voice path for intercom without additional hardware.

Applications:

- Key systems.
- Departmental intercom groups.
- Boss/secretary intercom arrangements.

Capacity:

- 10 Dial Intercom groups.
- 50 members per group.

LCR (Least Cost Routing)

Least Cost Routing (LCR) allows the system to select the most cost-efficient route for outgoing calls. The LCR stores and examines the number dialed, checking the area and/or office codes. Based on this examination, LCR chooses the proper trunk from a preprogrammed route table. The tables can contain several trunk group choices. The first choice route could be the least cost route, with alternate routes available depending on the station COS. Sixty-three route tables are provided to select a trunk group for area/office codes, and an additional fifteen tables are available for office codes only. Each route table can contain up to ten trunk groups. Additional features of Least Cost Routing include:

- **Multi-Digit Restriction:** This provides route restriction by route group number (RGN). Also, the number of digits is determined by the dialing group number (DGN) of the default route.
- **LCR Camp-On:** This is provided when all route trunks searched are busy. Automatic and manual camp-on is available.
- **Delayed Advance:** This provides expanded route selection from LCR camp-on if no trunk becomes available within a predetermined time.
- **Warning Bursts:** These notify the caller of the route selected. Two tones are programmable; one is sent when the highest cost route is selected, the other when a route other than the least cost route is selected.
- **Time of Day Change:** This provides the capability to have the system select route tables depending on the time of day and day of the week. A day can be divided into nine zones with each zone specifying a time of day pattern (day, night, midnight, or spare). Four patterns are available for day of week (business day, week day, holiday, and spare day).
- **Tie Line Access:** This allows inclusion of tie routes into the LCR trunk group.
- **SCC Access without Security Code:** This allows omission of the SCC authorization code, permitting the system to use SCC routes which do not require the code (950-1/0XXX).

Benefits:

- Better cost control and tracking of long distance calls.

Applications:

- Businesses with high volume of outgoing long distance calls.

LED Illumination LED Illumination provides users with a visual line status for each line button. This feature also provides visual feature registration status for most feature buttons. One-color LEDs are available on CSDs, DSS/ BLFs, and Attendant Consoles, and two-color LEDs are available on all CT and DS20, DS20S, DS20SD, and DS32SD telephones.

Benefits:

- Provides users with visual verification of each line selected or each feature activated.

Applications:

- Offices using proprietary telephones.

Lost Call Recall Calls lost by misdialing or accidental use of the hookswitch are automatically recalled to the station. The following alternatives for lost call recalls can be selected:

- Lost call recall can be disabled for accidental use of the hookflash where an open line does not disconnect or a phantom recall is activated.
- Disabling lost call recall can be used to redirect lost calls to the attendant or to automatically disconnect lost calls.

Message Waiting This feature allows users at a calling station to activate a message lamp on other stations. A message is left by dialing an access code and the desired station number or by pressing the **MESSAGE** button when calling a station that does not answer or is busy. This operation lights the message waiting lamp on SLTs or the **MESSAGE** LED on digital or electronic stations. A stutter dial tone can be provided to notify the user of waiting messages. A maximum of four messages can wait at an individual station.

Benefits:

- Reduces amount of time spent in "telephone tag" situations by providing message leaving capability.
- Minimizes the need for the attendant to take messages for internal calls.
- Provides a method for the attendant to inform station users that they have a message from an external caller.

Applications:

- Businesses where personnel are regularly away from their desks.
- Hotel/Motel operation.
- Stockbrokers, lawyers, or doctors who have large volumes of telephone traffic.

Message Waiting (Cont'd)	Capacity:
	<ul style="list-style-type: none"> • Four messages per station.
Message Waiting (Single Line Telephones)	<p>This feature allows the message waiting lamp to be activated on SLTs. Single Line Telephones do not have the ability to store where the message came from. Therefore, either a Centralized Message Center, Attendant Console, or Integrated Voice Server (IVS) station number must be determined to retrieve and cancel waiting messages.</p>
	Benefits:
	<ul style="list-style-type: none"> • SLTs may have messages from specific stations, the Attendant Console or the IVS. • Provides a Hotel/Motel guest with an indication that a message is waiting at the front desk.
	Applications:
	<ul style="list-style-type: none"> • Hotel/Motel operation. • Businesses using SLTs rather than digital or electronic stations for cost savings.
	Capacity:
	<ul style="list-style-type: none"> • Four messages per station, 50 message waiting lights per cabinet.
Message Cancellation	<p>This feature allows station users to turn off the message waiting lamp and cancel the message waiting queue at their own station or another station, depending on the COS. Station users may cancel a message left at another station by dialing an access code and the station number.</p>
	Benefits:
	<ul style="list-style-type: none"> • Station users can see quantity and source of messages. • Allows station users to cancel waiting messages that may have already been handled.
	Applications:
	<ul style="list-style-type: none"> • Operations where personnel are frequently away from their desks.
Message Selective Cancellation	<p>On proprietary telephones equipped with an alphanumeric display, users can screen and cancel waiting messages without returning the calls. When station users press the MESSAGE button in an on-hook condition, the station display shows the directory number of each calling station. Users may cancel a particular message by dialing the number (1, 2, 3, 4) that corresponds to the message display position. Users can also scroll through messages.</p>
	Benefits:
	<ul style="list-style-type: none"> • Station users can see quantity and source of messages.

**Message Selective
Cancellation (Cont'd)**

- Allows station users to cancel waiting messages that may have already been handled.

Applications:

- Operations where personnel are frequently away from their desks.

Message Pick-Up

On proprietary telephones, station users can easily access station that left messages by going off-hook and pressing the **MESSAGE** feature button and going off-hook. This action automatically dials the first station which left a message. Messages are picked up on a circular basis, whether the call was completed or not. When the user presses the **MESSAGE** button to return the first call and that station number is busy, the next pressing of the **MESSAGE** button dials the second station number which left a message. The first message goes to the end of the message queue.

Benefits:

- Provides a convenient method for returning messages by simply pressing a feature button.
- Station users can scroll through messages, rearrange them, and select the messages to be returned.

Capacity:

- Four messages per station plus one from voice mail.

Monitor (On-Hook Dialing)

This feature allows CT-10, CT-20, CT-30, DS20, DS20S, DS20SD, DS32SD, and CSD users to place calls utilizing the built-in speaker without taking the handset off-hook. Users can hear call progress tones from the speaker. These tones allow the status of the call to be monitored during dialing and upon dialing completion. This feature is manually activated or canceled by pressing the **SPEAKER** button or activated automatically when pressing a programmable button, such as a repertory dialing button. Monitor may be automatically canceled by going off-hook. Because the CT-10 and DS20 telephones do not have the speakerphone capability, the user must lift the handset to begin conversation.

Benefits:

- Improves productivity by allowing the station user to place calls while performing other activities.
- Allows user to wait for calls to be answered before picking up the handset.
- Makes it easy to wait when placed on hold.

Applications:

- Individuals who require on-hook dialing and monitoring of call progress tones while placing telephone calls, but do not require full speakerphone.

**Monitor (On-Hook Dialing)
(Cont'd)****Capacity:**

- 96 stations per cabinet may be in use simultaneously.

Multiple Classes of Service

This feature provides multiple Classes of Service to restrict station access to features. Each station is assigned a Class of Service, providing it with access to all features allowed for that class. In addition, each station and trunk group is assigned a Class of Restriction to restrict the destination of each outgoing call.

Benefits:

- System security.
- Limits call abuse.

Applications:

- Large businesses with shift operations.
- Offices with extended hours.

Capacity:

- 16 Classes of Service.
- 16 Classes of Restriction.

Mute

This feature provides privacy during a handsfree conversation by disabling the transmitter portion of the speakerphone operation for a CT-20, CT-30, DS20S, DS20SD, DS32SD, or CSD. The microphone is turned on and off with the **MUTE** feature button.

Benefits:

- Provides privacy during handsfree conversation by allowing the station user to temporarily turn off the microphone to confer with another party.

Applications:

- Organizations that require privacy in group conference situations; e.g., lending institutions, real estate.

Capacity:

- One per CT-20, CT-30, DS20S, DS20SD, DS32SD, and CSD.

Night Answer The Night Answer feature provides two options for answering incoming calls after normal working hours:

- **PNA (Predetermined Night Answer)** allows certain stations to be programmed to receive night ringing.
- **UNA (Universal Night Answer)** allows dial access answering of night calls by any station allowed by COS assignment.

Activate the Night Answer mode of operation by dialing the night service code from any phone. Or, press the appropriate feature button on a DSS/BLF or Attendant Console.

Benefits:

- Provides flexible night answering service by allowing PNA, UNA, or a combination of both to suit working environment and user needs.

Applications:

- Offices with extended hours of operation.
- Businesses with shift operations; e.g., factory operation after administrative offices close.

Capacity:

- 32 night answer groups, eight stations per group.

Off-Hook Incoming Call Signaling

This feature alerts off-hook stations to incoming calls by a flashing LED lamp on a line button and low level tone ringing. (On DS20, DS20S, DS20SD, and DS32SD telephones, one of three levels can be selected.) Station users may cancel and reactivate this feature (i.e., only receive a flashing LED and no ringing tone) by dialing an access code. Off-hook signaling can be provided on the following trunks:

- Pooled incoming trunk lines.
- Pooled bothway trunk lines.
- PSL, OSL, ICM group feature buttons.
- Key system trunk lines.
- Personal/private trunk lines.

Benefits:

- Increases operations capability by providing busy stations with visual and audible indication of incoming external calls.

Paging (External) This feature allows station users and the Attendant Console to access an external paging system. The external paging unit connects to the system via the 4BWC or 8BWC card and both loop or ground start signalling are supported. Up to nine paging zones may be assigned per system. An individual or all zone paging capability is available. This feature may be assigned to a programmable button on the Attendant Console, DS, or CT telephone.

Benefits:

- Allows attendant to communicate with employees who are away from their desks.
- Helps employees who are away from their desks to avoid missing important calls.

Applications:

- Doctors.
- Lawyers.
- Nursing homes.
- Sales offices.

Paging (Station) This feature allows the Attendant Console to page one of nine station paging zones or an all page to all zones. Paging is accomplished through the speakers in digital and electronic stations. Paging can be activated from a station or the attendant. This feature may be assigned to a programmable button on the Attendant Console, DS, or CT telephone. A new enhancement to the Paging feature enables internal (station) paging to be blocked when the other station has registered Do Not Disturb (FNO = 71 or 137), depending on the system flag (CMC 102). If the system flag is set to "restrict paging access to DND extensions," the paging access is not executed. However, if there is an extension which has not registered DND in that same zone, that extension will hear the page. This restriction is applied to "one zone" or "all zone" paging access.

Benefits:

- Improves service by providing faster response time to calling parties.

Applications:

- Businesses (warehouses, showrooms, stockrooms).

Capacity:

- Nine zones.
- 36 stations/zone maximum.

Pick-Up The following features are Call Pick-Up features:

- Group Pick-Up.
- Multiple Group Pick-Up
- Directed Pick-Up.

Group Pick-Up This feature is activated by a feature button or a dialed access code. The Group Pick-Up feature allows station users to answer calls directed to another station, in the same pick-up group. A station alphanumeric display, integrated into a station using this feature, provides a display of the calling station number when picked up by a second station.

NOTE: Call backs after station camp-on cannot be picked up using this feature.

Benefits:

- Provides improved call processing.
- Allows any station user in a pick-up group to answer the phone at any other station in the pick-up group by dialing the pick-up code or pressing the programmable **pick-up** button after going off hook.

Applications:

- Customer service environments.
- Busy business environments.

Capacity:

- 63 groups maximum per system.
- 64 members maximum per group.

Multiple Group Pick-Up This feature allows station users to pick up calls in other pick-up groups via a feature access code.

Capacity:

- Maximum number of group pick-up multi-groups: 63

Directed Pick-Up (Station Pick-Up)

This feature allows a station user and the attendant to answer calls ringing on any other station by dialing a feature access code or pressing a **station pick-up** feature button followed by the directory number of the station to be answered. This feature is allowed or denied access by COS (Class of Service).

Benefits:

- Allows greater flexibility in the operation of the system.
- Provides enhanced call coverage capabilities.
- Allows users to answer calls to their stations from any station in the system.

Applications:

- Sales floors, insurance offices, auto dealerships, furniture outlets, showrooms.

Primary Station Line

Each station is assigned a Primary Station Line (PSL) number for intercom and internal calls. Stations may also have Other Station Line (OSL) numbers appearing on the telephone. These OSLs may be exclusive to a station or shared by other stations. This allows the user to answer and use extension numbers belonging to other stations or to have extra numbers for just that station.

Benefits:

- Improved productivity by providing the user with easy access for station-to-station calling.
- Increases operating efficiency, as Primary Station Lines do not have to be assigned an individual button for this capability.

Capacity:

- One per station.

Primary Station Line Button

This feature allows station users to originate or terminate primary station line calls on the primary station line of a digital or electronic station by pressing the desired primary station line button.

Benefits:

- Simultaneous call handling for internal and external calls.

Applications:

- Catalog sales, parts departments, key system emulation.

Capacity:

- One button per station (primary station line only).

Program This feature allows a CSD station user to use a single feature button to implement the Call Forward and Do Not Disturb features. These features are accessed by pressing the **program** feature button to display a menu and using the display buttons to select menu features.

Benefits:

- Feature selection via a single feature button.

Applications:

- Businesses whose operations require the capability of making easy and frequent program changes to Call Forwarding and Do Not Disturb features.

Capacity:

- One button per CSD.

Ringling Line Preference This feature automatically selects a ringing line or PSL/OSL/ICM group, including a recalling line, when the digital or electronic station goes off-hook. Either an internal and/or trunk line is selected as the line preference. When multiple lines are ringing, the line having the highest priority is selected.

Benefits:

- Saves time; button activation not necessary.

Applications:

- Airlines, telemarketing, customer service.

Save/Last Number Redial This feature has the following two functions:

- Saves a number.
- Repeats the last number dialed.

Activation of this feature automatically redials the saved or last number as in speed calling.

These functions are slightly different. Save is initiated by the user; Last Number Redial (LNR) is initiated by the system. The system automatically stores the last number dialed; this is termed Last Number Redial. If, however, the user wishes to store one particular number, Save can be used. Save overrides Last Number Redial; therefore, using Save prevents the system from storing the last number dialed.

Because the system automatically stores the last number dialed (unless using Save), the user may wish to reserve Save for situations where the saved number is repeatedly called with other numbers.

**Save/Last Number Redial
(Cont'd)**

A station user at any SLT can repeat the last number by using an access code. Station users can store internal dialed numbers as well as external numbers.

Benefits:

- Improves productivity by allowing users to quickly access telephone numbers without redialing.

**Selective Secretarial Override
Assignment**

This feature allows an assigned secretarial station to automatically override another station that is set in the do not disturb mode, when a secretarial station originates a call by pressing the programmable **DND override** button.

Benefits:

- Allows emergency access to lines in the DND mode.

Applications:

- Offices with assigned secretarial stations.

Self Extension Ringing

This feature enables a user to ring his or her own extension by dialing a feature access code. This feature is applicable for users with digital or electronic stations only.

Benefits:

- Lets the user set the ringer/volume tone on the telephone.
- Displays the directory number/name assigned to the extension.

Silent Messages

The Silent Messages feature allows display-equipped stations to receive a silent message during a phone conversation. To originate a silent message at any type of station:

1. Dial the feature access code or press the **MESSAGE** button.
2. Dial the station number to send the silent message to.
3. Dial the appropriate two-digit message identification code.

Fifty-one messages, each containing up to fifteen alphanumeric characters, can be programmed into the system. The default data base provides eleven silent messages (these messages can be changed, if desired).

Silent Messages can be sent and received via the Message Leaving and Message Pick-Up features. A silent message sent to a CT-20, CT-30, DS20SD, DS32SD, or CSD that is engaged in a call will override the display of the call in progress and display the silent message. In addition, a station that is on a call can send a silent message without disrupting the ongoing conversation. An option in the data base provides a warning tone that is sent through the speaker of the message-receiving station. A maximum of four messages may be left at one time.

Silent Messages (Cont'd)

The Silent Message feature also allows station users to implement Do Not Disturb and leave a silent message on the display associated with the registering telephone. When another station attempts to call that station, the silent message will appear on the calling station's display (if equipped) when busy tone is received. To activate this feature:

1. Press the **DND SILENT MSG** feature button.
2. Dial the feature access code and input the appropriate two-digit message identification code (00 to 50).

This feature may be implemented from a CSD by using the **program** button and following the displayed prompts. An option in data base programming allows the silent message associated with Do Not Disturb to be displayed through COS check.

NOTE: Because an alphanumeric character keyboard is required, the PcMP must be used to add or change silent messages in the system data base.

Benefits:

- Busy stations are easily notified of important messages.
- Reduces number of callbacks.
- Improves employee productivity.
- Enhances professional image - calls are handled appropriately.

Applications:

- Marketing departments.
- Healthcare.
- Telemarketing applications.
- Assistance and messages from supervisor to agents.

Capacity:

- 51 silent messages with a maximum of 15 characters.
- Four messages per station at a time plus one from voice mail.

Speakerphone

This feature provides access to the speakerphone capability on DS20S, DS20SD, DS32SD, CT-20, CT-30, and CSD telephones for handsfree conversations. The speakerphone is activated via the **SPEAKER** feature button and is automatically disabled by taking the handset off-hook. Associated with this feature is the **MUTE** feature which provides a "listen only" mode for privacy.

Benefits:

- Improves productivity by allowing user to perform other activities while engaging in telephone conversations.

Capacity:

- One speaker button per digital or electronic station.

Speed Calling (Station)

This feature permits a station user to establish a personal directory of up to 10 frequently called numbers for outgoing calls. Each station may assign an entry for as many as 10 speed call numbers. A single-digit code (0-9) is assigned to each entry in the ten member list.

Access to station speed calling is accomplished by dialing the access code assigned and a speed call entry number (0-9). Single line stations and digital or electronic stations may access station speed calling lists, if assigned in the data base. One speed call entry may also be assigned to a feature button on a digital or electronic station and Attendant Console.

Up to twenty digits, including pauses designated by the # key, and access codes for trunk group or LCR, can be assigned to a speed call number. Speed call numbers are subject to Class of Service and Class of Restriction eligibility.

Canceling speed call numbers is easily achieved by assigning a new speed call number to a particular speed call entry.

Station speed call entries also allow stations to call forward their station to one of the speed call numbers programmed by the user.

255 station speed call tables are available to station users. Stations are assigned access to one of the 255 tables in the data base. Additionally, stations can share any one of the 255 speed call tables.

Benefits:

- Saves time and improves productivity by allowing station users to enter an abbreviated dialing sequence to access frequently called numbers.

Applications:

- Telemarketing businesses.
- Sales organizations.

Capacity:

- 255 station speed call tables/system.

Station Page Access

This feature allows station users to page proprietary telephones through their built-in speakers. The proprietary telephones may be combined into nine different paging zones (plus all zones) with a special code assigned to each zone. All 36 stations may be assigned to one paging zone, if desired. A maximum of 36 proprietary telephones are allowed per system. Activate paging access by:

1. Dialing an access code or pressing a paging feature button.
2. Dialing the special zone code.

The page is then broadcast over the stations programmed for that zone. Paging zones are assigned in the data base.

Benefits:

- Improves operating efficiency by providing dial access to designated paging zones.
- Improves customer service by providing faster response time to calling parties.
- Assists attendant in locating individuals who receive urgent calls.

Applications:

- Office operations.

Capacity:

- Nine zones plus all zone.
- 36 digital or electronic stations per system.

Paging Answer

This feature allows a station user to answer a paging announcement by:

1. Dialing a feature access code; one for station paging answer or one for external paging answer.
2. Dialing the zone number, enabling the station to answer the built-in speaker page from any telephone and answer back to the paging party.

Benefits:

- Prevents continuous paging announcements.
- Permits the paged party to respond rapidly to the paging from any station.

Paging Answer (Cont'd)**Applications:**

- Businesses where personnel are regularly away from their desks.
- Hotel/motel paging.
- Operations where sales personnel are working in a showroom and are also receiving telephone calls.

Capacity:

- Nine zones plus all zone.
- 36 digital or electronic stations per system.

Station-to-Station Calls

This feature allows station users to call other stations by:

1. Dialing the directory number.
2. Pressing a programmable direct station selection (DSS) button or pressing the DSS button on the DSS/BLF.

Benefits:

- Permits easier internal call access.
- Saves time and increases user efficiency.

Terminal Password

This feature provides password control for a station. Stations activated for terminal password control may not be allowed access to features without the correct entry of an access code and a password. This means that the station is "locked" unless users have the correct password. The terminal password feature controls the class of service and class of restriction assigned to a station. Passwords are associated with a specific class of service and class of restriction assigned in the data base. Terminal password activation changes the COS/COR until the user reenters the terminal password control to cancel the password. The station then reverts back to its original COS/COR. Additionally, passwords can be changed by dialing a special access code that allows the user to enter the new and the old passwords. Password control is also available for the Attendant Console.

Passwords can be from one to four digits depending on the system. Up to 100 password groups can be defined in the data base, each group having its own password. Stations are assigned to password groups in the data base. Any one station can belong to only one password group. Passwords for the Attendant Console are not assigned in the data base.

Terminal passwords can be changed or the password control can be disabled/enabled via appropriate access codes by the station.

Walking Class of Service By implementing the associated Walking Class of Service feature, users may change the Class of Service (COS) and Class of Restriction (COR) at another telephone. This allows users to have all the privileges and functions that their own class of service and class of restriction provides at another station, without having to permanently change the functions available at that other station. This is done by entering an access code and authorization code at the other station extension.

This feature automatically cancels when going on-hook; the original COS/COR of that station restores automatically (Walking COS only).

Benefits:

- Adds flexibility for restricting calls in certain unsupervised locations.
- Improves cost management; reduces phone abuse.
- Allows users to have access to their own features at any station.
- Easy to use.

Applications:

- Warehouses.
- Showrooms.
- Public areas.

Time and Date The station alphanumeric display provides the time of day and date when the station is idle. This feature applies to DS20SDs, DS32SDs, CT-20s, CT-30s, CSDs, and Attendant Consoles only. For the DS20SD and DS32SDs, the date can be displayed in either English or Spanish, and the time can be displayed in either 12- or 24-hour format. These options are set system-wide using data base commands; individual DS20, DS20S, DS20SD, and DS32SD users cannot select their own options.

Benefits:

- Provides the user with a convenient reminder of time and date when the station is idle.
- Synchronization is done on system-wide basis so user does not have to make any adjustment at individual station.

Time Reminder This feature allows a station to register time reminder service, providing automatic ringing at a designated time. When a station answers a time reminder call, the station user hears a distinctive tone. If a time reminder call is not answered, it is repeated once after about 2.5 minutes. The ringing tone lasts for 20 seconds and, if not answered, is canceled. If the system is equipped with an RVAC card, a time reminder message may play. Only one time reminder may be registered from a station at a time. The registered time reminder must be within 24 hours of the registration.

Time Reminder (Cont'd)**Benefits:**

- Provides time reminders of meetings/appointments.

Applications:

- Administrative telephones in Hotel/Motel and general business.

Capacity:

- 40 SLTs or 80 digital or electronic stations in a five minute time period.
- 8 SLTs and 16 digital or electronic stations in simultaneous calling periods.

Tone Ringer

The Tone Ringer feature provides an electronically produced tone (rather than traditional electromechanical ringing) to proprietary telephones. In addition, this feature allows users to control the ringer volume and the ringer pitch of their phone.

Benefits:

- Tone level and volume level adjustments can be different for a group of stations in an open area.
- Station ringing can be identified easily.

Applications:

- Open departmental areas.

Capacity:

- 4 ringer volume levels.
- 3 ringer pitch levels.

Touch (Key) Tone

This feature allows digital or electronic station users to enable or disable the key tone. When enabled, key tone is heard whenever number keys or function buttons are pressed. When disabled, the key tone is not heard.

Benefits:

- Provides flexibility for businesses to customize service.

Capacity:

- One per station.

Transfer This feature allows station users to transfer their outside trunk calls or internal station calls without attendant intervention. The transfer operation is activated by a hookswitch flash (SLTs) or by pressing the **TRANSFER** feature button followed by dialing the desired number. Calls may be transferred to other internal stations, to the attendant position, or to external numbers.

The **TRANSFER** lamp is lit during a transfer operation on digital and electronic stations.

NOTE: On trunk-to-trunk transfers, the incoming trunk must be a ground start trunk.

Benefits:

- Provides efficient call processing since individual station users may transfer their own calls via hookswitch flash (SLTs) or by using the **TRANSFER** feature button (proprietary telephones).

Applications:

- Offices with high volumes of Attendant Console traffic.

Transfer Camp-On This feature allows a station-transferred call to register a camp-on to a busy station. If the camped-on station does not become available within a specific time, the transferring station will be recalled. The transferring station dials an access code to automatically camp-on the transferred call when a busy station is encountered.

Capacity:

- Number of simultaneous camp-ons: 30 (including extension-registered).

Transfer Release When a station has initiated a transfer, and the station user presses the **TRANSFER** button, the existing call is released without replacing the handset. Transfer Release is effective in the following situations:

- Two-way conversation with a held call.
- Station calling with a held call (including voice call).
- Three-party conference (only for initiating station).
- Getting a CFT (Confirmation Tone) after service registration or cancellation or success tone.

Benefits:

- Enhances call handling capabilities by allowing the user to disconnect the call without replacing the handset.

Applications:

- Telemarketing businesses, lawyers, accountants, stock brokers.

Transfer with AUTO HOLD

This feature allows station users with digital or electronic stations to activate the Transfer feature for station calls on the following by pressing a feature button assigned to ICM access:

- Pooled line terminations.
- Direct inward line terminations.
- Direct line terminations.
- Personal line terminations.

The calling party is automatically placed on hold when the station button is pressed.

Benefits:

- User friendly.
- Saves time by allowing users to transfer calls in one easy step.

Applications:

- All businesses.

Trunk Group Access

This feature allows users to access a trunk assigned to a trunk group via a trunk group access code. These dialed codes are restricted according to each user's Class of Service and Class of Restriction. When the trunk group access code is dialed, the system automatically searches for the next idle trunk in the trunk group.

Benefits:

- Allows full utilization of trunks within the system.

Applications:

- Sales/customer organizations.
- Telemarketing operations.

Capacity:

- Maximum number of trunk groups: 63 (including ones for DMR, CHT, and paging).

**Voice Calling/Handsfree
Answer**

This feature allows handsfree answerback to Voice Calling for digital or electronic station users. This Class of Service controlled feature is programmed on a per station basis via a special access code from each station.

Benefits:

- User friendly.

Applications:

- Customer service departments.

ATTENDANT CONSOLE FEATURES

The Attendant Console is provided for PBX-oriented system applications. This console handles a large volume of incoming calls. The calls can be handled solely by Attendant Console operators or by the Attendant Console and answering positions (proprietary telephones with an attached DSS/BLF Console), depending on the incoming trunk routes. In addition, overflow and/or night answer stations can be arranged to optimize call handling by Attendant Consoles.

Alphanumeric characters are displayed on a four-line by twenty-character LCD display on the Attendant Console. The type of displays are the calling subscriber, trunk number, dialed number, COS/COR (Class of Service/Class of Restriction) of station, recall information, and call type. The current time and date are also displayed.

The Attendant Console can be used as an MCT (Master Control Telephone) data base programming device when it is in the position busy mode. When the system is in the Hotel/Motel mode of operation, the Attendant Console can also be used as an FDC (Front Desk Console).

The following features of the Attendant Console operate in basically the same manner as the corresponding station features and are not repeated in this section. See the Attendant Console User Guide for instructions.

- Account Codes.
- Direct Station Selection.
- Call Announce.
- Call Park.
- Directed Call Pick-Up.
- Save/Last Number Redial.
- Station Speed Calling.
- System Speed Calling.
- Trunk Camp-On.

ATTENDANT CONSOLE CAPABILITIES

Attendant Consoles have the following dedicated service functions:

- A 20-character x 4 line console display.
- Three fields inside this display:
 - Source Field (for the first party)
 - Destination Field (for displaying the extended-to destination)
 - Call Status Field (for displaying ring, busy, etc.)
- Loop keys used as the selection button for a supervised call.
- Twelve fixed buttons that allow the attendant to:
 - Have conversations with one or more parties
 - Release or hold a call
 - Lock up an extension
 - Answer a call from an outside line, an extension or a recall

**ATTENDANT CONSOLE
CAPABILITIES (Cont'd)**

- Three **EXTEND** buttons, that, when pressed and held, allow an attendant to set up a one-way speech path for both originating and extended-to parties.
- Programmable buttons for paging, parking, and other service functions.

Benefits:

- Allows for central call answering services.

Applications:

- Businesses, hotels, etc.

**ACD (Automatic Call
Distribution)**

This feature allows an attendant to extend incoming calls to an ACD (Automatic Call Distribution) group. The call returns to the Attendant Console after a predetermined period of time. With an RVAC card, the first answering ACD message is not heard when the call is extended; the waiting message, however, is heard.

Benefits:

- Attendant directory number can access ACD group.
- Attendant can transfer to ACD route tables.
- Saves time for the caller; redialing to access the ACD group is eliminated.

Applications:

- Any business with ACD groups in its telephone system; e.g., catalog sales departments within a retail business.

Account Code Entry

This feature allows an attendant to enter an account code during conversations with external calls (with or without a held call), and to print out the account code via an SMDR printer. This feature may be assigned to one of the programmable feature buttons.

Benefits:

- Cost accounting for billing.

Applications:

- Most business environments.

Alarm	<p>An alarm feature informs the attendant that the system is experiencing a minor or major problem. The alarm lamp will light regardless of attendant call processing. The alarm feature is programmed on one of the programmable buttons.</p> <p>Benefits:</p> <ul style="list-style-type: none">• Warns of fault conditions in the system.• Speeds troubleshooting and fault isolation. <p>Capacity:</p> <ul style="list-style-type: none">• One alarm button per console.
Alphanumeric Display	<p>The LCD on the Attendant Console automatically displays the information shown in Table 6-1.</p> <p>Benefits:</p> <ul style="list-style-type: none">• Gives users an easy-to-read visual reference of what they are dialing.
Call Waiting Indicator	<p>With this feature, the Attendant Console LCD display shows the number of terminating calls that are waiting to be answered by the attendant.</p> <p>Benefits:</p> <ul style="list-style-type: none">• Improves attendant efficiency by indicating the number of calls waiting to be answered. <p>Applications:</p> <ul style="list-style-type: none">• Organizations with high volumes of call traffic. <p>Capacity:</p> <ul style="list-style-type: none">• Up to 99 calls can be waiting simultaneously.• Over 100 calls are identified as "00" on display.
Time/Day/Date	<p>The LCD on the Attendant Console also displays time, day, and date information.</p> <p>Benefits:</p> <ul style="list-style-type: none">• Convenient time and date reference. <p>Applications:</p> <ul style="list-style-type: none">• Any Attendant Console where time and date information is necessary.

Table 6-1. Attendant Console Call Status Displays (Cont'd)

MESSAGE										DESCRIPTION
:	A									Call status indication (ACD)
:	R									Call status indication (ringing)
:	Rc									Call status indication (recall)
:	U									Call status indication (in use)
:	T									Call status indication (talk)
:	H									Call status indication (hold)
:	C									Call status indication (camp-on)
A	C	D		R	E	C	A	L	L	ACD recall
T	R	A	N	S						Transfer (attendant)
I	S	T								Trunk name (ISDN)
		I	S	T						ISDN access
		A	C	D						Attendant recall type indication (ACD)
		C	N	F	R					Attendant recall type indication (conference)
N	O	A	N	S						Attendant recall type indication (no answer)
		P	A	R	K					Attendant recall type indication (park)
		C	A	M	P					Attendant recall type indication (camp-on)
		M	S	G						Message waiting (attendant)
A	L	E	R	T						Extension lock-out
		C	H	R	G					Attendant recall type indication (charge)
:	G									Call status indication (charge)
V	.	M	S	G						VMC register
		P	L	A	Y					VMC playing
		R	E	C						VMC recording
A	A	-	T	O						Automated attendant time-out (recall)
A	A	-	V	N						Automated attendant (vacant number recall)
A	A	-	B	L						Automated attendant (busy recall)
		V	M	S						VMS information sending
		A	C	D						ACD queuing (calling party)
V	M	S								VMS calling

Table 6-1. Attendant Console Call Status Displays (Cont'd)

MESSAGE										DESCRIPTION
	D	N	I	S						DNIS termination
C	M	P		R	E	C	A	L	L	Camp-on recall
=	>									Attendant password input
				P	L	E	A	S	E	Attendant password input
	D	I	A							Attendant password input
			S	E	C	U	R	I	T	Attendant password input
Y		C	O	D	E					Attendant password input
S	-	M	N	T						Silent monitor
S	-	O	V	R						Silent monitor break-in
R	O	O	M		S	T	T			FDC main menu (room status) *
C	H	A	R	G	E					FDC main menu (call charge) *
W	A	K	E	-	U	P				FDC main menu (wake-up) *
D	N	D								FDC main menu (do not disturb) *
M	S	G		W	A	I	T			FDC main menu (message waiting) *
C	L	E	A	R						R-INF etc. (clear) *
M	E	N	U							R-INF etc. (menu) *
V	A	C	A	N	T					Room status change (vacant) *
O	C	C	U	P	I	E	D			Room status change (occupied) *
N	E	X	T		R	M				Next room *
C	L	E	A	N	-	U	P			Room status change (clean-up) *
W	K	-	U	P		N	A			Wake-up no answer *
R	E	G	I	S	T	E	R			WK-UP, DND, MSG, WT (register) *
A	D	D								Added call charge *
C	A	N	C	E	L					WK-UP, DND, MSG, WT (cancel) *
E	X	E	C	U	T	E				R-INF etc. (execute) *
P	R	I	N	T		A	L	L		Print call charge *
N	O		C	L	E	A	N			Room status change (no clean-up) *
N	O		M	S	G					DND (no message) *
P	R	I	N	T		G	S	T		Call charge (print guest) *
P	R	I	N	T		M	E	R		Call charge (print SMDR) *
M	E	R		N	O	C	L	R		Call charge (SMDR no clear) *

NOTE: The displays marked with an "*" are Front Desk Console displays.

Table 6-1. Attendant Console Call Status Displays (Cont'd)

MESSAGE										DESCRIPTION
M	E	R		C	L	R				Call charge (SMDR clear) *
A	C	C	T		R	E	G			Call charge *
R	O	O	M		I	N	F			FDC main menu (room information) *
L	A	N	G	U	A	G	E			Room information (multi-language) *
R	E	S	T	R	I	C	T			Room information (COR) *

NOTE: The displays marked with an " *" are Front Desk Console displays.

Table 6-1. Attendant Console Call Status Displays (Cont'd)

MESSAGE										DESCRIPTION														
										S	T	T	FDC room status change *											
										C	H	A	R	G	E	FDC charge *								
												W	K	-	U	P	FDC charge wake-up *							
												T	M				Time reminder register *							
														D	N	D	FDC DND *							
												M	S	G			FDC message waiting *							
															C	R	R	Controlled restriction register *						
F	R	O	N	T								C	O	N	S	O	L	E	FDC main menu *					
												V	A	C	A	N	T		FDC room status change (vacant) *					
												O	C	C	U	P	I	E	D	FDC room status change (occupied) *				
												N	E	E	D		C	L	N	-	U	P	FDC room status change (need clean-up) *	
												L	O	C	K		O	U	T				FDC room status change (lock-out) *	
												R	E	E	T	R	Y		W	K	-	U	P	FDC wake-up *
												D	N	D										FDC DND *
P	R	I	N	T	I	N	G																	FDC charge (print out) *
W	A	K	E	-	U	P																		FDC wake-up *
T	I	M	E	R	E	M	I	N	D	E	R												Time reminder ringing *	
												O	N											Do not disturb on
												O	F	F										Do not disturb off *

NOTE: The displays marked with an "*" are Front Desk Console displays.

Table 6-1. Attendant Console Call Status Displays (Cont'd)

MESSAGE													DESCRIPTION
													Do not disturb register *
													Do not disturb cancel
													R-INF etc. (error)
C	L	O	C	K									FDC wake-up (clock failure)
													FDC room status change (clean-up)
													FDC room status change (wake-up no answer)
													FDC room status change (need clean-up vacant)
													FDC room status change (need clean-up occupied)
													FDC message waiting
													FDC room information
													FDC room information

NOTE: The displays marked with an "*" are Front Desk Console displays.

Attendant Overflow If the attendant experiences heavy traffic and incoming calls are kept waiting longer than a specified time or when the Attendant Console is in the position busy state, the calls are automatically routed to a designated station.

Benefits:

- Allows faster, more effective call management.
- Provides for handling external calls when the attendant is away from the Attendant Console.

Attendant Password This feature provides an operator with password capability when signing-on to and off from the Attendant Console. The console operator assigns the password for the Attendant Console by activating the feature through an access code.

Benefits:

- Unqualified persons are prevented from using the Attendant Console.

Capacity:

- One password per Attendant Console.

Attendant DSS/BLF When the DSS/BLF is installed accompanying an Attendant Console, the DSS/BLF shows the busy/idle status of each station by lamp. The Direct Station Selection feature of the DSS/BLF allows the attendant to automatically dial the station number assigned to a DSS/BLF button, providing one touch dialing to stations. The busy lamp feature displays the idle, off-hook, do not disturb, and ringing status of assigned stations.

If a call is transferred from the attendant that has a DSS/BLF assigned, the call may be retrieved by pressing the associated station that is showing the LED ringing pattern.

Benefits:

- Rapid handling of calls.
- Provides attendants with a quick visual reference of each station's busy status.

Applications:

- Most business environments.

Attendant Transfer

When more than one attendant is installed in a system, this feature allows the transferring of calls to another Attendant Console from:

- CO lines.
- Tie lines.
- Station lines.

The following restrictions apply:

- Overflow transfer is not provided for attendant-to-attendant calls.
- Transfer is stopped if target attendant has a fault.
- Attendant transfer is not functional if the Hard Tenant feature is active and the two attendants belong to different tenants. (Transfer from any other tenant to a common tenant is possible.)

Benefits:

- More flexible means of call handling in multi-attendant applications.
- Improved support of tenant/executive suite situations.

Attendant Voice Message

If an incoming CO or DID call to the attendant console terminates in the attendant queue and is not answered within a specific time, an attendant voice message can be sent to the caller. A second message may be sent after another time period elapses, if necessary.

The Recorded Voice Announcement card (RVAC) is required to implement this feature. One message is assigned for day answer message, one message for waiting message, one message for night answer message. Additionally, a music/message on hold may be programmed specifically for this feature.

Capacity:

- Total messages per system: 90.
- Total types of music on hold available per system: 10.

Automatic Recall This feature allows the Attendant Console to be automatically recalled when a call remains in one of the following states for more than a predetermined time:

- Camped-on.
- Ringing.
- On hold.
- Parked.

The attendant finds out the following information about the call by pressing and holding the **RECALL** button:

- The type of call.
- The type of recall.

The attendant can enter two-way communications with the recall source by releasing the **RECALL** button. If the recall is a conference call recall, an attendant can enter two-way communication with the destination party.

In addition, this feature allows the attendant to extend the call to another extension, take a message, or place the call on hold again.

Benefits:

- Provides efficient call handling.

Applications:

- Most business applications.

Break-In This feature allows the attendant to break into a conversation between two parties. The system sends a warning tone to the parties to notify them of the impending break-in. Breaking-in establishes a three-way conference with the two parties and the attendant. This feature may be assigned to one of the programmable feature buttons.

Benefits:

- Allows attendant to reach parties with priority messages.

Applications:

- Most business environments.

Call Announce This feature allows the attendant to announce call a station by activating the speaker on a digital or electronic station instead of by ringer. The call signaling option (tone ringing or voice announcing) is programmed on a system-wide basis; however, an individual attendant may elect to change the system option using the programmable **call announce** feature button. This feature is only available with digital and electronic stations, and with the Attendant Console.

If the system calling method is programmed for tone ring signaling, the attendant can change the calling method to voice announcing by pressing the **call announce** feature button. (This feature operation requires that both the attendant and the called station be programmed for voice calling.) If a speakerphone feature button is programmed, talkback from the called station is made automatically available during the call announce mode. If the station called is a DS20 or CT-10, the speaker is activated to announce the call. However, the called station must pick up the handset to talk to the attendant.

If the system calling method is programmed for voice announcing and the called station is programmed for call announce, the attendant can change the calling method to tone ringing by pressing the **call announce** button. Call Announce can be disabled at a station that otherwise would not want to receive call announce. A call announce on/off access code can be entered to enable or disable the feature.

Benefits:

- Allows internal stations to obtain advance notice of waiting calls.
- Feature is available on DS20, DS20S, DS20SD, DS32SD, CSD, and CT sets. (Some stations must answer by lifting the handset.)
- Allows flexibility when placing internal calls by providing the station user with a choice of calling methods.

Applications:

- Individuals who want station-to-station message communication where verbal response is required (e.g., boss/secretary situations).

Call Park This feature allows the attendant to park a call by assigning it an orbit number. The parked call can be retrieved by the orbit number from the station allowed by its COS. If the call is not retrieved within a predetermined time, the call is recalled to the attendant who parked it. This feature may be assigned to one of the programmable feature buttons.

Benefits:

- An unlimited number calls may be parked by one **PARK** button.

Applications:

- Most business applications.

Call Splitting Call Splitting allows the attendant to speak privately with either of two parties prior to connecting them together. The attendant can alternate between the source call and the destination call by means of the designated buttons on the Attendant Console. **SOURCE** and **DESTINATION** are fixed feature buttons on the Attendant Console.

Benefits:

- Private consultation between two parties.

Applications:

- Most business applications.

Camp-On This feature allows the attendant to camp on any call to a busy station. When the camped-on station becomes idle, the station will ring. The system sends a call waiting tone to the station when camp-on service is registered. If the station does not answer within a predetermined time, the camped-on call will return to the attendant via the **RECALL** button. The call may be immediately camped-on again by pressing the **CAMP-ON** button.

Benefits:

- Faster call connections.
- Saves time and improves productivity by eliminating repeated attempts to connect to a busy station.
- Reduces the number of callbacks and ensures that callers are not left waiting for extended periods of time.

Applications:

- Most business environments.
- Sales departments, catalog sales, parts departments, and service departments.

Capacity:

- 30 camped-on calls per system and one at a time per station.

Conference This feature allows the attendant to establish a three-way conference using the designated fixed feature button.

Benefits:

- Improves call processing.
- Provides a quick, easy way to distribute messages to both inside and outside sales representatives.

**COS/COR (Class of Service/
Class of Restriction)**

During a conversation with a station user or a trunk call, the attendant can press a feature button and display the station's COS and COR or trunk's COS and COR on the Attendant Console. This feature may be assigned to a programmable button on the Attendant Console.

Benefits:

- Saves time; the attendant does not have to access the data base.
- Provides the attendant with single button access to a station's or a trunk's COS and COR.

Directed Call Pick-Up

This feature allows an attendant to pick up a call ringing at a station by pressing the **STA. PICK-UP** button and dialing the ringing station number.

Benefits:

- Allows an attendant to answer a call ringing at a station close to the attendant.

Applications:

- Most businesses.

Do Not Disturb Override

With this feature, the attendant can override and ring a station which has registered DND (Do Not Disturb). The feature may be assigned to a programmable feature button on the Attendant Console.

Benefits:

- Allows access to stations registering DND in emergency or important call situations.

Capacity:

- One **DND override** button per Attendant Console.

Drop/Cancel

This feature allows both trunk and extension calls to be disconnected from the console by pressing the **DROP/CNCL** fixed feature button.

Benefits:

- Easy release of both trunk and extension calls.

Applications:

- Most business applications.

Flash Button The Flash feature button may produce a flash to access Centrex or Centranet features; or it may operate as a New Call feature, which disconnects from an outside call and allows the attendant to immediately place another call. This feature may be assigned to a programmable feature button.

Benefits:

- Saves time.
- Provides automatic access to outside lines.

Applications:

- Organizations that handle successive outside calls; e.g., Hotel/Motel applications.

Floating Loop Keys After an attendant responds to an incoming call with the **INCOMING**, **RECALL**, or **STA** button, the call can be processed with one of the following buttons:

- **POS.RLSE**
- **DROP/CNCL**
- **SUP.HOLD**
- **SER/LOCK**

The attendant can then respond to the next call.

Benefits:

- Faster call processing.

Applications:

- All business applications.

Hold The attendant may place a call on hold by pressing the **HOLD** fixed feature button. The current call is automatically placed on hold (supervised loop) and is displayed on the Attendant Console LCD next to one of the six soft keys. Access to a call on hold is accomplished by pressing the soft key associated with the call on hold on the display.

Station Hold This feature allows an attendant to hold and answer a held station call. The feature also provides the capability for a joint connection between the attendant, the party currently in conversation, and a held station call.

While in conversation with a station, the attendant can place the call on hold by pressing the **SUP/HOLD** button. To answer a held call, the attendant presses the loop key corresponding to the held call. To create a joint connection, the attendant presses the **CONF/JOIN** button during two-way conversation and then the loop key corresponding to the held call.

The following restrictions apply:

- Recall of a held station does not overflow.
- BLF lamp of DSS retains busy indication while held by attendant.

Benefits:

- Simplified call processing.
- User friendly operation.

INCOMING Button This feature allows the attendant to answer incoming trunk calls using the fixed **INCOMING** feature button. An associated LED lamp lights when incoming trunk calls are presented to the console.

Benefits:

- Allows centralized control of incoming calls.
- Increases flexibility in call routing.

Individual Trunk Access This feature allows an attendant to seize a specific trunk in a trunk group by dialing the trunk access code and equipment number assigned in the data base. This allows the attendant to test system trunks for proper operation.

Benefits:

- Enables maintenance of trunks.
- More efficient system operation.

Applications:

- Most businesses.

Message Leaving

With this feature, the attendant can activate **MESSAGE WAITING** with or without a silent message to a digital or electronic station and single line telephone. The attendant can use this feature to leave a message before or after attempting to call the station. This feature may be assigned to a programmable feature button on the Attendant Console.

NOTE: Messages cannot be left at the Attendant Console.

Benefits:

- Reduces amount of time spent in "telephone tag" situations by providing an indication of a waiting message with the attendant.

Applications:

- Hotel/Motel.
- Stockbrokers, lawyers, or doctors who have large volumes of telephone traffic.

Capacity:

- One button per Attendant Console.

Multiple Attendants

The system allows up to eight Attendant Consoles to be installed. Load sharing among the consoles is provided.

Benefits:

- Increased tenant usage.
- Increased number of tenants with attendant capabilities.
- Enhanced call processing capabilities.

Applications:

- Marketing offices.
- Customer service areas.

Capacity:

- Eight Attendant Consoles.

Night With this feature, the attendant can activate the night mode for the system. Trunks and stations activate NCOS (Night Class or Service) and NCOR (Night Class or Restriction) for all tenants or for own tenant. All night features are invoked by pressing the programmable **night** button.

Benefits:

- Enhances management control of communications by providing different COS and COR options for night operations.

Applications:

- Organizations with night shift operations.

Paging (External) This feature allows the Attendant Console to access an external paging system. The external paging unit connects to the system via the 4BWC or 8BWC card and both loop or ground start signalling are supported. Up to nine paging zones may be assigned per system. An individual or all zone paging capability is available. Paging (External) may be activated from either a station or the attendant. This feature may be assigned to a programmable button on the Attendant Console, DS, or CT telephone.

Benefits:

- Allows attendant to communicate with employees who are away from their desks.
- Helps employees who are away from their desks to avoid missing important calls.

Applications:

- Doctors.
- Lawyers.
- Nursing homes.
- Sales offices.

Paging (Station) This feature allows the Attendant Console to page one of nine station paging zones or an all page to all zones. Paging is accomplished through the speakers in digital and electronic stations. Paging (Internal) can be activated from a station or the attendant. This feature may be assigned to a programmable button on the Attendant Console, DS, or CT telephone.

Benefits:

- Improves service by providing faster response time to calling parties.

Applications:

- Businesses (warehouses, showrooms, stockrooms).

Paging (Station) (Cont'd)	Capacity: <ul style="list-style-type: none">• Nine zones.• 36 stations/zone maximum.
Position Busy	<p>With this feature, the Attendant Console can be put into an off-line (position busy) mode where it no longer functions as an answering position. This allows the attendant to leave the station or use the Attendant Console as a Master Control Telephone (MCT). Trunk and station calls still go to the overflow position, if assigned in data base.</p> <p>Benefits:</p> <ul style="list-style-type: none">• Permits system programming from an existing station.• Allows the transfer of call processing without having employees leave their desks. <p>Applications:</p> <ul style="list-style-type: none">• Offices with heavy call traffic.• Offices that occasionally need to reprogram the system. <p>Capacity:</p> <ul style="list-style-type: none">• One POS.BUSY button per Attendant Console.
Position Release	<p>The POS.RLSE (Position Release) button releases the Attendant Console from a call and extends the transferred call to a station or trunk. This allows the attendant to remove the Attendant Console from a call without hanging up on the caller. The fixed DROP/CNCL (Drop/Cancel) button is used to disconnect the caller.</p> <p>Benefits:</p> <ul style="list-style-type: none">• Allows faster more efficient call handling.• Allows attendant to extend internal and external calls. <p>Applications:</p> <ul style="list-style-type: none">• Organizations that need central call processing. <p>Capacity:</p> <ul style="list-style-type: none">• One POS.RLSE button per Attendant Console.• Eight Attendant Consoles per system.
Programming	<p>In addition to the normal attendant operation mode, an Attendant Console can be used for system programming. The Attendant Console can function as a Master Control Telephone or a Front Desk Console; both of these modes allow programming. Refer to the Data Base Manual for further details.</p>

Save/Last Number Redial This feature has the following two functions:

- Saves a number.
- Repeats the last number dialed.

Activation of this feature automatically redials the saved or last number as in speed calling.

These functions are slightly different. Save is initiated by the attendant; Last Number Redial (LNR) is initiated by the system. The system automatically stores the last number dialed; this is termed Last Number Redial. If, however, the attendant wishes to store one particular number, Save can be used. Save overrides Last Number Redial; therefore, using Save prevents the system from storing the last number dialed.

Because the system automatically saves the last number dialed (unless using Save), the attendant may wish to reserve Save for situations where the saved number is repeatedly called with other numbers.

An attendant can activate this feature by pressing the fixed **SAVE/REPEAT** button, or by dialing an access code. Station numbers as well as external numbers can be saved.

Benefits:

- Improves productivity by allowing users to quickly access telephone numbers without redialing.

Serial Call This feature is used when an incoming call has more than one internal destination. The attendant presses the fixed **SER/LOCK** button to release from the call and the call is extended to its destination. When the station is finished with the incoming call, it then returns to the console so that it may be extended to another station.

Benefits:

- Improves call management and efficiency, as the caller does not have to redial or have the called party attempt to transfer the call.

Applications:

- Businesses with sales departments, shipping and receiving departments, and credit departments operating in the same location.

Capacity:

- One button per Attendant Console.

STATION Button The fixed **STATION** feature button is used to answer incoming station or tie line calls to the Attendant Console. The **STATION** button also has an associated LED lamp which lights to indicate incoming station type calls.

Benefits:

- Allows centralized control of incoming calls.
- Increases flexibility in call routing.

Station Lockout With this feature, the attendant is allowed to lock out a station when time-out routing occurs. For example, when time-out routing to the attendant is executed due to a station remaining off-hook after receiving error tone, the attendant locks out the station from repeated calls to the Attendant Console by pressing the **SER/LOCK** button.

Benefits:

- Allows the attendant to lock out stations that are experiencing problems or have been left in a non-operational state.

Applications:

- Any business.
- Hotel/Motel and healthcare applications.

Capacity:

- One button per Attendant Console.

Station Speed Calling This feature allows the attendant access to station speed calling. Ten speed calling entries can be accessed by the attendant (0-9). Entries can be up to twenty digits in length. One entry may be assigned to a programmable feature button.

Benefits:

- Faster call processing.

Applications:

- Most business environments.

Supervised Release After responding to an incoming trunk call with the **INCOMING** button or **RECALL** button and processing it, the attendant can release and monitor the call using the **SUP/HOLD** button. The call is then associated with one of the six soft keys and is displayed on the LCD. The call can be retrieved by pressing the soft keys (adjacent to the display) indicated in the call display. Call supervision is extended to:

- Camp-on calls.
- Parked calls.
- Held calls.
- Calls extended to the station.

NOTE: Pressing the loop button will retrieve the call to the attendant.

Benefits:

- Monitors calls so they are not lost in the system.
- Provides monitoring of trunk status.
- Increases call handling capabilities.

Applications:

- Organizations handling a large number of calls through an Attendant Console.

Capacity:

- Six calls at a time.

System Speed Calling This feature allows attendants to access system speed calling. One thousand system speed calling entries may be assigned in the system (00-999). One entry may be assigned to a programmable feature button.

Benefits:

- Saves time and increases productivity by allowing the Attendant Console to dial an abbreviated number sequence to access frequently called numbers.

Applications:

- Telemarketing.
- Sales.
- Purchasing.

NOTE: The Attendant Console can program system speed calling entries through the Master Control Telephone function.

Through Dialing This feature allows an attendant to seize a trunk on behalf of an extension. The attendant can then dial all or part of the destination number.

Benefits:

- Allows attendant to seize idle trunks.
- Increases the speed and efficiency of call processing.

Applications:

- Most businesses.

Trunk Group Busy/Trunk Group Access

This feature allows the attendant to access a busy trunk by pressing the trunk busy/trunk access button. The system then seizes an idle trunk in the assigned trunk group. This button lights when all trunks in a trunk group are busy. Only one trunk group can be assigned to a button.

This feature may be assigned to multiple programmable feature buttons to monitor and access several trunk groups.

Benefits:

- Improves the speed and efficiency of call management.
- Informs the attendant of trunk status and allows the seizure of idle trunks for call processing.

Applications:

- Brokerage firms.
- Telemarketing groups.

Trunk Camp-On

If the attendant seizes a trunk and busy tone sounds, the attendant can register trunk camp-on and wait in the on/off hook condition until a trunk becomes available.

As soon as a trunk becomes idle, the **RECALL** button on the Attendant Console indicates call back termination. This feature may also be assigned to a programmable feature button.

Benefits:

- Increases productivity by allowing the Attendant Console to handle call processing and pursue other business activities while waiting for a trunk to clear.

Applications:

- Business applications.

Trunk Priority This feature sets incoming trunk call priority so that the attendant can answer higher priority trunk calls first. The calls to be answered by the attendant are queued on a first in, first out basis (DID and CO calls only) on a trunk group basis. Trunk priority is assigned in the system data base.

Trunk priority calls are immediately moved to the attendant queue.

Benefits:

- Allows for more efficient call management by answering the highest priority calls first.

Applications:

- Sales, service organizations.
- Doctors.
- Emergency rooms.
- Police departments.
- Fire departments.

Trunk-to-Trunk Connection This feature allows the attendant to monitor disconnection after becoming idle from a trunk-to-trunk connection extended by an attendant or made through the mediation of an attendant. The attendant can also transfer a held party (with or without supervision) to an incoming trunk after a three-way conference.

Benefits:

- Avoids trunk lock-up and returns trunk to normal service.

Applications:

- Sales personnel.
- High traffic occupations.

Volume Control An attendant can adjust voice volume at any time with two **VOL** buttons. One button increases the voice volume, the other decreases the voice volume. Ringer volume is adjusted with the slide volume control located at the right rear of the Attendant Console.

Benefits:

- Meets the needs of attendants to adjust voice and ringer volumes at any time.

Applications:

- All applications where the Attendant Console is utilized.

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KEY TELEPHONE SYSTEM FEATURES

The system can be configured to function as a complete or partial key telephone system. Trunks can be terminated directly to station buttons and stations can be configured to have the same trunk appearances. This provides features such as Common Hold to the system.

The DSS/BLF (Direct Station Selection/Busy Lamp Field) is an add-on module for a Proprietary Telephone. It receives all incoming trunk calls except those terminated to Proprietary Telephone buttons or direct-in lines. The DSS/BLF Console can be programmed in the data base to have all installed stations appear as button assignments when it is connected and paired with a Proprietary Telephone.

The different types of DSS/BLF available with a key system are:

- DSS/BLF 30: 30 buttons.
- DSS/BLF 40: 40 buttons.
- DSS/BLF 80: 80 buttons.

These buttons can be used to transfer a call to any station. The DSS/BLF 30, 40, and DSS/BLF 80 button maximum is 640. The total number of DSS/BLF 30, 40, and 80 consoles the system allows is sixteen.

NOTE: The DSS/BLF 30 is connected to an 8DTC or 16DTC card. The DSS/BLF 40 and 80 button consoles are connected to 8EKC cards.

The features listed below operate in basically the same manner as the corresponding station features and are not described in this section. (See the appropriate user guide(s) and quick reference guide(s) for operation of the features.)

- Alarm.
- Direct Station Selection (DSS).
- DSS External Page.
- Night Answer.
- Transfer Release (primarily a DSS feature).

Alternate DSS If the DSS/BLF Console has a button programmed as alternate, an alternate position is assigned in the data base. Calls are transferred to the alternate position when the operator presses the designated feature button.

Benefits:

- Prevents unanswered calls.
- Allows calls to be automatically routed to an alternate position.
- Prevents a back-up of calls at the DSS/BLF Console.

Applications:

- Offices that require coverage for vacant stations.
- Businesses with a high volume of calls.

Capacity:

- One button on each DSS/BLF Console.

**Common Hold with I-Use
Indication**

The Common Hold feature allows all station users sharing a line appearance (trunk, PSL, OSL, ICM) to retrieve a call on hold utilizing the appropriate line button on their telephones. When a call is placed on hold, the LED associated with that line on all other stations will flash to indicate Common Hold status. The station user who put the call on hold receives an I-Hold flash on the LED associated with that line. Exclusive Hold is available and is activated by pressing the **HOLD** button twice. This prevents any other station from accessing the call. Exclusive Hold can be activated via data base command.

Benefits:

- Provides consoleless operation for small businesses.
- Emulates 10A2 key operation behind PBX.
- Addresses special needs of small businesses for common line appearances.

Applications:

- Organizations that require consoleless operation (hardware stores).
- Departments that require common line appearances (sales departments, reservation departments, service departments).

Delayed Ringing Trunks, ICM (Intercom) lines, PSL (Primary Station Lines), or OSLs (Other Station Lines) appearing at more than one station or on the DSS/BLF Console can be programmed to ring only after a predetermined period of time. The LED associated with the line appearance will flash, but ringing is initiated only after the call is unanswered at the primary station. Ringing can be delayed up to 255 seconds after initial ringing at the primary station. Ringing can also be stopped after a predetermined period of time.

Benefits:

- Stations designated as alternate answering positions can receive delayed ringing.
- DSS/BLF Console users are not distracted by incoming calls ringing for other users.
- Primary answering stations can be immediately notified of incoming calls.

Applications:

- Offices that direct back-up call coverage to groups.
- Businesses that require alternate answering positions.
- Organizations with a need to eliminate lost calls due to unstructured answering responsibilities.

DSS Park This feature allows the operator to activate or retrieve calls parked at the DSS/BLF Console. Each programmable **park** button holds one call. DSS parked calls can be retrieved from a station by using the parking number assigned at the DSS/BLF Console.

Benefits:

- Increases call handling capability by allowing the DSS/BLF Console operator to place calls in a hold status.

Applications:

- Offices with a high volume of calls.

Capacity:

- Five **park** buttons per DSS/BLF Console.

DSS Camp-On The DSS Camp-On feature camps an incoming trunk call onto a busy station. If the camp-on times out, the **camp-on** button flashes and recalls to the DSS/BLF Console. Only one call can be camped on with each **camp-on** button.

Benefits:

- Saves time and improves productivity by eliminating repeated attempts to connect calls to busy stations.

Applications:

- Offices with a high volume of calls.

Capacity:

- Five **camp-on** buttons per DSS/BLF Console.

DSS Line Terminations This feature allows trunks to be terminated on buttons on the DSS/BLF Console. Call origination and answering functions are identical to those of lines appearing on the button of a station. A maximum of 31 lines may be terminated on a DSS/BLF Console. The LED associated with each button provides line status (ringing, hold, and busy). Any line may have a combined total of 52 appearances in the system on station or DSS buttons. This parameter applies to any kind of trunk termination group, e.g., key system, but is not applicable to pooled facilities for hold/busy indication. In addition, the DSS can have OSL appearances.

Benefits:

- Utilization of vacant buttons on DSS/BLF Console.
- Expanded line appearances to accommodate medium size businesses and departments.

Applications:

- Businesses requiring multiple answering positions.
- Sales and service departments requiring multiple trunk appearances.

Capacity:

- 31 lines per DSS/BLF Console, first DSS/BLF only assigned on the first 30 buttons.

DSS Speed Calling

Forty buttons on the DSS/BLF Console can be assigned for Station Speed Calling. A maximum of twenty digits can be registered for each Station Speed Call button. Only trunk calls can be assigned as station speed call numbers.

Benefits:

- Reduces the need to record and look up numbers.
- Vacant DSS/BLF buttons may be used for Station Speed Calling.
- Single-button access to frequently dialed numbers.
- Addresses the needs of station users requiring a large number of Station Speed Call buttons.

Applications:

- Executives requiring more than ten Station Speed Call numbers.
- Telemarketing groups who frequently call the same customers.
- Secretaries responsible for establishing calls for executives.
- Station users who frequently dial multi-digit numbers; e.g., long distance, SCC (Special Common Carrier), and personal authorization codes, etc.

Capacity:

- 20 digits per number.
- 40 numbers per DSS/BLF Console; if two DSS/BLFs are paired with a station, only the first DSS/BLF can have speed calling numbers assigned.

Flash/New Call

When the system is operating behind a PBX, pressing the **Flash/ NEW CALL** button sends a flash indication to the host PBX. Press the **Flash/ NEW CALL** button twice to disconnect a trunk call in progress and reseize the trunk.

Benefits:

- Reduces the chance of accidentally disconnecting a call when operating behind a PBX.
- Reduces need for multiple operations by the DSS/BLF Console user when placing successive calls.

Applications:

- System operating behind a host PBX or Centrex system.
- DSS/BLF Console users originating successive calls (telemarketing groups).

Headset A feature button on the station can be programmed to simulate the hookswitch flash operation. This allows the DSS/BLF station user to utilize a headset.

The following headsets can be used without headset adapters:

- Plantronics Starmate E Plus.
- Danavox Stetomike HMT808 Model 3560 Electret Transmitter.

Benefits:

- Provides handsfree operation.
- Allows headset to be used without having to use the hookswitch to disconnect calls.

Applications:

- Telemarketing groups.
- Catalog departments.
- Sales departments.
- Service departments.
- Reservation departments.

Idle Line/Ringing Line Preference

A station user can designate the idle and ringing line preference for a station if allowed by COS (Class of Service). Ringing Line Preference eliminates the need for the user to manually press the line, ICM, PSL, or OSL button to answer an incoming call. Going off-hook automatically connects the user to the ringing line. Idle Line Preference can be established to automatically seize an idle trunk, ICM, PSL, or OSL button upon going off-hook. This eliminates the need for the user to select a button to originate a call. Idle line selection is based on the appearance of the trunks on the station buttons from lowest to highest button number for trunks.

Benefits:

- Simplifies operation, saves time.
- User-programmable to meet changing needs.

Applications:

- Executives who need immediate line access.
- Station users who have dedicated lines.
- Station users with multiple line appearance and ICM buttons.

**Intercom Line Origination/
Termination**

This feature allows a station user to originate and terminate station-to-station calls by pressing the ICM button on Proprietary telephones.

Capacity:

- One ICM button per Proprietary telephone.

**Key System Line Access by
Trunk Access Code**

This feature lets station users dial a trunk access code to seize a trunk registered as a key system line within a trunk group.

Benefits:

- Allows SLT users access to key system lines.

Applications:

- Key system operation.

One-Touch Selection

This feature allows a station user to originate or answer trunk or station calls by pressing one button. The station user presses the programmable **intercom group** button when the station is in the idle condition to automatically seize the speaker or monitor on proprietary telephones.

Benefits:

- Allows one-touch internal station calls.
- Permits one-touch access to station features.
- Increases line capability of individual stations.

Applications:

- Any organization requiring internal station-to-station calls.

Postselection/Preselection

The station user manually selects the Intercom, PSL, OSL, or line to be accessed by pressing a button. Postselection allows the user to select the appropriate facility after going off-hook. Preselection allows the user to select the appropriate facility before going on-hook.

Benefits:

- Appropriate facility may be selected on-hook or off-hook.
- User-friendly; does not matter when the user makes the line selection.
- Programmable to meet changing needs.
- User may selectively decide which facility to use for each incoming or outgoing call.

Applications:

- Individuals who want to select the appropriate facility based on the type of outgoing call being generated or incoming call being answered.

Prime Line Preference

This feature automatically selects the line, PSL, OSL, or Intercom button designated as the prime line when the station user goes off-hook. Both ringing line and idle line preference must be assigned in order to designate the prime line preference.

Benefits:

- Simplifies operation for originating calls when using an SLT (Single Line Telephone).

Applications:

- Individuals who initiate a large volume of outside or intercom calls.
- Individuals who have a dedicated line.

Privacy/Privacy Release

Privacy is an inherent factor in a conversation on any key system line, PSL, or OSL call. While in a two-party conversation on a line, the station user can activate the programmable **privacy release** button. Other stations with an appearance of that line receive a common hold indication. One station user can then enter the two-way conversation by pressing the appropriate line button.

Benefits:

- Complete user privacy on all calls (Automatic Privacy).
- User may selectively allow a third station to enter the conversation when necessary (Privacy Release).

Applications:

- Businesses where telephone security is a concern.
- Individuals who require three-party conferences; e.g., sales representatives, sales manager, and customers.

Capacity:

- One button per station.

Programming from Station This feature allows the station user to program station features to the buttons on the telephone. Features other than trunk, intercom, PSL, OSL, or ICM group appearances may be programmed by the user. The station user dials an access code, presses the feature button to be changed, and enters the necessary information. This feature can be COS restricted.

Benefits:

- Allows utilization of vacant buttons for station features.
- Provides user with control of the features assigned to the telephone.
- Reduces the responsibility of the System Administrator for programming station feature buttons.
- Allows Telecom Manager to reprogram feature buttons without an MCT on premises.
- Provides flexibility to meet changing user needs.

Applications:

- Station users whose responsibilities and duties frequently change.

Repertory Dialing This feature provides a Repertory Dial button on Proprietary telephones. Up to twenty digits can be registered on each button. When a user presses this button, the system performs in the same manner as when registered digits are dialed on a Proprietary telephone key pad.

Benefits:

- Increased productivity.
- Ensures accuracy when dialing a frequently called number.
- Saves time by allowing one-button access to frequently dialed numbers.

Applications:

- All business/sales environments.

Capacity:

- 20 digits per Repertory Dial button.
- 16 buttons per Proprietary telephone.

Ringling Line Preference

This feature automatically selects a ringing line or PSL/OSL/ICM group, including a recalling line when the Proprietary telephone goes off-hook. Either an ICM and/or trunk line is selected as the line preference. When multiple lines are ringing, the line having the highest priority is selected.

Benefits:

- Saves time; single button activation not necessary.
- Automatic select sequencing.
- User programmability through access codes provides more efficient handling of calls.

Applications:

- Airlines, telemarketing, customer service.

Square Configuration

Each key system line can appear on 52 buttons in the system. With the DSS/BLF 30, up to 72 appearances are possible. Lines can be assigned to feature buttons on the Proprietary telephone or vacant buttons on the DSS/BLF Console. The system accommodates a maximum of 52 lines with the basic system configuration. Thirty-one lines can be assigned to any DSS/BLF 40/80 button console.

Benefits:

- Provides common access to multiple key system lines.
- Provides multiple answering positions.
- Addresses small business needs and departmental needs to access common lines.

Applications:

- Organizations with multiple lines and several coverage positions (car dealers, service bureaus, reservation centers).

Capacity:

- 31 lines per DSS/BLF Console (first DSS/BLF only).
- 52 appearances per trunk.
- Sixteen DSS/BLF (30/40/80) consoles per system.

HOTEL/MOTEL FEATURE PACKAGE

The Hotel/Motel feature package is designed to meet the unique requirements of the Hotel/Motel industry. The feature package assigns an Attendant Console, and/or a CSD paired with a DSS/BLF Console (functioning as a Room Status Indicator), to operate as an FDC (Front Desk Console). A printer is an optional feature that can operate with the FDC. Configuration flexibility makes the system an economic reality for any Hotel/Motel operation regardless of size.

The following features are unique to the Hotel/Motel feature package:

Front Desk Program

A Front Desk Program button can be assigned to a CSD or Attendant Console. This assignment makes the CSD or Attendant Console an FDC (Front Desk Console).

NOTE: The CT-20, CT-30, DS20SD, or DS32SD can be used for front desk functions, but individual feature buttons must be assigned for each function.

Benefits:

- Single-button access to Hotel/Motel features.
- User-friendly programmability of guest room stations.
- Both CSD and Attendant Console can serve as FDC simply by assigning a feature button.

Applications:

- CT-20, CT-30, DS20SD, and DS32SD with RSI (Room Status Indicator) for small Hotel/Motel operations.
- Guest room services may be handled by an alternate position for medium/large Hotel/Motel operations.

Automatic Wake-Up

This feature enables registration of wake-up service from a guest room station or the FDC (Front Desk Console). Automatic Wake-Up provides for automatic ringing of a guest room station at a predetermined time. When the guest answers the wake-up call, a distinctive tone/music is heard. With the RVAC card, a recorded announcement is sent.

If no answer is received on the first attempt, a second call is rung in 2.5 minutes. If the second call is not answered, the wake-up call is automatically canceled. If the station being called for wake-up is busy, the system checks the station status every 25 seconds up to 2.5 minutes; if the station is still busy, the system cancels the wake-up call. Wake-up time is registered in the 24-hour format.

The Hotel/Motel printer prints out the status of registration and cancellation. Evidence of definite call completion, alarm messages, or a failed call are also printed out.

Benefits:

- Eliminates employee time required to manually place wake-up calls.
- Assures guests they will receive a wake-up call (no human error).
- Printed documentation of wake-up service (e.g., answer, no answer).
- User-friendly operation from FDC, guest room telephone.

Applications:

- Hotels/Motels that want to provide full service features.

Capacity:

- Number of terminals in one five minute time frame - maximum of 40 SLTs and 80 Proprietary telephones.
- Number of simultaneous ringing terminals - maximum of eight SLTs (Single Line Telephones) and sixteen Proprietary telephones.

**Call Charge Message
Registration**

This is an accounting feature that totals the charges for local calls originated by the guest room stations. The charge for each station can be displayed on the FDC. The charging date, guest room station number, and message registration (charge) can be obtained as a hard-copy printout if the system is equipped with a Hotel/Motel printer.

Benefits:

- Increased profits through resale of facilities.
- Flexibility to establish rate tables for multiple facilities.

Applications:

- Hotel/Motel resale of telephone services.
- Healthcare and hospitals.

Call Controlled Restriction

This feature allows the FDC to control the restriction for outgoing trunk calls and/or station-to-station calls for specific classes of service. This feature can be activated with a feature button or an access code. The types of call restriction are:

- Incoming station to station calls.
- All incoming calls.
- All outgoing calls.
- All incoming and outgoing calls.

Benefits:

- Public areas and vacant rooms can be restricted to internal calls only.
- Flexibility to accommodate station calling requirements as business needs change.

Applications:

- Hotels/Motels that offer conference room services.
- Hotel/Motel convention floors.
- Hotel/Motel meeting rooms.

Capacity:

- All four restrictions may be registered to a single Class of Service.

**DND/DND Override
by FDC or ATT**

With this feature, the FDC operator can register or cancel DND (Do Not Disturb) for each guest room station. All incoming calls are restricted by the Do Not Disturb state. Wake-Up, Silent Messages, and Message Waiting services are operational when Do Not Disturb is registered.

Benefits:

- Assures guests of privacy when desired.
- Eliminates wrong number calls.

Applications:

- Conference or meeting rooms.
- Guests who sleep during daytime hours.
- Private meetings held in guest rooms or suites.

Capacity:

- One DND mode may be registered per station.

Hotel/Motel Printers

Up to two printers for printing out Hotel/Motel related information can be installed in the system. The printer is connected to a DIU (Data Interface Unit) or CSD with DTA (Data Terminal Adapter). System messages are sent through the 4CHT card.

Benefits:

- Saves time in check-in/check-out processing.
- Provides a printed copy of guests' charges.

Applications:

- All Hotel/Motel or lodging industry operations.
- Healthcare facilities and hospitals.

Capacity:

- Two printers per system.

Hotline to Attendant This feature allows special stations to be directly connected to the Attendant Console upon being taken off-hook by the user.

Dial tone is not heard on these stations.

Any call can terminate to the station which is programmed as an Attendant Hotline.

Benefits:

- Allows immediate access to the attendant from designated stations.

Applications:

- Hotel/Motel lobbies, laundry rooms, etc.

Message Registration This accounting feature adds the charges for local calls originated by a guest room station. The charge for each call can be viewed at the Front Desk Console.

Benefits:

- Allows charges for local calls to be automatically accounted.

Applications:

- Hotel/Motel environments.

Message Waiting This feature allows the attendant at the FDC to register and cancel messages waiting for each guest room.

Benefits:

- Saves time in the message leaving and check-out processes.
- Easy to activate via FDC; no extra feature buttons required.
- Increases guest satisfaction by providing more personalized service.

Applications:

- Hotel/Motel telephones in guest rooms.
- Hotels/Motels that want to provide full service features.

**Room Information for
Multi-Language Wake-Up**

When a guest checks-in to a hotel, the front desk attendant can select one of ten messages for the guest to receive during their stay. Messages can be individually recorded by the hotel staff to deliver specific group information or recorded in a foreign visitor's language. The wake-up message can be selected using one of the following methods:

- A feature access code from a COS enabled station or Attendant Console.
- Front Desk Console operation on an Attendant Console or CSD.
- A Property Management System (PMS).

Benefits:

- Improved customer service.

Applications:

- Hotels with convention or group tour business.
- Hotels receiving foreign guests.

**Room Information for
Room Restriction**

This feature allows a user at a Front Desk Console, telephone, Attendant Console, or a PMS, to change the Class of Restriction of a guest room in order to restrict outgoing calls from a particular guest room telephone.

Benefits:

- Classes of Restriction of both day and night mode are assigned the same value.
- A particular Class of Restriction can be assigned to a guest room upon check-in.

Applications:

- Cash paying customers not allowed to bill charges to their rooms.

Room Number Correlation

The system can be programmed to match station numbers and room numbers. It then becomes unnecessary to check the station number so long as the room number is known. This feature accommodates:

- One- to four-digit numbering plan.
- Room number-to-station number correlation.
- Station numbers prefixed with floor number.

Benefits:

- Simplified room to room calling.
- Simplified telephone usage for guests; easy to remember telephone number.

Applications:

- Healthcare/hospitals.
- Hotels/Motels where rooms are located on different floors or buildings.

Room Status

This feature allows the attendant at the FDC to change or verify the room status for each guest room. The following room status information can be read or displayed from the FDC:

- Vacant.
- Occupied.
- Need clean-up.
 - Vacant status (data base option)
 - Occupied status (data base option)
- Wake-up no answer (data base option).

This status information is shown on the Room Status Indicator corresponding to the guest room number. Each of the room status types can also be displayed on the LCD display of the FDC. All the status types can be changed by the FDC.

Benefits:

- Increased room occupancy rate resulting from immediate indication of available rooms.
- Eliminates call abuse from vacant rooms (data base option).
- Reduces need for a separate property management system.
- Reduces time required to register guest.
- Allows housekeeping to change clean-up status directly from the room.
- Reduces time required to identify vacant rooms which require immediate clean-up.

Applications:

- Hotels/Motels.

Room Status Indicator This feature provides for room status to be visually identified by means of a Room Status Indicator. The lamps on the DSS/BLF Console when assigned as an FDC can be used as a Room Status Indicator (data base option).

Benefits:

- Provides information on room status.
- Provides visual indication of guest rooms that did not respond to wake-up calls and rooms that need employee attention.

Applications:

- Hotels/Motels.

Capacity:

- Eighteen per system - 6 RSIs x 3 groups. (When DSS 100s are used as RSIs, one of the ten screens is regarded as one RSI.)

Room-to-Room Blocking The system can be programmed to prevent system-wide room-to-room calling. Guests can originate and receive outside calls but cannot place calls to other guest rooms without going through the FDC, through any attendant, or through a primary answering position.

Benefits:

- Ensures guest privacy from wrong numbers.
- Reduces nuisance calls within the Hotel/Motel.

Applications:

- Hotels/Motels that desire to control all room-to-room calling.
- Hotels/Motels that offer full service privacy to guests.

Service Call Routing

This feature is an enhanced version of the Special Service Codes feature. For example, dialing a one- to four-digit service code (the service code - not including any additional numbers - can be up to four digits in length) to receive maid service causes automatic connection to the station of the maid in charge of the caller's floor. Each service location can receive calls from up to twenty floors.

Benefits:

- Calls for guest services are routed directly to the station assigned to the caller's floor, thereby reducing response time.
- Improved employee productivity as calls are routed to appropriate personnel.

Applications:

- Healthcare/hospitals.
- Hotels with executive floors.
- Medium/large Hotels/Motels with departmental responsibility allocated to specific areas.

Single Digit Dialing

This feature allows all stations, including guest rooms, to dial a single digit to route calls or to obtain services. For example, in the Hotel/Motel package, numbers may be assigned for guests to call for service or for directly dialing other rooms.

The following is a typical example of a hotel/motel single digit numbering plan:

- | | |
|---------------|-----------------|
| 1: Front Desk | 6: Room Service |
| 2: Bell Boy | 7: Message |
| 3: Laundry | 8: Lobby |
| 4: Restaurant | 9: CO Line |
| 5: Bar | 0: Operator |

Applications:

- Hotels/Motels.
- Hospitals and nursing homes.

Special Service Codes

With this feature, dialing a one- to four-digit Special Service Code enables the guest room station to access special services such as room service, cocktail lounge, or housekeeping. Up to ten special service codes can be assigned. (Refer also to Service Call Routing.)

Time Out Routing to Attendant

If a guest room station user goes off-hook and does not go on-hook after receiving an error tone, the system automatically routes the call to the Attendant Console after a predetermined time (programmable in data base). This feature is controlled by station COS (Class of Service).

Benefits:

- Alerts the attendant of a possible emergency situation.

Vacant Room Restriction

When this feature is activated and vacant room status is registered, the system automatically restricts CO (Central Office) trunk and station incoming and outgoing calls. This feature is an option in the data base.

Benefits:

- Eliminates calling abuse from vacant rooms.
- Reduces possibility of incoming calls being directed to vacant rooms.
- Increases productivity of hotel staff by restricting personal calls made from guest rooms during work hours.

Applications:

- Hotels/Motels using room status.
- Hospitals and nursing homes.

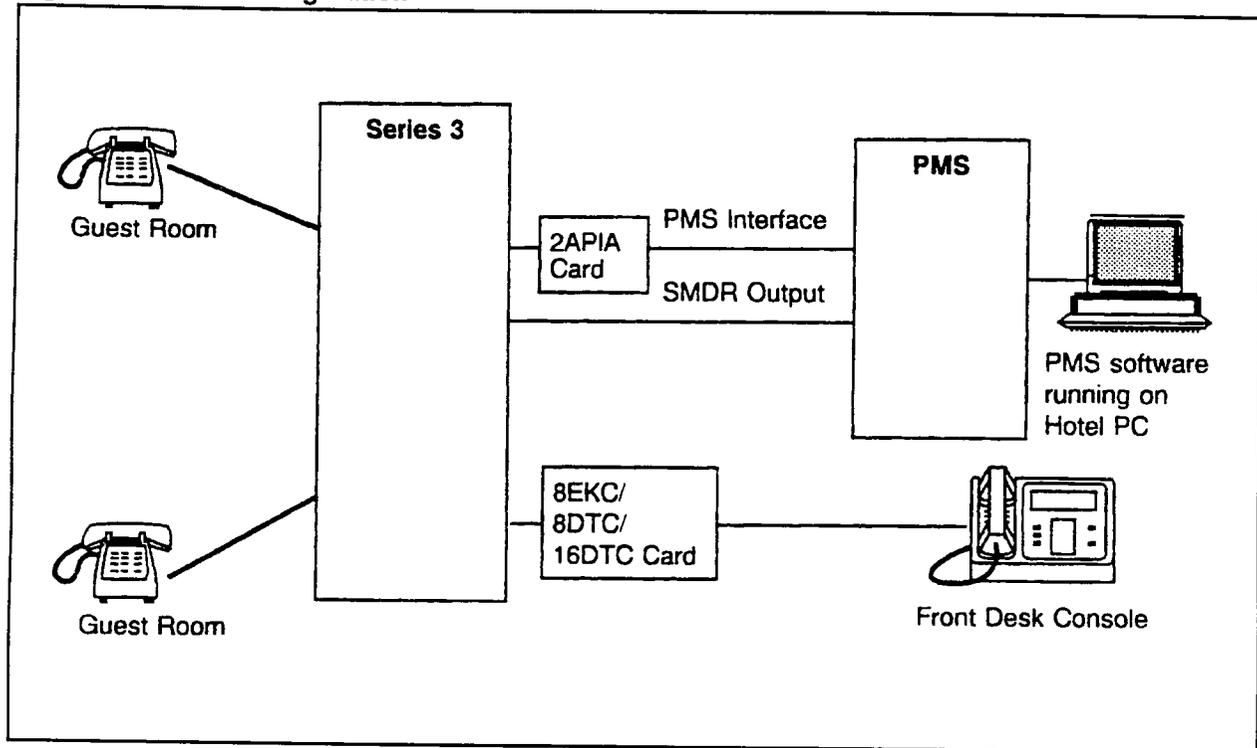
**PROPERTY MANAGEMENT
SYSTEM INTERFACE**

The Property Management System Interface (PMSI) provides integrated features for Hotel/Motel management to accompany the Hotel/Motel feature package. Only one Property Management System (PMS) may be interfaced. The main features provided by this interface include:

- Maid status.
- Message waiting.
- Check in/out.
- Wake-up (multi-language).
- Guest information (guest name and language code).

Figure 8-1 shows the PMS system configuration.

Figure 8-1. PMS Configuration



The billing information may be passed to PMS through the I/O port as Station Message Detail Recording (SMDR) output.

General Conditions

The following general conditions should be considered when using the PMS interface:

- Data base changes, such as guest room numbers, should be synchronized between the PBX and the PMS.
- Check in/check out should not be made through the Front Desk Console.
- PMS is not available for business extensions.
- Information is sent by the PBX only when extensions are installed as guest rooms.

Table 8-1 shows PMS features available on specific equipment:

Table 8-1. PMS Features on Available Equipment

FEATURE	SUPPORTED BY PMS	AVAILABLE EQUIPMENT	
		PMS CONSOLE	FDC
Maid Status	X	X (*1)	
Message Waiting	X	X	X
Check In/Out	X	X	(*2)
Control of Restriction	X	X	X
Wake-Up (Multi-Language)	X	X	X
Guest Name Display	X	X	
Do Not Disturb			X
Call Billing		X (*3)	X (*3)

NOTES:

1. Maid Status is entered by using guest room telephones.
2. If both the PMS console and the FDC are simultaneously used to implement these functions, the data base of the PBX might be inconsistent with the PMS data base.
3. Alternatively used. Either PMS console or FDC should be used.

PMS and PBX Interface

An application processor interface (2APIA) card is used to interface between the PMS and the PBX. Chapter 2 describes where the 2APIA card may be installed. There is a port on the 2APIA card for an RS-232C cable which connects to the PC running the PMS software. Table 8-2 shows the interface specifications:

Table 8-2. PMS and PBX Interface Specifications

DEFINITIONS	PARAMETER VALUES
Data Speed	300, 600, 1200, 2400, 4800
Type of Synchronization	Asynchronous (fixed)
Type of Communications	Full Duplex (fixed)
Control Signaling	SD, RD, DTR, DSR, RTS
Length of Start Bit	1 (fixed)
Length of Stop Bit	1/1.5/2
Length of Word	8 (fixed)
Parity Bit	Odd/Even/None
Error Correction	BCC
Data Code	4-bit Nibble
Mode	DTE Mode

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DATA SWITCHING FEATURES

With the Data Switching option, the system can transmit simultaneous voice and data communications. The data option requires:

- DIU as a standalone unit.
- CT-10/20/30 coupled with a DIU.
- DS20, DS20S, DS20SD, DS32SD coupled with a DIU.
- CSD telephone with a DTA (Data Terminal Adapter) installed.

A high speed, end-to-end, digital nonblocking communication path is provided in the system.

Each CSD with a DTA is programmed for data and connected to a data terminal. Each CSD has a data terminal number assigned to it that is paired with its voice extension in the system.

The data option can accommodate asynchronous or synchronous data in half or full duplex operation at speeds up to 19.2 kbps.

The system's data communications network uses a "Star" type approach to network design. The system acts as the central point for interconnecting different users for the processing of data information.

**DATA SWITCHING
FEATURES (Cont'd)**

For each data station, the following parameters can be assigned through the data base software:

- Data transmission modes:
 - Data terminal speed (up to 19.2 kbps)
 - Synchronous or asynchronous
 - Half or full duplex

- Character dialing mode:
 - Stop bit
 - Word length
 - Parity

- Call control mode:
 - Originate mode (automatic or manual)
 - Answer mode (automatic or manual)
 - Disconnect mode (automatic or manual)

- RS-232C signal mode:
 - DTR (Data Terminal Ready)
 - RTS (Ready to Send)
 - RI (Ringer Indicator)
 - DSR (Data Set Ready)

Data terminal speed and answer mode can be changed from the proprietary telephone associated with the DTA/DIU.

Add Data Call This feature provides the station user with the ability to add a data call to an existing voice conversation. To set up a data call with a voice conversation, the station user presses the programmable **add data** button or presses the **DATA CALL** button and dials an access code. Pressing the **add data** button changes the LCD display on CT-20, CT-30, DS20SD, DS32SD, and CSD sets to display data information without interrupting the voice transmission during data call set-up.

Benefits:

- Saves time by allowing a station user to add a data call to a voice call by simply pressing a button.
- Increases communications capability by providing the station user with the flexibility to add a data call to a voice conversation.

Applications:

- Customer service information entry. Information entry may be initiated only when required.

Alternate Telephone and Keyboard Dialing

This feature allows a user to originate a data call by dialing from the Proprietary telephone key pad or entering the phone number from a data terminal. The station must first be set for keyboard dialing via CMC command. A DTA or DIU is required.

Benefits:

- Allows an ASCII terminal, used as a standalone data terminal, to initiate a data call with keyboard commands only, saving the user from having to use a telephone.
- Allows a Proprietary telephone to initiate a data call without requiring access to the attached data terminal.

Applications:

- Electronic mail users.
- On-line data base retrieval; e.g., stock and insurance brokers.

**Alternate Voice/Data
Communication**

This feature allows a proprietary telephone user to switch from a voice call to a data call and vice versa while the call is in progress. The voice line must be associated with a data line (DTA or DIU) via an appropriate pooled modem. The following operations are possible:

Voice to Data (Originate/Incoming): Upon completion of the voice portion of a call, the user can press the programmable **voice/data** button to send or receive data. The call is transferred to the data terminal as a data call. The **voice/data** button is ignored if the modem pool is busy. To disconnect the data call, press the **DATA CALL** button.

Data to Voice: Upon completion of data communication, the user can press the **voice/data** button to transfer the call to the voice station (Proprietary telephone). When the data terminal is busy (sending or receiving data), the **voice/data** button is ignored.

Benefits:

- Allows users to verify with voice call that data call is to be initiated. Initiating the data call does not require a new call (voice to data).
- Allows users to verify that data transmitted was received without initiating a new call (data to voice).

Applications:

- Inter-office/department data transfer where voice confirmation contact is desired.
- Organizations that receive inventory, sales or other data from remote locations.

Automatic Answer

When a call is placed to a data set which is in the Automatic Answer mode, the data set can automatically answer the call. The data set must be placed in the DTR condition to operate in Automatic Answer mode. A DIU or DTA is required.

Benefits:

- Allows unattended data communication with remote terminals.

Applications:

- Inter-office/department data transfer.

Call Control Mode

The system provides three different call control modes in either automatic or manual operation. The three calling modes are originate, answer, and disconnect. A DTA is required.

- **Originate:** Data calls can be set up on the system data stations in either Auto Originate or Manual Originate mode. The Auto Originate or Manual Originate option is set in the data base for each data station. The standalone DIU must be set up for data hotline to originate a call. Using the Hotline feature, Auto Originate provides one-button access to only one data station. Auto Originate operates just like one-button dedicated speed calling; however, only one data station may be accessed. Calls can be released using Manual Disconnect only. Manual Originate requires the input of the receiving station number.
- **Answer:** When an incoming call is placed to a CSD with a DTA, a CT-10/20/30 with a DIU, a DS20, DS20S, DS20SD, or DS32SD with a DIU, or a standalone DIU in the Auto Answer mode, the data set can automatically answer the call. This option is set in the data base and can be changed from Auto Answer to Manual Answer by using the Data Change feature. Manual Answer requires the user to press the **DATA CALL** feature button to answer a data call.
- **Disconnect:** Auto Disconnect is a data base selected option. When the remote party disconnects a data call, the data station automatically disconnects from the call. In the manual mode, both stations must disconnect from the call independently.

Benefits:

- User friendly operation reduces need for extensive user training (non-productive employee time, user frustration).
- With Auto Answer and Disconnect, remote locations can automatically download information when phone rates are lowest.

Applications:

- Electronic mail (Auto Answer and Auto Disconnect).
- Organizations that receive inventory, sales, or other reports from remote locations (Auto Answer and Auto Disconnect).

Data Call Detail Recording

Data Call Detail Recording (DCDR) provides a local hard copy printout of statistics of outgoing calls. DCDR is used to manage expenses and identify unauthorized calls. A DIU or DTA is required. The following information is printed for every outgoing call:

- Data call identification.
- Time of call origination.
- Call duration (hours, minutes, seconds).
- Originating station number.
- Trunk number.
- Calling party identification.
- Directory number dialed.
- Account code.
- Modem group ID.

DCDR also provides a screening capability for the following:

- Account code calls only.
- Toll calls only.
- Overtime calls only.
- Trunk selection.
- Station selection.
- Modem group screening.

If the outgoing call satisfies any of the screening items, the communication information is not printed.

DCDR is provided in addition to SMDR for voice calls. In the case of simultaneous voice/data communication, DCDR and SMDR are output separately.

Benefits:

- Provides record of telephone usage for billback to departments or tenants.
- Provides accounting management tool for allocation of telephone expenses.
- Identifies areas for system or feature upgrade.
- Provides record of telephone call duration which can be used in making budgetary and planning forecasts.
- Prevents telephone abuse and misuse by identifying unauthorized outgoing calls.
- Provides an evaluation tool to measure amount of data communication traffic.

Applications:

- All businesses who want to track data call statistics.

**Data Call Set-Up (External)
via Modem Pooling**

This feature allows a local data terminal to connect to a remote data terminal through a conventional analog modem which is pooled in the system. Data call set-up using a CT-10/20/30, DS20, DS20S, DS20SD, DS32SD, or CSD, and terminal keyboard are available with this feature. The data call set-up operation is similar to that of an internal data call except for the need to dial a trunk access code and outside directory number.

Modems are arranged in groups, each group having the same attributes. Attributes are:

- Communication mode (full or half duplex).
- Data speed (baud rate).
- Modem type (15 types).
- Operation mode (incoming, outgoing, or bothway).

When the user places a data call to a remote data terminal, the system automatically selects a modem from a modem group having the same attributes as the calling data station. On an incoming call, the system selects a modem from the modem group with the same attributes as the called data station.

To originate a call from a Proprietary telephone, activate Data Terminal Ready (DTR) on the data terminal and press the **DATA CALL** button. Dial the CO access code and the outside station directory number. The system selects the modem with appropriate attributes for the originating data station. When the called data station answers the call, data communication begins.

For incoming data calls, two answering methods are possible; automatic or manual. In automatic mode, the call is received directly by the data station via Direct-In Line, DID, or DISA. In manual mode, the outside call arrives at a voice station and is transferred to the data station by Alternate Voice/Data procedures (see the Alternate Voice/Data Communication feature in this chapter).

Benefits:

- Saves on equipment costs by sharing (pooling) modems.
- Eliminates PC to modem wiring by using existing telephone wiring.

Applications:

- Businesses that transfer data frequently between remote locations.

Capacity:

- Modems per modem group: Maximum 80.
- Modem groups per system: Maximum 15.

**Data Call Set-Up
(Internal) with CSD,
CT-10/20/30, DS20,
DS20S, DS20SD,
DS32SD, or DIU**

Data speeds up to 19.2 kbps, synchronous or asynchronous, can be switched internally between CSD proprietary telephones equipped with a DTA (Data Terminal Adapter), a CT-10/20/30 or DS20, DS20S, DS20SD, or DS32SD coupled with a DIU (Data Interface Unit), or a standalone DIU unit. An RS-232C cable and connector are used for interface between the DTA/DIU and the data terminal. The **DATA CALL** and **VOICE/DATA** feature buttons are used to initiate and display a data call. The **DATA CALL** feature button initiates the data call. The **VOICE/DATA** feature button changes the instrument LCD display (for CT-20, CT-30, DS32SD, and CSD telephones) from voice call information to data call information or data to voice call information.

Benefits:

- Reduced calling costs.
- Shared/pooled resources; e.g., printers and modems.
- Ease of change/rearrangements.
- Enhances communication capability by allowing voice and data transfer using the same station instrument.
- Standalone DIU reduces cost to connect modems and printers to the system.
- Reduces need of extensive user training via user-friendly operation.
- Saves cabling between data entry ports and host computers or between personal computers.

Applications:

- After hours/unattended file transfer.
- Interactive applications with computer or centralized data base.
- Data call set-up by non-technical personnel.
- Connection of printers where no telephone instrument is required and data calls are automatically established.

**Data Call Set-Up (Internal)
with Terminal Keyboard**

This feature allows a user to make an internal data call with a keyboard attached to an asynchronous ASCII terminal with TTY protocol. The call is originated by pressing the **DATA CALL** button on the CT-10/20/30, DS20, DS20S, DS20SD, DS32SD, CSD, or DIU. The data station monitor then prompts for a destination number. The user enters the desired station number and follows with a carriage return (CR). The system rings the target data station and data communication begins. The system provides error codes on the data station monitor for abnormal operations, such as Busy Call, Illegal Number, Protocol Mismatch, and Dial Time Out.

The Character Trunk card (4CHT) is required for this feature. The attributes of the calling and called data terminals must be the same.

Benefits:

- Adds convenience and saves time for data station operators.

Applications:

- All businesses that exchange data regularly between data stations.

**Data Call Set-Up (Internal) by
Voice Port**

This feature allows station users to set-up data calls by dialing the station directory number of the instrument paired with the data terminal (CSD with DTA, CT-10/20/30 with DIU, or DS20, DS20S, DS20SD, DS32SD with DIU), instead of dialing the desired data terminal directory number.

When a data call is initiated by pressing the **DATA CALL** button and then dialing the station number, the display on the CSD, CT-20/30, DS20SD, or DS32SD shows an asterisk (*) and the station number. The display will then show an asterisk and the associated data terminal number.

Benefits:

- Increases operation flexibility by allowing the station user to set up a data call by dialing either the station or data terminal directory number.
- Simplifies operation by non-technical personnel.
- Reduces cost of printing extensive internal directories which include data terminal numbers.

Applications:

- Offices with data facilities that are used infrequently and/or are used by non-technical personnel.

Data Class of Service DCOS (Data Class of Service) allows or denies data stations access to station features. DCOS is available in both Day Class of Service and Night Class of Service. Data and voice Classes of Service are identical for a given station number.

Benefits:

- Provides customizing of data communications capabilities by allowing the assignment of data features to suit individual needs.

Applications:

- Used to customize communication modes within a group.
- Used to assign different transmission modes to separate groups of terminals within the system.

Capacity:

- 16 Day Classes of Service.
- 16 Night Classes of Service.

Data Hotline This feature allows users at data stations to automatically place data calls to a predetermined data station without dialing. The originating Data Hotline station can receive calls from another data station, but is prohibited from placing calls to any data station other than the predetermined station. The predetermined data station must be an internal station. A standalone DIU cannot initiate a call unless it is programmed as a hotline and also programmed for Auto Originate. Auto Originate may be used when the maximum number of data hotlines is exceeded.

Benefits:

- Restricts data terminals to calling one predetermined data station.
- Saves time by allowing a station user to access a frequently called station without having to dial.

Applications:

- Terminals which connect only to a single point (companies that use a central facility; e.g., warehouse to serve branch locations - auto parts, electronics, hardware, etc.).
- Interactive applications requiring minimal response time (e.g., service department checking inventory while on-line with a customer, sales department checking order status while on-line with a customer).

Capacity:

- 40 Data Hotlines per system.

**Data Least Cost Routing
(LCR)**

This feature is similar to that for voice calls. With LCR, the system chooses the most cost effective outgoing trunk based on the outside number dialed. After the outgoing destination number is dialed, the LCR stores and examines the number on the basis of the area and/or office code used. The LCR then chooses the proper trunk from a preprogrammed route table which can contain up to ten trunk group choices. The system contains two route tables:

- Area codes.
- Area/office code.

The LCR class of service levels determine the caller's ability to advance immediately through the trunk groups listed in the route table.

NOTE: With LCR, trunk queuing cannot be activated.

A feature number allows access to one of the following:

- Only to the first trunk group in the route table.
- All trunk groups except the last trunk group in the table.
- All trunk groups in the table.

Multi-Digit Toll Restriction and Toll Restriction are applied to outgoing calls through this feature.

Benefits:

- Provides management control of communications service by allowing the user to define routing of outgoing data calls.
- Improves management of telephone expenses by providing automatic routing of outgoing data calls over most economical facility available.
- Provides greater security since employees no longer need to know SCC access codes.
- User-friendly; single-digit access codes (regardless of the route selected) are available.

Applications:

- Organizations which need to ensure employees use the most economical route for outgoing data calls.
- Offices with more than one type of trunk access, (e.g., WATS, tie lines, FX, etc.).

Capacity:

- Two types of tables per system; area code and office code. Within these tables, the following capacities are:
 - LCR area code route group/system: Maximum 63.
 - LCR code route table/group: Maximum 10.
 - LCR area code table/system: Maximum 160.
 - CR office code route group/system: Maximum 15.
 - LCR office code route table/group: Maximum 10.
 - LCR office code table/system: Maximum 800.
 - LCR area/office code table/system: Maximum 800 office codes/8 area codes.

**Data Station Flexible
Numbering Plan**

The data station numbers are assigned in the same manner as voice station numbers. An individual number is assigned to a voice or data station under the flexible numbering plan. The default data base assigns station numbers to each data terminal. These can be changed to accommodate individual user needs. One- to four-digit numbering is used in the system.

Benefits:

- Enhances system operation by allowing quick assignment or change of data station numbers to suit individual requirements.
- Specific data applications can be assigned using easily remembered numbers.

Applications:

- Offices whose personnel are frequently moved or reassigned.

Capacity:

- One number per terminal.
- One- to four-digit numbering plan.

Data Status Attribute Change

This feature allows users to change the attributes of data terminals. Users may change any of the following attributes:

- Data speed (110-19200 bps).
- Communication mode (half or full duplex).
- Stop bit, word length, parity bit, echo.
- Originate mode (auto or manual).
- Answer mode (auto or manual).
- Disconnect mode (normal or forced).
- Modem type (0-15).

This feature is activated by pressing the **DATA CALL** feature button, then dialing an access code, the attribute number, and the new attribute value. The attributes can also be changed via the data terminal keyboard.

Benefits:

- Allows users to change data attributes without accessing the data base.

Applications:

- Offices with a number of independent data station users; e.g., stock brokerage firms.

Capacity:

- One feature button on each CSD with DTA.
- One feature button on each CT-10/20/30 or DS20, DS20S, DS20SD, DS32SD with DIU.

Data Terminal Group Hunting

This feature allows data stations to be assigned to hunt groups for data calls. When a call is placed to a busy data station in a hunt group, the system automatically initiates a search among the hunt group members to find and establish a connection with the first available station. The following types of hunt groups can be established:

- **Circular Hunt Group:** The hunting sequence for a non-busy station starts with the called data station and then searches in a prearranged order through all data stations in the hunt group to find an available station. The hunt continues in a full circle back to the original station and will try that station a second time before returning a busy tone to the caller.
- **Terminating Hunt Group:** The hunting sequence for a non-busy station starts with the called data station and then proceeds through the hunt group data stations to find an available station. The hunting sequence ends at the last station in the hunt group; therefore, a call placed to any hunt group station except the first one will not make a complete search of all available data stations.
- **Pilot Hunt Group:** The hunting sequence for a non-busy station begins only when the pilot number is dialed. The pilot number is assigned as the first number in the hunt group. The hunting sequence ends at the last station in the hunt group. The pilot station is not hunted a second time.

Benefits:

- Increases data transfer capability by providing a number of data call answering options.
- Facilitates sharing of modems, high speed printers, and storage devices.

Applications:

- Printer pools.
- Multiple terminals that have access to a limited number of ports.

Capacity:

- 10 hunt groups.
- 16 data stations per group.

Data Traffic Measurement

This feature provides data communication traffic measurements by trunk group number (TGN) or pooled modem group ID (MGID). The system calculates usage ratios for the TGN/MGID resources and displays them through command entry facilities. Activation of the traffic measurement feature is accomplished via CMC 600 (to specify the resource to be measured), CMC 601 (to start and stop the measurement), and CMC 602 (to display the measurement information).

Traffic density is displayed as an average one hour time frame of TGN/MGID usage, checked every five seconds by the system. Traffic density is stored in a ten hour storage area. When the storage area fills with ten time frames, the data in the storage area is transferred to a buffer and the storage area is cleared.

Benefits:

- Provides a method of measuring the amount of traffic on specified trunk lines and pooled modems.
- Enables the user to rearrange the data communication system for more economical and efficient operation.

Applications:

- All businesses wanting to make the most economical use of data communications.

Capacity:

- 10 TGNs or MGIDs per system.

Individual Modem Access

This feature allows a user to designate a specific modem within a modem pool for an outgoing data call. This feature will generally be used for maintenance purposes.

To initiate the individual modem access, press the **DATA CALL** feature button, dial the feature access code, and the modem group ID, and modem ID. The remainder of the procedure is the same as for a standard data call.

The selected modem is forcibly connected even if the attributes of the modem do not match the originating data station. This feature can be restricted by COS.

Benefits:

- Provides maintenance personnel with a means to check on specific modem operation.

Applications:

- All businesses using data communication via pooled modems.

Simultaneous Voice/Data Communications

This feature provides simultaneous voice/data communications to the user at the following stations; the CSD with DTA, CT-10/20/30 with DIU, or DS20, DS20S, DS20SD, DS32SD with DIU. Voice call operations are unchanged. There is no interruption of either voice or data transmission during simultaneous voice/data calls.

Benefits:

- Improves productivity by allowing the station user to implement two methods of communication at the same time.
- Saves time setting up data calls by allowing voice communications to coordinate data connection procedures.

Applications:

- Telemarketing groups; e.g., telephone sales, etc.
- May be used any time both voice and data communications are required from the same work station.

Subordinate Data Call This feature allows a user to add a data call to an existing internal voice conversation. The operation is performed by using the programmable **add data** feature button set-up by system data base commands, or with the **DATA CALL** feature button and the feature access code. In either case, the destination station number need not be dialed.

Subordinate Data Calls can be set up in the following voice port situations:

- During internal voice conversation.
- During internal voice conversation with held outside call.
- During internal voice conversation with held tie trunk call.
- During internal voice conversation with held internal call.

Benefits:

- Allows simultaneous voice/data transmission over a single line.
- Saves time by avoiding need to stop voice conversation to set up data call.

Applications:

- All data communication users who want to maximize use of existing telephone lines.

ISDN FEATURES

This chapter covers how the system interfaces with the public network using Integrated Service Digital Network (ISDN) facilities.

Calling Line Identification Display (CLID) Enhancement

This feature prevents the second DN from being overridden with an ISDN DID Calling Line ID display received from the CO, which is over fifteen digits (seven digits for the attendant).

Calling Line Identification Display (CLID) Sending

When an outgoing call is established via an ISDN CO line, CLID information consisting of up to fifteen digits of the originating telephone is sent to the CO.

Calling Line Identification Presentation (CLIP)

If the receiving destination has CLIP capability, then the originating number will be displayed at the called system station.

Capacity:

- Up to fifteen digits in the calling number can be displayed.

Benefits:

- Applications which require special routing or greeting can use the CLID and CLIP features to provide a more personal and professional image.
- Improved call handling.
- Provides a "quasi" screening process for incoming calls.

Calling Line Identification Restriction (CLIR)

The system provides the option of displaying or not displaying calling party information when an outgoing ISDN call is executed. If this feature is activated, the calling party number will not be displayed at the external station.

Benefits:

- User privacy when placing outgoing calls.

- CBC Service** When an outgoing voice call is established via an ISDN CO line, the outgoing line's service type can be set on a Call By Call (CBC) basis by dialing a separate service access code.
- Capacity:**
- TGNs for CBC (including CO, WATS, and MEGACOM 800):
Maximum 18
- Benefits:**
- Allows maximum compatibility and optimization of various ISDN facilities.
- ISDN Numbering Plan** The system sends the called party number without a prefix code if the prefix code is dialed. This procedure is based on the 4ESS™ numbering condition.
- ISDN PRI Interface** The system provides an ISDN PRI interface connection to the AT&T™ 4ESS or 5ESS™ CO switch, and the Northern Telecom DMS 100™. Both voice and data modem calls can be established via the PRI interface (data calls up to 19.2 Kbps).
- Maintenance** The status of B-channels in the ISDN network can be monitored/controlled via the SERV message when the B-channel is idle.
- **In Service:** Normal condition. This B-channel can be used for both incoming and outgoing calls.
 - **Maintenance:** Maintenance status. Only incoming calls are available.
 - **Out of Service:** This B-channel cannot be used. Neither incoming nor outgoing calls are available.

AT&T™, 4ESS™, and 5ESS™ are trademarks of American Telephone and Telegraph, Inc.

DMS 100™ is a trademark of Northern Telecom.

FIPN FEATURES

The Fujitsu ISDN Private Network (FIPN) provides feature transparency between systems via a digital link. PRI trunks are required at both ends of the network. Basic transparency features are:

- Distinctive ringing.
- Calling party number display.
- Connected party number display.
- Connected party status display.
- Trunk signaling check.
- Attendant termination.
- Attendant supervised loop.

Attendant Break-In

An attendant can place a call to a remote PBX and override an ongoing two-way conversation.

Benefits:

- Provides emergency services to all FIPN nodes from the central location.

Attendant Call Transfer

This feature provides calls in the FIPN network to be transferred to another extension by the attendant. Screened and unscreened transfers are available.

Benefits:

- Maximizes the effectiveness of the FIPN network.
- Reduces number of attendants required.

Attendant Camp-On

This feature provides the camp-on function to the attendant if the called FIPN extension is busy.

Attendant Supervised Loop

The calling and connected party number via the FIPN network is displayed when held in a supervised loop on the Attendant Console. Calling party and connected party information is sent from the originating or terminating PBX. If no information is received, the type of trunk and the trunk number will be displayed.

Benefits:

- Provides calling number information on attendant-assisted calls.

Capacity:

- Up to seven digits of the calling number can be displayed.

-
- Attendant Termination** This feature provides distinctive call termination to an attendant when a FIPN call is placed. The call will terminate to an attendant button, depending on the type of call (i.e., call from an extension, call from a trunk).
- Call Forward Over FIPN** Calls from a station may be forwarded over FIPN with the following restrictions:
- The Call Forward - CO feature must be used.
 - This feature will forward calls in the following modes:
 - Busy
 - No answer
 - Busy/no answer
 - All calls
- Calling Party Number Display** This feature displays a calling extension directory number or a calling trunk number on the alphanumeric display of the called telephone.
- The calling party number information is sent from the PBX where the call originates. If no information is received, the type of trunk and the trunk number will be displayed. If a FIPN call terminates to an extension or an attendant, and is answered by an extension using the Call Pick-Up or Other Station Line (OSL) feature, a second directory number (of either nine or seven digits) will be displayed.
- Calling party number display information is as follows:
- PBX terminal: Node number and directory number are displayed.
 - CO/DID line: Trunk directory number is displayed.
 - ISDN line: Calling party number is displayed.
- Capacity:**
- Up to fifteen digits of the calling number may be displayed.

Connected Party Number Display

A connected extension directory number or a connected trunk number will be displayed for the duration of the call.

The connected party number information is sent from the PBX where the call terminates. If no information is received, the type of trunk and the trunk number will be displayed.

An actual terminating party number will not be displayed if a call is transferred to another extension using one of the following features:

- Call Forward.
- Group Hunt.
- ACD.

The dialed number will be displayed at the calling party instead. The dialed number will also be displayed if a terminated call is transferred to an outside party.

Calling party number display information is as follows:

- PBX terminal:
 - Calling: Dialed number is displayed
 - Conversation: Node number and directory number are displayed.
 - After hold operation: Node number and directory number are displayed
- CO/DID line or ISDN line:
 - Calling: Dialed number is displayed
 - Conversation: Dialed number is displayed
 - After hold operation: Trunk directory number is displayed

Capacity:

- Up to fifteen digits of the calling party number may be displayed.

Connected Party Status Display

This feature displays the status of a connected station or a connected trunk on the alphanumeric display of the calling party's telephone.

Status will be displayed as follows:

- RING:
 - Calling extension
 - Calling attendant
 - Calling data terminal
 - Transit to ISDN CO line
- BUSY:
 - Extension busy
 - Data terminal busy
 - Do not disturb registered
 - FIPN line busy
- RETRY:
 - CO line busy
 - Analog tie line busy
 - No terminal installed
 - Terminal failure/terminal make-busy
 - Termination restricted
 - Ringer busy
 - Restricted due to class of service
 - Multi-digit restriction
- TALK:
 - Conversation with attendant
 - Conversation with extension
- DATA:
 - Communication with data terminal
- Call Duration:
 - Conversation with CO line party
 - Conversation with ISDN CO line party
 - Conversation with analog tie line party

Benefits:

- Provides confirmation of various call states.

-
- Distinctive Ringing** This feature allows a station user to identify the source of an incoming call by the distinctive ringing. Incoming extension FIPN calls and incoming calls from outside the FIPN network have different ringing patterns.
- **FIPN Extension:** ON for 1 second, OFF 3 seconds.
 - **Call from Outside the FIPN Network:** ON 0.4 seconds, OFF 0.2 seconds, ON 0.4 seconds, OFF 3 seconds.
- FIPN extension calls include stations, attendants, data terminals, and tie line calls. Calls from outside of the FIPN network are CO and ISDN CO calls.
- Benefits:**
- Allows for special call treatment for particular types of calls.
- Extension Break-In** An extension can place a call to a remote PBX and override an ongoing two-way conversation.
- Extension Call Transfer** Calls can be transferred within the FIPN network using the screened or unscreened transfer procedure. See also Call Forward Over FIPN.
- Extension Camp-On** This feature provides the camp-on function to the extension if the called FIPN extension is busy.
- Trunk Signaling Check** This feature provides restriction of certain trunk-to-trunk connections by checking the signaling type if an incoming call is transferred to another trunk. This prevents accidental locking-up of analog trunks.
- The following connections are monitored:
- Loop signaling analog CO trunk to the FIPN network.
 - Outgoing analog tie trunks which do not detect reverse signal to the FIPN network.

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