SATURN® IIE EPABX

FEATURE DESCRIPTIONS

CONTENTS

LIST OF TABLES

SECTION 1.00   INTRODUCTION

1.01   Purpose of Document

The purpose of this document is to provide descriptions of all SATURN IIE (SATURN II – Expanded) Electronic Private Automatic Branch Exchange (EPABX) features. In this document, these SATURN IIE features are divided into the following four major categories:

- System Features
- Attendant Console Features
- Station Features
- Siemens Digital Telephone (SDT) Features.

An alphabetical list of these features, separated by category, is provided in Table 1.00. All mnemonics used in this document are listed and defined in Table 1.01.

1.02   General Information about Features

Features are the characteristics and capabilities of a telephoi switching system. The features provided by the SATURN I EPABX System include the basic calling features such . Station-to-Station Calling, Call Transfer, and Call Forwardin More elaborate features are also included, such as Least-Cc Routing, Station Message Detail Recording, and 15-Digit Ti Code Restriction.

The SATURN IIE EPABX features are designed to provide flexible and powerful telephone switching system that sati fies the user's communication requirements.

Table 1.00   SATURN IIE EPABX Features

SYSTEM FEATURES	PARAGRAPH
Additional Input/Output Devices	2.02(a)
Alarm Indication – Major	2.07(a)
Alarm Indication – Minor	2.07(b)
Alternate Routing	2.13(a)
Assigned Night Answer	2.05(a)
Automatic Call Distribution Recorded Announcement Service	2.09(a)
Automatic On-Line Diagnostic Testing and Reporting	2.12(a)
Brownout Protection	2.02(b)
Central Office (City) Trunk Access	2.13(b)
Code Call Access	2.10(a)
Convection Cooling	2.02(c)
Customer Memory Updating	2.03(a)
Common Control Switching Arrangement Access (CCSA)	2.13(c)
Daytime Trunk Control	2.11(c)
Dedicated Incoming Trunks	2.13(d)
Dictation Access	2.10(b)
Digital Pad Switching	2.02(d)
Direct Inward Dialing	2.06(a)
Direct Inward System Access	2.06(b)
Direct Inward System Access – Shared	2.06(c)
Direct Outward Dialing	2.06(d)
Direct Inward Dialing – Flexible Station Numbering	2.04(a)
Dual-Tone Multifrequency System Outpulsing	2.02(f)
DTMF-to-Dial Pulse Conversion	2.02(e)
Eight-Digit Toll Code Restriction For Direct Trunk Group Access	2.11(a)
End-to-End DTMF Signaling	2.02(g)
Enhanced Private Switched Communication Service Access	2.13(e)
External Extension Numbering	
Fifteen-Digit Toll Code Restriction For Direct Trunk Group Access	2.11(b)
Flexible Intercept Facilities	2.09(b)
Flexible System Numbering Plan	2.04(b)
Foreign Exchange Trunk Access	2.13(f)
High Traffic Capacity	2.02(h)
Incoming Class-of-Service Blocking	2.11(d)
Least Cost Routing	2.13(g)
LCR with Provisions for Specialized Common Carrier	2.13(h)
Line Lockout – Attendant Intercept	2.08(a)
Line Lockout – Automatic	2.08(b)
Low Power Consumption	2.02(i)
Manual On-Line Maintenance Testing	2.12(b)
Memory Support	2.02(j)
Multiple Listed Directory Numbers	2.04(c)

Table 1.00   SATURN IIE EPABX Features (Continued)

Table 1.00 SATURN IIE EPABX Features (Continued)

ATTENDANT FEATURES (Continued)	PARAGRAPH
Least Cost Routing – Route Number Display	3.05(h)
Minor Alarm Identification	3.09(c)
Night Service Control	3.07(d)
Numerical Call Waiting Display	3.05(i)
Override	3.03(j)
Senderized Operation	3.02(c)
Serial Calling	3.03(k)
Special Account Code Entry – Single-Line	4.14(d)
Special Overflow Answer Position	3.03(l)
Switched Loop Operation	3.03(m)
Trunk Flash Capability	3.02(n)
Trunk Group Alphanumeric Display	3.05(j)
Trunk Group Indicators	3.09(d)
Volume Control – Audible Alert	3.08(a)
Volume Control – Audio	3.08(b)

STATION FEATURES	PARAGRAPH
Add-On Conference	4.05(a)
Attendant Override Security	4.12(a)
Automatic Callback on Held Calls	4.03(a)
Automatic Call Distribution	4.10(h)
Call Forwarding – All Calls	4.07(a)
Call Forwarding – Busy Lines	4.07(b)
Call Forwarding – Fixed	4.07(c)
Call Forwarding – No Answer	4.07(d)
Call Forwarding – Return	4.07(e)
Call Forwarding – Secretarial	4.07(f)
Call Forwarding to Public Network	4.07(g)
Call Hold	4.03(c)
Call Hold – Flip-Flop (Broker)	4.03(d)
Call Park	4.03(d)
Call Pickup – Directed	4.08(a)
Call Pickup – Group	4.08(b)
Call Tracing	4.14(a)
Call Transfer	4.04(a)
Call Transfer Security	4.04(b)
Call Transfer with Automatic Camp-On	4.04(c)
Call Waiting – Originating	4.06(f)
Call Waiting – Terminating	4.06(g)
Consultation Hold	4.02(e)
Data Line Security	4.12(b)
Dial Access to Attendant	4.12(a)
Distinctive Ringing	4.02(b)
Do-Not-Disturb	4.12(c)
Dual-Tone Multifrequency Dialing	4.02(c)
Executive Override	4.12(d)
Executive Override – Automatic	4.12(e)
Executive Override No Tone Security	4.12(g)
Executive Override Security	4.12(f)
Executive Override Without Warning Tone	4.12(h)
Hold to Attendant	4.03(f)
Hot Line Service	4.13(a)
Immediate Ringing	4.02(d)
Internal Call Queuing – Callback	4.06(b)
Internal Call Queuing – Standby	4.06(c)
Last Number Redial	4.09(a)
Meet-Me Conference	4.05(b)
Message Waiting – Automatic Callback	4.11(a)
Message Waiting – Cancellation	4.11(b)
Message Waiting Capability	4.11(c)
Mobile Authorization Codes	4.14(b)

Table 1.00   SATURN IIE EPABX Features (Continued)

STATION FEATURES (Continued)	PARAGRAPH
Originate-Only Service	4.13(b)
Outgoing Call Queuing – Callback	4.06(d)
Outgoing Call Queuing – Standby	4.06(e)
Pilot Number Access	4.10(a)
Rotary Dialing	4.02(e)
Single-Line Telephone – Special Account Code Entry	4.14(c)
Speed Calling – Group	4.09(b)
Speed Calling – Individual	4.09(c)
Station-Controlled Conference	4.05(c)
Station Forced Disconnect	4.14(d)
Station Hunting – Busy Advance	4.10(b)
Station Hunting – Circular	4.10(c)
Station Hunting – No-Answer Advance	4.10(d)
Station Hunting – Secretarial	4.10(e)
Station Hunting – Terminal	4.10(f)
Stop Hunt	4.10(g)
Terminate-Only Service	4.13(c)
Voice Mail Interface	4.14(c)

SIEMENS DIGITAL TELEPHONE FEATURES	PARAGRAPH
Abbreviated Ringing – Station Busy	5.03(a)
Attendant Identification on Display	5.07(a)
Automatic Answer	5.06(a)
Automatic Intercom	5.06(b)
Automatic Line Preference	5.02(a)
Bridged Call	5.09(a)
Call Forwarding Display	5.07(b)
Call Park Location Number Display	5.07(c)
Call Pickup Source Display	5.07(d)
Call Privacy	5.09(b)
Call Release	5.02(b)
Call Transfer To Attendant	5.02(c)
Call Waiting Display	5.07(e)
Callback Number Display	5.07(f)
Common Audible Ringing	5.03(b)
Conference Mode Display	5.07(g)
Dial Input Verification Display	5.07(h)
Direct Station Selection	5.04(a)
Direct Trunk Group Selection	5.04(b)
Direct Trunk Selection	5.04(c)
Duration of Call Display	5.07(i)
Exclusive Hold	5.05(a)
Executive Intercom	5.06(c)
Feature Buttons	5.02(d)
Forced Call Forwarding	5.02(e)
Hands-Free Mute	5.10(a)
Hands-Free Operation	5.10(b)
I-Use Indication	5.02(f)
Incoming Call Display	5.07(j)
Manual Hold	5.05(b)
Manual Intercom	5.06(d)
Message Waiting – Selective Automatic Callback	5.08(a)
Message Waiting – Selective Cancellation	5.08(b)
Message Waiting – Source Display	5.07(k)
Multiline Pickup	5.02(g)
On-Hook Dialing	5.10(c)
Pickup Buttons	5.02(h)
Recall Identification Display	5.07(l)
Saved Number Redial	5.04(d)
Speed Calling – Individual List Display	5.07(m)
Station-Defined Direct Dial	5.04(e)

Table 1.00 SATURN IIE EPABX Features (Continued)

SIEMENS DIGITAL TELEPHONE FEATURES (Continued)	PARAGRAPH
Station Ringer Cutoff	5.03(c)
Station Senderized Operation	5.02(i)
Station Message Detail Recording – Account Code Display	5.07(n)
Time-of-Day Display	5.07(o)
Timed Reminder	5.07(p)
Voice Announce	5.06(e)

Table 1.01 Mnemonics Used in This Practice

MNEMONIC	DESCRIPTION
ACD	Automatic Call Distribution
ANA	Assigned Night Answer
ASCII	American Standard Code for Information Interchange
ATT RLS	Attendant Release
CCS	Hundred Call-Seconds
CCSA	Common Control Switching Arrangement
CFWD	Call Forwarding
CIOP	Controller/Input-Output Processor
CMU	Customer Memory Updating
CO	Central Office
COS	Class-Of-Service
DDD	Direct Distance Dialing
DID	Direct Inward Dialing
DISA	Direct Inward Dialing Access
DISAS	Direct Inward Dialing Access – Shared
DIT	Dedicated Incoming Trunks
DOD	Direct Outward Dialing
DSS	Direct Station Selection
DTMF	Dual Tone Multifrequency
EPABX	Electronic Private Automatic Branch Exchange
EPSCS	Enhanced Private Switched Communications Svc.
FX	Foreign Exchange
I/O	Input/Output
INC	Incoming
IOP	Input/Output Processor
LCR	Least Cost Routing
LDN	Listed Directory Number
LED	Light-Emitting Diode
MAJ ALM	Major Alarm
MIN ALM	Minor Alarm
MEM	Memory Module
MDF	Main Distribution Frame
OPR	Operator
PCB	Printed Circuit Board
PCM	Pulse Code Modulation
PSU	Power System Unit
RAM	Random Access Memory
RAUP	Remote Access Unit/RS-232 Ports
RCL	Recalls
SCC	Specialized Common Carrier
SDT	Siemens Digital Telephone
SET	Siemens Electronic Telephone
SLMA	Subscriber Line Module Analog
SLMA-S	Subscriber Line Module Analog – Station
SLT	Single Line Telephone
SMDR	Station Message Detail Recording
SNAP	Special Night Answer Position
SOAP	Special Overflow Answer Position
WATS	Wide Area Telephone Service
ZUNA	Zoned Universal Night Answer

SECTION 2.00 SYSTEM FEATURES

2.01 System Overview

The SATURN IIE System is a stored-program controlled Electronic Private Automatic Branch Exchange (EPABX), which uses Pulse Code Modulation (PCM)/Time Division switching. The SATURN IIE EPABX System is capable of switching both voice and data.

The SATURN IIE System is housed in a light-weight equipment cabinet called the Basic Cabinet. In its expanded configuration, the SATURN IIE System is housed in a Basic Cabinet plus an Expansion Cabinet. The Equipment Cabinet(s) contain all functional units of the system.

Plug-in printed circuit boards (PCBs) are installed in the cabinet. These PCBs contain the circuits for common control, switching, and for the peripherals required in system operation. The SATURN IIE EPABX provides from 224 to 480 ports in the basic cabinet. The expanded cabinet (stacked atop the basic cabinet) provides an additional 256 to 512 ports (992 ports maximum).

An optional Remote Access Unit board provides two RS-232-ports for general use and one modem port for remote access. A single RS-232-C port is provided by the CIOP board in th basic system for system interface.

The SATURN IIE EPABX System can be arranged to accommodate conventional telephones (rotary dialing and dual-ton multifrequency (DTMF) dialing) as well as Siemens Digital Telephones (SDTs). The SATURN IIE EPABX can be equippe with a maximum of I2 attendant consoles or it can be operated without any consoles. One cable pair is required to interconnect each SDT to the SATURN IIE EPABX switchin system.

Administrative additions and changes are made by input c simplified instructions in plain English format via a local c remote service terminal. These modifications can be mad during system operation without interference to normal ca processing.

The following paragraphs describe the features that ar characteristic for the SATURN IIE EPABX System.

2.02 General Features

a. Additional Input/Output Devices

The SATURN IIE EPABX is capable of connecting input/output devices via three RS-232-C interface I/O ports and one port connected to a modem to allow remote access. All I/O ports can include, but are not limited to, local service terminal, Station Message Detail Recording (SMDR), automatic traffic measurement reporting, and on-line maintenance and administrative access. The RAUP contains an internal modem with a dedicated RS-232-C interface which provides a remote dial-up maintenance port (line or trunk interface).

b. Brownout Protection

The SATURN IIE EPABX power supply is designed to tolerate frequency deviations of as much as 3 Hz above or below the normal input frequency (60 Hz) and input voltage variations from 95 to 130 Vac.

c. Convection Cooling

The SATURN IIE EPABX, because of its low power consumption and efficient equipment layout, does not require the use of forced-cooling fans or similar equipment. The cabinet is designed to make full use of convection cooling of all the equipment while maintaining temperature design limits. However, the system must be located within an ambient environment ranging from 4 degrees C to 38 degrees C (40 degrees F to 100 degrees F), and a relative humidity range of 20% to 80%.

d. Digital Pad Switching

The SATURN IIE EPABX inserts the proper gain or loss into all connection paths to ensure correct transmission levels.

e. DTMF-to-Dial Pulse Conversion

DTMF-to-Dial Pulse Conversion enables DTMF stations to complete outgoing central office (CO) calls over dial pulse CO trunks. The SATURN IIE EPABX translates the DTMF station-generated signals and converts them to dial pulse digits for transmission to the CO.

f. Dual-Tone Multifrequency System Outpulsing

Dual-Tone Multi-frequency (DTMF) tones are generated as a SATURN IIE EPABX function on outward-dialed calls over DTMF Central Office (CO) trunks. DTMF outpulsing can be provided, regardless of the station dialing type (DTMF, digital, or rotary).

g. End-to-End DTMF Signaling

The SATURN IIE EPABX sends DTMF tones through the public network to the distant end. The transmission of DTMF tones is used for a variety of purposes, including computer access, control functions, and inward call completion at the distant switching system.

h. High Traffic Capacity

The switching network of the SATURN IIE EPABX is

designed to be non-blocking. This network provides up to 36 CCS (1 Erlang) per port.

i. Low Power Consumption

The SATURN IIE EPABX has been designed to provide maximum efficient use and distribution of power via distributed power supplies. Power consumption depends on the system configuration: the total number and combination of lines, trunks, SDTs, attendant consoles, and any auxiliary equipment. A fully-equipped basic cabinet uses a nominal 800 Watts. A fully-equipped system with basic and expansion cabinets uses a nominal 1600 Watts.

j. Memory Support

If an ac power failure occurs, the optional memory support battery supplies the necessary power to maintain the Random Access Memory (RAM) for a minimum of 3 minutes. When power is restored, the internal battery backup, after 30 minutes of charging, is capable of another 3-minute cycle.

k. Off-Premises Stations

The SATURN IIE EPABX extends the station line circuits to industry-standard telephones located at a site remote (off-premises) to the system.

l. Station Class-of-Service

The SATURN IIE EPABX provides a maximum of 32 station classes-of-service. Each class-of-service can be arranged in memory to allow or deny access to any combination of features included in the system. For each station, class-of-service codes are stored in memory. These codes can be changed at any time by using the Customer Memory Updating (CMU) procedures.

Table 2.00 lists the features which can be assigned to individual stations through class-of-service codes.

m. System Site Identification (ID)

The SATURN IIE EPABX enables the entry of a specific customer's site identification into the customer portion of the system memory: site location, site name, site number, and/or similar information. These data can contain up to 16 characters and are printed out, via the terminal, as a heading at the beginning and end of each CMU session.

n. Trunk Group Class-of-Service

The SATURN IIE EPABX allows the assignment of a variety of attributes to each trunk group in the system. Data established on a per-trunk-group basis include: applicable toll code restriction lists, restricted station classesof-service, alternate trunk groups for routing purposes, incoming/outgoing control signaling information, incoming/outgoing call-usage types, attendant console answering priority, Direct Inward Dialing (DID) prefixing/deletion/conversion information, night answering assignments, and assigned trunk group alphanumeric display characters.

o. Uniform Station Distribution Wiring

The SATURN IIE EPABX maintains consistent cabling requirements regarding size, type, and number of cabling pairs connecting all types of station instruments such as single-line telephones (SLTs) and Siemens Digital Telephones (SDTs). A maximum of one cable pair is required between each instrument and the system.

2.03 Administration Features

a. Customer Memory Updating

The CMU feature allows authorized personnel at a designated service terminal to enter and make changes to customer memory during normal system operation with no interference to current call processing.

Customer memory, a portion of the complete system memory, contains the data relating to system configuration, including programmable features and options which the customer can select and arrange. Changes to customer memory are made by using plain English terms rather than numeric codes, thereby simplifying data base updates.

b. Remote Customer Memory Updating

This feature allows authorized personnel at a service terminal to enter and make changes to customer memory from a central depot or off-premises location. Changes can be made during normal system operation with no interference to current call processing. The service terminal must be equipped with a type 103/113- or 212A-compatible modem of the originate-type. The SATURN IIE EPABX is provided with a compatible modem of the answer-type equipped (internally) in the RAUP.

Access to the SATURN IIE EPABX is gained by dialing a preassigned public or private network number. Refer to the feature, "Customer Memory Updating."

c. Remote Traffic and Feature Usage Measurement

Detailed traffic and feature usage measurement information is obtained from a service terminal that is located remote to the SATURN IIE EPABX. The service terminal must be equipped with a type 103/113- or 212A-compatible modem of the originate-type.

The SATURN IIE EPABX is provided with a compatible modem of the answer-type equipped (internally) in the RAUP. Access to the SATURN IIE EPABX is gained by dialing a preassigned public or private network number. Refer to the feature, "Traffic and Feature Usage Measurement."

d. Station Message Detail Recording (SMDR)

The Station Message Detail Recording feature provides a detailed record of all completed incoming and/or outgoing trunk calls by trunk group. Intraswitch station-to-station, station-to-attendant, and attendant-to-station calls are not recorded. The following information is recorded:

- Access Code
- Account Code/Authorization Code
- Authorization Code Index
- Call Duration
- Destination Identity
- Dialed Digits or Called Number
- LCR Route Selection Number
- Record Type
- Source Identity
- Special Identity
- Starting Time of Call.

The monitored data can be recorded on a suitable printer (via an RS-232-C interface) for hard-copy printout reports. Suitable accounting devices (e.g., SMDR unit) can also be connected to this interface.

The SMDR feature allows a service terminal user to enable or disable the following:

- SMDR call record output for all incoming and/or outgoing calls over all trunk groups;

- SMDR call record output for all incoming calls over a particular trunk group;

- SMDR call record output for all outgoing calls over a particular trunk group.

e. Station Message Detail Recording (SMDR) Account Codes

Account codes can be used in conjunction with SMDR on incoming and outgoing trunk calls for such purposes as cost accounting or client billing. The account codes can be up to 11 numeric digits in length.

Two types of account codes are used: (i) standard (or default) account codes and (ii) special account codes. Default account codes are assigned to stations and are automatically activated when a station user originates or receives a call over a trunk. Special account codes must be entered from the user's telephone after the user has dialed a trunk group access code (e.g., "9" for a CO trunk) or after an LCR access code and desired destinations number. A station user may also override a default account code or previously entered special account code with another special account code at any time during an established trunk call.

Recall dial tone is heard when a special account code is required. If a special account code is not entered when requested by the system, the user is restricted from making the call. Only the number of account-code digits is checked by the SATURN IIE EPABX System.

Attendant consoles and SDTs can be assigned an account button, thus obviating the need for the user to display and change account codes on a per-call basis.

f. Traffic and Feature Usage Measurement

This feature provides the SATURN IIE EPABX with the capability of automatically or manually monitoring and recording various system operations for which traffic and feature usage information is desirable.

Two different types of measurements are provided. The first type is event (peg) counts, which give an actual count of the number of times a particular operation has occurred in the system. The second type is usage counts, which give the approximate total time a particular resource is in use during a certain time interval. This count is given in CCS (hundred call-seconds).

The traffic and feature usage measurement data are stored in system memory. These data can be transmitted as output to a service terminal at designated intervals (15 minutes to 24 hours, in increments of 1 minute), or on request. Normally, reporting periods are specified in multiples of 15 minutes.

For a list of the types of event counts and usage counts that are monitored and recorded in the SATURN IIE EPABX, refer to Table 2.01, "Traffic and Feature Usage Measurement."

g. Variable Timing Parameters

This feature provides for authorized personnel to change the timing parameters of system operating functions. The timing parameters are changed by using CMU procedures.

2.04 Flexible Numbering Features

a. DID Flexible Station Numbering

Direct Inward Dialing (DID) calls from the CO are routed through the SATURN IIE EPABX to the appropriate station. The CO forwards the last 2, 3, 4, or 5 digits of the directory number as an EPABX station address. The SATURN IIE EPABX can either absorb or prefix the leading digit(s) which are forwarded to it.

For example, if the CO forwards 48801 and the station number plan uses numbers 0 through 999, the Saturn IIE EPABX System can delete the 48 so that station 801 is rung. On the other hand, if the CO forwards only 01 and the stations are numbered from 800 through 899, then the number "8" is prefixed by the SATURN IIE EPABX, and station 801 is rung.

The SATURN IIE EPABX System can also translate numbers into another range. For example, if the CO forwards the numbers 300 through 399 but the internal station numbering plan starts with 500 (500 through 599), the "3" (the hundreds digit) can be translated to a "5" by the system. This number translation is also provided for the tens digit (in a 2-digit numbering plan) and the thousands digit (in a 4digit numbering plan).

With this DID flexible numbering concept, the external CO numbering plan can be made to agree with the internal station addresses.

Table 2.00 Station Class-of-Service Features

FEATURES
ACD Group Access
Apparatus Test Access
Attendant Call Hold Retrieve
Attendant Override Security
Automatic Answer – Automatic and Executive Intercom
Automatic Answer – Prime Line
Call Forwarding – All Calls/Busy Lines/No Answer
Call Forwarding – Fixed
Call Forwarding – Secretarial
Call Forwarding to Public Network
Call Hold
Call Hold – Flip-Flop (Broker)
Call Park
Call Pickup – Directed
Call Pickup – Group
Call Tracing
Code Call Access
Data Line Security
Diagnostic Test Access
Dictation Access
Do-Not-Disturb
Eight-Digit Toll Code Restriction Lists
Executive Override
Executive Override – Automatic
Executive Override No Tone Security
Executive Override Security
Executive Override Without Warning Tone
Fifteen-Digit Toll Code Restriction Lists
Forced Release
Ignore Flash
Internal Call Queuing – Callback/Standby
Internal Call Queuing – Standby (Originating)
Internal Call Queuing – Standby (Terminating)
Last Number Dialed
Least Cost Routing Access
LCR Alternate Trunk Group Advance (Immediate, Timed, or No Advance)
LCR User Priority Level
Meet-Me Conference
Message Waiting Activation
Message Waiting – Automatic Callback; and
Message Waiting – Cancellation
Outgoing Call Queuing – Callback
Outgoing Call Queuing – Standby
Ringback
Saved-Number Redial
Speed Calling – Group (1 – 4 Groups)
Speed Calling – Individual
Station Class-of-Service Exclusion
Station-Controlled Conference
Station-Controlled Trunk-to-Trunk Connection
Station Hunting – Busy Advance
Station Hunting – No Answer Advance
Stop Hunt
Terminating Trunk Group Call Exclusion
Trunk Group Access
Trunk-to-Trunk Connection
Voice Page Access (Specific Zone or Combination of Zones)
Zoned Universal Night Answer

Table 2.01 Traffic and Feature Usage Measurement

CATEGORY	EVENT COUNTS		USAGE COUNTS IN CCS
System Related	Conference Circuit Congestion DTMF Receiver Attempts DTMF Receiver Congestion Ineffective Attempts Number of Connections to Hunt Groups Number of Connections to Terminal Devices		DTMF Receiver Usage Hunt Group Queue Usage Traffic Usage of Conference Devices Traffic Usage of Terminal Devices
Attendant Related	Attendant Extended Calls Attendant Feature Activation Attendant Originated Calls Attendant Overflow Attendant Queue Abandon Attendant Queue Answer Attendant Queue Entries Attendant Queue Jumped Call Exclusions Calls-Waiting Lamps Flashing	(Note 3)	Attendant Queue Usage Attendant Usage Calls-Waiting Lamp Flashing Calls-Waiting Lamp On
Trunk Related	Incoming Trunk Attempts Outgoing Trunk Attempts Outgoing Trunk Queuing Trunk Call Busy Trunk Call Completions Trunk Group Congestion Trunk No Answer Count	(Note 1) (Note 1) (Note 1)	Incoming Trunk Usage Outgoing Trunk Queue Usage Outgoing Trunk Usage
Station Related	Dial Tone Delay Feature Button Activated Non-Feature Button Activated Internal Attempts Permanent-Line Lockout Count Pickup Button Activated Station Call Busy Station Call Completions Station No Answer Count	(Note 2) (Note 2) (Note 2)	ACD Group Usage (All Groups) SDT Group Incoming/ Outgoing Call Usage Station Usage

NOTES: 1 – Incoming Calls
       2 – Internal Calls
       3 – Incoming, Operator, and Recalls.

2.04 Flexible Numbering Features (Continued)

b. Flexible System Numbering Plan

The SATURN IIE System allows the assignment of station numbers, trunk access codes, and feature access codes in accordance with a customer-established numbering plan.

Station numbers and access codes are assigned and/or changed via CMU procedures and can be from 1 to 4 digits in length. Station numbers and access codes of different lengths are allowed provided that an assignment of one number is not a partial dial sequence of another number. For example, "214" is not allowed in the same system with "2141".

Any first digit, 0 through 9, may be defined as the beginning of a station number. However, digit 0 is normally reserved for the attendant. The first digit for access codes may be 0 through 9, *, or #.

c. Multiple Listed Directory Numbers

The SATURN IIE EPABX System can be supplied with multiple CO- Listed Directory Numbers (LDNs). Each incoming DID trunk group assigned in the system can be provided with an LDN.

d. Station Extension Numbering

The SATURN IIE EPABX System allows the assignment of an additional number to an existing extension (station) number. These additional station numbers are known as "alias extension numbers" to the primary (existing) station numbers.

2.05 Night Answering Features

a. Assigned Night Answer (ANA)

When all attendant consoles are unstaffed, incoming trunk calls normally directed to the attendant are directed to preselected stations. This arrangement is known as Assigned Night Answer (ANA).

The night answering station(s) can be an individual station or the pilot number of a hunt group. The assignment of trunks or LDNs to ANA stations (for SATURN IIE Systems served by DID trunks) is performed via a CMU procedure.

The night answering stations can make inside and outside calls and can access system features in the normal manner. When in night service, handling of the incoming trunk calls is accomplished by use of the station Call Transfer feature.

b. Night Service Automatic Switching

If an incoming CO call to the attendant console is not answered within a predetermined period of time (variable via a CMU procedure), this feature automatically switches the SATURN IIE System into the night service mode.

c. Special Night Answer Position (SNAP)

The Special Night Answer Position is either a single EPABX station, the pilot number of a hunt group or an Automatic Call Distribution (ACD) group designated to handle incoming night calls which have not been assigned to any other night answering mode.

The SNAP station can access station-related features in the normal manner. Handling of incoming trunk calls is accomplished by use of the Station Call Transfer feature. SNAP stations are also alerted for night answer Transfer With No Answer or Zoned Universal Night Answer (ZUNA) No Answer conditions.

d. Zoned Universal Night Answer (ZUNA)

Arrangements can be made for incoming trunk calls, normally directed to the attendant, to activate a signaling device (bells, gongs, etc.) on the customer's premises when the attendant consoles are unstaffed. This feature is known as Zoned Universal Night Answer (ZUNA).

A maximum of 4 zones, each having an associated signaling device, can be provided in the SATURN IIE System. Incoming calls to a particular zone can be answered by code. Incoming calls are handled by using the station Call Transfer feature. Sounding of a particular signalling device within a zone is accomplished on a per-trunk basis. DID trunks are handled on a trunk-group basis only.

2.06 System Dialing Features

a. Direct Inward Dialing (DID)

This feature allows an incoming call from the CO to reach a SATURN IIE EPABX station without using attendant assistance. Stations having this feature are assigned 7-digit telephone numbers within the numbering range of the DID serving CO.

b. Direct Inward System Access (DISA)

The DISA feature allows an outside party to gain access to its facilities by dialing directly into the SATURN IIE EPABX, without attendant assistance. To use this feature, the party dials a non-published directory num-

ber to connect to the SATURN IIE EPABX via a dedicated CO trunk. The user waits for dial tone and then dials a 2- to 6-digit authorization code. After the code has been validated by the system, the party then receives dial tone again and can place a call or use a feature as if the party were at a SATURN IIE EPABX station having the class-of-service associated with that authorization code.

DISA trunks can be accessed during daytime and nighttime service. DISA trunks may not be used for outgoing service as part of another trunk group. The station class-ofservice can be arranged in SATURN IIE memory to include any combination of call privileges. Two thousand authorization codes (DISA or Mobile) are provided in the system.

Each authorization code may be marked as being printable or not printable for SMDR output. If both an account code and a printable authorization code are used on a particular call, then the associated SMDR call record will only contain the authorization code. If a non-printable authorization code is used, then the authorization code index and the account code (if any) are printed.

c. Direct Inward System Access – Shared (DISAS)

The DISA – Shared feature is similar in all respects to DISA, except that the trunk group, which is serving this feature, is shared between DISA and normal operation. When the trunk group is marked as DISAS in the SATURN IIE software, calls to the special DISA directory number are handled as incoming calls as long as at least one attendant console is in operation. These calls are routed to an attendant.

If the system is in the night mode of operation (e.g., no consoles are active), the call is routed via the DISAS trunk group, as described in the feature, "Direct Inward System Access."

d. Direct Outward Dialing (DOD)

The Direct Outward Dialing feature allows authorized station users to complete outward calls without attendant assistance.

e. Station-to-Station Calling

This feature permits any station user to dial other stations within the SATURN IIE EPABX directly without attendant assistance. Note that station calling restrictions may prevent stations of one class-of-service from calling stations of another class-of-service.

2.07 System Alarm Features

a. Alarm Indication – Major

A Major Alarm indicator is provided in the Control Logic Board within the PSU panel. The alarm indicator lights steadily when the system is in a non-operative state and system-failure transfer is active.

b. Alarm Indication – Minor

A Minor Alarm indicator is provided on the maintenance panel and lights steadily when the system is

operative and has detected a minor alarm condition. A minor alarm can be the result of a system-detected error, either internal or external, a system event of note, such as an annoyance call trace record, or a failure during an on-line diagnostic test. The indicator remains lit until the alarm is displayed by the system administrator via the appropriate CMU procedure. The system administrator can control, via CMU procedure, the set of detectable errors or events that will be reported as minor alarms.

A Minor Alarm LED (MIN ALM) is also provided on the attendant console and lights steadily for a selected subset (also controllable by the system administrator) of system minor alarms. The indicator remains lit until the alarm is displayed by the system administrator via the CMU procedures, or until the alarm is displayed by the attendant on the attendant console.

c. Remote Alarm Identification

Dry contact closures are used as the interface for identifying both Major and Minor Alarm conditions existing in the SATURN IIE EPABX. The contacts are located in the Power System Unit (PSU) and can be wired to the Main Distributing Frame (MDF). The contact closures can be distributed further, via cable pairs, to a remote location and can be used to activate audible or visual alarms, as needed.

d. Power Failure Restart – Floppy Disk

This feature is used to reload the system memory from the floppy disks when volatile memory can no longer be maintained during a commercial power failure. When commercial power has been restored, the floppy disk drives are automatically activated to reload the various elements of system memory. After reloading is completed, the system is capable of full operation.

2.08 Line Lockout Features

a. Line Lockout – Attendant Intercept

Any station user who remains off-hook without dialing or remains connected to a busy station for more than a predetermined time interval, may be automatically routed to the attendant queue. This feature is provided as an alternative to the normal Line Lockout – Automatic treatment.

b. Line Lockout – Automatic

This feature helps to to prevent a tie-up of the SATURN IIE System's common equipment, such as DTMF receivers. Whenever a telephone handset is left off-hook, listening to dial tone (without dialing), busy tone, reorder tone, intercept tone, etc., for longer than a predetermined period of time, the system automatically releases the station from the SATURN IIE EPABX switching equipment.

When line lockout occurs, the station is disconnected from the system and prevented from making or receiving calls. Placing the telephone handset on-hook or momentarily pressing the hookswitch returns the station to an operable condition.

2.09 Intercept Features

a. Automatic Call Distribution Recorded-Announceme Service

The SATURN IIE EPABX is provided with the capabi ty of connecting an incoming trunk call to a recorde announcement device when all stations in an AC group are busy.

If that particular feature option is provided, an ai nouncement advises the caller of a possible delay (e.c a "Please hold" message). After the call has been col nected to the announcement, the SATURN IIE EPAB automatically routes the call to an idle ACD statio when one becomes available.

Only one recorded-announcement for intercepts is pe mitted per system.

b. Flexible Intercept Facilities

Calls that cannot be completed because of class-o service restrictions, unassigned station numbers, or ac cess codes are routed to an intercept facility. The ir tercept assignment is made via a CMU procedure.

For DID and tie trunk calls, the intercept is either t the attendant, a recorded announcement, or to a re order tone if no recorded announcement is available

For station and attendant calls, the intercept is alway to intercept tone. The only exception occurs when a station call is intercepted as the result of an attendant imposed dial restriction. In that case the call is routec to the attendant. Only one recorded announcement pe intercept is permitted per system.

2.10 Access to Customer-Provided Equipment Feature:

a. Code Call Access

Station users can dial an access code and a 1- to 4-digi called-party code to activate customer-provided code call equipment, which controls signaling device throughout the premises. The signaling devices car be audible and/or visual. The called party can then an swer the code call and connect to the calling party b) dialing a code call answerback code from any statior served by the SATURN IIE EPABX.

b. Dictation Access

This feature allows station users access to customer provided dictation equipment in order to record voice messages or play back previously-recorded messages. The dictation equipment is seized by dialing the as signed dictation access code.

Dictation equipment functions such as start, stop, and playback are controlled by dialing the digits assigned for the various functions. A maximum of four dictation channels can be provided in the SATURN IIE EPABX.

c. Music On Hold – Line or Trunk Interface

The SATURN IIE EPABX is able to interface with

music to "held-call" conditions. The held call can be the result of Attendant Call Hold, Station Call Hold, Call Park, Manual Hold, or Exclusive Hold conditions.

The Music-On-Hold interface may be assigned as an E&M trunk circuit or as a line circuit (and includes SLMA-S and SLA-16).

d. Music-On-Hold – Paging

This SATURN IIE EPABX System feature allows the customer-provided Music-On-Hold source to be routed to the paging equipment. This arrangement provides music, instead of silence, to the paging zone whenever the paging equipment is idle.

e. Music-On-Hold – System

The SATURN IIE EPABX is able to interface with customer-provided audio equipment in order to provide music to "held call" conditions. The held call can be the result of Attendant Call Hold, Station Call Hold, Call Park, Manual Hold, and Exclusive Hold Conditions.

2.11 Restriction Features

a. Eight-Digit Toll Code Restriction For Direct Trunk Group Access

This feature permits SATURN IIE EPABX to allow or deny stations access to specific CO exchanges, area codes, service codes. operator. and other services encountered on the Direct Distance Dialing (DDD) network. The SATURN IIE EPABX can provide 16 separate and different 8-digit toll code restriction lists. One or more lists may be assigned to each trunk group.

A total of 256 entries may be assigned to the 16 lists. Each entry within a restriction list can be from 1 to 8 digits in length. Each list can be either the "allow" or the "deny" type, and is assigned to stations on a class of-service basis.

b. Fifteen-Digit Toll Code Restriction For Direct Trunk Group Access

This feature permits SATURN IIE EPABX to allow or deny stations access to specific CO exchanges, area codes, service codes, operator, and other services encountered on the Direct Distance Dialing (DDD) network. The SATURN IIE EPABX can provide 4 separate and different 15-digit toll code restriction lists. One or more lists may be assigned to each trunk group.

A total of 32 entries may be assigned to the 4 lists. Each entry within a restriction list can be from 1 to 15 digits in length. Each list can be either the "allow" or the "deny" type, and is assigned to stations on a class-of-service basis.

c. Daytime Trunk Control

The SATURN IIE EPABX System can be arranged to restrict specific trunk groups from access by stations for outgoing calls during daytime operation, and to restore access availability when the system is in night service mode. While daytime trunk control is in effect

only the attendant has access to these trunk groups. Station users who attempt calls over trunks under daytime trunk control are routed to the attendant recall queue. Once answered, the call can be completed at the attendant's discretion.

d. Incoming Class-of Service Blocking

This feature prevents an attendant from extending a call if the station's class-of-service is blocked for the class of-service assigned to the trunk.

e. Station-to-Station Class-of-Service Blocking

This feature prevents stations assigned to a certain class-of-service from accessing stations assigned to another class-of-service. An intercept tone is provided to station users dialing stations that are blocked by their class-of-service.

2.12 Diagnostic and Maintenance Testing Features

a. Automatic On-Line Diagnostic Testing and Reporting

The SATURN IIE EPABX is provided with software self-test routines which verify that certain software and hardware operations, initiated by the main controller, have been successfully completed. If an error occurs, software records the error(s) in the "Failure History Memory," and the minor alarm is activated. Appropriate recovery procedures are executed automatically, if necessary.

The SATURN IIE EPABX is also provided with a repertoire of audits that test the SATURN IIE EPABX common control equipment. Each audit performs a specific test and can be individually enabled or disabled by maintenance personnel via the service terminal.

When the audit is run, detected failures are recorded in the "Failure History Memory," and the minor alarm is activated. Appropriate recovery programs are executed automatically on the failing equipment. All audits do not interfere with normal call-processing activities.

b. Manual On-Line Maintenance Testing

The SATURN IIE EPABX software package includes test programs that permit test calls to be initiated into and through the system to verify correct operation of the peripheral equipment and selected common equipment, such as the tone generator.
Resulting visual and audible responses from these tests make it possible to verify correct operation or to detect and isolate a major portion of system malfunctions. These test programs are accessed from a maintenance classmarked telephone.

c. Remote On-Line Maintenance and Diagnostic Testing

Maintenance testing can be performed at a location remote from the SATURN IIE EPABX. Access to the Maintenance tests is available on a dial-up basis via local or long-distance trunks by using the DISA facility.

Diagnostic testing can also be performed from a remote service terminal via dial-up access to the modem port on the optional RALIP board

2.13 Trunking Features

a. Alternate Routing

The SATURN IIE EPABX provides automatic routing of outgoing calls via alternate trunk groups when all circuits in the primary trunk group are busy. A maximum of three alternate trunk groups can be assigned when direct trunk group access is used. Least Cost Routing (LCR) allows up to seven alternates.

b. Central Office (City) Trunk Access

Access to CO trunks by SATURN IIE EPABX station users is made by dialing an access code. Digit "9" is most-commonly used for such access.

c. Common Control Switching Arrangement (CCSA) Access

This feature allows station users access to a CCSA network by dialing an access code. A network call is placed by dialing the CCSA number of the desired party. Features available to service incoming and outgoing calls to and from the CCSA network are similar to those available to incoming and outgoing CO calls.

d. Dedicated Incoming Trunks

The use of Dedicated Incoming Trunks (DITs) permits a call to bypass the attendant console and ring at a preassigned internal station or hunt group. An unanswered call can be sent to a night answering arrangement (e.g., ANA, UNA, etc.). via the DIT when the following circumstances exist:

a) the system is not equipped with a console
b) the console is in night service or
c) the console is out-of-service.

All call-forwarding functions apply to DITs, including the transferring of DIT trunk calls to the attendant when the console is in service. A maximum of 255 DITs are provided in the SATURN IIE EPABX.

e. Enhanced Private Switched Communication Service Access

SATURN IIE EPABX station users access an Enhanced Private Switched Communications Service (EPSCS) network by dialing a preassigned access code. By using the EPSCS facility, they may either dial the EPSCS network number of the desired party or an off-network number.

Features available to service incoming calls from the network and outgoing calls to the network are similar to the features available to incoming and outgoing CO calls.

f. Foreign Exchange Trunk Access

An FX trunk is a trunk facility between the EPABX and a CO located beyond the local service area of the serving CO. Such facilities permit the SATURN IIE EPABX System to provide local service to and from the distant service area. Station users gain access to FX trunks by dialing an access code.

g. Least Cost Routing (LCR)

The SATURN IIE EPABX routes outgoing calls over th lowest cost route available at the time of call placemen A station user accesses the LCR feature on a per-ca basis by dialing the LCR feature access code befor dialing the outside number. The routing of the call selected from a predefined list of eligible trunk group based on the digits dialed by the user, the user's class of-service, and the time of day.

Trunk groups are ranked from first to last choice (i.e lowest to highest cost), thus providing the lowest co routing for the existing busy/idle condition of the elig ble trunks.

The LCR feature provides Outgoing (trunk) Call Quet ing Callback and Call Queuing – Standby capabilities To activate the Outgoing Call Queuing – Callback fea ture, the station user dials the LCR access code and th desired destination number. Assuming all routes are bus the station user waits for a steady low tone. Upon recei ing the steady low tone, the station user places the hanc set on-hook in order to be placed on queue.

Once on-queue, the station is called back when a trun becomes available. The queue is handled on a firs in, first-out basis. One queue per station is allowed a any time. If another attempt is made to invoke a cal back queue on the same station, the previously queue call is removed from the queue and replaced with th latest request.

When the Outgoing Call Queuing – Callback featur is active, the activating station user may receive c originate other calls. The Outgoing Call Queuing Cal back feature can be cancelled at any time via a diale cancellation code.

The LCR Outgoing Call Queuing – Standby feature an extension of the LCR Callback feature describe above. To invoke this feature, the station user waits o hook in a standby queuing mode and listens to silenc or music (if it is provided). The standby queuing mod eliminates the user going on-hook to be called bac when a trunk becomes available. When a trunk doe become available, the station is connected to the trun

The station user may convert from standby queuin to callback queuing by going on-hook.

The LCR feature is capable of routing calls over trunk in the public network (i.e., CO, FX, WATS trunks), pr vate network including Common Control Switching A rangement and tie trunks, as well as over Specialize Common Carriers (SCCs).

The LCR feature provides the following additional rout selection criteria:

1. LCR User Priority. Each station class-of-servic user is assigned priority codes that indicate elig ble routes. access is permitted only to those route assigned a priority code which matches one of th priority codes associated with the user's COS.

2. Time-of-Day and Day-of-Week. Time bands (e.g 1 PM through 6 PM, 6 PM through 12 midnigh

called schedules, are assignable on one-hour boundaries for each hour of the day and each day of the week.

A "minutes offset" is provided for each schedule to accommodate rate changes that do not occur on the hour. The selection of a route for a given dialing pattern is variable, depending on the current schedule.

3. Alternate Trunk Group Advance. When an all-trunks-busy condition exists, three modes of advancing from first-choice to lesser-choice trunk groups are provided:

   a) Immediate Advance
   b) Timer-Controlled Advance
   c) No Advance (i.e., the call is routed over the first-choice trunk group only).

The option of which method to use is stored as a classmark in the station's class-of-service. Attendants are always provided with the Immediate Advance mode.

4. Wide-band tone detectors used in conjunction with flexible outpulsing rules with the SATURN IIE System are used to detect special dial tone provided by several Specialized Common Carriers.

5. The SATURN IIE EPABX may be programmed to switch from DTMF, detect dial tone, to dial pulse in order to route calls via LCR through a switched tandem network. The system is capable of "toggling" from one mode to another, as required for such operation.

6. In order to speed up cut-through on trunk group calls, the LCR feature can be used to analyze the trunk group call digit strings.

7. The SATURN IIE EPABX provides the option of not providing dial tone after dialing the LCR access code on LCR calls.

8. The SATURN IIE EPABX also provides the option to prohibit confirmation tone from being returned after LCR route-selection is completed.

9. The LCR feature provides a filtered dial tone detection option to allow rejection of busy, reorder, and ringback tones.

10. Equal Access to Prime Carrier. The LCR feature is also used to route long-distance calls over all customer selected carriers without dialing a special access code.

   For example: The SATURN IIE System user dials 9 + 1 + NAX + NNX + XXXX. If the route list's outdial rule for the prime carrier is satisfied, the system outdials 1 + NAX + NNX + XXXX; if the route list's outdial rule for a secondary carrier is satisfied, the system outdials 10XXX + NAX + NNX + XXXX.

11. The LCR feature also provides a means for rechecking a lower-cost route even though the call

has advanced to, and is in queue for, a more-costly route. This "look back" queuing capability allows a call to be routed over a previously busy but lower-cost route, if a trunk within that trunk group becomes available before the more-costly route is used.

h. Least Cost Routing with Provisions for Specialized Common Carrier

The LCR feature is capable of routing calls via an SCC through dial or dedicated access. The SCC's directory number and authorization code may be stored in SATURN IIE memory for outdialing. Because an SCC can be accessed over local CO trunks (i.e., dial-up access), the SATURN IIE EPABX provides the capability to turn such access on or off, from an attendant console and/or from a service terminal. Up to three SCCs can be accommodated in the SATURN IIE EPABX.

i. Tandem Trunking

The SATURN IIE EPABX can act as a tandem switch, routing incoming calls from one switching system to another, without the need for attendant assistance. The major use of this feature is in association with dial tandem tie trunk networks to allow tie trunk connections, and in some cases, to allow incoming tie trunk calls automatic access to the CO trunk for completion of local CO calls.

j. Tie Trunk Access

This feature allows station users dial access to one-way or two-way tie trunk circuits interconnecting the SATURN IIE EPABX with another switching system. The trunks can be furnished with E&M signaling, and configured for automatic or dial repeating operation with or without second dial tone. Two-wire or four-wire type E&M trunks are available.

k. Trunk-to-Trunk Connections

This feature allows the attendant to extend an incoming trunk call to an outgoing trunk. Connections can be made among CO, Foreign Exchange (FX), Wide Area Telephone Service (WATS), Direct Inward Dialing (DID), and tie trunks.

All combinations of these trunks can be connected by the attendant. The only restriction is that the incoming call must have been completed through a trunk that provides disconnect supervision (generally ground start trunks or E&M trunks). If disconnect supervision is not provided and the attendant attempts to make the connection, a three-minute (variable) timer is started. When the timer times out, the trunk-to-trunk connection is recalled to the attendant.

l. Wide Area Telephone Service Trunk Access

This feature allows station users access to WATS by dialing an access code. WATS enables customers to make calls over extensive geographic areas at special billing rates.

2-10 (10 pages)

SECTION 3.00 ATTENDANT FEATURES

3.01 Attendant Console Overview

The attendant console is a desk-top-position console from which the attendant handles calls by using pushbutton keys. A maximum of 12 attendant consoles can be provided in the SATURN IIE EPABX.

A telephone handset is furnished with the console. An optional headset may be substituted for the handset. Both tone and visual indicators alert the attendant to incoming calls. The tone may be controlled via a volume control located at the front edge of the console.

The attendant console is provided with a 12-button keypad (digits 0 – 9, ✶, #) which allows the attendant to complete all types of calls. The dialed digits are digitally encoded, and transmitted to the SATURN IIE EPABX System for processing.

Each attendant console has a 40-character upper- and **lower**-case alphanumeric display, which presents call information to the attendant. This information includes the station number or trunk type, the number of the called and calling parties, and the calling station class-of-service. The alphanumeric display also allows the attendant to monitor the system alarm conditions.

Connections to the console are made through a three-pair modular connector-ended cable which provides voice, control signals, and power. The cable is installed through the bottom rear of the console via a plug-in jack. Two of the pairs are used for data transmit and receive, plus SATURN-provided power. The third pair to the modular jack is a spare pair.

The attendant console(s) can be located up to 2000 cable feet (610 meters) from the SATURN IIE EPABX.

The following paragraphs describe the features that are related to the attendant console only. Refer to SECTION 4.00: STATION FEATURES, for additional console-related features.

3.02 General Features

a. Console Operation

Incoming calls are uniformly distributed among the attendant consoles. Any station user can dial-access a selected attendant when multiple consoles are provided.

The SATURN EPABX can also function without an attendant console. For consoleless operation, assigned UNA and/or ANA stations can handle incoming calls by utilization of the Call Transfer and Internal Call Queuing — Standby features.

b. Flexible Key Assignments

The attendant console is equipped with one digital 12button keypad and 34 non-locking keys, each containing one internal status indicator Light-Emitting Diode (LED). Sixteen keys have fixed assignments, and provide the basic control functions for the console. The remaining 18 keys are flexibly assignable by using CMU procedures. These keys can be programmed to provide the following functions:

1. Attendant Conference (up to three keys can be assigned.)
2. Attendant Control of Facilities (one or more keys can be assigned)
3. Attendant Override
4. Attendant Overflow
5. Call Park
6. Direct Trunk Group Access (one or more keys can be assigned)
7. Message Waiting — Activate
8. Message Waiting — Cancel
9. Minor Alarm
10. SMDR Account Code Input
11. Trunk Flash
12. Volume Control — Audio (receive only)
13. Class of Call Exclusion Keys (up to three keys can be assigned).

c. Senderized Operation

The attendant may dial as many digits as required to reach a destination. The attendant does not have to remain on the call once dialing is completed.

3.03 Call Handling Features

a. Attendant Selective Answering Priority

Three separate call answering keys on the console allow the attendant to manually select among Incoming (INC), Recalls (RCL), and Operator (OPR) calls.

These calls are answered according to customer-established priorities. Additionally, each trunk group can be assigned an answering priority level code that allows incoming trunk calls in higher-priority trunk groups to be connected to the attendant before longer-waiting calls in lower-priority trunk groups.

However, any call waiting in a lower-priority trunk group for longer than a preset time, is connected before any calls waiting in a higher-priority trunk group. Trunk calls within the same priority trunk group(s) are connected on a first-in-first-out basis.

b. Call Hold

This feature allows the attendant to place a station or trunk call on hold so that the attendant can place another call, or perform other activities such as paging. Four loop keys and associated LEDs are provided on the console to facilitate the hold capability.

A call is placed on hold by depressing an idle loop key on the console. The loop LED provides supervision over the call. The loop LED winks when a call is being held, flashes on recalls, and lights steadily when the attendant reconnects to the held call.

This feature also allows a held call to be connected to an incoming call. After answering a call, the attendant can connect the two calls by depressing the Destination (DEST) key, followed by the loop key associated with the call being held.

3-1

To retrieve an attendant-held call, a station user having the proper class-of-service goes off-hook, then keys the Attendant Call Hold Retrieve access code, followed by a three-digit Attendant Call Hold location number. The Attendant Call Hold location number consists of the Attendant number (01 through 12) plus the Hold Loop Key number (1 through 4) used by the particular attendant; e.g., the Access Code + 021 (Attendant number 02, Hold Loop Key number 1).

To retrieve the held call, a station user must go from an idle on-hook condition to off-hook, and receive regular dial tone. If the call in the accessed call location is a two-party (i.e., locked loop) call, has already been retrieved, or has already been disconnected by the held party, the station user receives reorder tone after dialing the complete Attendant Call Hold Retrieve access code.

Additionally, the Call Hold feature allows the attendant to page a party, and request the paged party to retrieve a held loop call. The paged party can retrieve the held call by dialing an announced retrieval code from any SATURN IIE EPABX station having the proper class-of-service.

c. Camp-On

This feature allows the attendant to extend a trunk call to a busy station. When this feature is invoked, the trunk party is automatically placed in a waiting mode while a call-waiting tone is directed to the busy station. The called party, upon hearing the call-waiting tone, can connect to the waiting call by going on-hook and being recalled, or by using the Call Hold – Flip-Flop (Broker) feature. A maximum of two trunk calls can be camped-on to a busy station.

d. Class-of-Call Exclusions – Key(s)

The SATURN IIE EPABX attendant(s) can control certain types of traffic incoming to the console(s) by operating assignable exclusion keys corresponding to the type of call (incoming calls (INC), operator calls (OPR), and or recalls (RCL).

e. Class-of-Call Exclusions – Programmed

The SATURN IIE System can exclude certain types of traffic from designated attendant consoles via CMU procedures. Such types of calls may be incoming (INC), operator (OPR), and/or recalls (RCL).

f. Conference

This feature allows the attendant to establish a conference of up to seven parties (assignable via CMU procedures). The attendant gains access to a conference circuit, and adds members to the conference by operating a Conference key. Status information is provided to the attendant by a LED located within the Conference key. A maximum of three Conference keys can be provided on the console.

g. Extension of Calls

The attendant may extend all types of incoming calls. Incoming trunk calls may be extended to a SATURN

IIE EPABX station, or to another trunk. Incoming station calls (dial "0", attendant recall, etc.) may be extended to a trunk or to another station.

h. Inter-Console Calling and Transfer

This feature allows an attendant at one attendant console to call an attendant, or transfer a call to an attendant, at another attendant console. Each attendant console must be assigned a unique number.

i. Locked Loop Operation

This feature allows the attendant, who normally works in a switched-loop environment, to retain supervision or recall capability on any particular call by placing the call on an attendant loop rather than releasing it. While the loop is "locked," its use is dedicated to that call, and may not be used for processing other calls.

Four loop keys are used for locked-loop operation. The attendant "locks" a call on the loop by depressing an idle loop key. This action simultaneously releases the attendant from the connection. The attendant is then able to process other calls. The attendant may lock any twoparty call on a loop, including station-to-station, station-to-trunk, trunk-to-station, and trunk-to-trunk calls.

The attendant may reenter a locked loop connection by depressing the associated loop key. Before the attendant reenters the connection, conference tone is provided to the two talking parties. The attendant is then immediately connected in conference with both parties on the loop. Once the attendant has reentered the connection, the attendant may:

1. Split one of the parties to talk privately by depressing the Source (SRC) or Destination (DEST) key.

2. Release from the loop with the two other parties remaining connected on the loop.

3. Release the locked loop connection (both parties released) by depressing the Release (RLS) key:

As a customer-definable system option, the attendants may be denied the ability to reenter a locked loop connection held on a console unless specifically recalled by the station user. Secrecy is implemented by providing automatic splitting of the trunk party when the attendant enters the connection after being recalled by the station. This action allows the station user to speak privately with the attendant.

j. Override

This feature allows the attendant, when connected to an incoming trunk call, to enter into an existing busy station-to-station or station-to-trunk connection and inform the station user about the waiting trunk call. The Override feature is generally used to announce high-priority or emergency calls.

A warning tone is provided to both parties before the conversation is overridden. The attendant can break into any established two-party call or three-way call, provided that no feature restricting attendant override is active (i.e., Attendant Override Security or Data Line Security).

k. Serial Calling

This feature allows the attendant to connect an incoming trunk party to a series of stations, without having the incoming trunk party hang up and redial the attendant for each call.

The attendant initiates a serial call by connecting the trunk party to the first desired station, and ""locking" the call on the attendant loop. When station disconnect is detected, the SATURN IIE EPABX System automatically places the trunk in the recall queue.

A unique display of the recall appears on the alphanumeric display. The attendant continues the serial call by answering the recall, then dialing the next requested station number and locking the call on the attendant loop.

l. Special Overflow Answer Positions

The console attendant can depress a special overflow key during high traffic conditions, and divert the overflow of incoming calls to a Special Overflow Answer Position (SOAP).

When the attendant depresses the overflow key, all calls presently in, or intended for, the incoming call queue that exceed a predefined threshold value are routed to the SOAP. Additionally, incoming trunk calls that have waited in the attendant incoming call queue beyond a predetermined period of time are routed to the SOAP.

The SOAP can be a ZUNA facility, SNAP position, ACD hunt group, pilot number hunt group, or an individual station. The SOAP can access station-related features in the normal manner. Handling of incoming trunk calls is accomplished by use of the station Call Transfer feature.

m. Switched Loop Operation

This feature allows the attendant to extend an EPABX station or trunk call to another station or trunk by depressing the Attendant Release (ATT RLS) key. Depression of the ATT RLS key automatically releases the loop and allows the attendant to process other calls.

The attendant is allowed to release from the call before the second party answers, either in the camp-on or in the ringing state. No call supervision is provided; however, a means for recalling unanswered calls on a timed basis is provided.

n. Trunk Flash Capability

The attendant console can be provided with a special key allowing the attendant to simulate a hookswitch flash to request toll operator assistance on outgoing calls.

3.04 Recall Features

a. Automatic Recall on Camp-On

The attendant is automatically recalled if the attendant extends an incoming trunk call to a busy station, and the called party does not answer the waiting call within a preset time. The timing period is variable, and is assigned in customer memory by using a CMU procedure. A visual indication appears on the alphanumeric display consoles to identify the recall.

b. Automatic Recall on Hold

The attendant is automatically recalled on calls hel by the attendant past a predetermined period of tim A visual indication appears on the console's alphanu meric display to identify each type of recall. The tin ing period is variable, and is assigned in custome memory by using a CMU procedure.

c. Automatic Recall on No Answer

In the SATURN IIE EPABX System, the attendant is au tomatically recalled if a trunk call being processed ha remained unanswered past a predetermined period c time. A visual indication appears on the console's a phanumeric display to identify a recall, thus allowin the attendant to respond appropriately. The timing pe od is variable, and is assigned in customer memor by using a CMU procedure.

d. Automatic Recall Redial

When an attendant has been recalled by a station trunk call that was originally extended by the attendar the original destination of the call appears on the co sole display. By activation of a single key on the co sole, the attendant can reextend the call to the san destination without keying in the entire number.

3.05 Display Features

a. Call Type Display

The types of calls appearing at the attendant's po tion are visually displayed, allowing the attendant answer each call with an appropriate verbal respons The display indicates whether the call is an Incomin Recall, or Operator call.

b. Called Extension Status Display

The alphanumeric display indicates the following formation about the called station:

BUSY	– Attendant extended to a bu station.
RINGING	– Attendant extended to an ic station.
CALL PICK-UP	– Attendant extended to a stati that is being picked up another station.
CFWD RINGING	– Attendant extended to a call f warded station; destination ic
DATA PRIVACY	– Attendant extended to a bu data-private station.
DONT DISTURB	– Attendant extended to a stati which has activated Do-N Disturb.
HUNT RINGING	– Attendant extended to a bu station in a hunt group and call hunted to an idle statior that group.

LINE LOCKOUT — Attendant extended to a locked-out station.

OUT OF SVC — Attendant extended to an out-of-service station.

ACD RINGING — Attendant extended to a ACD group.

BY-OV — Attendant override of a busy station.

CF/BY — Attendant extended to a call forwarded station, destination busy.

CFWD TO NTWK — Attendant extended to a station that is call forwarded to the public network.

VACANT NUMBER — Attendant extended to a vacant number or code.

c. Called Station Number Display

When the attendant places a call to a SATURN IIE EPABX station, the extension number and class-of-service of the called station are displayed on the alphanumeric display.

d. Called Trunk Number Display

When the attendant places an outgoing call, the trunk number and trunk group number of the connected trunk are displayed on the alphanumeric display.

e. Calling Station Number Display

When the attendant receives a station call, the extension number and class of service of the calling station are displayed on the alphanumeric display.

f. Calling Trunk Number Display

When the attendant receives an incoming call, the trunk number and trunk group number of the connected trunk are displayed on the alphanumeric display.

g. Digital Clock Display

The current time-of-day and date are displayed on the alphanumeric display when the console is idle and between calls. When the console is busy, the attendant may obtain the time and date by depressing the TIME key. The time is displayed in hours and minutes in either a 12-hour or 24hour format, depending on a preassigned system option. The attendant can also set the digital clock time and date from the console.

h. Least Cost Routing Route Number Display

For SATURN IIE EPABX Systems provided with the LCR feature, a visual display of the route taken by the attendant completed outgoing calls is provided to the attendant. The display is provided to the attendant upon completion of dialing the public network number.

i. Numerical Call Waiting Display

Between calls and during periods when the attendant

console handset is plugged in but not processing calls (idle), the actual number of calls waiting to be answered is displayed on the alphanumeric display. The number of calls waiting is numerically displayed by call type (i.e., Incoming, Recall, and Operator). The display is updated approximately every three seconds.

j. Trunk Group Alphanumeric Display

Arrangements can be made in customer memory to provide a trunk group alphanumeric display as part of the calling trunk display and called trunk number display features.The trunk group alphanumeric display is customer-defined by the assignment of alphanumeric characters to represent the trunk type for each trunk group (i.e., INWATS for an incoming call via an INWATS trunk, LOCAL for an incoming call via a local CO, FX555 for an incoming FX trunk from exchange 555, etc.). Up to eight alphanumeric characters may be assigned by the customer for each trunk group.

3.06 Direct Access Features

a. Direct Trunk Access

This feature allows the attendant to select and access individual trunk circuits. Access to a specific trunk is made by dialing a unique access code, the trunk group number, and the trunk member number. After the trunk is seized, the attendant can place a call over the trunk.

b. Direct Trunk Group Access

This feature allows the attendant to access a trunk group by depressing a key rather than dialing an access code.

3.07 Control Features

a. Attendant Control of Station Dial Restrictions

This feature allows the attendant to temporarily change the class-of-service (COS) of individual stations via the attendant console. The temporary COS may either restrict or add to existing features established by the original COS.

The attendant activates the feature by keying an access code. The attendant is prompted to key the station extension number and the temporary COS number. A confirmation tone is returned to the attendant. The attendant releases the call and the console display and operation return to normal.

The temporary COS can be cancelled and the original COS reinstated by keying a cancellation access code, and the extension number of the changed station. When the station extension number is keyed, the original COS is reinstated and a confirmation tone is returned to the attendant.

b. Control of Facilities

This feature allows the attendant to gain control of a system facility in order to regulate when station users may or may not gain access to that facility. The attendant gains control of a facility by depressing a preas-

signed key. One or more keys can be assigned on the attendant console to control each of the following: trunk groups, voice paging zones, dial dictation equipment, 8-port conference circuits (Meet-Me Conference and Station Controlled Conference), and code calling. When a station user dials an access code or activates a feature button on an SDT corresponding to a facility that is under attendant control, the call is routed to the attendant. Once answered, access to the desired facility is provided at the attendant's discretion.

An LED located within each control key provides the status of the associated facility. A dark LED indicates the facility is not under attendant control at this time and a lighted LED indicates the facility is presently being controlled by the attendant.

c. Control of Station Message Detail Recording Facilities

The SMDR feature allows trunk group calls to be selectively recorded. This feature is enabled via a CMU procedures. The recording of calls on these trunk groups can also be deactivated and reactivated by the attendant.

d. Night Service Control

Placing the SATURN IIE EPABX system in the night service mode is performed by the attendant depressing the NIGHT key on the console. When multiple consoles are provided, all attendants must depress the NIGHT key before the SATURN System goes in night service. Refer to the system features, "Assigned Night Answer" and "Zoned Universal Night Answer."

3.08 Volume Control Features

a. Volume Control – Audible Alert

The attendant may adjust the volume of the audible alerting device by using a rotary volume control knob located on the console. The alerting device is used to signal the attendant of all incoming calls, recalls, and the occurrence of minor system alarms.

b. Volume Control – Audio

This feature allows the attendant, by depressing a console key, to increase the voice level by a fixed gain on the receive portion of the voice connection. The voice gain may be cancelled any time during the call by the attendant depressing the same button a second time; otherwise the gain is automatically cancelled when the attendant releases from the call.

3.09 System Status Features

a. Alert Busy Attendant Indication

Calls directed to an attendant who is busy handling another call generate a single burst of tone in the attendant's headset/handset. This tone alerts the attendant to the other incoming call(s).

b. Call Waiting Indication

A call waiting LED on the attendant console provides the attendant with a visual indication that calls are wait-

ing to be answered. The call waiting LED lights steadily when a preset number of calls are waiting to be answered. The LED flashes when the number of calls waiting reaches a second preset number; when the LED is dark, no calls are waiting.

c. Minor Alarm Identification

When a minor alarm condition occurs, the MIN ALM LED lights. Failures causing a system minor alarm condition can be displayed by the attendant depressing the Minor Alarm (MIN ALM) key. Depression of the MIN ALM key displays the most recent alarm condition. Additional depressions of the minor alarm key display additional alarm causes, if present. Each minor alarm display consists of the alarm type (e.g., line/trunk unit shelf, memory parity, fuse failure, etc.), the failing equipment location, and the date and time of the failure.

d. Trunk Group Indicators

A group of 24 LEDs are provided on the attendant console. The LEDs are assigned to reflect the busy/idle condition of trunk groups 1-24, respectively. The LED states reflect the following conditions:

1. Steadily lit – All trunks in the associated trunk group are busy.

2. Flashing – The number of busy trunks in the associated trunk group has reached or exceeded a preset threshold. The threshold limit is assigned via a CMU procedure.

3. Dark – The number of busy trunks in the associated trunk group has not exceeded the threshold limit.

3.10 Busy Verification Features

a. Busy Verification of Station Lines

The attendant may verify whether a station line is busy, idle, or in an out-of-service (lockout) state by keying in the station number from the attendant console. The system responds with ringback tone and a display on the console that correlates with a console-to-station call if the station is idle. If the station is busy, the attendant receives busy tone and the display indicates the station number, class of service, and other call information pertaining to that connection, including the station or trunk number of the other party. If the station is out of service (lockout), the display indicates this condition.

b. Busy Verification of Trunks

This feature allows the attendant to determine the busy/idle status of a specific trunk (CO,FX, tie trunk, etc.) without bridging to the trunk. Busy verification of a trunk is performed by the attendant dialing a unique access code and the trunk group number followed by the trunk group member number. If the trunk is busy, the attendant hears busy tone and receives a display identifying the trunk group/number (e.g., 05/03) and the connected party (e.g., extension 1219). If the trunk is idle, the attendant hears dial tone and receives a display identifying the connected trunk.

SECTION 4.00 STATION FEATURES

4.01 Station Overview

This section of the practice describes those features that are related to single-line telephones (rotary and DTMF dialing). Some of these features are also related to the attendant console and the SDT. Following the title of each feature description is one or more codes in parentheses which denote the type of instrument(s) to which the feature applies. Table 4.00 lists these codes and their definitions.

Table 4.00   Station Instrument Codes Used in This Practice

CODE	INSTRUMENT
SLT	Single Line Telephone
ATT	Attendant Console. An asterisk (*) following ATT indicates a button can be assigned to the console to simplify feature operation.
SDT	Siemens Digital Telephone. An asterisk (*) following SDT indicates a button can be assigned to the SDT to simplify feature operation.

4.02 General Features

a. Dial Access to Attendant (SLT,SDT)

   Station users may dial the feature access code assigned for general attendant service or dial a discrete attendant extension for a specific attendant.

b. Distinctive Ringing (SLT,SDT)

   Several types of distinctive ringing patterns are provided to allow SATURN IIE EPABX station users to distinguish between the different types of incoming calls. The ringing patterns are:

   1. One-burst ringing – Identifies an incoming call from another station served by the SATURN IIE EPABX System.

   2. Two-burst ringing – Identifies an incoming trunk call (CO, FX, WATS, DID, Tie trunks) and attendant-extended trunk calls.

   3. Three-burst ringing – Identifies calls initiated by internal call queuing – callback, outgoing call queuing – callback, station-controlled conference recall to conference master, call transfer security recall, automatic callback on held calls, executive intercom calls (SDT only), and automatic intercom calls (SDT only).

c. DTMF Dialing (SLT)

   DTMF dialing allows SLTs equipped for tone dialing to be used with the SATURN IIE EPABX System.

d. Immediate Ringing (SLT,SDT)

   Immediate ringing is provided on all calls to stations within the SATURN IIE EPABX System. The called station rings immediately without the need for waiting through the silent period of a ringing cycle.

e. Rotary Dialing (SLT)

   Rotary dialing allows SLTs equipped with a rotary dial to be used with the SATURN IIE EPABX System.

4.03 Hold Features

a. Automatic Callback on Held Call (SLT,SDT)

   A trunk call that remains on hold beyond a predefined period of time is automatically recalled to the station that held the call or to the attendant (according to a pre-assigned system option). The predefined period of time is a nominal five minutes but variable via CMU procedures. The automatic callback applies only to trunk calls placed on hold via the Call Hold, Call Park, Manual Hold, and Exclusive Hold features. If the system is optioned to route the held call to the station instead of to the attendant and the callback goes unanswered for a predefined period of time (18 seconds nominal also variable via CMU procedures) or the station to be recalled is busy (possible only for the call hold and call park recalls), the recall is routed to the attendant recall queue.

b. Call Hold (SLT,SDT*)

   This feature allows a station user to place any call on hold and hang up without losing the call. After holding the call, the user may originate or receive other calls on the same line and alternate between the two calls (holding one call while speaking to the other).

c. Call Hold – Flip – Flop (Broker) (SLT,SDT*)

   This feature allows a station user receiving a call waiting tone to place the call on hold and immediately establish a connection to the waiting call. When no call is waiting, this feature allows the user to place any established call on hold and originate another call on the same line. In either case, the user can return to the held call or alternate between the two calls (holding one call while speaking to the other).

d. Call Park (SLT,ATT*,SDT*)

   This feature allows a station user to place a station or trunk call on "system hold" (referred to as "parked") and return to the parked party from the same station or from another SATURN IIE station. A maximum of 10 call park locations are available in the SATURN IIE EPABX.

e. Consultation Hold (SLT,SDT*)

   This feature allows a station user to place a call on hold and consult with another party on the same line. After consulting with the other party, the user may remain offhook and be automatically connected to the original party when the consulted party hangs up.

f. Hold to Attendant (SLT,SDT)

   This feature allows trunk calls held for station transfer security to be routed to the attendant instead of the transferring station.

4.04 Transfer Features

a. Call Transfer (SLT,SDT*)

This feature allows a station user engaged in a two-party talking connection to transfer the other party to another destination. The following types of transfers are allowed:

- station-to-station
- trunk-to-attendant
- station-to-trunk
- trunk-to-trunk.

Trunk-to-trunk transfers are allowed only when the trunkto-trunk connection option is assigned and call disconnect supervision is provided on at least one of the trunks. All transfers are allowed in the ringing-state.

b. Call Transfer Security (SLT,SDT)

If a trunk call is transferred from one station to another and the second station does not answer within a predetermined time interval, the SATURN IIE EPABX recalls the held party to the station that originally transferred the call or to the attendant recall queue, depending on the pre-assigned system option. This facility also protects against lost trunk calls due to the improper utilization of transfer routines by station users.

c. Call Transfer with Automatic Camp-On (SLT,SDT)

This feature, when used in conjunction with the Call Transfer and Internal Call Queuing-Standby features, allows a station user to transfer an outside call to a busy station. The outside call is camped-on to the busy station.

4.05 Conference Features

a. Add-On Conference (SLT,SDT*)

This feature allows a station user to add a third party to an existing two-party connection. The three-party conference can consist of two stations and one trunk or two trunks and one station.

b. Meet-Me Conference (SLT,ATT,SDT*)

The meet-me conference is prearranged by station users, who dial an access code to be connected to the conference circuit. Trunk conferees are connected to the conference circuit by the attendant. A conference tone is heard by all connected conferees as each new conferee enters the conference. A maximum of seven parties can be connected in the conference at any one time, plus the attendant. The number of trunk parties allowed is variable (maximum of three) and set by CMU procedures.

c. Station-Controlled Conference (SLT,SDT)

This feature allows a station user to access a conference circuit and progressively add internal and/or external parties to the conference connection without the assistance of an attendant. The station user that originates the conference is the conference master. The

conference master can add members, remove members, leave the conference to consult with a conferee privately, or call the attendant. If the conference master releases from the conference, the position of conference master can be obtained by any station conference member.

The maximum number of parties allowed in the conference is seven. However, the attendant can enter the conference as an eighth party. The number of trunk parties allowed in the conference is variable (maximum of three) and set by a CMU procedure.

4.06 Queuing Features

a. Call-Waiting Indication (SLT,SDT)

A call-waiting tone is directed toward a busy station upon activation of the Internal Call Queuing – Standby, Executive Override – Automatic, or Attendant Camp-On features. The call-waiting tone notifies the called party that a call is waiting to be answered.

Distinctive call-waiting tone signals are provided to indicate whether the call is from a station or trunk. A single burst of tone represents a waiting-station call and a double burst of tone represents a waiting-trunk call. Call waiting is denied and busy tone is returned to the calling station if the called station is not in a two-party connection.

The call waiting indication is provided upon initial camp-on of the station. If the called station user does not answer the waiting call within a predefined time (nominal 10 seconds), a second tone is directed toward the called station. The delay interval for the second tone is variable via a CMU procedure.

b. Internal Call Queuing – Callback (SLT,SDT)

This feature allows a station user, after dialing a busy station, to wait in a queue and be called back when the station becomes idle.

A station user that encounters a busy tone after dialing a busy station number can establish an automatic callback condition by remaining off-hook until the busy tone changes to low tone. The user can then go on-hook. When both the called station and the activating station become idle, the activating station is rung. Upon answering, the called station is rung. A talking connection is made when the called station user answers. While the automatic callback is active, the activating station user may receive or originate other calls. The automatic callback can be cancelled at any time by dialing a cancellation code.

The SATURN IIE EPABX System can support up to 80 stations simultaneously while waiting for a callback via the Internal Call Queuing – Callback and Outgoing Call Queuing – Callback features. A station may be in only one callback queue at any one time.

c. Internal Call Queuing – Standby (SLT,SDT)

This feature allows a call to a busy station to be held waiting in a special standby queuing mode. While in

the standby queuing mode, the calling party is provided with special ringback tone while a call waiting tone is directed toward the busy station user. The busy station user may connect to the calling party either by going on-hook and being recalled or by using the Call Hold – Flip – Flop (Broker) feature. This feature is provided to a station on an automatic originating/terminating or manual originating basis.

1. Automatic Originating – A station assigned this type of standby queuing is automatically placed in the standby queuing mode immediately after originating a call to any busy internal station.

2. Automatic Terminating – A station assigned this type of standby queuing receives a call-waiting signal on any call attempting to terminate on the user's station when the user is busy on another call.

3. Manual originating – This type of standby queuing is provided as an additional procedure option for the Internal Call Queuing – Callback feature. After dialing a busy station and receiving busy tone, the user can establish a standby queuing condition by listening to busy tone until busy tone changes to a steady low tone and then to special ringback tone. Once the special ringback tone is heard, a call-waiting tone is applied toward the busy station which notifies the busy party of a waiting call.

The activating station user may convert from a standby queuing to an automatic-callback condition at any time by going on-hook. Refer to the Internal Call Queuing Callback feature for further details.

d. Outgoing Call Queuing – Callback (SLT,ATT,SDT)

This feature allows a station user, after dialing a busy outgoing trunk group, to wait in a queue and be called back when a trunk in the trunk group becomes available. The queue is handled on a first-in first-out basis. A station user that encounters a busy tone after dialing a trunk group access code can invoke the Outgoing Call Queuing Callback feature by remaining off-hook until busy tone changes to low tone and then returning on-hook. When a trunk becomes available and the user is next in queue, the SATURN IIE EPABX System automatically calls back the station user. The station user can complete the call originally attempted by going off-hook, listening for dial tone, and dialing the desired outside destination number.

While automatic callback is active, the activating station user may receive or originate other calls. The automatic callback can be cancelled at any time by dialing a cancellation code. This feature provides the attendant with the additional capability of extending a callback to an SLT or SDT party connected on the console. Also, when the attendant is in the queue, the attendant is given priority over SLT and SDT calls.

Each SLT and SDT is allowed only one callback queue request at any one time. Each attendant is allowed up to five queue requests.

e. Outgoing Call Queuing – Standby (SLT,ATT,SDT)

This feature is an extension of the Outgoing Call Queuing – Callback feature. With Outgoing Call Queuing –

Standby, instead of going on-hook to be called back when a trunk becomes available, the station user is allowed to wait off-hook in a standby queuing mode and listens to silence or music, if provided. When a trunk becomes available, the station is connected automatically to the trunk. The user may convert from standby queuing to callback queuing at any time by going on-hook. Refer to the Outgoing Call Queuing – Callback feature.

The call-waiting indication is provided upon initial campon of the station. If the called-station user does not answer the waiting call within a preset time interval (nominal 10 seconds), a second tone is directed toward the called station. The delay interval for the second tone is variable via a CMU procedure.

f. Call Waiting – Originating

This feature permits stations having the proper class-of-service to have originating call waiting service. When a station with this feature directs a call to a busy station, the calling party is "camped-on" to the busy station in a call waiting state. This occurs regardless of whether the called station is classmarked for call waiting or not. A call waiting indication is directed to the busy station user. If the busy station is a member of a hunt group, hunting is attempted before camp-on is applied.

g. Call Waiting – Terminating

Assigned on a per-station basis and working in conjunction with the system's camp-on facilities, this feature permits a given station to receive any type of call waiting indication. When a call is directed to a busy station with this feature, the calling party is "camped-on" to the busy station in a call waiting state. A call waiting indication is directed to the busy station user. If the busy station is a member of a hunt group, hunting is attempted before camp-on is applied. If the calling party is a station, Direct Inward System Access (DISA) trunk, or tie trunk, special audible ring tone is connected to the calling party while the call is in the waiting mode. If the calling party is a Direct Inward Dialing (DID) trunk, audible ring tone is connected to the calling party while the call is in the waiting mode. This feature is allowed only if the called station user is in a stable two-party talk state. Call Waiting is denied if the call is in a transient state. If denied call waiting, the calling party receives busy tone.

4.07 Call Forwarding Features

a. Call-Forwarding – All Calls (SLT,SDT*)

This feature allows a station user to have all incoming calls terminating at the user's station, forwarded to another station or to the attendant console. As a reminder that call forwarding is activated, the forwarding station hears one short burst of ringing each time a call is forwarded. The station that originated call forwarding may continue to originate other calls while call forwarding is in effect.

If a call is forwarded to a member of a hunt group that is busy, the system hunts for the first idle member in

that hunt group. If no idle member is found, the Camp-On, Call Waiting, or Automatic Callback features may be applied on the FWD-TO station. A station within the hunt group that has this feature in effect is skipped during hunting. If the station is called direct (not part of a hunt sequence) the call is forwarded as described in the above paragraph.

Activation of the Call Forwarding – All Calls feature via SDTs is performed on a per-line basis.

b. Call Forwarding – Busy Line (SLT,SDT*)

This feature allows a station user to have all incoming calls terminating at the user's station, forwarded to another station or to the attendant when the station is busy. If the station that has the Call Forwarding Busy Lines feature in effect is idle, calls to that station are completed as usual. If the forwarded-to-station is busy, call forwarding does not occur.

If a call is forwarded to a member of a hunt group that is busy, the system hunts for the first idle member in that hunt group. If no idle member is found, the Camp-On , Call Waiting or Automatic Callback features may be applied on the FWD-TO station. A station within a hunt group that has this feature in effect is skipped during hunting.

If the station is called direct (not part of a hunt sequence) the call is forwarded as described in the above paragraph. Both the Call Forwarding – Busy Lines feature and the Call Forwarding – No Answer feature can be active from the same station at the same time; however, the forwarded-to station must be the same. Activation of the Call Forwarding – Busy Lines feature via SDTs is performed on a per-line basis.

c. Call Forwarding – Fixed (SLT,SDT)

This feature allows a station user to have incoming calls forwarded to a fixed location if the called station is busy or does not answer. When Call Forwarding – Secretarial is assigned, all calls are forwarded. A station can have Fixed or Secretarial Call Forwarding, but not both. For station users allowed to access a Voice Mail System, it is necessary that this feature be assigned to the user's class-of-service.

The station user activates Call Forwarding – Secretarial by dialing the Call Forwarding – Fixed access code. Call Forwarding – Fixed is an option, assignable by CMU, via STNASSN CMU procedure. Calls to the station are then forwarded to the designated station.

If Call Forwarding – Fixed is assigned and the station user activates one of the other call forwarding features (e.g., Call Forwarding – All Calls) the new selected feature will take precedence over Call Forwarding – Fixed.

Call Forwarding – Secretarial is cancelled by the user dialing a cancellation code.

d. Call Forwarding – No Answer (SLT,SDT*)

This feature allows a station user to have all incoming calls forwarded to another station or to the attendant when a call directed to that station remains unanswered for a preset time interval (nominal 18 seconds).

If a call is forwarded to a member of a hunt group that is busy, the system hunts for an idle member in that hunt group. If no member is found, the forwarding station continues to ring for another no-answer time interval. At the end of the time interval, the forwarding process is attempted again. A station within a hunt group that has this feature in effect is skipped during hunting. If the station is called direct (not part of a hunt sequence) the call is forwarded, as described in the above paragraph.

Both the Call Forwarding – No Answer feature and the Call Forwarding – Busy Lines feature can be active from the same station at the same time. However, the forwarded-to station must be the same. Activation of the Call Forwarding – Busy Line feature via SDT is performed on a per-line basis.

e. Call Forwarding – Return (SLT,SDT)

This feature allows a station user that has received a forwarded call to transfer the call to the station from which call forwarding is active. The operation of this feature is identical to the feature "Call Transfer" except instead of dialing the forwarding-station number, the user dials the Call Forwarding – Return feature access code.

f. Call Forwarding – Secretarial (SLT,SDT*)

This feature allows a station user to have all incoming calls terminating at the user's station, forwarded to a pre-assigned station.

A station user activates this feature by dialing the Call Forwarding – Fixed feature access code.

Calls to the station are then forwarded to the designated station. As a reminder that the Secretarial Intercept feature is activated, the station user hears one short burst of ringing each time a call is forwarded. Call Forwarding – Secretarial is canceled by the user dialing a Call Forwarding – Fixed cancellation code or Call Forward cancel code.

Activation of the Call Forwarding – Secretarial feature via SDTs is performed on a per-line basis.

g. Call Forwarding to Public Network (SLT,SDT)

This feature allows a station user to have all incoming calls terminating at the user's station, forwarded to an "outside" directory number. While call forwarding is activated, the forwarding station receives one short burst of ringing for each incoming call to remind the user that forwarding is in effect.

The station user that activated call forwarding may continue to originate other calls while call forwarding is in effect.

Activation of the Call Forwarding to Public Network feature via SDTs is performed on a per-line basis.

4.08 Call Pickup Features

a. Call Pickup – Directed (SLT,SDT*)

This feature allows a station user to answer any ringing station within the SATURN IIE EPABX System by dialing an access code and then the station number of the ringing station. The feature is usually limited by its nature to areas where the station to be picked up can be observed either by a positive audible indication or a visual means (a local ringing indicator).

Any number of stations are capable of being provided with the Call Pickup – Directed feature.

b. Call Pickup – Group (SLT,SDT*)

This feature allows a station user to answer an incoming call that is ringing at another station within a predefined pickup group by dialing an access code. The pickup group consists of a group of stations, generally within hearing distance of ringing, for which any ringing station may be answered by any group member.

The SATURN IIE EPABX System is capable of providing any required number of pickup groups. The maximum number of stations allowed in a pickup group is 30.

4.09 Speed Calling Features

a. Last Number Redial (SLT,SDT*)

This feature allows a station user to have the last number dialed from the user's station automatically redialed, by dialing an access code. This feature is useful when the user has dialed a busy destination and desires to make the call at a later time without having to redial the full number.

b. Speed Calling – Group (SLT,ATT,SDT*)

This feature allows station users to reach frequently-called numbers normally associated with outgoing trunk calls by dialing abbreviated dial codes instead of full numbers.

Each abbreviated code consists of an access code and a two digit number associated with the external number. Speed calling codes are established and maintained via CMU procedures. The abbreviated codes can be dialed from any station assigned the Speed Calling – Group feature. The SATURN IIE EPABX System has the capability of providing up to four speed calling groups and storing in memory a maximum of 64 frequently-called numbers per group. Each number can be a maximum of 18 digits long.

c. Speed Calling – Individual (SLT,SDT*)

This feature allows a station user to reach frequently-called number by dialing abbreviated dial codes instead of full numbers. The station user provided with the Speed Calling – Individual feature programs the numbers into system memory from the user's station set. The abbreviated codes can be dialed only from the station set at which they were programmed.

The SATURN IIE EPABX System has the capability of providing the Speed Calling – Individual feature to a

maximum of 128 stations. A maximum of 10 frequently-called numbers can be programmed from each station. Each number can be a maximum of 18 digits long.

NOTE: The Jr. DYAD provides an inherent Speed Dial feature button which stores in its own memory a maximum of 10 frequently-called numbers. Each number can be a maximum of 25 digits long.

4.10 Station Hunting Features

a. Pilot Number Access (SLT,SDT)

This feature allows a station user to dial a pre-assigned pilot number and automatically be connected to an idle station within a pre-assigned hunt group. Station hunting occurs only when the hunt group is accessed via the pilot number. The pilot number is a number that is not assigned to a station. Pilot number hunting searches through a prearranged group for an idle station from the first assigned designated station in the group to the end of the group. The call is completed to the first idle station encountered. If all stations are busy, busy tone is heard. Stations within a pilot hunt group can be called directly by dialing the normal assigned extension number, in which case no hunting occurs.

b. Station Hunting – Busy Advance

This feature allows the system to search for an idle station in a hunt group if the station called is busy. The feature is activated when a call is made to a busy station within a hunt group. If the station is busy, the system only checks the class-of-service of the hunt group member who was called and proceeds through the group as if each member in the hunt group had the same class-of-service as the member to whom the call was made.

This feature is selected by setting the Busy Advance classmark (HUNTBUSY) in the station Class-of-Service (COS).

In a system where neither Busy Advance (HUNTBUSY) nor No Answer Advance (HUNTNOANS) classmarks are set, the system performs both functions. If HUNTBUSY alone is set within COS, the HUNTNOANS function is deleted. If HUNTNOANS alone is set within COS, the HUNTBUSY function is deleted. If both classmarks are set, both functions will be performed.

c. Station Hunting – Circular (SLT,SDT)

An incoming call to a busy station assigned to a circular hunt group causes the SATURN IIE EPABX System to progressively search for an idle station within that hunt group. The hunting sequence starts with the called station and ends after all stations in the hunt group are checked, thus completing the call to the first idle station encountered. If all stations are busy, busy tone is heard.

If a call is forwarded to a member of a circular hunt group that is busy, the system hunts for the first idle member in that hunt group. If no idle member is found and the Call Forwarding – No Answer feature is in

effect, the forwarding station continues to ring for another no answer interval. At the end of the time interval, the forwarding process is attempted again. If the Call Forwarding – All Calls or Call Forwarding – Busy Lines feature is in effect, the forwarding station user may activate the Internal Call Queuing – Standby or Internal Call Queuing Callback features. A station within the circular hunt group that has this feature in effect is skipped during hunting. If the station is called direct (not part of a hunt sequence) the call is forwarded as described previously.

The hunting sequence can be arranged for either consecutive or non-consecutive numbers. The SATURN IIE EPABX System is capable of providing any required number of circular hunt groups. A maximum of 30 stations can be assigned to each circular hunt group.

d. Station Hunting – No Answer Advance (SLT,SDT)

This feature searches for another idle station in a hunt group if a ringing station is not answered within a predetermined period of time. The search for call completion advances until the last station is reached, in which case the last station rings until an automatic recall is initiated.

e. Station Hunting – Secretarial (SLT,SDT)

This feature allows calls to a busy hunt group to be automatically routed to a common station or to a common hunt group. The common station or hunt group can be assigned to handle overflow calls from one or several hunt groups. Two circular hunt groups cannot be combined.

f. Station Hunting – Terminal (SLT, SDT)

An incoming call to a busy station, assigned to a terminal hunt group, causes the SATURN IIE EPABX System to progressively search for an idle station within that hunt group. The hunting sequence starts with the called station and ends with the last station in the group completing the call to the first idle station encountered. If all stations are busy, busy tone is heard.

If a call is forwarded to a member of a terminal hunt group that is busy, the system hunts for an idle member in that hunt group.

If no idle member is found and the Call Forwarding – No Answer feature is in effect, the forwarding station continues to ring for another no answer interval. At the end of the time interval, the forwarding process is attempted again. If the Call Forwarding – All Calls or Call Forwarding – Busy Line feature is in effect, the forwarding station user can activate the Internal Call Queuing – Standby or Internal Call Queuing Callback features.

A station within the terminal hunt group that has this feature in effect is skipped during hunting. If the station is called direct (not part of a hunt sequence) the call is forwarded as previously described.

The hunting sequence can be arranged for either consecutive or non-consecutive numbers. The SATURN IIE EPABX is capable of providing any required number of terminal hunt groups. A maximum of 30 stations can be assigned to each terminal hunt group.

g. Stop Hunt (SLT,SDT)

This feature provides the capability for hunt groups to be temporarily reduced in size. The hunt list is shortened by a station user dialing the stop hunt access code from the station in which all succeeding stations are to be excluded from the hunting list.

For example, if the hunt sequence included extensions 234-235-236-237-238 and the stop hunt access code is dialed at extension 236, the new hunt sequence would be extensions 234,235,236. The hunt group can be returned to its full size by a station user dialing the stop hunt cancellation code from the station at which the Stop Hunt feature was activated.

h. Automatic Call Distribution (SLT,SDT)*

- **ACD Incoming Call Completion.** When an incoming (CO) call is directed to an ACD group and no station within that group is immediately available for assignment, completion of the call takes place in the following sequence: ringing is detected and continues for a timed period. The caller is then connected to the announcement, if provided. After that, the caller is connected to silence or music, if provided.

- **FIFO Queue Operation.** Answering of all incoming (CO) calls to the same ACD hunt group is performed on a strictly first-in/first-out (FIFO) basis. For instance, if the oldest call is connected to an announcement and is only part way through it when a station becomes available, the call is immediately disconnected from the announcement and connected to the available station.

- **Timing of CO Ringing.** If announcement capability is used in the ACD hunt group, answer supervision is not returned to the central office until the station selected actually answers.

  If the announcement capability is used in the group, ringing continues until either the selected station answers or the announcement is connected. When either of these occurs, answer supervision is returned to the central office.

- **Music-on-Hold (MOH) Delay.** When this feature is implemented, waiting callers receive MOH, which continues until a station is assigned to the call. When a station is assigned, the caller receives ringback tone until the station answers.

---

* These four features are basic SATURN features; additional SATURN ACD features are also available. "ACD" has been referred to as "UCD" in previous sales literature.

4.11 Message Waiting Features

a. Message Waiting – Automatic Callback (SLT,SDT*)

A station user that receives a message waiting indication, can have the SATURN IIE EPABX System automatically attempt a connection to the activating station by dialing an access code.

b. Message Waiting – Cancellation (SLT,SDT*)

A station user that receives a message from, or sends a message to another station, may cancel the message by dialing the appropriate cancellation access code. When a station user invokes the Message Waiting – Automatic Callback feature, the associated message waiting indication is automatically cancelled as soon as the station from which the message waiting was originated is answered.

c. Message Waiting Capability (SLT, ATT*,SDT*)

This feature allows a station user to send a message waiting indication to a party at another station. The message waiting indication consists of a flashing lamp and/or a display on the alphanumeric display (SDT 18- and 26-button sets only).

The message Waiting feature can be activated toward any SATURN IIE EPABX System station as long as the station has the capability to receive Message Waiting indications. Activation of the Message Waiting feature can be performed either immediately after dialing a busy station number or without first attempting a call to the destination station.

Only one message may terminate at an SLT at any one time. The maximum number of messages that can terminate at an SDT is four.

4.12 Privacy Features

a. Attendant Override Security (SLT,SDT)

Stations assigned this feature may not be overridden by the attendant.

b. Data Line Security (SLT,SDT)

Stations assigned this feature may not be overridden, camped-on, or receive any other signals (e.g., call waiting tone) when the station is busy.

c. Do-Not-Disturb (SLT,SDT*)

A station user that wishes not to be disturbed by incoming calls may activate the Do-Not-Disturb feature and make the user's station appear busy. When this feature is active, all calls to the station receive a busy tone. The user may originate calls in the normal manner. However, each time the user goes off-hook, recall dial tone is heard as a reminder that the station is in the Do-Not-Disturb mode. Activation of the Do-Not-Disturb feature via SDTs is performed on a per-line basis. Intercom calls and Voice calls are not affected by activation of the Do-Not-Disturb feature. Message Waiting may be activated to a station that has the Do-Not-Disturb feature active.

d. Executive Override (SLT,SDT*)

This feature allows a station user, upon encountering a busy or special ringback tone on an internal call, to enter into the existing connection for the intended purpose of announcing a high priority or emergency call. A warning tone is provided to both parties before the conversation is overridden. (This tone may be repeated.) Executive Override cannot be invoked if the called station is not in a stable two-party state, established in a three-way connection, assigned with Data Line Security or Executive Override Security, connected to an attendant or customer-provided equipment (paging, dictation, code calling), or no 4 port conference bridge is available. If the called station is in the Do-Not-Disturb mode, this feature is overridden causing the station to ring as in a station-to-station call.

e. Executive Override – Automatic (SLT,SDT)

This feature allows a station user to camp-on to a busy station and automatically break into the call in progress if the called party does not answer within a predetermined period of time. Before the call is overridden, a warning tone is heard by the two conversing parties, alerting them of the impending override. The override function does not occur if the called station is not in a stable two-party talk state, established in a three-way connection, assigned with Data Line Security, or Executive Override Security, connected to an attendant or customer-provided equipment (paging, dictation, code calling), or no 4 port conference bridge is available. If the called station is in the Do-Not-Disturb mode, this feature is overridden causing the station to ring as in a station-to-station call.

f. Executive Override Security (SLT, SDT)

Stations assigned this feature may not be overriden by individuals employing the Executive Override Without Warning Tone feature.

g. Executive Override No Tone Security (SLT, SDT)

Stations assigned this feature may not be overriden by individuals employing the Executive Override Without Warning Tone feature.

h. Executive Override Without Warning Tone (SLT, SDT)

This feature allows station users, upon encountering busy or special ringback tone on an internal call, to enter into the existing connection for the purpose of announcing a high priority or emergency call. No warning tone is provided to the conversing parties. This feature cannot be invoked if the called station is not in a stable two-party connection, established in a three-way connection classmarked with Data Line Security or Executive Override Security – No Tone, connected to an attendant or customer-provided equipment (paging, dictation, code calling), or no 4 port conference bridge is available. If the called station is in the Do-Not-Disturb mode, this feature is overridden causing the station to ring as in a station-to-station call.

Both features. Executive Override (With Warning Tone) and Executive Override Without Warning Tone, may

coexist in the system. Stations may be assigned either, both, or neither feature, based upon their individual class-of-service. The type of override performed, when allowed, is determined by the access code dialed.

While listening to busy or special ringback tone, the calling party depresses the hookswitch and receives recall dial tone. The calling party then dials the access code assigned to Executive Override Without Warning Tone. After a steady, low tone is received, a third party is connected to the existing conversation.

If either talking party's class-of-service is classmarked for Data Line Security or Executive Override Security – No Tone, reorder tone is returned to the calling party.

WARNING
The use of the Executive Override Without Warning Tone feature may be contrary to law and could result in criminal penalties in some jurisdictions. You should consult your attorney before using this feature.

4.13 Special Station Assignment Features

a. Hot Line Service (SLT,SDT)

This feature allows stations to be programmed for automatic dialing of a predetermined destination number upon the station user going off-hook. The destination may be any place which can be reached by dialing (SATURN IIE EPABX station or attendant, exchange network telephone, etc). Calls terminate at these stations in the normal manner. Any number of SATURN IIE EPABX stations can have this service. However, the maximum number of allowed destinations is 32.

b. Originate-Only Service (SLT,SDT)

A station user at a station assigned this feature is allowed to originate calls only. Calls cannot terminate at this station.

c. Terminate-Only Service (SLT,SDT)

A station user at a station assigned this feature is allowed to receive calls only. Calls are not allowed to be originated from this station.

4.14 Additional Features

a. Call Tracing (SLT,ATT,SDT)

This feature allows a station user to have certain call data recorded on an SMDR device (e.g., printer). The SMDR device records the calling number (if an internal call) or the incoming trunk or trunk group number (if an external call), the called number, and the date and time of the call.

b. Mobile Authorization Codes (SLT,SDT)

This feature allows individuals to dial a two-to-six digit

authorization code from any SATURN IIE EPABX station and temporarily gain access to a pre-assigned class-of-service. The individual then can place a call or activate a feature that otherwise would be restricted from the station. An authorization code is assigned to a class-of-service by using a CMU procedure. After the authorization code is dialed, recall dial tone is returned to the individual to indicate that the class-of-service defined by the authorization code is in effect.

The user then can dial the number that otherwise would have been restricted by the station's class-of-service.

After the individual goes on-hook, the class-of-service defined by the authorization code is removed, and the station's original class-of-service becomes active.

Two thousand authorization codes (DISA or Mobile) are provided in the SATURN IIE EPABX System.

c. The Single-Line Telephone Special Account Code Entry (SLT)

This feature allows SLT station users, while engaged in a call, to change the account code to which the call is charged to a special account number.

While engaged in a conversation with a trunk party (either incoming or outgoing), the station user momentarily depresses the hookswitch and receives recall dial tone.

The user then dials the access code for the SLT – Special Account Code Entry feature, gets recall dial tone again, then dials the special account code. The user then receives confirmation tone and is reconnected to the trunk party.

d. Station Forced Disconnected (SLT)

A station used with automatic answering equipment (e.g., paging, dictation, modems, etc.), which is interfaced via an SLMA-S, can be provided with a loop current interrupt immediately after a calling party disconnect is detected to prevent the equipment from remaining in a busy state. This feature is assigned via the line class-of-service.

e. Voice Mail Interface (SLT,SDT)

The Voice Mail Interface feature allows the SATURN IIE EPABX System to interface with voice mail systems. Operation of the voice mail system must be in accordance with the manufacturer's specifications for the voice mail system used.

Call Forwarding – Fixed, Call Forwarding – Variable, or Call Forwarding – Busy may be used to direct calls to the system when acctivating voice mail.

SECTION 5.00 SIEMENS DIGITAL TELEPHONE FEATURES

5.01 Siemens Digital Telephone Overview (SDT)

The SATURN SDT is a sophisticated, digital electronic telephone which is available in three configurations: 16-button Jr. DYAD, 18-button DYAD, and 26-button DYAD, respectively. The buttons can be flexibly assigned to several lines, trunks, and/or features.

An alphanumeric liquid crystal display is provided on the 18- and 26-button SDTs. The alphanumeric display provides various information about a call or feature such as the digits dialed from the SDT, identity of an incoming call, messages, etc.

All SDTs are provided with a built-in speaker and separate volume controls for adjusting the receive loudspeaker volume and the audible alerting tones. (Refer to the User Guide for adjustment instructions.)

Each SDT is equipped with a single communication channel which is used exclusively for voice communications. The SDTs can be located up to 2,000 cable feet (610 meters) from the SATURN IIE EPABX.

The DYAD is also equipped with a built-in microphone; the speaker/microphone combination arrangement allows the DYAD to be provided with Hands-Free Operation features.

Refer to Section 4.00 for additional SDT-related features.

5.02 General Features

a. Automatic Line Preference

Connection to a given pick-up line on an SDT can be provided on an automatic basis. Each SDT can be assigned one originating and one terminating preference. The originating preference options are: Prime Line Preference, Last Line Preference, and Idle Line Preference. The terminating preference options are: Ringing Line Preference and Incoming Line Preference. If an automatic line preference is not assigned, the SDT user must manually depress a pick-up button each time the user originates and answers a call.

   1. Originating Line Preferences

   a) Prime Line Preference. This preference option automatically selects for the SDT station user, the prime line pick-up button when the user goes off-hook to originate a call.

   b) Last Line Preference. This preference option automatically selects for the SDT station user that goes off-hook, the same line pick-up button to which the user was connected the last time the user was off-hook on the SDT.

   c) Idle Line Preference. This preference option automatically selects for the SDT station user, an idle EPABX line pick-up button when the user goes off-hook to originate a call.

   2. Terminating Line Preferences

   a) Ringing Line Preference. This preference option automatically selects for the on-hook SDT station user, a pick-up button associated with a call in the ringing state. Pick-up buttons associated with lines that are not assigned to ring on the SDT are not selected.

   b) Incoming Line Preference. This preference option automatically selects for the on-hook SDT station user, a pick-up button associated with an incoming call. The line pick-up button associated with an incoming call is selected regardless of whether the line is in the ringing or alerting state at that SDT.

A terminating line preference takes precedence over an originating line preference when a terminating call exists. The SDT user may override an automatic preference by preselecting a pick-up button prior to going off-hook.

b. Call Release

In applications where the on-hook (or off-hook) state of the SDT cannot be provided by way of the hookswitch, the user can obtain the on-hook (off-hook) state by depressing the release feature button. The Release feature button is normally assigned to SDTs from which the user makes use of a headset instead of a handset, or when the user attaches the handset to an acoustically-coupled device (i.e., modem).

c. Call Transfer to Attendant

An SDT station user engaged on an incoming or outgoing call may transfer the call to the attendant for further assistance by depressing the Attendant Transfer feature button and going on-hook. Alternatively, the user may depress the Attendant Transfer button, wait until the attendant answers, announce the call, and then go on-hook to transfer the call.

d. Feature Buttons

Feature buttons are non-locking pushbuttons on the SDT assigned to provide direct access to SATURN IIE EPABX System features in lieu of the more traditional requirement of dialing feature access codes. An LED located within each feature button, except in buttons 5 and 10 at the bottom on the 18- and 26-button SDTs and the bottom eight buttons on the 16-button SDT, provides the active/inactive status of most features.

e. Forced Call Forwarding

This feature allows an SDT station user to forward a waiting or ringing call to a preassigned station by depressing the Forced Call Forwarding feature button. The forwarded-to station is assigned via a CMU procedure. If the forwarded-to station does not answer the call within 30 seconds (adjustable via a CMU procedure), the call is transferred to the attendant console

f. I-Use Indication

This feature is used by the SDT station user to determine which line the user is presently utilizing. The SDT user activates this feature by depressing the I-Use feature button. This causes all button LEDs to momentarily go dark with the exception of the button LED corresponding to the line in use by the user. The I-Use Indication lasts for a period of 1.5 seconds. This feature is activated automatically when the user goes off-hook or depresses a pick-up button for pre-selection.

g. Multiline Pickup

This feature allows a SDT station user to have access to several lines. Each line is assigned to a separate pick-up button and corresponds to an EPABX line, CO trunk, WATS trunk, FX trunk, etc. Calls may be originated from or received at any appearance of a particular line by operation of the appropriate pick-up button. Each pick-up button is provided with an LED that indicates the status of the associated line.

Each digital telephone set must have one (and only one) Prime Line assigned. This line may have appearances at other sets but may not be the Prime Line for those sets. In addition to the Prime Line, each set may have line appearances which are not Prime Lines for any set. Such lines are known as "phantom" lines. Phantom lines may also have multiple appearances. A maximum of 128 phantom lines may be assigned in all loads within the SATURN IIE EPABX System. Phantom lines are not to be confused with "alias" numbers, which are multiple station numbers assigned to the same station without separate pick-up buttons. (Alias numbers also apply to single-line telephone sets.) Single-line telephone sets may also have a line appearance or multiple line appearances on digital telephone sets.

h. Pickup Buttons

Pick-up buttons are non-locking pushbuttons on the SDT assigned to provide direct originating and/or terminating access to an EPABX line, trunk, intercom or system facility (e.g., paging). An LED located within each feature button, except in buttons 5 and 10 at the bottom on the 18- and 26-button SDTs and the bottom eight buttons on the 16-button SDT, provides the current busy/idle status of the associated facility.

i. Station Senderized Operation

Individual SDTs only transmit inaudible digital signals to the SATURN IIE EPABX System common control equipment. If the call is intended to leave the system, the common control equipment stores the digital signals and converts them to dial pulses or DTMF signals, as required, for further transmission to the connecting office. A tone generator, located inside each SDT, produces an audible tone each time a keypad key is depressed as confirmation of a key depression.

5.03 Ringing Features

a. Abbreviated Ringing – Station Busy

Abbreviated ringing is provided when an SDT station

user is active on a call and an incoming call appears on another pick-up button that is programmed to ring on the SDT. When the call first appears, one short burst of tone is heard. The tone is heard only once. The LED within the associated pick-up button flashes, as normal, to indicate the alerting call. If the user goes on-hook to answer the incoming call, the normal ringing tone pattern is heard.

b. Common Audible Ringing

Each pick-up line on a multiple line SDT is assigned as either a ringing or non-ringing appearance. A line that appears on more than one SDT can ring on one, a combination, all, or none of the line appearances.

c. Station Ringer Cutoff

The feature allows the SDT station user to disable the SDT's audible alert tone by depressing the Station Ringer Cutoff feature button. When the audible alert tone is disabled, all ringing features associated with line appearances are turned off regardless of the call type and/or ringing assignments for the SDT. The station user may enable the audible alert tone function by again depressing the Station Ringer Cutoff feature button.

5.04 Direct Access Features

a. Direct Station Selection

The Direct Station Selection (DSS) feature allows automatic dialing of a preassigned station number when the SDT station user goes off-hook on a pick-up line and depresses the appropriate DSS feature button. Each SDT can be equipped with one or more DSS feature buttons, each corresponding to a station number assigned via a CMU procedure. An LED, located within each DSS feature button, provides a visual indication of the busy/idle status of the associated station.

b. Direct Trunk Group Selection

A pick-up button can be assigned on one or more SDTs for direct, rather than dial, access of a trunk group. Up to eight SDTs can have an appearance of the trunk group. The busy/idle status of the trunk group is indicated via an LED located within the associated pick-up button. A dark LED indicates at least one trunk is idle in the trunk group and a lighted LED indicates all trunks in the trunk group are busy. No incoming calls terminate on this pickup button.

c. Direct Trunk Selection

A pick-up button can be assigned on one or more SDTs for direct, rather than dial, access of a specific trunk. Up to eight SDTs can have an appearance of a specific trunk. The busy/idle status of the trunk is indicated via an LED located within the associated pick-up button. A dark LED indicates the trunk is idle and lighted LED indicates the trunk is busy. Incoming calls over the trunk cause the LED to flash at all appearances of the trunk. Ringing is provided at all trunk appearances assigned to ring.

d. Saved Number Redial

After dialing a destination number and while still off-hook, the SDT station user may store into system memory the just-dialed number by depressing the Saved Number Redial feature button. Later the user can have the stored number automatically redialed by depressing the same feature button. Only one number can be stored at a time at each SDT.

e. Station-Defined Direct Dial

The Station-Defined Direct Dial feature allows a station user to access either another station within the system or various system feature access codes, by depressing a feature button. No dialing is required by the station user to invoke this feature.

A string of up to four digits can be assigned to each SDT button. This digit string can consist of group speed call access codes, individual speed call access codes, feature access codes, or extension numbers. A minimum of 1 and a maximum of 16 station-defined direct dial buttons can be used with the SDT.

5.05 Hold Features

a. Exclusive Hold

This feature allows the SDT station user to place a call in a special hold mode, such that only the station user that held the call can retrieve the call, even though the line may appear at other stations. Exclusive hold is activated by depressing the Exclusive Hold feature button which causes the associated line pick-up LED at the activating station to flutter and light steadily at all other appearances of the line. The call may be retrieved by the station user again depressing the pick-up button.

b. Manual Hold

This feature allows the SDT station user to place a call in a special hold mode, such that other station users having access to the same line appearance can retrieve the call. Manual hold is activated by depressing the Manual Hold feature button causing the associated line pick-up LED to wink at all appearances of the line on hold. The call may be retrieved at any station with an appearance of the line by the station user depressing the winking pick-up button.

5.06 Intercom Features

a. Automatic Answer

The Automatic Answer feature applies to station-to-station, Automatic Intercom, and Executive Intercom calls. (The feature cannot be used with attendant-extended trunk or DID calls.) This feature can be limited to Automatic Intercom and Executive Intercom calls by class-of-service assignment.

The Automatic Answer feature requires that the station also have the Hands-Free feature assigned. Automatic Answer can be alternately turned ON or OFF by depressing the AUTO ANSWER feature button. The LED in the AUTO ANSWER feature button is lit when

the feature is activated. In that case, an incoming station or intercom call causes three short bursts of alerting tone. The set is then automatically placed in the Hands-Free mode.

b. Automatic Intercom

This feature provides a talking path between two designated SDTs with automatic signaling of the called SDT. An Automatic Intercom call is initiated by depressing the dedicated intercom button associated with the called SDT. The station number of the called SDT is displayed on the alphanumeric display.

c. Executive Intercom

This feature allows the SDT station user, by depressing the Executive Intercom feature button and keying a single digit code, to connect to another SDT within a prearranged intercom group. Each SDT can be equipped with multiple Executive Intercom feature buttons with each button corresponding to a separate intercom group. Each intercom group can have a maximum of ten member stations. The executive intercom call is distinguished from other types of intercom calls by three-burst ringing at the called SDT.

d. Manual Intercom

This feature allows the SDT station user to connect to a common intercom path by depressing th Manual Intercom pickup button. All manual intercom LEDs light steadily when the station user connects to the intercom. A maximum of eight SDTs can be connected to a manual intercom group at any one time. Signaling of one or up to a maximum of eight predetermined SDTs within the intercom group is performed by depressing the Manual Signaling feature button. When the Manual Signaling feature button is depressed, a continuous tone is heard at the preassigned SDT(s) for as long as the button is depressed.

e. Voice Announce

The Voice Announce feature may be used in conjunction with Automatic Intercom and Executive Intercom calls only. This feature establishes a one-way communication path which allows a calling party to be heard over the called party's SDT's built-in speaker.

When Voice Announce is used, only a one-way conversation path exists from the SDT of the calling party to the SDT of the called party. To allow a two-way conversation, the called party must either go off-hook or enter the Hands Free mode of operation (if provided).

Voice Announce can be alternately turned ON or OFF by depressing the VOICE ANN feature button. The LED in the VOICE ANN feature button is lit when the feature is activated. In that case, an incoming intercom call causes three short bursts of alerting tone. The calling party receives one short burst of ringback tone, after which the calling party may converse over the called party's speaker.

Other calls in progress are not interrupted by Voice Announce calls. The called party may, if desired, place

an existing call on hold to receive an incoming Voice Announce call.

5.07 Display Features (18- and 26-Button SDTs only)

a. Attendant Identification on Display

An SDT station user dialing the attendant or receiving a call from the attendant results in the attendant indicator and attendant identification number being displayed on the alphanumberic display (e.g., ATT 400).

b. Call Forwarding Display

An SDT station user that activates a call-forwarding feature is provided with a display of the forwarded-destination number when the SDT is not in use (e.g., FWD-TO 419). An SDT station user that receives a forwarded call is provided with a display that indicates the number of the station that activated call forwarding and the source number or designation of the calling party (e.g., CF 1234 LOCAL).

c. Call Park Location Number Display

An SDT station user that parks a call by depressing the Call Park feature button is provided with a display that identifies the location of the parked call.

d. Call Pickup Source Display

An SDT station user that answers a call via the Dial Call Pickup feature is provided with a visual display of the picked-up station number and the source number or designation of the calling party (e.g., PU 3939 LOCAL).

e. Call Waiting Display

An SDT station user that receives a call waiting signal is provided with a display that includes the call waiting indicator, the station number or trunk identity of the call waiting to be answered, and the station number or trunk identity of the connected party.

f. Callback Number Display

An SDT station user is provided with a callback number display upon receiving a call for an automatic callback that was initiated earlier by the user. The display includes the callback indicator and the station number to which automatic callback was initiated (e.g., CALLBCK 1219).

g. Conference Mode Display

An SDT station user is provided with a conference display (CONF) whenever the user is engaged in a conference connection.

h. DID Call Forward Display

With this feature, the alphanumeric display on an Attendant console shows that the incoming call is a DID trunk call forwarded by another station.

The SDT displays "CF" the identity of the station for-

warding the call, and a DID trunk identifier message.

The ATT displays "IN VIA CFWD", the DID trunk group and trunk member, and the forwarding station's class-of-service and identity.

i. Dial Input Verification Display

This feature allows an SDT station user, dialing a destination number or access code, to verify the digits dialed from the SDT. As each digit is dialed from the digital keypad, the digit is displayed on the alphanumeric display, scrolling the dialed digits from right to left.

j. Duration of Call Display

This feature provides a display of the elapsed time the SDT station user has been engaged on a particular call. The time is displayed in minutes and tenths of minutes and incremented in one-tenth intervals. The feature is activated and deactivated by the user depressing the Duration-of-Call feature button.

k. Incoming Call Display

An SDT station user that receives an incoming call is provided with a display of the source of the calling party. The call source is defined in SATURN IIE memory as a station number for internal calls and a trunk-type display for external calls.

The station number display consists of the calling party's extension number (e.g., 1219). The trunk-type display is customer-defined by the assignment of up to eight alphanumeric characters to represent the trunk-type (e.g., TIE-NY, WATS, LOCAL, etc.). The trunk-type display is assigned on a trunk-group basis.

l. Message Waiting Source Display

An SDT station user that receives a message waiting indication is provided with a display that includes the message "CALL" and the station number from which message waiting was activated (e.g., CALL 1212).

m. No Answer Advance Display

With this feature, the alphanumeric display on the SDT that is used as the destination for the No Answer Advance hunting feature will show "NA" to indicate that the call is a No Answer Advance, the identity of the station that did not answer, and the identity of the calling station.

n. Recall Identification Display

An SDT station user that answers a call that is part of a recall receives a recall identification display on the alphanumeric display (e.g., RECALL 1234).

o. Speed Calling – Individual List Display

This feature allows an SDT station user to display the individual's speed call list of directory (or station) numbers. The display can be used as a reference for dialing speed call numbers or for making changes to the

list. The first number of the speed call list can be displayed by depressing the Speed Call feature button while remaining on-hook. Additional depressions of the Speed Call feature button cause other members of the speed call list to be displayed in sequence.

p. Station Message Detail Recording Account Code Display

This feature allows an SDT station user to depress the Account Code feature button and display the preassigned default account code or the special account code entered previously by the user. The display includes the account code indicator and account code to which the present call is being recorded (e.g., ACCT 55101024567). The user may change the account code to another account code at any time during an established call.

q. Time-of-Day Display

This feature allows an SDT station user to obtain the time of day, by depressing the Time-of-Day feature button. The time is obtained from the SATURN IIE EPABX System clock and displayed in either a 12-hour or 24-hour format depending on the system option in use. The nominal time for the display is 1.5 seconds (variable via CMU procedures). Thereafter, the display goes blank and is replaced by whatever display existed prior to the activation of this feature or an updated display.

r. Timed Reminder

The Timed Reminder feature provides the SDT user with a timed alarm-type alert. Up to four timed reminders per SDT may be programmed within a 24-hour period.

When the system clock reaches the same time value as the timed reminder setting, a continuous tone is emitted and the SET ALARM feature button's LED starts flashing. To display the timed reminder settings, the SDT user depresses the SET ALARM feature button while on-hook. The feature button's LED lights steadily and the first timed reminder appears in the display. The alarm number is shown to the extreme left of the display; the time setting to the extreme right.

Additional depressions of the SDT SET ALARM feature button causes each timed reminder to be displayed in sequence. After Alarm 4 has been displayed, the display mode is exited by depressing the feature button again.

The display goes blank or returns to a previously-existing display and the feature button's LED extinguishes.

The alarm ceases and the SDT ALARM feature button's LED extinguishes when one of the following occurs:

- SDT user goes off-hook,
- SET ALARM feature button is depressed, or
- Alarm duration interval of 10-seconds (nominal) has elapsed.

The display is then restored to the previous display.

5.08 **Message Waiting Features**

a. Message Waiting – Selective Automatic Callback (18- and 26-button SDTs only)

This feature allows an SDT station user to display each message that is waiting at the user's SDT (i.e., CALL 1219) and respond to any particular message by initiating an automatic callback to the associated station.

To display each message that exists at the SDT, the user remains on-hook and repetitively depresses the Message Waiting – Automatic Callback feature button. Each button depression displays the next succeeding message. To initiate an automatic callback in response to a particular message, the user displays the desired message, goes offhook, and depresses the Message Waiting – Automatic Callback feature button.

b. Message Waiting – Selective Cancellation

This feature allows an SDT station user to selectively cancel any or all messages waiting at the user's SDT. A particular message is cancelled by the user displaying the desired message and depressing the Message Waiting Cancellation feature button.

5.09 **Privacy Features**

a. Bridged Call

This feature allows three station users to be off-hook on the same line when multiple appearances of the line exist. An SDT user can bridge on a line already occupied by two other parties, by depressing the pickup button corresponding to the occupied line. A conference tone is heard by the connected parties before bridging occurs. If the Call Privacy feature is activated, bridging is denied.

b. Call Privacy

Activation of the Call Privacy feature on a specific line prevents all other parties from bridging on that line. Arrangements can be made in SATURN IIE software for automatic activation of call privacy each time the user goes off-hook or manual activation of call privacy by the station user depressing the Privacy feature button. In either case, call privacy can be deactivated by the station user depressing the Privacy feature button.

5.10 **Special Station Operation Features**

a. Hands-Free Mute

The Hands-Free Mute feature allows users of an SDT equipped with the Hands-Free feature to disable the SDT built-in microphone while the Hands-Free feature is active. This permits private conversation locally without being overheard by the calling party.

The Hands-Free Mute feature is operational only when the Hands-Free feature is selected (HANDS FREE button LED lit). When the Hands-Free feature is selected, the Hands-Free Mute feature may be alternately

turned ON or turned OFF by depressing the Hands-Free MUTE feature button. The SDT built-in microphone is muted (turned OFF) when the LED in the MUTE button is lit. Conversely, the SDT built-in microphone is active (turned ON) when the LED is off.

The Hands-Free Mute feature has no control over the handset microphone.

b. Hands-Free Operation

This feature allows an SDT station user to originate or answer a call and converse with the other party without lifting the handset. Call progress tones such as dial tone, busy tone, audible ringback tone, etc., and the voice of the called party are heard over the speaker built into the SDT. To talk to the party, the user speaks into the built-in microphone. To originate a hands-free call, the user selects an idle pick-up button, depresses the HandsFree feature button, listens for dial tone over the speaker and dials the desired destination number. To answer an incoming call, the user depresses the appropriate pick-up button, and depresses the Hands-Free feature button.

No handset is required during the hands-free call. The user can convert from hands-free to handset operation any time during the call by picking up the handset.

Hands-Free requires the use of an SDT equipped for Hands-Free operation.

c. On-Hook Dialing

This feature allows an SDT station user to originate a call without lifting the handset until the called party has answered. Call progress tones such as dial tone, busy tone, audible ringback tone, etc., and the voice of the called party are heard over the speaker built into the SDT. To originate a call, the user selects an idle pick-up button, depresses the On-Hook Dialing feature button, listens for dial tone over the speaker, and dials the desired destination number. If the user encounters busy tone, the call may be disconnected by again depressing the On-Hook Dialing feature button. If the called station is idle, the user hears audible ringback tone. When the called party answers, the party's voice is heard over the speaker. To talk to the called party, the user must convert to normal handset operation by picking up the handset.

For SDTs assigned the On-Hook Dialing feature and a Push-to-Talk feature button, the user can originate or answer a call and converse with the other party without lifting the handset. The Push-to-Talk feature button must be depressed while the user speaks into the microphone and released to hear the other party's response over the speaker.