

7次616

# ELECTRONIC KEY TELEPHONE SYSTEM

INSTALLATION MANUAL



# TXX-616 ELECTRONIC KEY TELEPHONE SYSTEM

# **Revision Summary**

DATE	REVISION NO.	DETAILS

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# TXX-616 ELECTRONIC KEY TELEPHONE SYSTEM SECTION 1 — GENERAL DESCRIPTION

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#### 1.00 INTRODUCTION

1.01 This section provides a general description of the TXX-616 Electronic Key Telephone System. Included are all system specifications, operational characteristics, and FCC application rules and regulations.

#### 2.00 SYSTEM DESCRIPTION

- 2.01 The TXX-616 Electronic Telephone System is a newly developed, fully electronic communication system providing up to six (6) CO/PBX lines and sixteen (16) extensions.
- 2.02 The system utilizes micro-processor control and stored program technology to provide small size system users a wide variety of features and functions. The system CPU card utilizes an 8-bit 8085 CPU. The system program is stored in PROM (48K bytes) memory. Scratch pad and user data base utilizes RAM (16K bytes) memory, the data base supported by a battery in case of commercial power failure or maintenance.
- 2.03 The system utilizes non-blocking space division (analog) speech paths and digital control technues to simplify system installation. System component d expansion is modular.
- 2.04 Four (4) models of electronic station equipment may be utilized on the system; full featured electronic key telephones offering enhanced station feature operation utilizing a sixteen (16) digit alphanumeric dis-

play as well as various other electronic key telephones that provide different station feature capabilities. Industry standard single line telephones are also available.

- 2.05 Included also with the station equipment as a program option, is a Secretary/Attendant station that serves as the attendant programming position. Two (2) such stations may be equipped together on the same system.
- 2.06 The electronic key telephones provide a wealth of station feature/functions. Provided are function keys for ease in feature selection. Additionally, the station user may select features through station dial pad operation. Hands-free reply to intercom calls, when the station is on-hook, as well as hands-free operation on CO/PBX calls are available. Also included are Station Speed Dialing, Private Lines, Secretarial features and Direct Station Selection (DSS) keys with Busy Lamp indication on some model stations.
- 2.07 Utilizing the station alpha-numeric display, display messages are available for enhanced user operation and station/system message features. Station users can select from a menu of messages, adding real time of day reminders, approximate time of return when out of office, or calling directions. Callers to the station that left the message automatically receive the telephone message on the station display (if so equipped).
- 2.08 For programming the system at initial installation or for making changes to the program as the needs of the user change in day-to-day operation, the system features programming of all system parameters through the Attendant position. All programming is accomplished utilizing the DSS/alpha-numeric display with easy to understand, plain language commands. The program mode includes the ability to change all station class of service marks, as well as the system operational features and parameters.

- 2.09 Optional system features include: door telephones, external programming tool and a programmed Station Detail Recorder (SCDR) unit. The SCDR provides real time call records, details that are programmed to meet the individual user's need.
- 2.10 For extensions that do not need the fully featured display equipped key telephones, electronic key telephones provide for economics while providing a wealth of features which include call forwarding, speed dialing, save/repeat redial and callback. Industry standard SL telephones are utilized for off-premise or environmental applications.

#### 3.00 SYSTEM COMPONENTS

- 3.01 The TXX-616 system is comprised of two (2) major components:
  - a. Model TXX-616 Common Equipment Module.
  - Telephones comprising of four (4) models of electronic telephones and industry single line stations.
- 3.02 FIGURE 1-1 in a block diagram illustrating TXX-616 Electronic Key Telephone System major assemblies.
- **3.03** FIGURE 1-2 illustrates the four (4) models of electronic key telephones available.

#### 4.00 SYSTEM SPECIFICATIONS

**4.01** Capacities of the TXX-616 system are listed in TABLE 1-A.

TABLE 1-A
TXX-616 TELEPHONE SYSTEM MAXIMUM CAPACITIES

FUNCTION	CAPACITY	NOTES
CO/PBX LINES	6	
ELECTRONIC EXT.	16	1
STD SL	4	1
ATTENDANT/SECRETARY	2	
ICM LINES	4	
DOOR PHONES	2	2

#### NOTES:

- Total number of electronic telephones and Standard Single Line (SL) telephones cannot exceed sixteen (16). Standard SL recommended for OPX or environmental applications only.
- 2) Door phones do not affect station capacity.
- **4.02** Cabling requirements for the system are listed in TABLE 1-B

TABLE 1-B SYSTEM CABLING REQUIREMENTS

EQUIPMENT	CABLE
TXX-616 ELECTRONIC	2-PAIR (TWISTED) #22/24
KEY TELEPHONE	AWG
DOOR STATIONS	2-WIRE #22/24 AWG
STANDARD SINGLE LINE	1-PAIR (TWISTED) #22/24
TELEPHONE	AWG

4.03 System cable loop limits are listed in TABLE 1-C

TABLE 1-C SYSTEM LOOP LIMITS

FUNCTION	LOOP LIMITS	NOTES
TXX-616 KT	40 OHM (730 FT.)	1
SL STATION - STD	2000 OHM (3800 FT.)	1
DOOR STATION	20 OHM (365 FT.)	1

#### NOTES:

- 1) Feet indicates based upon using #24 AWG cable.
- 4.04 Visual indications used in the system are listed in TABLE 1-D

TABLE 1-D SYSTEM VISUAL INDICATIONS

FUNCTION	VISUAL INDICATION
I-USE	MODULATED STEADY (ON,
CO INCOMING/CALL FOR- WARD/CAMP-ON; RECALL ICM INCOMING	.1 SEC. ON, .8 SEC. OFF
I-HOLD/DND/ABSENCE MSG.	.8 SEC. ON, .1 SEC. OFF
SYSTEM HOLD/NON- PRIVACY/ICM INCOMING/ TRUNK-TO-TRUNK	.4 SEC. OFF, .4 SEC. ON
BUSY/CONF./SPKR.	STEADY (ON)

4.05 System audible indications are listed in TABLE 1-E

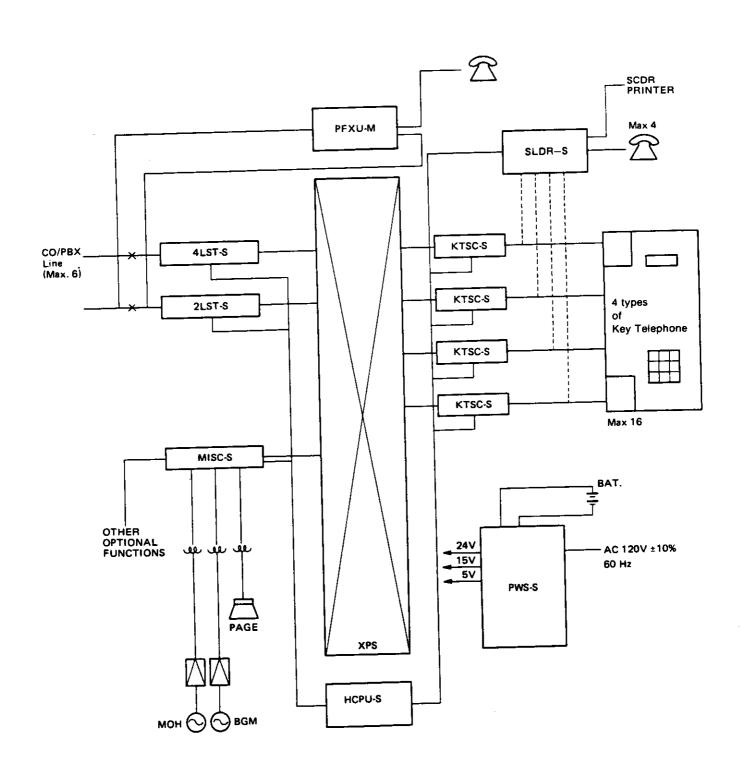
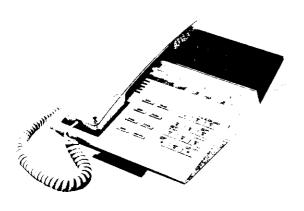


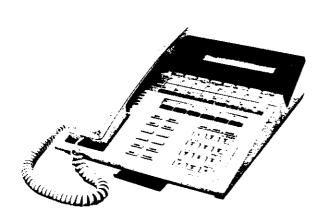
FIGURE 1-1 TXX-616 ELECTRONIC KEY TELEPHONE SYSTEM

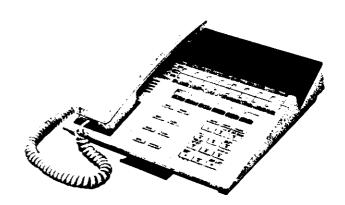




**MODEL TXX-616K** 

**MODEL TXX-616KB** 





**MODEL TXX-616D** 

**MODEL TXX-616KL** 

FIGURE 1-2 TXX-616 ELECTRONIC KEY TELEPHONES

TABLE 1-E SYSTEM AUDIBLE INDICATIONS

FUNCTION	TONE INDICATION	REPETITION RATE
		1 SEC. ON, 3 SEC. OFF
CAIVILON	620/500 HZ 450 HZ	1 SEC. ON, 3 SEC. OFF
ICIAI CULLDUAL.	450 HZ	0.4 SEC. ON, 0.2 SEC. OFF
CAMP-ON RECALL		0.4 SEC. ON, 3.0 SEC.
CO RECALL/CALL- BACK	500/16 HZ or 620/500 HZ	OFF 0.4 SEC. ON, 0.2 SEC OFF 0.4 SEC. ON, 3.0 SEC. OFF
ICINI DIAL TONE	450 HZ 450 HZ	STEADY 0.4 SEC. ON/OFF
FAST BUSY/WARNING		0.2 SEC. ON, 0.2 SEC OFF
CONFIRMATION/	500/16 HZ	ANVACE (A)
INTERRUPT TONE TONE BURST	450 HZ	1.0 SEC. ON
ICM INCOMING-BUSY EXT./TIME ALARM	450 HZ	0.2 SEC. ON/OFF/ON 3.4 SEC. OFF

# **4.06** System power supply specifications are listed in TABLE 1-F

TABLE 1-F SYSTEM POWER SUPPLY SPECIFICATIONS

UNIT	VOLTAGE
1) MAIN POWER SUPPLY AC INPUT	MODEL PWS-S 120 VAC ± 10% 50-60 HZ, 1.8A MAX
DC OUTPUT #1 DC OUTPUT #2 DC OUTPUT #3	+24V @ 2.5a DC +15V @ 0.2a DC +5V @ 1.5a DC
2) SINGLE LINE TELEPHONE AC INPUT TALK BATTERY SIGNAL BATTERY	LOCAL PROVIDED 120 VAC 48VDC @ .5A 60-90VAC, 20-30HZ

## 4.07 System numbering plan is listed in TABLE 1-G

TABLE 1-G SYSTEM NUMBERING PLAN

	ACCESS CODE
FUNCTION	0 (20)
ATTENDANT	20-35
EXTENSIONS PAGE (ALL CALL)	1
(GROUP EXTENSIONS)	4
DOOR PHONE	36-37

# 4.08 System mechanical specifications are listed in TABLE 1-H

TABLE 1-H SYSTEM MECHANICAL SPECIFICATIONS

COMPONENT	DIMENSIONS HxWxDx (INCHES)	WEIGHT (POUNDS)
TXX-616 KSU TXX-616 ELECTRONIC	13.2x17.4x8.19	17.0
KEY TELEPHONE MODEL TXX-616D TXX-616K TXX-616KB TXX-616KL DOOR PHONE (DOPH)	2.68x8.43x8.86 2.68x6.85x8.86 2.68x6.85x8.86 2.68x8.43x8.86 1.64x3.98x5.46	1.84 1.42 1.42 1.73 0.40
SINGLE LINE TELE- PHONE/SCDR UNIT	5.0x17.60x9.06	10.1
POWER FAILURE TRANSFER/PFXU-M	12.5x6.83x2.30	4.0

# **4.09** TXX-616 system interface specification is listed in TABLE 1-I

TABLE 1-I TXX-616 SYSTEM INTERFACE CHARACTERISTICS

RELAY CONTACT OUTPUT FO EXTERNALLY CONNECTED DE	OR EVICE
CONTROL LOUD RINGER: LR1 TO 4 NIGHT MODE: NTR PAGING AMPLIFIER: PGR REMOTE CONTROL: RCR BACKGROUND MUSIC: BGR MUSIC-ON-HOLD: MHR	MDFD-S (S1)
CONTACT RATING	DC 28V - 1A
CONNECTOR	CLIP TERMINAL
SIGNALS	CHARACTERISTICS
TWO-WAY PAGING AMPLIFIER OUTPUT OUTPUT IMPEDANCE INPUT IMPEDANCE CONNECTOR	600 OHMS 600 OHMS PHONO JACK
BACKGROUND MUSIC INPUT INPUT IMPEDANCE CONNECTOR	F 600 OHMS PHONO JACK
MUSIC-ON-HOLD INPUT INPUT IMPEDANCE CONNECTOR	600 OHMS PHONO JACK
ALARM SIGNAL INPUT INPUT IMPEDANCE INPUT VOLTAGE	100 K-OHMS ALARM: +3.5V OR MORE NON ALARM: +1.5V OR LESS
ALARM TONE INPUT INPUT IMPEDANCE INPUT VOLTAGE CONNECTOR	2 K-OHMS 700 mV CLIP TERMINAL

**4.10** The TXX-616 system telephone characteristics are listed below in TABLE 1-J

TABLE 1-J
TXX-616 SYSTEM TELEPHONE CHARACTERISTICS

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4.11 The TXX-616 system environmental requirements are listed in TABLE 1-L

TABLE 1-L
TXX-616 ENVIRONMENTAL REQUIREMENTS

CONDITION	LIMIT
Ambient Temperature	-5°C to +45°C
Relative Humidity	10% to 90% Non
Electrostatic Discharge	Condensing
Electromagnetic	7KV or Less
Susceptibility	1V/M or Less

#### 5.00 FCC REQUIREMENTS

5.01 The TXX-616 Electronic Key Telephone System is FCC Part 68 registered as a fully-protective key telephone system. The following information shall be supplied to the local telephone operating company when requesting service terminating in the TXX-616 system.

MODEL: TXX-616 Electronic Key Telephone System FCC REGISTRATION NUMBER: BD687Y-14834-KF-E

RINGER EQUIVALENCE: (0.5A) (1.7B) REGISTERED CONNECTION: RJ11C

- 5.02 The TXX-616 Electronic Key Telephone System utilizes electronic key telephone station equipment that is Non-Hearing Aid Compatible. FCC rules prohibit the use of Non-Hearing Aid Compatible equipment in the following applications:
  - Any public or semipublic location where coinoperated or credit card telephones are located.
  - Elevators, highways and tunnels (automobile, subway, or pedestrian) where a person with impaired hearing might be isolated in an emergency.
  - Placed where telephones are specifically installed to alert emergency authorities such as fire, police or medical assistance personnel.
  - 4. Hospital rooms, residential health care facilities, convalescent homes, and prisons, specifically where telephones are used for signalling life-threatening or emergency situations if alternative signalling methods are not available.
  - 5. Workstations for hearing impaired personnel.
  - Hotel, motel, apartment lobbies, in stores where telephones are used by patrons to order merchandise; in public transportation terminals where telephones are used to call taxis, or to reserve lodging or rental automobiles.
  - Hotel and motel rooms. (at least ten percent of the rooms must contain hearing aid-compatible telephones; or contain jacks for plug-in hearing aid-compatible telephones which will be provided to hearing impaired customers upon request.)
- 5.03 Single Line Telephones used on the system are subject also to FCC rules regarding hard-of-hearing. Refer to the model and type of telephone used as to their eligibility.
- 5.04 With each KSU, a card is provided that details FCC requirements as to the users rights and responsibilities when directly connecting CPE to the public telephone company lines. This card should be presented to the user and explained (if necessary) in accordance with FCC Part 68 regulations.

# TXX-616 ELECTRONIC KEY TELEPHONE SYSTEM SECTION 2 — SYSTEM FEATURES/FUNCTIONS

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2.00	SYSTEM FEATURES	. 2-1
3.00	KEY TELEPHONE FEATURES	. 2-5
4.00	SL TELEPHONE FEATURES	. 2-10

#### 1.00 INTRODUCTION

- 1.01 This section provides a description of the operational features and functions that comprise the TXX-616 Electronic Key Telephone System.
- 1.02 Features are defined in accordance with three (3) categories:
  - 1. Common System Features
  - 2. Electronic Key Telephone Station Features
  - 3. Standard Single Line Telephone Features

#### 2.00 SYSTEM FEATURES

- 2.01 Standard and optional TXX-616 System Features are listed in TABLE 2-A.
- 2.02 Description of the standard and optional system features follows.
  - a. ADD-ON CONFERENCE (CO/ICM) STD: The system allows for conferences of up to three (3) parties on an individual CO/PBX line and three (3) parties on an ICM path without additional hardware. Add-on conferences can be effected either manually or by automatic means.
  - b. ALL-CALL VOICE PAGE (INTERNAL/EXTERNAL) STD/OPT:
     Utilizing either direct key access on electronic telephones (dial access by model TXX-616 KB), "all-call" page to electronic stations, whose COS permit, is provided as a standard

feature. Paging through external speakers require an external PA amplifier and optional MDFD-S card.

#### c. ALARM ADAPTOR - OPT:

When equipping the system with the MDFD-S circuit card, alarm tones are provided under control of one (1) external sensor circuit. Alarm tones can be connected to an external PA system as a programming option, as well as separate "day" and "night" alarm stations ringing assignments are provided.

- d. AREA/OFFICE CODE RESTRICTION STD: The TXX-616 system provides area/office code restriction with allowance of service calls, WATS and information calls (if desired). Nine (9) class of service restriction for extensions are provided with respective toll table structures providing for allowing/denying specific area/office code calls.
- e. AUTOMATIC STATION RELEASE STD: Stations are released from CO/PBX lines and ICM paths after detection of a disconnect signal (CO) or specific time out period for dialing or completing calls. CO/PBX line "disconnect timing" is programmable on an individual line basis.
- f. CO PICK-UP RESTRICTION STD:
  Extensions, on an individual station basis, can
  be programmed to be restricted from accessing a CO/PBX line. "Pick-up restricted" lines
  on a station can be accessed by "add-on" or
  "privacy release" operation by another station
  in the system whose line(s) is not restricted.
  Forwarded calls also defeat pick-up restriction.
- g. DISTINCTIVE RINGING (CO/ICM) STD: Distinctive ringing tones are provided to both

TABLE 2-A STANDARD AND OPTIONAL SYSTEM FEATURES

FEATURES	STANDARD	OPTIONAL	NOTES
ADD-ON CONFERENCE CO/ICM	X	-	
ALL CALL VOICE PAGE-INTERNAL/EXTERNAL	X		2
ALARM ADAPTOR	X		
AREA/OFFICE CODE RESTRICTION AUTOMATIC STATION RELEASE	X		3
AUTOMATIC STATION RELEASE	X		
CO PICK-UP RESTRICTION	X		
DISTINCTIVE RINGING-CO/ICM	X		
DOOR PHONE/REMOTE CONTROL	V	X	
DTMF/DIAL PULSE-CO/PBX LINES EXTERNAL LOUD RINGERS	X	V	
EXTERIVAL LOOD RIIVGERS		X	
FLEXIBLE NIGHT SERVICE	X		
FLEXIBLE DAY RINGING ASSIGNMENT	X		
FLEXIBLE TIMING FUNCTIONS	X		
GROUP PAGE MULTI-LINE CONFERENCE	X X		•
MOLTI-LINE CONFERENCE			3
MUSIC-ON-HOLD	X		
NIGHT SERVICE CALL FORWARDING	X		
OPTIONAL RINGING TONE	X		3
OUTGOING RESTRICTION POWER FAILURE TRANSFER-MEMORY	X X		
POWER FAILURE ! HANSFER-WEWORY			
POWER FAILURE TRANSFER-STATION/LINE		X	
POWER FAILURE TRANSFER-SYSTEM		X	
PRIVACY ON ALL CALLS/PRIVACY RELEASE	X		3
REMOTE CONTROL/ACCESS	V	X	1
SCREENED/UNSCREENED TRANSFER-CO/ICM	X		
SINGLE LINE TELEPHONE (500/2500) CAPABILITY		X	
SPECIALIZED COMMON CARRIER ACCESS	X		
STATION CALL DETAIL RECORDER (SCDR)		X	3
SYSTEM BACKGROUND MUSIC INTERFACE		X	3
SYSTEM REAL TIME CLOCK	Χ		
SYSTEM PROGRAM TERMINAL		X	
SYSTEM SPEED DIALING/TOLL CONTROL	X		
TOLL RESTRICTION-EQUAL ACCESS	X		3
TRUNK-TRUNK CONFERENCE	X		3
UNIVERSAL NIGHT RINGER		X	
VISUAL MESSAGES	X		3, 4
VOICE/TONE CALLING-ICM	X		-

#### NOTES:

- 1) Available on model programmed as Attendant/Secretary.
- 2) Some optional equipment required.
- 3) Not available standard single line.
- 4) Available on display model telephones only.

electronic and single line telephones to indicate whether the call is an incoming CO/PBX or tCM call.

- h. DOORPHONE/REMOTE CONTROL OPT: When equipped with the optional doorphone adaptor and model MDFD-S circuit card, two door stations may be placed on a system. Door stations do not reduce station capacity. The door stations can be programmed to ring any station including provisions for different "day/ night" ringing assignments. The attendant/ secretary station features direct access to door stations by feature (DOOR) key, while all other stations can dial access. Only one door station can be called at a time in the system. Operation at the doorphone is hands-free communication after being accessed by a station in the system. Included is provision for one (1) remote control circuit for operation of a door solenoid.
- DTMF/DIAL PULSE CO/PBX LINES STD: Both DTMF and dial pulse lines are available on the system on an individual line assignment basis.
- j. EXTERNAL LOUD RINGERS OPT: As a hardware option (MDFD-S), loud ringer bells can be connected to the system for each CO/PBX line equipped. Four (4) relays are provided that can be programmed for multiple CO/PBX lines to achieve any single or group arrangement.
- k. FLEXIBLE NIGHT SERVICE STD: The system provides "night service" whereby up to sixteen (16) stations in the system can be assigned to ring on any line during "night service." Included are program options for assign-

assigned to ring on any line during "night service." Included are program options for assigning CO/PBX lines to universal night answering bells when the optional MDFD-S card is equipped as well as night ringing assignments for alarm indicator and door answering positions. The universal night ringer provides repetitive ringing contacts at 15 IPM for control of external bells.

- FLEXIBLE DAY RINGING ASSIGNMENT STD: Any CO/PBX lines equipped on the system can be assigned to ring at any extension. CO/PBX lines programmed for "night service" replace day ringing assignments when the system is in "night service."
- m. FLEXIBLE TIMING FUNCTIONS STD: The system provides for a number of timing functions that can be programmed for individual time-out requirements. The flexible timing functions include:

Flash Timing 1.5 sec. max. (0.7 sec. default)
CO Disconnect Timing 1.5 sec. max.
(0.7 sec. default)
Hold Recall Time
(2.0 min. default
Camp-On Time 150 sec. max
(20 sec. default
Dialing Pause Time 15 sec. max
(5 sec. default
Trunk Time Queue
(5 min. default
Dial Pulse Make/Break 39% or 33%
(individual CO/PBX line
Dial Pulse Speed 10 or 20 PPS
(individual CO/PBX line

#### n. GROUP PAGE - STD:

By operation of the dial code "4" upon going off-hook, an extension can group page extensions in the system programmed to receive a selective group paging function. Only one (1) group is provided.

- o. MULTI-LINE CONFERENCE STD: Electronic key telephone (only) can initiate and talk on a multi-line conference where an internal party is connected to two (2) outside lines. One (1) conference circuit is available.
- p. MUSIC-ON-HOLD OPT: An optional Music-On-Hold (MOH) interface is available on the system where an external music source can be connected for music on a "held" CO line. Control relay contacts are provided for start/stop operation on the optional MDFD-S circuit card. In addition, the system provides, as an option, two different music synthesizer melodies that may be used instead of an external source.
- q. NIGHT SERVICE CALL FORWARDING STD: When an incoming CO/PBX line call is received during "night service" on a line(s) that is programmed for call forwarding, the system automatically answers the call and connects the incoming call to a pre-programmed outgoing CO/PBX line. Upon answering the call, the system automatically dials the outgoing number and connects both lines together utilizing the conference feature. Only one (1) such call can take place on the system in this manner. Disconnection is automatic under control of the disconnect signals of the serving CO/PBX line. Central office/PBX disconnect supervision is required for this feature to operate.
- r. OPTIONAL RINGING TONE STD: As a program option, the system provides for selection from two ringing tones on an individual CO/PBX line basis.

#### IWATSU PN 96507-002

#### s. OUTGOING RESTRICTION - STD:

Any station can be restricted from accessing any individual CO/PBX line in the system for outgoing call service. The restricted station can access the line when ringing or while on "hold."

### t. POWER FAILURE TRANSFER (MEMORY) - STD:

All user data is stored in RAM memory supported by a battery that will retain the memory for a minimum of five (5) days.

#### u. POWER FAILURE TRANSFER (STATION/ LINE) - OPT:

Optional hardware is available to transfer CO/PBX lines to single line extensions during commercial power failure. Included also is the ability for CO/PBX lines to be transferred to working single line stations in the system. Electronic key telephones cannot operate during transfer operation utilizing this feature.

# v. POWER FAILURE TRANSFER (SYSTEM) - STD:

A system battery support array is available to maintain complete system operation during commercial power failure. The battery adaptor includes a built-in charger and provisions for connecting an internal (local provided) 24 volt DC storage battery array.

# w. PRIVACY ON ALL CALLS/PRIVACY RELEASE - STD:

Both CO/PBX lines and ICM calls are private to the stations engaged in the call. Electronic key stations include provisions to manually release the privacy feature to allow other extensions into the call.

#### x. REMOTE CONTROL - OPT:

When the optional MDFD-S circuit card is equipped, the system provides for one (1) set of remote control relay contact closure for operation of a control function, typically door solenoids from the telephone model TXX-616D programmed as a secretary/attendant.

# y. SCREENED/UNSCREENED TRANSFER (CO/ICM) - STD:

Both CO/PBX lines and ICM calls can be transferred by either key telephones or single line stations. When transferring calls, the call can either be "screened" with the intended party or immediately "camped-on" by the transferring extension.

# z. SINGLE LINE TELEPHONE (500/2500) CAPABILITY - OPT:

Industry standard single line (SL) telephones either dial pulse (DP) or DTMF type can be

connected to the system utilizing optional hardware. The SL telephones can be utilized for off-premise applications. Features of industry standard telephones are limited.

# aa. SPECIALIZED COMMON CARRIER ACCESS- STD:

The system can provide for two (2) Specialized Common Carrier (OCC) circuit utilizing the "system speed dial" feature. Authorization codes can be automatically sent either before or after the long distance (LD) number. Included also are the capabilities for entry of individual user authorization codes (PIN codes). Toll restriction capabilities are also included to allow/deny toll calls utilizing SCC (OCC) access. For automatic entry of authorization codes, the authorization code is masked on display telephones as well as the SCDR printout when the dedicated access code(s) for the system feature is utilized.

## bb. STATION CALL DETAIL RECORDER (SCDR) - OPT:

As an option, a call detail recorder providing call details to a real time printer or call management system is available. Call details include the following:

- Call Sequence Number
- Trunk/Station Number
- Originating and Transferred Extension Number
- Call Start and Duration Time
- Number Dialed up to 26 Digits
- Account Code up to 6 Digits
- Call Identification: Incoming, Outgoing, Attendant, Toll

Programmable functions as to call details include:

- Outgoing and Incoming Calls
- Call for which an Account Code was Entered
- Toll Calls Only
- Calls on Programmed Extensions and/or Trunks
- Call Exceeding a Programmed Time Period

# cc. SYSTEM BACKGROUND MUSIC INTERFACE - OPT:

Background music can be connected to either the external PA system, as well as system electronic stations. Each key telephone station has a COS mark permitting BGM to be heard at the station. BGM, when allowed, can be turned off at the individual station under the control of the station user.

#### dd. SYSTEM REAL TIME CLOCK - STD: The system contains provisions for a real time

clock supported by battery back-up. Real time displays are provided on electronic stations equipped with LCD displays.

- ee. SYSTEM PROGRAM TERMINAL OPT:
  The model TXX-616D station serves as the program terminal for the system. Actual system usage does not require this model telephone to be equipped. However, this telephone is required to program the system data base from the primary extension (Extension 20) position. All programming is accomplished in plain language, utilizing the station display and feature/function keys on the telephone.
- ff. SYSTEM SPEED DIALING/TOLL CONTROL STD:

Up to ninety (90) telephone numbers can be stored and accessed by all system extensions utilizing the speed dialing function. Speed dial access can be restricted as a Class of Service (COS). Calls made by speed dial are subject to station toll and outgoing restriction settings.

A speed dial number can automatically be dialed upon going off-hook by programming specific CO/PBX lines with each speed dial number. Upon going off-hook and dialing the speed dial number, the system automatically selects the programmed CO/PBX line.

Included also with station COS setting is allowing toll calls through "system speed" dialing only. Speed dial numbers are programmed at the primary extension (attendant) position. A model TXX-616D is recommended due to the need for alphanumeric display.

- gg. TOLL RESTRICTION/EQUAL ACCESS STD: "Equal Access" to OCC service requires additional digits (10NNN+LD No.) to be dialed. The TXX-616 system toll restriction feature provides for including the dialed digits for "equal access" to be programmed for making decisions to allow or deny calls.
- hh. TRUNK-TRUNK CONFERENCE STD:
  Two CO/PBX lines can be joined together by
  the electronic key telephone. When the
  extension exits the conversation, the connection is maintained between the CO/PBX lines
  unless either of the lines release, whereas the
  connection becomes released from the system. Once connected Trunk-Trunk, any station can re-enter the conversation. Voice
  quality is subject to local telephone company
  lines during trunk-trunk mode. Central office/PBX line supervision is required for the
  automatic disconnect feature to operate.

- ii. UNIVERSAL NIGHT ANSWER (UNA) OPT: CO/PBX lines can be assigned to UNA during night service operation. Provisions include loud ringer capability, utilizing a relay closure operating at 15 IPM on the optional MDFD-S circuit card.
- jj. VISUAL MESSAGES STD: Any electronic station can leave an absence message at any display telephone. Real time requirements, such as time of day, day of week, or telephone numbers are entered by the message user. Three (3) messages are available.
  - 1) Return at (time)
  - 2) Return at (day)
  - 3) Call (telephone number)

When the display station model TXX-616D calls a station, the message indicator appears in the station display. The station leaving the message must manually reset the station to eliminate the message.

kk. VOICE/TONE CALLING (ICM) - STD:
ICM calls between extensions can utilize
either tone or voice calling. The calling
extension has the ability to change the
manner of calling by dialing. Either function
can be chosen as first operation as a system
programming option.

# 3.00 ELECTRONIC KEY TELEPHONE FEATURES

- 3.01 The TXX-616 system provides a number of standard and optional features on the electronic key telephones. Features included are listed in TABLE 2-B.
- 3.02 Description of the station features are as follows:
  - a. ABBREVIATED RINGING STD:
    When a station is busy on a CO/PBX or ICM
    call, incoming CO/PBX line calls as well as
    ICM calls (when "override" feature is used)
    sound an abbreviated tone warning that a new
    call is occurring. The tone indication for
    CO/PBX line calls and ICM calls is different.
  - b. ACCOUNT CODE CAPABILITY OPT: When the SCDR Call Detail Recorder is equipped, the station user can enter a six (6) digit account code any time during the duration of the call without the distant party aware of the input.
  - c. ALPHA-NUMERIC DISPLAY (16 DIGIT) OPT: The model TXX-616D station is equipped with a sixteen (16) digit Liquid Crystal (LCD) Display. The display provides enhanced station

TABLE 2-B ELECTRONIC KEY TELEPHONE STANDARD AND OPTIONAL FEATURES

FEATURES	STANDARD	OPTIONAL	NOTES
ABBREVIATED RINGING ACCOUNT CODE ENTRY-SCDR ALPHA-NUMERIC LCD DISPLAY-16 DIGIT	X	X	MODEL TXX-616D ONLY
ANSWER HOLD/CALL SPLITTING AUTOMATIC ANSWERING	X X		The state of the s
CALLBACK-ICM	X		
CALL FORWARD-CO/ICM CALL HOLD-CO	X		
CLASS OF SERVICE (18)	X X		
CO FLASH	X		
CONSULTATION HOLD	Х		
DIAL TONE RE-ORDER DIRECT PAGE ACCESS	X		
DIRECT CO/PBX LINE TERMINATION	X X		MODEL TXX-616D, KL, K
DIRECT EXT TERMINATION W/BLF INDICATION	x		MODEL TXX-616D ONLY
DIRECT CALL PICK-UP	×	<u> </u>	The state of the s
DO-NOT-DISTURB (DND) EXCLUSIVE HOLD	X		
EXECUTIVE OVERRIDE (BARGE-IN)	X X		
EXTERNAL RINGER	^	×	
HANDS-FREE OPERATION CO/ICM		X	·
HANDS-FREE REPLY-ICM	X		
HOT LINE (SECRETARIAL) ACCESS HOLD RECALL	X		
I-HOLD/I-USE INDICATION	X X		
LAST NUMBER REDIAL	X		
MEMO-OF-CALL MESSAGE WAITING	X		MODEL TXX-616D ONLY
MESSAGE PICK-UP	X X		
MICROPHONE CUT-OFF	x		
ON-HOOK DIALING/CALL MONITOR	X		
OVERRIDE-BUSY/DND PRE-SELECTION	X		
PROTECTED EXTENSION	X X		
SAVE/REPEAT NUMBER DIALED	x		
SOFT RINGING	X		
STATION BUSY CALLING STATION BGM	X		
STATION BGM STATION SPEED DIAL	X X		
STATION HEADSET ADAPTOR	^	×	
STATION AMPLIFIED HANDSET		X	
STATION NOISE CANCELLING HANDSET STATION DIRECTORY TRAY		X	
STATION DIRECTORY TRAY STATION SPEED KEY (AUTO-DIALER)	X	V	MODEL EVEN TOTAL
TIME REMINDER	×	X	MODEL TXX-616D, KL
TRUNK QUEUEING	X		
TIME TRUNK QUEUEING WALL MOUNTING	X		
WEE MOOITING	X		

operation in identifying incoming and outgoing calls at the station. Display functions include:

- SCDR Account Code The display indicates "ACCT code" and the account code number manually entered by the station user.
- Real Time The display on the telephone in the idle mode indicate the day of the month and week, as well as the time of day.
- Number Dialed On both the CO/PBX and ICM lines, the number dialed (including speed dial and DSS/Direct Dial Keys) are displayed.
- Camp-on Functions Camp-on function including the CO/PBX line (or ICM) and transferring extension is displayed.
- Incoming Calls Incoming calls including the CO/PBX calls, ICM calls and door phones are identified on the display.
- Forwarded Calls The display indicates both origin and destination of CO/PBX and ICM calls that are forwarded.
- Station Recalls Recalls to the station, including CO/PBX Line Hold and Camp-On, are identified on the display.
- Call Timer Once the station has access to a CO/PBX line, a station clock indicates the time duration of the call.
- Alarms Both the alarm indication, when the system alarm feature is utilized, as well as the "Time Alarm" feature is indicated on the display.
- Station Status The display indicates the status of the called station including the DND, station busy and override function.
- Station Memo-of Call Any station leaving a call reminder (message waiting) indication are indicated on the display.
- Absence Message Any called station leaving a visual (absence) message will have the message displayed on the calling station display.
- d. ANSWER HOLD/CALL SPLITTING STD: While a station is busy on a CO/PBX line call, and the station is called on ICM (or busy on ICM and an incoming CO/PBX line call occurs), the station user can automatically answer the incoming call and place the original call on "hold." The user can switch between both calls by using the "splitting" features.
- e. AUTOMATIC ANSWERING STD: As a COS mark, automatic answering of either incoming CO/PBX and/orICM calls by taking the handset off-hook can be achieved. The first call into the station is automatically connected.

- f. AUTOMATIC CALLBACK (ICM) STD:
  When an ICM call is made to a busy extension,
  the caller can request an automatic callback
  when the called party is free (on-hook). Operating the callback feature signals the original
  calling party first, who upon answering the
  callback, automatically dials the other extension.
- g. CALL FORWARD (CO/ICM) STD: An extension can "call forward" both CO/PBX and ICM calls. Forwarded calls can advance two times in the system. Operation of the forward function is on/off (at will) once the forwarded extension number has been programmed by the user. Lines that are "pick-up restricted" at the destination station can receive calls forwarded.
- h. CALL HOLD (CO/ICM) STD:
  Operation of the "Hold/DND" Key on electronic stations automatically place a CO/PBX line call on "system hold." Any station can access the line. ICM calls can be placed on "hold" utilizing the "answer hold" feature when an incoming CO/PBX call occurs.
- CLASS OF SERVICE STD:
   The electronic key telephone has the following Class of Service (COS) assignments:
  - Day Ringing
  - Night Ringing
  - Outgoing Restriction
  - Pick-Up Restriction
  - Doorphone Ringing
  - Day/Night Alarm Ringing
  - Automatic Answer
  - Hot Line (Secretarial) ICM
  - Toll Restriction
  - Executive Station
  - Protected Extension
  - Hold Recall Allow/Deny
  - Do-Not-Disturb Allow/Deny
  - Speed Dial Access Restriction
  - Speed Dial Toll Override
  - Page Access Restriction
  - Group Call Access Restriction
  - Paging Denial

#### j. CO FLASH - STD:

A station user can "flash" the CO/PBX line and receive new dial tone from the serving CO/PBX line. Operation of the "flash" function is by direct key access or through the station dial pad, the operation depending upon the model of the station.

k. CONSULTATION HOLD/RECALL - STD: The station initiating a transfer can place the original call on hold and return to the originating party if no transfer or conference is to be effected.

- DIAL TONE REORDER STD:
   Utilizing the "flash" function on ICM provides for reordering ICM dial tone in order to call another station. Stations equipped with DSS keys need not utilize the "flash" function to call other stations.
- m. DIRECT PAGE ACCESS STD: All stations with the exception of the model TXX-616KB are equipped with a "PAGE" function key. Access to the "Page (all-call)" function is by operation of the key.
- DIRECT CO/PBX LINE TERMINATION STD: Each line key on the electronic key telephone can be programmed for an individual line appearance.
- DIRECT EXTENSION TERMINATION OPT: The model TXX-616D and KL telephones include LED Busy Lamp Field (BLF) indication of station status and sixteen (16) Direct Station Selection (DSS) keys for calling ICM extensions.
- DIRECTED CALL PICK-UP STD:
   Utilizing the "directed call pick-up" feature, an extension can answer a remote extension ICM call.
- q. DO-NOT-DISTURB (DND) STD: The station user, if station COS allows, may place the station into the DND mode by feature operation. On all models, except for the TXX-616KB, operation of the "HOLD/DND" key operates the features, the TXX-616KB feature being accessed by the dial pad. An indicator on each telephone indicates to the user that the station is on the DND mode.
  - DND blocks all ICM calls except for stations equipped with "executive override", "hot line (secretarial) access" and the station in the attendant (operator) position.
  - DND does not block station ringing on Incoming CO/PBX calls.
- r. EXCLUSIVE HOLD STD:

Any direct appearance CO/PBX line can be placed on "exclusive hold"; no other extension can pick-up the call. "I-Hold" indication is provided on the individual CO/PBX line. Recalls change call status to "system hold."

s. EXTERNAL RINGER - OPT:
Equipped with the optional SRNG-S Station
Loud Ringer Adaptor, an external bell (installer
provided) can be equipped in conjunction with
a station. Any call to the station will operate the
loud ringing bell.

- t. HANDS-FREE REPLY (ICM) STD: Hands-free reply to ICM calls is standard on all electronic key telephones. No time out is associated with the call. Hands-free answering is available only when the station is idle.
- u. HANDS-FREE OPERATION (CO/ICM) OPT: Complete hands-free operation on both CO/PBX lines and ICM calls is available when the station is equipped with the optional hands-free unit, model SSPU-RN1. As an alternative, the model ESPU-S may be equipped and the station becomes adaptable for most commercially made hands-free telephone adaptors in the marketplace which are mounted externally.
- v. HOT LINE (SECRETARIAL) ACCESS STD:
  Up to two (2) station DSS keys (models TXX-616D/KL) can be programmed as "Hot line (secretarial)" access. The feature allows override of station ICM calling when another station is in the process of calling the desired extension. "Hot line access" has the priority over all calls except those made by executive (override) stations and operator/secretary (model D) stations. "Hot line access" also defeats station "do-not-disturb."
- w. HOLD RECALL STD:

As a COS option, station placing CO/PBX calls on hold (system/exclusive) will have the station ring back to the originating extension after a system programmed time period.

- x. I-HOLD/I-USE INDICATION STD:
  When the station user is on a CO/PBX line or
  places the call on "system or exclusive hold",
  differential lamp flash indications are provided
  on the originating stations. In this manner, the
  station user can determine on which line the
  user is talking, as well as which line(s) the user
  placed on "hold."
- y. LAST NUMBER REDIAL STD: The electronic key telephone will redial the last number dialed on the CO/PBX lines. This feature is available when the "save/repeat" feature is not used.
- z. MEMO-OF-CALL OPT:

A station calling either a busy station or upon a station-no-answer condition, can leave an indication at the called station when equipped with a numeric display. Stations with the numeric display will indicate the number of the extension(s) that called. Three (3) memo-of-call indications on the display are available, one (1) being limited to the attendant (primary station) position.

#### aa. MESSAGE WAITING - STD:

Stations not equipped with a numeric display have a LED indicator that flashes when another station utilizes the "message waiting" feature. Up to three (3) stations can leave a message waiting lamp at the same station, one (1) of which is limited to the attendant (primary station) position. Included are provisions for cancelling the message by the originating extension or by the attendant (primary station).

#### bb. MESSAGE PICK-UP - STD:

On stations equipped with a LCD display or with "message waiting" indicators, the station user can automatically call the station leaving messages. By operation of a dial code (6) or the message feature key (MSG) (if available), the user automatically calls the station leaving the message or "memo-of-call."

#### cc. MICROPHONE CUT-OFF - STD:

On stations equipped for full hands-free operation on CO/ICM calls or on ICM calls utilizing hands-free operation, a microphone cut-off switch is provided. The switch disables the microphone preventing eavesdropping by the calling party while still allowing calls to be announced.

dd. ON-HOOK DIALING/CALL MONITOR - STD: The station user can initiate CO/PBX calls with the handset on-hook utilizing the station speaker in a monitor (one-way) mode. The station speaker can be used at any time as a "call monitor."

#### ee. OVERRIDE - BUSY/DND - STD:

As a station COS option, the station may be programmed for "executive override" feature. This allows a station to interrupt a busy station or defeat the "do-not-disturb" condition at a station (unless "protected extension") except if the station is off-hook utilizing the handset (only). An interrupt tone is given to the check station. The model TXX-616D stations are equipped with an "override" (OVER) feature key. All other stations operate the feature through the dial pad.

When programmed for "executive override," the extension also has "barge-in" feature. "Barge-in" provides for direct entry into a busy CO/PBX line with a warning tone.

#### ff. PRE-SELECTION - STD:

The station user can pre-select a CO/PBX line key before taking the handset off-hook. "I-USE" indication is provided on any function selected.

gg. PROTECTED EXTENSION - STD:
As a station COS option, the station can be

programmed as a "protected extension" against "busy and DND override" by a calling extension on ICM. "Protected extension" does not allow any off-hook ringing. Protected extension does not prevent barge-in on a CO/PBX call using "executive override."

# hh. SAVE/REPEAT NUMBER DIALED - STD: The user can utilize the "save/repeat" function to automatically save a number dialed on a CO/PBX line. The system will store up to thirty-two (32) digits of the number desired to be saved. When using the feature, the system will automatically select the same CO/PBX lines when repeating the number or the station user can manually select the line and access the "save/repeat" function. Only one (1) telephone number can be saved. Either the "save/repeat" number or "last number redial" function can be used. Both functions are not available simultaneously.

#### ii. STATION BUSY CALLING - STD:

When a station is busy on a CO/PBX line or ICM call, an incoming CO/PBX line call will be indicated by an interrupt tone through the station speaker (if not in use). The interrupt tone on the ICM is abbreviated, lasting only for a four second interval. The incoming call signal is different for CO/PBX and ICM calls.

#### ii. STATION BGM - STD:

Background music through the idle station speaker is available on an individual station basis under control of the station user. The music is turned off when a voice page or ICM call occurs at the station. The station user can turn the BGM on or off at the station at any time.

#### kk. STATION SPEED DIAL - STD:

Each station can have up to ten (10) personal dial numbers programmed by the user themselves. Included are capability for "pause" timing as well as automatic access (preselection) to CO/PBX lines.

#### II. STATION HEADSET ADAPTOR - OPT:

As a hardware option, an operator headset can be connected to the electronic key telephone. Utilizing the SHCB-S headset adaptor, a headset may be utilized at the telephone in place of the station handset.

## mm. STATION AMPLIFIED HANDSET - OPT:

As a hardware option, an amplified telephone handset, replacing the standard handset, is available for all electronic key telephones.

# nn. STATION NOISE CANCELLING HANDSET - OPT:

As a hardware option, a noise cancelling

handset, replacing the standard handset, is available for all electronic key telephones.

oo. STATION DIRECTORY TRAY - STD: Each electronic key telephone comes equipped with a station directory tray that is utilized for listing frequently dialed numbers.

#### pp. STATION SPEED KEY (AUTO DIALER) -OPT:

The model TXX-616D and KL stations are equipped with sixteen (16) "station speed" keys. These keys provide for individual speed dial numbers either inclusive or exclusive of the ten (10) numbers programmed by the user for the station speed dial functions. Utilizing separate speed dial numbers, up to twenty-six (26) total station speed dial keys by the user is available at any time including while the user is talking on a CO/PBX line call. No programmed CO/PBX line for auto-access on outgoing calls is available utilizing the station speed keys. Up to sixteen (16) digits can be programmed for each key.

qq. TIME REMINDER (ALARM) - STD:
On model TXX-616D station, the station user
can program a time in the same day that the
station alarm will sound. When the time of day
that the user programs passes, the station will
emit an audible indication and the station
LCD display indicates a "reminder" display.

#### rr. TRUNK QUEUE - STD:

When the station user wishes to call on an outside line that is busy, the trunk queueing feature allows the extensions to seize the line when it is free. Two (2) choices are available: (1) the user can receive an indication when the line is free, or (2) the user can pre-dial the desired outside telephone number and automatically dial the number upon answering (off-hook) the station callback queue.

ss. TIME TRUNK QUEUEING - STD:
When the station user encounters a busy outside party or a no-answer condition, the "time queue" feature can be utilized to call the station user in a system programmed time out (15 min. max.) period. Upon answering the callback, the system automatically dials the same CO/PBX line telephone number as previously dialed.

tt. WALL MOUNTING - STD:
The electronic key telephone can either be wall or desk mounted. No optional hardware

is required.

# 4.00 INDUSTRY STANDARD SINGLE LINE FEATURES

4.01 The TXX-616 system provides a number of standard and optional features on industry standard single line telephones. In addition to the system features listed in TABLE 2-A, the SL features include:

- a. ACCOUNT CODE CAPABILITY OPT: When the SCDR Call Detail Recorder is equipped, a DTMF SL station user can enter a six (6) digit account code any time during the duration of the call. The hook switch must be flashed and digits dialed.
- b. ANSWER HOLD/CALL SPLITTING STD: While a station is busy on a CO/PBX line call, and the station is called on ICM (or busy on ICM and an incoming CO/PBX line call occurs), the station user can automatically answer the incoming call and place the original call on "hold." The user can switch between both calls by using the "splitting" features.
- c. AUTOMATIC ANSWERING STD: Automatic answering occurs for either incoming CO/PBX or ICM calls by taking the handset off-hook. The first call into the station is automatically connected.
- d. CALL FORWARD (CO/ICM) STD: An extension can "call forward" both CO/PBX and ICM calls. Forwarded calls can advance two times in the system. CO/PBX operation of the forward function is on/off (at will) once the forwarded extension number has been programmed by the user. Lines that are "pick-up restricted" at the destination station can receive forwarded calls.
- e. CALL PARK STD:
  CO/PBX lines can be placed in "station park"
  on both type of SL telephones. Once the call is
  placed in "park" on the station, the call can be
  retrieved at any other station. A call placed in
  "park" is indicated as a call on "hold" at station
  with CO/PBX line lamp dictators.
- f. CLASS OF SERVICE STD: The Single Line (SL) telephones have the following Class of Service (COS) assignments:
  - Day Ringing
  - Night Ringing
  - Pick-up Restriction
  - Doorphone Ringing
  - Day/Night Alarm Ringing
  - Executive Station (DND/Busy/Override Only)
  - Protected Extension
  - Park Recall Allow/Deny
  - Page Access Restriction
- g. CONSULTATION HOLD/RECALL STD: The station initiating a transfer can place the

original call on hold and return to the originating party if no transfer or conference is to be effected.

#### h. CO/PBX LINE ACCESS -

The industry standard SL can only access CO/PBX lines for an outgoing call by "addon" operation through an electronic telephone. A SL can access a line on "system hold."

- DIAL TONE REORDER STD:
   Utilizing the "flash" function on ICM provides for reordering ICM dial tone in order to call another station if the original station is busy.
- DIRECTED CALL PICK-UP STD: Utilizing the "directed call pick-up" feature, an extension can answer a remote extension ICM call.
- k. CALL PARK/RECALL STD: As a COS option, the single line station placing a call in "park" will have the call ring back to the originating extension after a system programmed time period.
- MESSAGE WAITING ACTIVATION STD:
   A station calling either a busy station or upon a station no answer condition, can leave an indication at the called station. Stations with the numeric display will indicate the extension number of extension(s) that are called. SL telephones have no message waiting indication (lamp) capabilities.

#### m. OVERRIDE - BUSY/DND - STD:

As a station COS option, the station may be programmed for "executive override" feature. This allows a station to interrupt a busy station or defeat the "do-not-disturb" condition at a station if the station is off-hook utilizing the handset (only). An interrupt tone is given to the called station. Only DTMF type SL stations operate the feature through the dial pad. "Protected Extensions" cannot be overridden.

- n. PROTECTED EXTENSION STD: As a station COS option, the station can be programmed as a "protected extension" against override by a calling extension.
- o. STATION BUSY CALLING STD:
  When a station is busy on a CO/PBX line or
  ICM call, an incoming CO/PBX line call will be
  indicated by an interrupt tone through the station. The interrupt tone on ICM is abbreviated,
  lasting only for a four (4) second interval. The
  incoming call signal is different for CO/OPX
  and ICM calls.

# TXX-616 ELECTRONIC KEY TELEPHONE SYSTEM SECTION 3 — SYSTEM COMPONENTS

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#### 1.00 INTRODUCTION

1.01 This section describes the individual components that make up the TXX-616 Electronic Key Telephone System. Individual circuit cards are identified and described.

#### 2.00 TXX-616 KEY SERVICE UNIT

- 2.01 The TXX-616 KSU Key Service Unit forms the nucleus of the TXX-616 system. The KSU consists of a single cabinet that utilizes a printed circuit backplane for all circuit board modules and full capacity operations. The system power supply, model PWS-S, mounts internal to the common equipment. The TXX-616 KSU can be either floor or wall mounted. An optional wall (or rack) mount (model WREX-616) is available.
- **2.01** FIGURE 3-1 illustrates system components and their functions.
- 2.03 The KSU, consists of one (1) card shelf connected to the printed circuit backplane (mother board).
  - a. The card shelf provides for connection of individual circuit modules consisting of the system CPU card, miscellaneous control cards, CO/PBX line cards and station interface cards.

- All circuit modules are plug-in and are assigned respective card slots on the card shelf.
- 2.04 The TXX-616 KSU common equipment interfaces to the CO/PBX lines utilizing standard USOC RJ-11C modular connectors. Interface to station wiring is accomplished by utilizing standard 50 pin amphenol type connectors. The MDFA-S PCB, standard on the TXX-616 KSU, provides both the CO/PBX line and system MDF connections.
- 2.05 The TXX-616 KSU utilizes the HCPU-ST CPU common equipment card. The card utilized contains the system 8-bit central processor and software control utilizing 27128 (16K byte) type E-PROMS; working Random-Access-Memory (RAM) and user data base RAM memory supported by a battery that will retain memory for five (5) days. The battery itself has a life of five (5) years minimum. When the HCPU-ST is equipped on the system, the model MISC-S Miscellaneous Control card must also be equipped on the system.
- **2.06** FIGURE 3-2 illustrates the TXX-616 KSU and equipment circuit card locations.
- 2.07 The TXX-616 system KSU contains cards for the trunk station interface.
  - a. Two (2) different CO/PBX line interfaces are available:
    - The 4LST-S Trunk Interface card provides four (4) loop start CO/PBX lines. One (1) 4LST-S card can be equipped on the system in the assigned card slot.
    - The 2LST-S Trunk Interface card provides two (2) loop start CO/PBX lines. One (1) 2LST-S card can be equipped on the system in the assigned card slot.
  - b. The KTSC-S Station Interface provides four(4) station interfaces to the system. Up to four

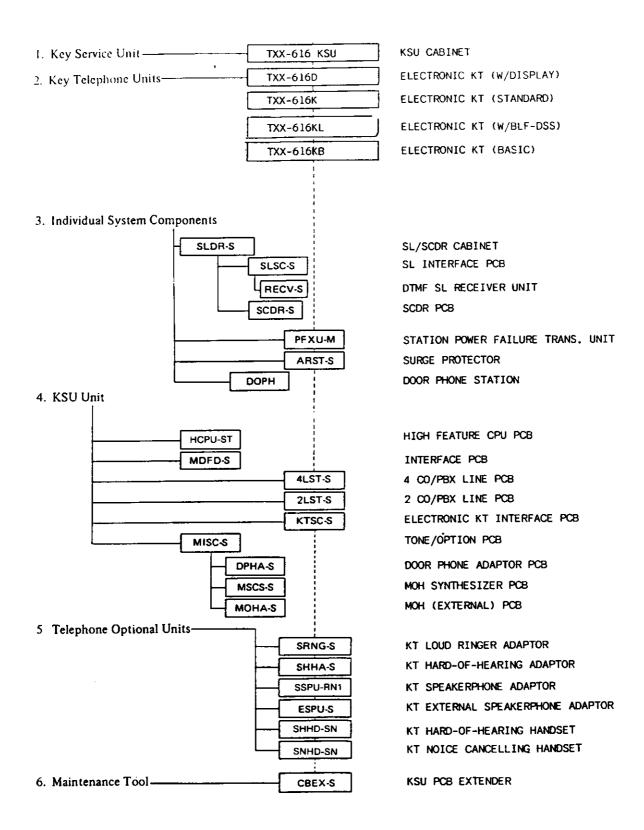


FIGURE 3-1 TXX-616 SYSTEM COMPONENTS

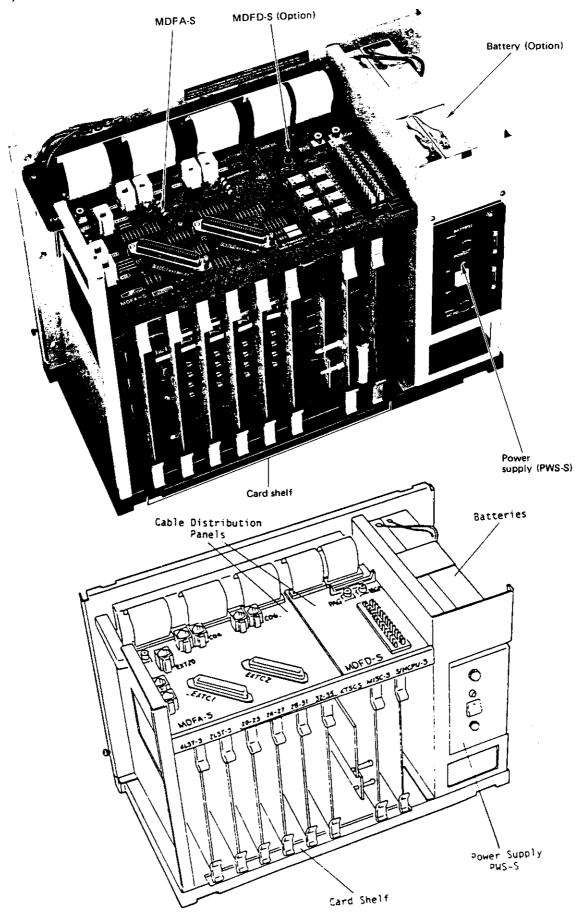


FIGURE 3-2 TXX-616 KSU COMPONENTS

- (4) cards may be equipped on the system. The KTSC-S circuit card is universal to all type stations; any available station in any configuration can interface to the KTSC-C circuit card.
- c. The Door Phone Adaptor card DPHA-S provides an interface up to two (2) door phone stations model DOPH. The DPHA-S circuit card mounts on the MISC-S circuit card inside the KSU.
- 2.08 The TXX-616 KSU also contains PCB's for optional system features.
  - a. The MSCS-S Music Synthesizer card provides synthesized music for the system. The MSCS-S mounts on the MISC-S card. A choice of two melodies are available.
  - b. The MOHA-S Music-On-Hold Adaptor card is used in place of the MSCS-S Music Synthesizer card to provide music-on-hold utilizing an external music source. Connection of the external music source is made on the system MDFA-S circuit card.

# 3.00 OPTIONAL SYSTEM COMPONENTS

- 3.01 Other optional system components include:
  - a. The MDFD-S card is an optional card mounted on the KSU MDF panel (not in the card shelf) that provides six (6) individual relay contacts for operating loud ringing bells during CO/PBX incoming calls. In addition, connections for BGM over the PA and PA amplifier interface is provided.
  - b. The model SCDR-S Station Call Detail Recorder provides call details of CO/PBX line calls. Optional programming features are provided for call detail reports. Whenever the SCDR-S is equipped the model SLDR-S Single Line/SCDR-S Mounting Cabinet must be provided. The SLDR-S cabinet provides for mounting the SCDR interface as well as four (4) single telephones. Also, the model MFSD-S MDF Interface is required for connecting the SCDR interface cable to the system KSU.
  - c. The model MDFD-S1 PCB differs from the MDFD-S in that the MDFD-S1 provides a built in alarm tone and utilizes a control contact to operate the alarm feature.
  - d. The PFXU-M Power Failure Transfer Unit provides for transferring up to six (6) CO/PBX lines to external single line telephones during system power failure.

#### 4.00 ELECTRONIC KEY TELE-PHONES/STATION EQUIPMENT

- 4.01 The TXX-616 system utilizes both electronic key telephones and standard single line telephones to reduce system installation requirements and provide innovative telephone station features.
  - a. Electronic stations feature use of an individual station microprocessor and associated memory elements for control of station function. The system CPU control signals are digitized, sent to the station using a serial binary data train.
  - b. Voice circuits utilized in the system are analog. Although the electronic telephones utilize proprietary voice network, components allowing use of telephone ancillary devices such as headsets, hard-of-hearing handsets etc. are available.
  - c. The electronic telephone processor controls two audio paths, one for the handset (live) voice and the second for ICM and CO/PBX incoming tone signalling which can occur simultaneously while the user is talking on the telephone.
  - d. All station dialing is push-button, dialing being accomplished by data control from the station equipment to the common equipment dial sender under the control of the CPU. Any station ancillary device utilizing network signalling must utilize DTMF signalling.
  - e. The station, as supplied, includes a mounting tray that can be used either to elevate the station, or for wall mounting. All wall mounting hardware is included with the basic station.
  - f. A number of optional station equipment hardware are available, including full hands-free operation on both CO and ICM calls, optional station hard-of-hearing and noise cancelling handsets, as well as a loud ringing bell adaptor.
- 4.02 The TXX-616 system offers four (4) different models of electronic telephones that can be utilized in any configuration. FIGURE 3-3 illustrates the models of electronic stations.
- 4.03 The TXX-616D telephone, as illustrated in FIG-URE 3-3a, is used either as attendant/secretary or executive telephones utilizing the same station hardware. Assignment of the function keys on the telephone is in accordance with the user requirement.
  - a. If the TXX-616D telephone is utilized for the "attendant" (main answering position) or "secretary" position, specific function keys are assigned for direct access to station or remote

control circuits such as solenoids for entranceways. In addition, a Night Service Key is provided for automatically placing the system in the "night service" mode.

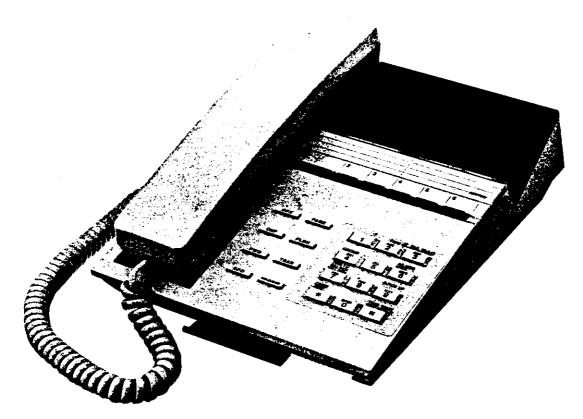
- Only two (2) phones can be programmed on the system as "attendant/secretary" operation.
- When installed at the attendant (main answering) position, the station can serve as the system programmer.
- The executive model station can also be utilized on the system to operate the "night service" feature when equipped at the primary extension (attendant) position.
- b. The TXX-616D station provides the greatest amount of features and functionality for the executive station user. A total of sixteen (16) function keys are provided for operating system features.
  - 1. The system may be equipped with all D type telephone, or any mixture of other models.
  - With the exception of the three (3) function keys utilized for attendant/secretary function, the remaining feature/functions are the same on the executive station.
  - Other features/functions of the station include:
  - Full hands-free adaptor for CO/PBX and ICM calls (optional).
  - Sixteen (16) DSS keys with BLF indication that also serve as additional station speed dial (auto dial) keys while on a CO/PBX call, providing a total of twenty-six (26) station speed dial numbers.
  - Sixteen (16) digit LCD display utilized for system prompts and messages.
  - Sixteen (16) function keys for access to system/station features.
  - Seven (7) LED indicator lamps to indicate station feature/function status.
  - Six (6) direct CO/PBX line pick-up keys with LED lamp indicators.
  - Optional station hardware including hardof-hearing and noise cancelling handsets, station headset adaptor and station loud ringing bell adaptor.
- **4.04** The model TXX-616K Electronic Key Telephone, illustrated in FIGURE 3-3b represents the basic feature key telephone station.
  - a. Included are the following features/functions:
    - Feature and function access through dial pad and direct feature keys.
    - Six (6) direct CO/PBX line pick-up keys

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- with LED lamp indicators.
- Nine (9) function keys for access to system/ station features.
- Seven (7) LED indicator lamps to indicate station feature/function status.
- Full hands-free adaptor for CO/ICM calls (optional).
- Optional station hardware including hardof-hearing and noise cancelling handset, station headset adaptor and station loud ringing bell adaptor.
- b. All stations may be equipped as the TXX-616K type. However, "night service" features are not recommended if no model TXX-616D station is equipped since no visual indication of night service is available.
- 4.05 The model TXX-616KL, illustrated in FIGURE 3-3c, provides a number of features/functions available on the TXX-616D. However, the station sixteen (16) digit LCD display is not provided as well as four (4) direct access function keys. The sixteen (16) button auto dialer and DSS with BLF indication is provided.
  - a. Included are the following standard and optional features and functions:
    - Feature and function access through dial pad and direct feature keys.
    - Optional full hands-free adaptor for CO/PBX and ICM calls.
    - Sixteen (16) DSS keys with BLF indication that also serves as additional station speed dial (auto dial) keys while on a CO/PBX call providing a total of twenty-six (26) station speed dial numbers.
    - Six (6) direct CO/PBX line pick-up keys with LED lamp indicator.
    - Nine (9) function keys for access to system/ station features.
    - Seven (7) LED indicator lamps to indicate station feature/function status.
  - Any number of stations can be equipped on the system. However, a TXX-616D station is recommended as the attendant (primary station position).
- 4.06 The TXX-616KB Electronic Key Telephone, illustrated in FIGURE 3-3d represents the basic electronic key telephone station. The TXX-616KB may also be used for locations not requiring all the sophisticated features and functions available on other models.
  - a. The TXX-616KB telephone includes the following features/functions:
    - Feature and function access through dial pad and direct station feature keys.
    - Six (6) direct CO/PBX line pick-up keys.
    - Three (3) function keys for direct access to system/station features.

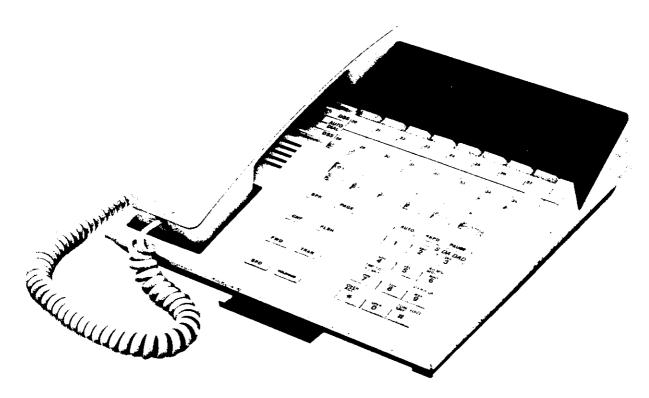


(a) MODEL TXX-616D ELECTRONIC KEY TELEPHONE

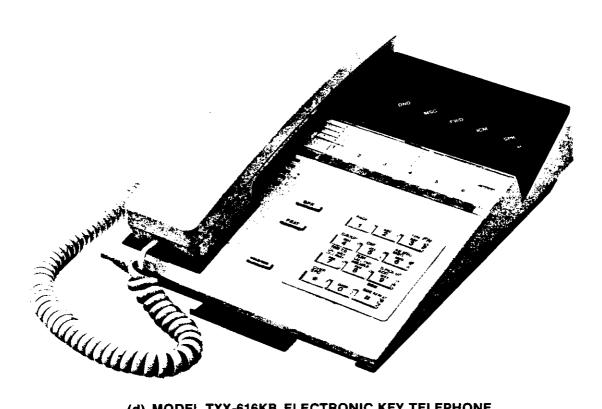


(b) MODEL TXX-616K ELECTRONIC KEY TELEPHONE

FIGURE 3-3 TXX-616 ELECTRONIC KEY TELEPHONES



(c) MODEL TXX-616KL ELECTRONIC KEY TELEPHONE



(d) MODEL TXX-616KB ELECTRONIC KEY TELEPHONE

FIGURE 3-3 TXX-616 ELECTRONIC KEY TELEPHONES (CON'T)

- Five (5) LED indicator lamps to indicate station feature/function status.
- Full hands-free adaptor for CO/ICM calls (optional).
- Optional station hardware including hardof-hearing and noise cancelling handset, station headset adaptor and station loud ringing bell adaptor.
- b. Any number of TXX-616KB stations may be equipped on the system. However, a model TXX-616D is recommended at the attendant (primary extension) position.
- 4.07 Industry standard single line telephones either dial pulse (DP) or DTMF type may be utilized. Single line telephones require use of an external mounting cabinet, model SLDR-S, that provides for mounting up to four (4) model SLSC-S single line station interfaces.
  - a. Each SLSC-S interface provides for one (1) DP or DTMF type single line telephone. The SLSC-S must be wired to the electronic telephone interface circuit on the model KTSC-S Key Telephone Station Circuit. Therefore, the KTSC-S, providing four (4) electronic station interfaces, and a SLSC-S are both required for single line telephones.
  - b. Each SLSC-S circuit card must be assigned to either a DP or DTMF type station. If the station connected is to be a DTMF type, then one (1) model RECV-S must be equipped on each SLSC-S wired for DTMF type network access signals.
  - c. When equipping the model SLDR-S Single Line/SCDR auxiliary equipment cabinet, a local provided external Talk and Ring Supply must be provided if any single line telephones are to be utilized.
  - d. The model DMSK-S, Diai Mask for DTMF telephones, may be ordered as an option. The dial mask provides identification at the dial pad keys for respective system operational features on DTMF type telephones.
- 4.08 Optional electronic telephone station hardware for all models of electronic telephones are listed below:
  - a. The model SRNG-S Station Loud Ringing Bell Adaptor, mounted internal to the station, provides an interface to an external loud ringing bell on an individual station basis. Relay contacts operating on 15 IPM (1 sec. on, 3 sec. off) control an installer provided external bell and power source.
  - b. The model SHHD-SN Station Hard-Of-Hearing Handset can be used for individuals requiring hard-of-hearing handset capabili-

- ties. The standard handset is replaced with the model SHHD-SN handset. The handset provides for only higher speech volumes. The handset does not comply with FCC hard-of-hearing regulations as regards inductive coupling to hearing aid devices.
- c. The model SNHD-SN Noise Cancelling Handset provides for noise cancelling station handset microphones. The standard handset is replaced with the model SNHD-SN handset on an individual station basis.
- d. The model SSPU-RN1 Station Hands-free Telephone Adaptor provides for full handsfree operation on the electronic key telephones. The SSPU-RN1 is equipped on an individual station basis.
- e. The model ESPU-S External Hands-free Telephone Adaptor provides for connecting an external hands-free unit or any other two wire voice circuit to the electronic key telephone. The ESPU-S is equipped on an individual station basis.
- f. The model SHCB-S Station Headset Adaptor provides an interface circuit to the electronic key telephone for the purpose of connecting a headset, the SHCB-S is utilized with a local provided headset and turn-key jack to allow the user switch between handset and headset operation. The SHCB-S is required on an individual station basis for each telephone equipped with a headset.

# TXX-616 ELECTRONIC KEY TELEPHONE SYSTEM SECTION 4 — FEATURE OPERATION

CONT	FENTS	PAGE
1.00	INTRODUCTION	4-1
2.00	KEY TELEPHONE OPERATIONTXX-616D ATTENDANT/SECRETARY	
	TXX-616D EXECUTIVE	4-1
	TXX-616KL KEY TELEPHONE	4-1
3 00	TXX-616KB KEY TELEPHONE	

#### 1.00 INTRODUCTION

- 1.01 This section describes the feature operation of the TXX-616 Electronic Key Telephone System.
- 1.02 Feature operations are identified for each type of Electronic Key Telephone that comprise the TXX-616 system. Included also are the operational aspects of the single line (SL) telephones that can be equipped on the system.
- 1.03 Provided with each electronic key telephone is a Station User's Guide which describes in detail the individual station feature/function operations.
- **1.04** Appendix A provides a composite table that lists all features and telephones available.

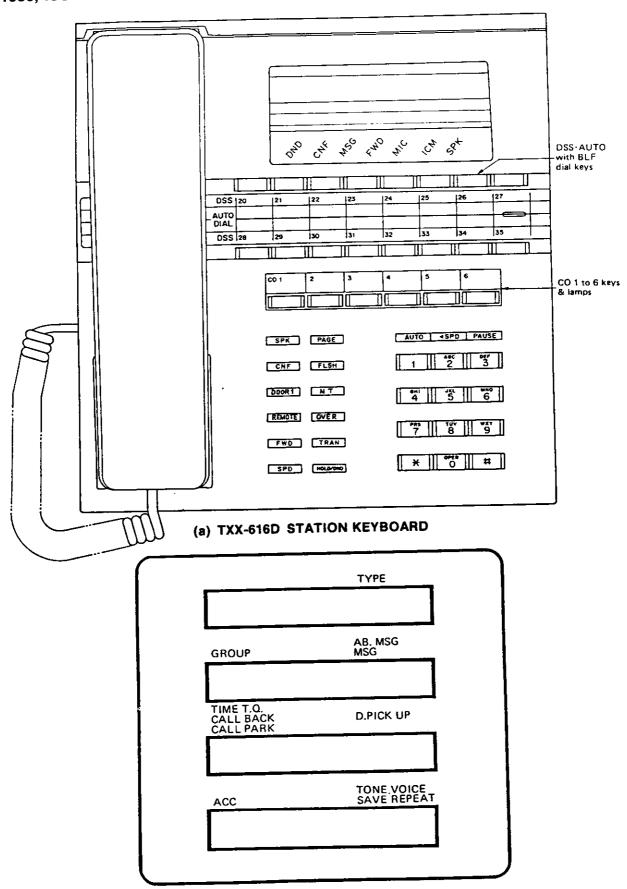
#### 2.00 TXX-616 ELECTRONIC KEY TELEPHONE FEATURE OPERATION

- 2.01 The model TXX-616D Electronic Key Telephone can be configured as either an attendant/secretarial station or executive station. Operational aspects of both stations are similar; however, they do differ as regards the features/functions programmable keys of each type of station and dial pad.
  - a. The TXX-616D key telephone, when config-

- ured as an attendant/secretary station requires installation of the type OP dial mask. In addition, the four (4) programmable keys are labeled in accordance with FIGURE 4-1. Feature operation is in accordance with TABLE 4-A
- b. When configuring the TXX-616D telephone as an executive station, the type D dial mask must be attached to the station. In addition, the four (4) programmable keys are labeled in accordance with FIGURE 4-2. Feature operation of the telephone is in accordance with TABLE 4-B.
- 2.02 The model TXX-616K Electronic Key Telephone utilizes both function keys and dial pad for feature operation. FIGURE 4-3 illustrates the station keyboard and dial mask. TABLE 4-C lists station feature operation.
- 2.03 The model TXX-616KL Electronic Key Telephone utilizes both function keys, dial pad and DSS/Auto Dial Keys for feature/function operation. FIGURE 4-4 illustrates the station keyboard and associated dial mask. TABLE 4-D lists station feature operation.
- 2.04 The model TXX-616KB Electronic Key Telephone utilizes both function keys and station dial pad for feature/function operation. FIGURE 4-5 illustrates the station keyboard and associated dial mask. TABLE 4-E lists station feature operation.

#### 3.00 Single Line (SL) Operation

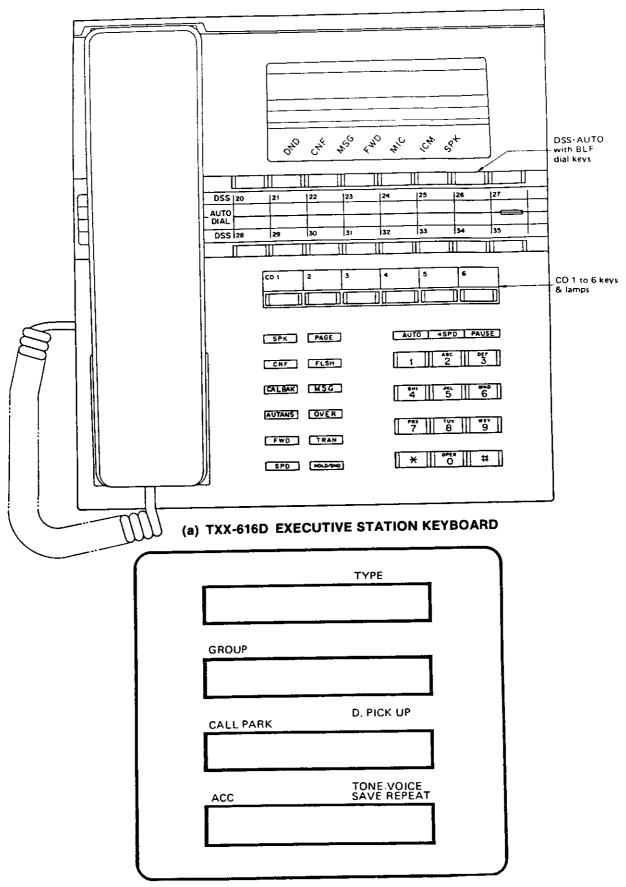
- 3.01 The TXX-616 system provides for both Dial Pulse (DP) type and DTMF type single line (SL) stations. Any industry standard SL can be utilized. Feature operation is different for the type of SL utilized.
  - TABLE 4-F lists feature operation utilizing & DTMF type SL telephone.
  - TABLE 4-G lists feature operation utilizing a DP type SL telephone.



(b) TXX-616D DIAL MASK ATTENDANT/SECRETARY STATION
FIGURE 4-1 TXX-616D ATTENDANT/SECRETARY STATION

## TABLE 4-A TXX-616D ATTENDANT/SECRETARY OPERATION GUIDE

FEATURE	STATION STATUS	OPERATION	
Call Operator	On-hook or Off-hook Talking on CO or ICM	[0] {TRAN -[0]	
Access all call page	On-hook or Off-hook Talking on CO or ICM	[PAGE]	
Call other station on ICM	On-hook or Off-hook Talking on CO or ICM	[DSS] [TRAN]-[DSS]	
Access Door/Manitor phone	On-hook of Off-hook	[DOOR] or [MONITOR]	
Access group page	On-hook or Off-hook Talking on CO	[4] [TRAN]-[4]	
Set/reset DND	On-hook	[DND]	
Release privacy on CO Multi-line conference Set Trunk-to-Trunk conference	Talking on CO Talking on CO Talking on two CO lines	[CNF] [CNF]-[CO] [CNF]	
Add-on conference	Talking on CO or ICM	[TRAN]-[DSS]-[CNF]	
Set/reset Message Wait Retrieve Message Set Absence Message Display Reset Absence Message	Calling other station on ICM On-hook or Off-hook On-hook On-hook	[6] [6] [6]-[0][1] to [0][4]-[number/time]-[#] [6]-[*]	
Place Call Park Pick up Call Park Leave Timed Trunk Queue Leave Call back Queue Reset Time T.Q. or Call back Oueue	Talking on ICM On-hook or Off-hook Busy/Ring back tone on CO Busy on CO or ICM On-hook or Off-hook	[TRAN]-[7] [7]-[DSS] [TRAN]-[7]-([number to dial]) [7]-([number to dial]) [7]-[*]	
Split or to hold to Answer Flash on CO	Talking on CO or ICM Talking on CO	[FLSH]	
Program Call Forwarding Set/reset Call Forwarding	Calling the extension on ICM On-hook or Off-hook	[FWD]	
Direct call pick-up	On-hook or Off-hook	[9]-{DSS]	
Enter Account Code	Talking on CO	[SPD]-[*]-{account code}-[#]	
Program Station Speed Dial Speed dial on any idle CO Speed dial on particular CO	On-hook On-hook or Off-hook On-hook or Off-hook	[SPD]-[SPD]-[Spd #]-[line #]-[number]-[SPD] [SPD]-[speed dial number] [CO]-[SPD]-[speed dial number]	
Save for Redial Redial on any idle CO Redial on particular CO	Talking on CO On-hook or Off-hook On-hook or Off-hook	[SPD]-[#] [#] [CO]-[SPD]-[#]	
Access CO	On-hook or Off-hook	[CO]	
Override Station Busy	Called station is busy	[OVER]	
Change calling mode on ICM	Calling on ICM	[#]	
Access Dial Tone Reorder	Calling on ICM	FLSH	
Set/reset BGM	On-hook	[FLSH]	
Program Auto-Dial Access Auto-Dial	On-hook or Off-hook On-hook or Off-hook	[AUTO]-[DSS]-[◀SPD]-[Dial number]-[AUTO] [CO]-[DSS]	
Place the CO on System Hold	Talking on CO	[HOLD]	
Remote control	On-hook	[REMOTE]	
Set/reset Night Assign	On-hook	[NT]	

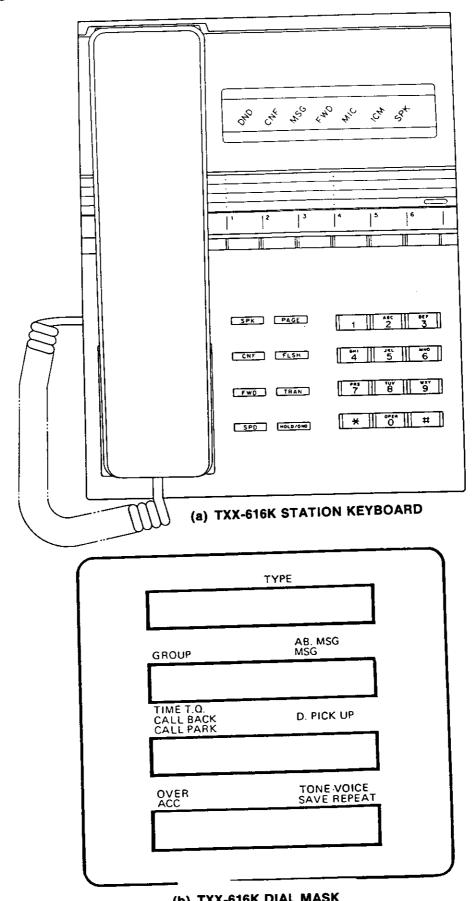


(b) TXX-616D DIAL MASK EXECUTIVE STATION

FIGURE 4-2 TXX-616D EXECUTIVE STATION

# TABLE 4-B TXX-616D EXECUTIVE STATION OPERATION GUIDE

		OPERATION
FEATURE	STATION STATUS	
Call Operator	On-hook or Off-hook Talking on CO or ICM	[0] [TRAN]-[0]
Access all call page	On-hook or Off-hook Talking on CO or ICM	[PAGE]
Call other station on ICM	On-hook or Off-hook Talking on CO or ICM	[DSS] [TRAN]-[DSS]
Access Door/Monitor phone	On-hook or Off-hook	[DOOR] or [MONITOR]
Access group page	On-hook or Off-hook Talking on CO	[4] [TRAN]-[4]
Set/reset DND	On-hook	[DND]
Release privacy on CO Multi-line conference Set Trunk-to-Trunk conference	Talking on CO Talking on CO Talking on two CO lines	[CNF] [CNF]-[CO] [CNF]
Add-on conference	Talking on CO or ICM	[TRAN]-[DSS]-[CNF]
Set/reset Message Wait Retrieve Message Set Absence Message Display Reset Absence Message	Calling other station on ICM On-hook or Off-hook On-hook On-hook	[6] [6] [6]-{0}[1] to [0][4]-{number/time}-[#] [6]-[*]
Place Call Park Pick up Call Park Leave Timed Trunk Queue Leave Call back Queue Reset Time T.Q. or Call back Queue	Talking on ICM On-hook or Off-hook Busy/Ring back tone on CO Busy on CO or ICM On-hook or Off-hook	[TRAN]-[7] [7]-[DSS] [TRAN]-[7]-([number to dial]) [7]-([number to dial]) [7]-[*]
Split or to hold to Answer Flash on CO	Talking on CO or ICM Talking on CO	[FLSH]
Program Call Forwarding Set/reset Call Forwarding	Calling the extension on ICM On-hook or Off-hook	[FWD] [FWD]
Direct call pick-up	On-hook or Off-hook	[9]-{DSS}
Enter Account Code	Talking on CO	[SPD]-[*]-[account code]-[#]
Program Station Speed Dial Speed dial on any idle CO Speed dial on particular CO	On-hook On-hook or Off-hook On-hook or Off-hook	[SPD]-[SPD]-{Spd #]-[line #]-[number]-{SPD] [SPD]-[speed dial number] [CO]-{SPD]-(speed dial number]
Save for Redial Redial on any idle CO Redial on particular CO	Talking on CO On-hook or Off-hook On-hook or Off-hook	[SPD}-[#] [#] [CO]-[SPD -[#]
Access CO	On-hook or Off-hook	[col
Override Station Busy	Called station is busy	[OVER]
Change calling mode on ICM	Calling on ICM	[#]
Access Dial Tone Reorder	Calling on ICM	[FLSH]
Set/reset BGM	On-hook	[FLSH]
Program Auto-Dial Access Auto-Dial	On-hook or Off-hook On-hook or Off-hook	[AUTO]-[DSS]-[ <spd]-[dial [co]-[dss]<="" number]-[auto]="" td=""></spd]-[dial>
Place the CO on System Hold	Talking on CO	[HOLD]
Remote control	On-hook	[REMOTE]
Set/reset Night Assign	On-hook	[нт]



(b) TXX-616K DIAL MASK

FIGURE 4-3 TXX-616K ELECTRONIC KEY TELEPHONE

#### TABLE 4-C TXX-616K STATION OPERATION GUIDE

FEATURE	STATION STATUS	OPERATION
Call Operator	On-hook or Off-hook Talking on CO or ICM	[0] [TRAN]-[0]
Access all call page	On-hook or Off-hook Talking on CO or ICM	[PAGE]
Call other station on ICM	On-hook or Off-hook Talking on CO or ICM	[DSS] [TRAN]-[DSS]
Access Door/Monitor phone	On-hook or Off-hook	[3][6] or [3][7]
Access group page	On-hook or Off-hook Talking on CO	[4] [TRAN]-[4]
Set/reset DND	On-hook	[DND]
Release privacy on CO Multi-line conference Set Turnk-to-Trunk conference	Talking on CO Talking on CO Talking on two CO lines	[CNF] [CNF]-[CO] [CNF]
Add-on conference	Talking on CO or ICM	[TRAN]-[DSS]-[CNF]
Set/reset Message Wait Retrieve Message Set Absence Message Display Reset Absence Message	Calling other station on ICM On-hook or Off-hook On-hook On-hook	[MSG] [MSG] [MSG]-[0][1] to [0][4]-[number/time]-[#] [MSG]-[*]
Place Call Park Pick up Call Park Leave Timed Trunk Queue Leave Call back Queue Reset Time T.Q. or Call	Talking on ICM On-hook or Off-hook Busy/Ring back tone on CO Busy on CO or ICM On-hook or Off-hook	{TRAN}-[7] [7]-[DSS] [CAL.BAK]-([number to dial]) [CAL.BAK]-([number to dial]) [CAL.BAK]-[*]
back Queue Split or to hold to Answer Flash on CO	Talking on CO or ICM Talking on CO	[FLSH]
Program Call Forwarding Set/reset Call Forwarding	Calling the extension on ICM On-hook or Off-hook	(FWD)
Direct call pick-up	On-hook or Off-hook	[9]-[DSS]
Enter Account Code	Talking on CO	[SPD]-[*]-[account code]-[#]
Program Station Speed Dial Speed dial on any idle CO Speed dial on particular CO	On-hook On-hook or Off-hook On-hook or Off-hook	[SPD]-[SPD]-[Spd #]-[line #]-[number]-[SPD] [SPD]-[speed dial number] [CO]-[SPD]-[speed dial number]
Save for Redial Redial on any idle CO Redial on particular CO	Talking on CO On-hook or Off-hook On-hook or Off-hook	[SPD]-[#  [#  [CO]-[SPD]-[#]
Access CO	On-hook or Off-hook	Icol
Override Station Busy	Called station is busy	[OVER]
Change calling mode on ICM	Calling on ICM	[#]
Access Dial Tone Reorder	Calling on ICM	[FLSH]
Set/reset BGM	On-hook	(FLSH)
Place the CO on System Hold	Talking on CO	[HOLD]
Program Auto-Dial Access Auto-Dial	On-hook or Off-hook On-hook or Off-hook	[AUTO]-[DSS]-[◀SPD]-[Dial number]-[AUTO] [CO]-[DSS]
Set/reset Auto-answering	On-hook	[AUT.ANS]

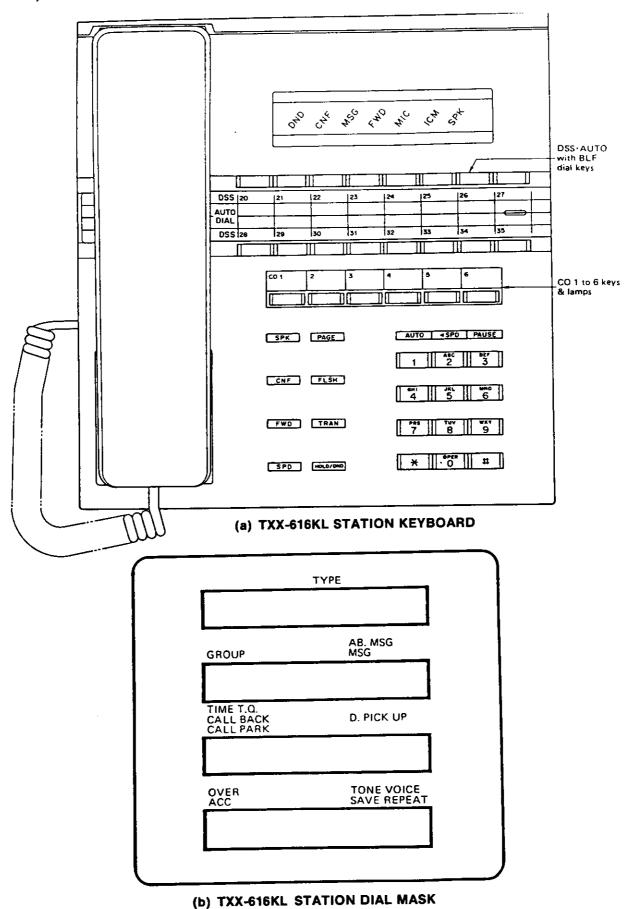
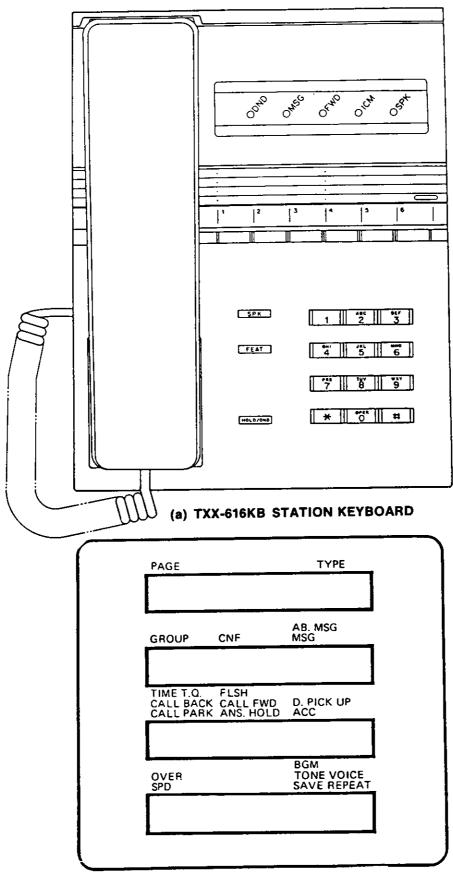


FIGURE 4-4 TXX-616KL ELECTRONIC KEY TELEPHONE

### TABLE 4-D TXX-616KL STATION OPERATION GUIDE

FEATURE	STATION STATUS	OPERATION
Call Operator	On-hook or Off-hook Talking on CO or ICM	[0] [TRAN]-[0]
Access all call page	On-hook or Off-hook Talking on CO or ICM	[PAGE]
Call other station on ICM	On-hook or Off-hook Talking on CO or ICM	[DSS] [TRAN]-[DSS]
Access Door/Monitor phone	On-hook or Off-hook	[3][6] or [3][7]
Access group page	On-hook or Off-hook Talking on CO	[4] [TRAN]-[4]
Set/reset DND	On-hook	(DND)
Release privacy on CO Multi-line conference Set Trunk-to-Trunk	Talking on CO Talking on CO Talking on two CO lines	[CNF] [CNF]-[CO] [CNF]
conference Add-on conference	Talking on CO or ICM	[TRAN]-[DSS]-[CNF]
Set/reset Message Wait Retrieve Message Set Absence Message Display Reset Absence Message	Calling other station on ICM On-hook or Off-hook On-hook On-hook	[6] [6] [6]-[0][1] to [0][4]-(number/time]-[#] [6]-[*]
Place Call Park Pick up Call Park Leave Timed Trunk Queue Leave Call back Queue Reset Time T.Q. or Call back Queue	Talking on ICM On-hook or Off-hook Busy/Ring back tone on CO Busy on CO or ICM On-hook or Off-hook	[TRAN]-[7] [7]-[DSS] [TRAN]-[7]-((number to dial]) [7]-((number to dial]) [7]-[*]
Split or to hold to Answer Flash on CO	Talking on CO or ICM Talking on CO	[FLSH]
Program Call Forwarding Set/reset Call Forwarding	Calling the extension on ICM On-hook or Off-hook	[FWD] [FWD]
Direct call pick-up	On-hook or Off-hook	[9]-[DSS]
Enter Account Code	Talking on CO	[SPD]-[*]-[account code]-[#]
Program Station Speed Dial Speed dial on any idle CO Speed dial on particular CO	On-hook On-hook or Off-hook On-hook or Off-hook	[SPD]-[SPD]-[Spd #]-[line #]-[number]-[SPD] [SPD]-[speed dial number] [CO]-[SPD]-[speed dial number]
Save for Redial Redial on any idle CO Redial on particular CO	Talking on CO On-hook or Off-hook On-hook or Off-hook	[SPD]-[#] [#] [CO]-[SPD]-[#]
Access CO	On-hook or Off-hook	(co)
Override Station Busy	Called station is busy	[*]
Change calling mode on ICM	Calling on ICM	(*)
Access Dial Tone Reorder	Calling on ICM	[FLSH]
Set/reset BGM	On-hook	[FLSH]
Program Auto-Dial Access Auto-Dial	On-hook or Off-hook On-hook or Off-hook	[AUTO]-[DSS]-[   SPD]-[Dial number]-[AUTO] [CO]-[DSS]
Place the CO on System Hold	Talking on CO	[HOLD]



(b) TXX-616KB STATION DIAL MASK

FIGURE 4-5 TXX-616KB ELECTRONIC KEY TELEPHONE

### TABLE 4-E TXX-616KB STATION OPERATION GUIDE

FEATURE	STATION STATUS	OPERATION
Call Operator	On-hook or Off-hook Talking on CO or ICM	[0] [FEAT]-[0]
Access all call page	On-hook or Off-hook Talking on CO or ICM	[1] [FEAT]-[1]
Call other station on ICM	On-hook or Off-hook Talking on CO or ICM	[2][0] to [3][5] [FEAT]-[2][0] to [3][5]
Access Door/Monitor phone	On-hook or Off-hook	[3]{6] or [3][7]
Access group page	On-hook or Off-hook Talking on CO	[4] [FEAT]-[4]
Set/reset DND	On-hook	[DND]
Release privacy on CO Multi-line conference	Talking on CO Talking on CO	[FEAT]-[5] [FEAT]-[5]-[CO]
Set Trunk-to-trunk	Talking on two CO lines	[FEAT]-(5)
conference Add-on conference	Talking on CO or ICM	[FEAT]-[2][0] to [3][5]-[5]
Set/reset Message Wait Retrieve Message Set Absence Message Display Reset Absence Message	Calling other station on ICM On-hook or Off-hook On-hook On-hook	[6] [6] [6]-[0][1] to [0][4]-[number/time]-[#] [6]-[*]
Place Call Park Pick up Call Park Leave Timed Trunk Queue Leave Call back Queue Reset Time T.Q. or Call back Queue Split or to hold to Answer	Talking on ICM On-hook or Off-hook Busy/Ring back tone on CO Busy on CO or ICM On-hook or Off-hook Talking on CO or ICM	[FEAT]-[7] [7]-[2][0] to [3][5] [FEAT]-[7]-([number to dial]) [7]-([number to dial]) [7]-[*] [FEAT]-[8]
Flash on CO	Talking on CO	[FEAT]-[8]
Program Call Forwarding Set/reset Call Forwarding	Calling the extension on ICM On-hook or Off-hook	[8]
Direct call pick-up	On-hook or Off-hook	[9]-[2][0] to [3][5]
Enter Account Code	Talking on CO	[FEAT]-[9]-[account code]-[#]
Program Station Speed Dial Speed dial on any idle CO Speed dial on particular CO	On-hook On-hook or Off-hook On-hook or Off-hook	[FEAT]-[FEAT]-[*]-[Spd #]-[line #]-[number]-[FEAT]-[*] ([FEAT]-[*]-[speed dial number] [CO]-[FEAT]-[*]-[speed dial number]
Save for Redial Redial on any idle CO Redial on particular CO	Talking on CO On-hook or Off-hook On-hook or Off-hook	{FEAT]-{#}  #   CO}-[FEAT]-{#}
Access CO	On-hook or Off-hook	[CO]
Override Station Busy	Called station is busy	[*]
Change calling mode on ICA	Calling on ICM	[#]
Access Dial Tone Reorder	Calling on ICM	(FEAT)
Set/reset BGM	On-hook	[FEAT]-[#]
Place the CO on System Hole	d Talking on CO	[HOLD]

### TABLE 4-F DTMF-SLT OPERATION GUIDE

FEATURE	STATION STATUS	OPERATION
Call Operator	Off-hook Talking on CO or ICM	[0]
Access ali call page	Off-hook Talking on CO or ICM	[1] ↑ 4-[1]
Call other station on ICM	Off-hook Talking on CO or ICM	[2][0] to [3][5] 1 +-[2][0] to [3][5]
Access Door/Monitor phone	Off-hook	[3][6] or [3][7]
Access group page	Off-hook Talking on CO	[4] 1 4-[4]
Pick up CO line	Off-hook	[5]-[1] to [6]
Set/reset Message Wait Retrieve Message	Calling other station on ICM Off-hook	[6] [6]
Set Absence Message Reset Absence Message	Off-hook Off-hook	[6]-{0}[1] to [0][3]-{number/time}-{#] [6]-{*]
Pick up Call Park Place Call Park	Off-hook Talking on CO or ICM	[7]-[2][0] to [3][5] † +-[7]
Program Call Forwarding Set/reset Call Forwarding	Calling the extension on ICM Off-hook	[8] [8]
Split or to hold to Answer	Talking on CO or ICM	† +-[8]
Direct call pick-up	Off-hook	[9]-[2][0] to [3][5]
Enter Account Code	Tulking on CO	1 4-[9]-{account code}-[#]
Add-on conference	Talking on CO or ICM	† 4-[2][0] to [3][5]-† 4
Override Station Busy	Called station is busy	[*]
Access Dial Tone Reorder	Calling on ICM	11

#### TABLE 4-G DP-SLT OPERATION GUIDE

FEATURE	STATION STATUS	OPERATION
Call Operator	Off-hook Talking on CO or ICM	t 1-[0]
Access all call page	Off-hook Talking on CO or ICM	[1] ↑ ↓-[1]
Call other station on ICM	Off-hook Talking on CO or ICM	[2][0] to [3][5] † +-[2][0] to [3][5]
Access Door/Monitor phone	Off-hook	[3][6] or [3][7]
Access group page	Off-hook Talking on CO	[4]   † 1-[4]
Pick up CO line	Off-hook	[5]-[1] to [6]
Set/reset Message Wait Retrieve Message	Calling other station on ICM Off-hook	<del>[</del> 6]
Pick up Call Park Place Call Park	Off-hook Talking on CO or ICM	[7]-[2][0] to [3][5] † 4-[7]
Program Call Forwarding Set/reset Call Forwarding	Calling the extension on ICM Off-hook	[8]
Split or to hold to Answer	Talking on CO or ICM	↑ ↓-[8]
Direct call pick-up	Off-hook	[9]-[2][0] to [3][5]
Add-on conference	Talking on CO or ICM	† +-[2][0] to [3][5]-† +
Access Dial Tone Reorder	Calling on ICM	Ť Į

**PAGE** 

### SECTION 5 — SYSTEM PLANNING/RECORD ELECTRONIC KEY TELEPHONE SYSTEM 919-XXT

PAGE CONTENTS

aoftware programming for the TXX-616 system.  1.02 Narratives are provided for each system program number. Appendix B provides planning/program worksheets that should be retained as job record.	8-8 TANIL I ST. — 2710 I MRAZA 8-8 YAQ — 3-8 ST. M.
1.00 INTRODUCTION 1.01 This section details both hardware planning and	PICKUP RESTRICTION       5-7         DOOR RINGING — DAY       5-8         ALARM TONE — EXTERNAL       5-8         ALARM TONE — EXTERNAL       5-8
SPERKERPHONE ASSIGNMENT       5-10         9.00 SYSTEM ASSIGNMENTS       5-10         9.00 C.C. ACCESS       5-10	PAUSE TIME 5-7  6.00 RINGING PICKUP ASSIGNMENTS 5-7  DAY RINGING — CO/PBX 5-7  NIGHT RINGING — CO/PBX 5-7  OUTGOING RESTRICTION 5-7
GROUP PAGE RECEIVE 5-9  EXECUTIVE OVERRIDE 5-9  PROTECTED EXTENSION 5-9  HOLD RECALL ENABLE 5-9  6-8 5-9  DO-NOT-DISTURB (DND) 5-9	5.00 TIMER ASSIGNMENTS 5-7 CO/PBX FLASH TIMING 5-7 CO/PBX FLASH TIMING 5-7 HOLD RECALL TIMING 5-7 CAMP-ON TIME 5-7 CAMP-ON TIME 5-7
8.00 STATION CLASS ASSIGNMENT 5-9 SYSTEM SPEED DIAL RESTRICTION 5-9 SYSTEM SPEED DIAL TOLL RESTRICTION 5-9 PAGE DENIAL 5-9 PAGE DENIAL 5-9 GROUP PAGE RESTRICTION 5-9	CO/PBX LINE INSTALLATION  6-4  SYSTEM SPEED DIAL NUMBER  5-4  BGM  5-4  BGM  5-6  CDR OUTPUT  5-6  10-15  5-7  5-8  5-8  5-8  5-8  5-8  5-8  5-
DTMF/DP SELECTION 5-8  DIME PULSE SPEED 5-8  BUTOMATIC LINE RELEASE 5-8  DIAL PULSE SPEED 5-8  AUTOMATIC ANSWER 5-8  AUTOMATIC ANSWER 5-8  TOLL RESTRICTION COS 5-8	1.00 INTRODUCTION 5-1 2.00 HARDWARE PLANNING 5-3 3.00 SOFTWARE 5-3 4.00 SYSTEM SETTINGS 5-4 5-4 6.00 SYSTEM SETTINGS 5-4 5-4 6-4
COMPENS	STNTENTS STNTENTS

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### TABLE 5-A SYSTEM HARDWARE PLANNING

for Series		НСР	Leri I	Requi	red														NOTE: One SLSC-S card is
5 E		MISC		Regui									<del></del> -						necessary
- ໝ	ë.	DPH	AS	NOUG.	,														for connecting each SL
Hi-Feat	Hi-Feat Series	MOH	A-S S	ynthe	sizer M	OH/ext	ternal I	ион											phone. The DTMF type
	<u> </u>	MDF	D-S																SLT also re-
_	=	SLD	R-S	LSC-S	4														RECV-S card.
	<u> </u>		3	CDR-	<u> </u>	k	LOT					LOT			_	LOT	S 32 to	. 25	
	SLC	· 1	SLOT KTSC-S	20 to	23	Ī	CTSC-S	24 to	27				28 10				34	35	┥
	EX.	T NO.	20	21	22	23	24	25	26	27	28	29	30	31	32	33	- 34	-25	-{
	$\vdash$	ST					$\neg \neg$											}	⊣
•	-	D																<del> </del>	-
Extensions	ž  -	<del>K</del>															<del> </del>		-
ens:	extensions																<del> </del>	<b>├</b>	
ž	없  -	KL KB							$\neg \neg$								<u> </u>	۰.	لـ
	Types						21 67							<u> </u>					LC: Short
	SL	OT	4LST		3	4	2LST	<b>S</b>						·				_	LC: Short distance setting DX: Long
ines —	SL LI	NE NO.	1	2	3 MF	4 MF	_				·							_	distance setting DX: Long distance
3X lines	SL LII	NE NO. ype of	1 MF	2 MF	MF	MF	S MF	6 MF										<del></del>	distance setting DX: Long distance setting Setting is
O/PBX lines	SL LII	NE NO. ype of Line	1 MF DP	2	MF		S MF	6 MF											distance setting DX: Long distance setting Setting is made on printed
CO/PBX lines	SL Lii	NE NO. ype of Line Line aracter-	MF DP LC	2 MF DP	MF DP LC	MF DP LC	S MF DP LC	6 MF DP							1 22	133	34	3	distance setting DX: Long distance setting Setting is made on
CO/PBX lines	SL LII	NE NO. ype of Line Line aracter- istics	1 MF DP	MF DP LC	MF DP LC	MF DP LC	S MF DP LC	6 MF DP		27	28	29	30	31	32	33	34	- 1 3	distance setting DX: Long distance setting Setting is made on printed circuit card
	SL Liii Ty cha	NE NO. ype of Line Line aracter- istics T NO.	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC	6 MF DP LC		27	28	29	30	31	32	33	34	3	distance setting DX: Long distance setting Setting Setting is made on printed circuit card
	SL Lii Ty cha	NE NO. ype of Line Line aracter- istics T NO. T Type	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC	6 MF DP LC		27	28	29	30	31	32	33	34	3	distance setting DX: Long distance setting Setting is made on printed circuit card
	SL Lii Ty cha exx EXX	NE NO. ype of Line Line aracteristics T NO. T Type	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC	6 MF DP LC		27	28	29	30	31	32	33	34	3	distance setting DX: Long distance setting Setting Setting is made on printed circuit card
	SL Lii Ty cha EX' EX' ESF	NE NO. ype of Line Line aracter- istics T NO. T Type PU-RN1 PU-S	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC	6 MF DP LC		27	28	29	30	31	32	33	34	3	distance setting DX: Long distance setting Setting is made on printed circuit card
	SL Lii Ty cha EX' EX' SSF ESE SR'	NE NO. ype of Line Line aracter- istics T NO. T Type PU-RN1 PU-S NG-S	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC	6 MF DP LC		27	28	29	30	31	32	33	34	3	distance setting DX: Long distance setting Setting is made on printed circuit card
	SL LIII Ty cha cha EX' EX' SSF ESE SR: SH:	NE NO. ype of Line Line sracter- istics T NO. T Type PU-RN1 PU-S NG-S HA-S	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC	6 MF DP LC		27	28	29	30	31	32	33	34	3	distance setting DX: Long distance setting Setting is made on printed circuit card
Key telephone unit CO/PBX lines	SL LIII Ty cha EX' EX' SSF SR: SH: SH:	NE NO. ype of Line Line sracter- istics T NO. T Type PU-RN1 PU-S NG-S HA-S	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC	6 MF DP LC DX 25		27	28	29	30	31	32	33	34	3	distance setting DX: Long distance setting Setting is made on printed circuit card
Key telephone unit	SL LIII Try cha EX' EX' SSP ESI SR SH SH	NE NO. ype of Line Line aracter- istics T NO. T Type PU-RNI PU-S NG-S HA-S HHD-SN	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC DX	MF DP LC	6 MF DP LC		27	28	29	30	31	32	33	34	3	distance setting DX: Long distance setting Setting is made on printed circuit card
	SL LIII Ty cha EX' EX' SSF ESE SR SH SH SM	NE NO. ype of Line Line sracter- istics T NO. T Type PU-RN1 PU-S NG-S HA-S	MF DP LC DX 20	DP LC DX 21	MF DP LC DX 22	MF DP LC DX 23	S MF DP LC DX 24	6 MF DP LC DX 25		27	28	29	30	31	32	33	34	3	DX: Long distant setting DX: Long distant setting Setting is made on printed circuit card

Note: Mark the required units and setting with a "\" or "O"

2.01 Section 3 detailed system hardware for both the common equipment and station equipment.

TABLE 5-A provides a reference to determine what type and what quantity of hardware is required for an individual installation.

- 2.02 Steps for Determining and Assigning System Hardware:
  - a. Indicate the type and number of KSU components required for the installation.
  - b. Indicate in the Extension column the type of

telephone station to be assigned to each dial code and associated KTSC-S card slot.

- Dial Codes 20 and 21 are the only two positions that can be utilized as attendant stations.
- Dial Code 20 should utilize a model TXX-616D type station for programming, as it includes a display. In addition, the display is utilized also to indicate "night service" status.

- c. Indicate how many and which types of CO/PBX lines the system will be equipped with. Line characteristics LC and DX are strap settings on the respective 4LST-S (or 2LST-S) PCB for short or long distance from the serving Central Office. Assign each CO/PBX line individually.
- d. Key telephone stations may be equipped with optional hardware. Indicate individual station requirements. Assure that only one unit (either SSPU-RN, ESPU-S, or SRNG-S) is assigned to model TXX-616D, TXX-616K, TXX-616KL and TXX-616KB type stations.
- e. Identify which CO/PBX lines will be switched through the SL station Power Failure Transfer Unit.

# 3.00 SOFTWARE PROGRAM/USER DATA BASE

3.01 System programming utilizes the model TXX-616D type station at the primary extension/attendant position. Programming is accomplished utilizing the station DSS key, LCD display, dial pad, and CO/PBX line pickup keys. All programs are stored in system RAM memory supported by a battery with a minimum hold-up time of five days.

- TABLE 5-B lists the TXX-616 program parameters that can be accessed.
- b. Program settings can be individually addressed or default functions utilized if no user programmed feature is necessary.

TABLE 5-B GENERAL DESCRIPTION PROGRAMMING

CLASSIFI- CATION	PROGRAM- MING NO.	ITEM	CLASSIFI- CATION	PROGRAM- MING NO	ITEM
	00	Time		34	Optional Ringing Tone
	01	Date	Outside	35	MF/DP Select
	02	Station Type & Installation	Line	36	Dial Pulse Ratio
	03	Trunk Card Installation	1	37	Automatic CO Release
System	04	MISC Card Installation	Setting	38	Automatic Line Transfer
Setting	05	System Speed Dial	1	39	Dial 20pps Select
	06	Toll Restriction		40	Auto Answer
	07	Back Ground Music	ĺ	41	Toll Restriction Class
	08	SCDR Output Class	1	42	Secretary Hot Line
	09	TONE/VOICE	1	43	Speed Dial Restriction
•	10	Flash Timer	1	44	Speed Dial Toll Restriction
Timer	11	Disconnect Signal Timer	1	45	Page Deny
	12	Hold Timer	Station Setting	46	Group Page Access
Setting	13	Camp On Timer		47	Group Page Receive
	14	Pause Timer		48	Executive Station
	15	Timed Trunk Queue Timer		49	Station Protect
	20	direct Inward Line		50	Hold Recall Enable
	21	Night Ringing Assignment		51	Do not Disturb
Outside	22	Outgoing Restriction		52	Built-in Speakerphone
&	23	Pick-up Restriction		53	Remote Key
Station	24	Doorphone Ringing Assignment	System	70	Except America
Setting	25	Doorphone Night Ringing	Setting	71	O.C.C Setting
		Assignment	Clear	80	Error Clear
	26	Alarm Ring Assignment		90	Memory All Clear
	27	Alarm Night Ring Assignment	Others	99	Computer Programming
	28	Alarm Assignment			
Outside	30	External Loud Ringer Control			
Line	31	Night Ringer Control			
Setting	32	Originate CO Group			
Serning	33	Pre-dial			

- 3.02 Steps for Determining System User Data Base:
  - Referring to TABLE 5-B, a thorough understanding of respective system features is required.
  - Utilizing Appendix B, indicate on the User Data Base Record specific system parameters that must be addressed.
  - c. Referring to the User Data Base Record in Appendix B, the narratives that follow detail individual system programs.

#### 4.00 SYSTEM SETTINGS

4.01 Program 00-Time of Day:

When programming begins, hours/minutes of day is entered.

4.02 Program 01-Date/Day of Week:

When programming begins, yearly date and day of week is entered.

4.03 Program 02+Station Type:

The type of station associated with the individual system dial code must be identified.

- Indicate station type for each system dial code utilized.
- 4.04 Program 03-CO/PBX Line Installation:

The system must be programmed for each CO/PBX line equipped.

- Indicate working CO/PBX lines for each CO/PBX line appearance.
- 4.05 Program 04-MISC-S PCB Installation:

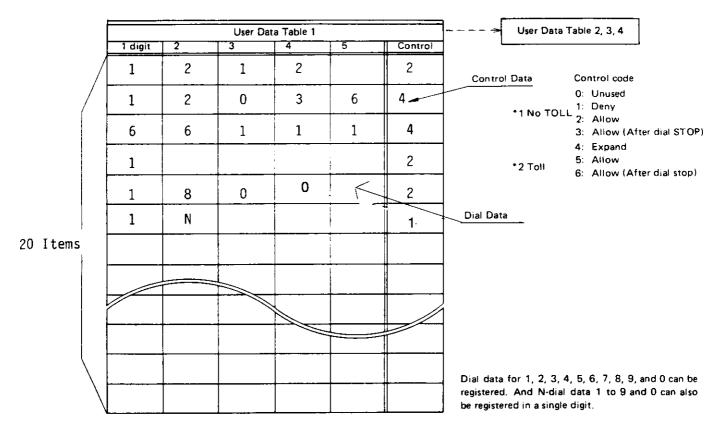
The system must be programmed for MISC-S PCB installation.

- Indicate that MISC-S is installed (mandatory).
- 4.06 Program 05-System Speed Dial Number:

System Speed Dial Access No. 00-89 can be programmed for numbers up to 16 digits in length, as well as pause timing. Also, CO/PBX lines can be assigned to the speed dial numbers.

- Indicate which or all CO/PBX lines the speed number will be accessed on.
- Indicate speed dial digits to a maximum of 16.
- Indicate P (Pause) setting in between speed dial digits.
- NOTE Record in Appendix is supplied for convenience only. Additional copies may be required, as System Speed Dial Number may be changed often.
- 4.07 System Setting Toll Restriction:

- a. The TXX-616 system provides for multi-digit toll control of LD calls, as well as control of North American standard dial plan for special services. The system provides for toll control of LD numbers on an allow or deny basis either by area code, office code, and subscriber code if desired.
- b. Four User Data Toll Tables are provided with 20 sets of entries for each table. Included in each User Data Toll Table are "Control Code" entries for detailing the desired system response to each set of entries. The Control Codes utilized in the system programming and their respective meanings are:
  - Control Code 0 Default No Control
  - Control Code 1 Deny, if match occurs
  - Control Code 2 Allow, if match occurs
  - Control Code 3 Allow, if match occurs and deny all other dial digits
  - Control Code 4 Expand, read next dial data entry
  - Control Code 5 Allow, SCDR printout Toll
     Mark
  - Control Code 6 Allow, SCDR printout Toll Mark, deny all other dial digits
- c. FIGURE 5-1 illustrates the User Data Tables entry. For illustration purposes, the following entries and their explanations were made in User Data TABLE NO. 1.
  - Entry O1 dial data consists of allowing all LD calls to Area Code 212.
  - Entry 02 dial data consists of string of dial digits to Entry 03 and 04. All LD calls to 1-203-666-1111. Entry 02 Control Code 4 indicates to expand (read) next entry (03). Entry 03 Control Code 4 indicates to expand (read) next entry (04). Entry 04 Control Code 2 indicates to allow call.
  - Entry 05 dial data consists of allowing all other 800 LD calls. Control Code 2 (deny) is utilized
  - Entry 06 dial data denies all other calls dialed after digit 1. Dial data "N" indicates any number 0 through 9.
  - For determining numbers to be allowed or denied, the system reads each User Data Table entry in order, starting from Entry 01 to Entry 20. Therefore, when assigning dial data to entry numbers, insure that proper flow for reading data is maintained. Construct tables such that entries for exceptions (as in the case of Entries 01, 02, and 05 in the example provided) are read first before general rule (Entry 06) is programmed.



NOTE: User Data Table telephone number data to be entered must be sorted. The N-dial must be handled as the largest number and be the final data.

\*Register control codes 5 and 6 for toll mark printout option on SCDR.

#### FIGURE 5-1 USER DATA TABLES — TOLL RESTRICTION

- For dial data entries, "0 through 9" as well as "#" and "\*" can be entered. Utilize "N" when any digit "0 through 9" is considered.
- d. Included with the four User Data Tables is a Basic Data Table that contains generally used exception codes. FIGURE 5-2 illustrates the Basic Data Table entries. The entries of this table cannot be changed or expanded.
- e. Class of Service: Toll Restriction is provided by stringing User Data Table(s) and Basic Data Table. The system provides for nine Class of Service (COS) settings 1-9, as well as no toll denial COS O. TABLE 5-C lists Toll Restriction COS settings.
  - The system CPU reads each respective COS User Data Table entry in order and then reads the Basic Data Table.
  - If dial data exception to that listed in Basic Data Table is required by user, the exception with proper control code must be listed in User Data Table. For example, if 1-800 (WATS) calls were to be denied (1-800)

- WATS is allowed in Basic Data Table), then 1-800 with Control Code 1 must be programmed in User Data Table assigned to respective COS mark utilized.
- User Data Table 4 is utilized as table for entry of OCC calls exceptions. If system OCC feature is utilized (Program No. 71), all exceptions must be listed in User Data Table No. 4 and COS No. 8 or 9 assigned for respective stations.
- Call originated by System Speed Dialing can defeat Toll Restriction if desired. Refer to Program No. 44 to allow stations to defeat Toll Restriction if System Speed Dialing is utilized.
- 4.08 Program 07-Station Background Music (BGM):

Determine whether system station and external speakers (if equipped) will hear BGM when idle

- Indicate whether BGM is OFF or ON at extensions.
- Indicate whether BGM is OFF or ON at external speakers.

					Basic Data T		
No.	1 digit	2	3	4	5	Control	CONTENT
1	0		-		<u>.</u>	4	DENY TOLL
2							<u></u> _
3	1	1	N		<u> </u>	2	ALLOW STOP
4		_					
5	1	6	1	1		2	ALLOW STOP
6	1	8	0	0		1	ALLOW
7	1	9	1	1		2	ALLOW STOP
8			_				
	† — † †		. 2	-	s	‡ ‡	
14	1	N	0	N	5	3	EXPAND
15	5	5				1	ALLOW
16	i	N	1	1		0	DENY
17	i	N	1	N	5	3	EXPAND
18	5	5				1	ALLOW
19	1	N	0	N		4	DENY TOLL
20	1	N	1	N		4	DENY TOLL
21							
22							
	¥ =	3 3	÷ :			<u> </u>	. <u></u> .
38	6	1	1			2	ALLOW STOP
39	8	0	0			1	ALLOW
40	9	1	1			2	ALLOW STOP
41		-					
	≠ 2	<u>-</u>	: ت	<u>.</u> .	Ļ	† <u>†</u>	
44	N	0	N	5	5	3	EXPAND
45	5					1	ALLOW
46	N	1	1			0	DENY
47	N	1	N	5	5	3	EXPAND
48	5					1	ALLOW
49	N	0	N			4	DENY TOLL
50	N	1	N	1		4	DENY TOLL

For basic data only, not for planning or programming toll control codes

#### FIGURE 5-2 BASIC DATA TABLE

4.09 Program 08-Station Call Detail Recorder (SCDR):

Determine SCDR operational aspects as to output data appearing on printer.

- Indicate which extension dialing is to be output.
- Indicate which CO/PBX lines dial data is to be output.

- Indicate whether only toll calls are to be output.
- Indicate whether only outgoing calls are to be output.
- Indicate whether calls only with an account code are to be output.
- Indicate time duration (minutes) for calls to be output exceeding time limit programmed.

#### TABLE 5-C TOLL RESTRICTION CLASS OF SERVICE

Service Class	0	1	2	3	4	5	6	7	8	9
No restriction	x	-								
Basic		×	х	×	х	×	×	х	×	х
User 1		•	×		x			х		х
User 2				х	×		х	х		х
User 3						x	×	х		x
User 4									х	х

#### 4.10 Program 09-System ICM Calling Mode:

Determine whether Tone or Voice Calling is utilized when an ICM extension is called.

 Indicate whether Tone or Voice is first method of calling.

#### 5.00 TIMER ASSIGNMENTS

#### 5.01 Program 10-CO/PBX Flash Timing:

Determine flash timing for reorder of CO/PBX line function.

Indicate flash timing in tenth second increments.

#### **5.02** Program 11-CO/PBX Disconnect Timing:

Determine CO/PBX disconnect signal timing interval for automatic release.

Indicate disconnect timing in tenth second increments.

#### 5.03 Program 12-CO/PBX Hold Recall Timing:

Determine time after which a line on "hold" recalls station.

Indicate hold recall timing in tenth second increments.

#### 5.04 Program 13-Camp-on Time:

Determine time after which a CO/PBX or ICM call camped on to an extension returns to the originating extension.

Indicate camp-on time out in second increments.

#### 5.05 Program 14-Pause Time:

Determine pause time needed when "system speed dialing" is utilized.

Indicate pause time in second increments.

#### 5.06 Program 15-Trunk Queue Timing:

Determine the time that station will be recalled if the Timed Trunk Queue feature is utilized.

Indicate Queue Time in minute increments.

# 6.00 RINGING AND PICKUP ASSIGNMENTS

#### 6.01 Program 20-Incoming Ringing Assignment - Day

Determine which extensions will ring on which CO/PBX lines during "day" ringing. Assign at least one extension for each line in service.

 Indicate which extension will ring on assigned CO/PBX lines.

#### 6.02 Program 21-Night Ringing Assignment:

Determine which CO/PBX lines and which extensions will be assigned for night service. Assign extensions to the individual CO/PBX line. Assign at least one extension to each CO/PBX line in service.

 Indicate which extension will ring on assigned CO/PBX lines.

#### 6.03 Program 22-Outgoing Restriction:

Determine which extensions are to be restricted from dialing out on each CO/PBX line equipped.

 Indicate which extension for each CO/PBX line equipped is to be restricted.

#### 6.04 Program 23-Pickup Restriction:

Determine which extensions are to be pickup restricted on the CO/PBX line equipped.

 Indicate for each CO/PBX line equipped which extensions are to be pickup restricted on the line.

**6.05** Program 27-Door Phone Ringing Assignment - Day:

IWATSU PN 96507-005

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Determine which extensions are to ring on incoming calls from the respective door phone during "day" interval.

- Indicate for each door phone which extensions will ring during day intervals.
- **6.06** Program 25-Door Phone Ringing Assignment Night:

Determine which extensions are to ring on incoming calls from the respective door phone during "night" interval.

- Indicate for each door phone which extensions will ring during "night" interval.
- 6.07 Program 26-Alarm Ringing Assignment Day:

Determine which extensions are to be signalled by the alarm during "day" interval.

- Indicate which extensions will be signalled during "day" interval.
- 6.08 Program 27-Alarm Ringing Assignment Night:

Determine which extensions are to be signalled by the alarm during "night" interval.

- Indicate which extensions will be signalled during "night" interval.
- 6.09 Program 28-Alarm Tone External Speakers:

Determine if the system alarm tone indication will be heard through external speakers (if equipped).

 Indicate whether alarm tone will be heard through speaker.

#### 7.00 CO/PBX LINE ASSIGNMENT

7.01 Program 30-External Loud Ringer - Day:

Determine which of the four optional ringer relays are assigned to individual CO/PBX lines equipped on the system during the "day" mode.

- Indicate which CO/PBX lines equipped will be assigned to each ringer relay equipped.
- 7.02 Program 31-External Loud Ringer Night:

Determine which CO/PBX line will operate "night" ringer relay.

- Indicate CO/PBX line equipped to operate "night" ringer.
- 7.03 Program 32-Originate CO Line Group:

Not used in North America; no program necessary.

7.04 Program 33-Pre-Dial Number for PBX/Centrex Lines:

Determine the dial digits on each PBX/Centrex Line for access to PBX/Centrex trunk groups.

- Indicate which PBX/Centrex lines are equipped on system.
- Assign maximum of ten dial codes up to three digits in length for each PBX/Centrex line.
- **7.05** Program 34-Optional CO/PBX Line Ringing Tone:

Determine which CO/PBX line will have differentiated ringing tone.

- Indicate individual CO/PBX line to have different ringing tone.
- 7.06 Program 35-DTMF/DP Selection:

Determine which CO/PBX lines are to be Dial Pulse (DP) or DTMF type.

- Indicate manner of signalling on each CO/PBX line equipped.
- 7.07 Program 36-Dial Pulse (DP) Make/Break Ratios:
  Determine make/break ratio of DP whether to be 39% or 33%.
  - Indicate make/break ratios for each DP CO/PBX line equipped.
- 7.08 Program 37-Automatic CO/PBX Line Release:

Determine which CO/PBX line will be disconnected from the system if a disconnect signal is sent by the serving CO/PBX. Trunk to Trunk Conference and Night Call Forward require this setting.

7.09 Program 38-Automatic Line Transfer - Night Call Forwarding:

Determine which incoming CO/PBX lines will be forwarded during "night" mode to assigned outgoing CO/PBX line.

- Indicate which CO/PBX line(s) will serve as incoming lines.
- Indicate individual CO/PBX line for outgoing.
- Indicate dial number of forwarded call; no entry means no outpulsing of digits.
- 7.10 Program 39-Dial Pulse Speed Select:

Determine whether 10 pps or 20 pps shall be opposed on each CO/PBX line equipped in the system.

- Set dial speed for each CO/PBX line equipped.
- 7.11 Program 40-Automatic Answer:

Determine which extensions will automatically answer incoming CO/PBX line call by going off hook.

- Assign each extension auto-answer feature as required.
- 7.12 Program 41-Toll Restriction Class of Service:

Determine COS setting for each extension for every CO/PBX line accessed by the extension. COS settings 1-9 utilize User Data Tables 1-4 and Basic Data Table as indicated on record. COS setting O indicates no restriction. User Data Table 4 is utilized for dial data for LD numbers dialed after OCC access.

 Indicate COS setting for each extension on a per CO/PBX line basis.

#### 8.00 STATION CLASS ASSIGNMENT

8.01 Program 42-Secretarial Hot Line:

Determine which extension can call to another extension utilizing Secretary Hot Line feature that provides priority over other calls taking place. Up to two extensions can be called by each originating extension.

- Indicate by extension which extension can be called by hot line.
- **8.02** Program 43-System Speed Dial Restriction:

Determine which extension cannot access System Speed Dial.

- Indicate which extensions will be restricted from using System Speed Dial.
- 8.03 Program 44-System Speed Dial Toll Restriction:

Determine which extension will be subject to toll restriction when System Speed Dial is utilized.

- Indicate whether extension will be subject to toll restriction when System Speed Dial is used.
- 8.04 Program 45-Paging Denial:

Determine which extension will receive system all-call voice paging.

- Indicate which extension will receive system all-call voice paging.
- 8.05 Program 46-Group Page Restriction:

Determine which extension can originate an extension group page call.

- Indicate which extensions will be allowed to originate a group page call.
- 8.06 Program 47-Group Page Receive:

Determine which extensions can receive an extension group page call.

- Indicate which extensions will receive a group page call.
- 8.07 Program 48-Executive Override Station Assignment:
  - a. The override feature enables a station to enter into a busy CO/PBX line key and force a con-

ference or pre-empt a third extension when calling another station that is busy on ICM.

- When the executive station desires to override a busy CO/PBX line, executive station depresses CO/PBX key to initiate CO addon conference between station on the line and executive station.
- The executive stations, extension 20 (operator telephone) and secretarial hot line have ICM dialing priority.
- Executive stations have priority of call over other stations that have ICM priority.
- ICM priority calls include tone call, voice call, busy bypass tone call, and busy interrupt tone call.
- Executive stations have the right to override a busy CO/PBX line in privacy mode.
- When an executive station uses override to access a station that has a Station Protect feature assigned to it, the executive station hears a busy tone.
- Executive stations, extension 20 (operator telephone), and secretarial hot line telephones (i.e.; extensions connected by secretarial hot line) can defeat stations assigned with Do-Not-Disturb feature.
- Single Line (SL) stations cannot break in on CO/PBX calls.
- b. Assign each extension to have executive override feature.
- 8.08 Program 49-Protected Extension:

Determine which extension shall be protected against call while off-hook busy, in DND mode, or call by an "executive" station. SL stations using data couplers should be assigned this attribute.

- Indicate which extensions will be assigned protected station attribute.
- 8.09 Program 50-Hold Recall Enable:

Determine which extensions will be recalled by the CO/PBX line after holding a call longer than the system program hold time-out.

- Indicate which extension will receive a hold recall tone.
- **8.10** Program 51-Do-Not-Disturb (DND):

Determine which extension can operate DND features.

- Indicate which extensions will be allowed DND operation.
- 8.11 Program 52-Speakerphone Assignment:

Determine which extension will be equipped with built-in speakerphone.

• Indicate which extensions are equipped.

#### 8.12 Program 53-Remote Key Assignment:

Determine which extension using a model TXX-616D key telephone in the ATTD/SEC mode will be assigned a remote control key in place of Door Phone No. 2 function key. The remote key operates a set of relay contacts for control of external functions.

 Indicate which extension programmed as ATTD/SEC extension will be equipped with a remote control key.

#### 9.00 SYSTEM ASSIGNMENTS

9.01 Program 70-Country:

Determine that country setting is USA.

· Indicate USA on program record.

9.02 Program 71-Other Common Carrier (OCC):

Determine the serving office number of up to two OCC services, assignment of authorization code before or after the LD number. OCC assignment masks authorization code on display telephones, as well as SCDR output.

- Indicate the local office number of the OCC service including "pause" timing requirements.
- Indicate whether the authorization code is before or after the LD number dialed when utilizing OCC.
- Indicate number of authorization code digits if "Before" mode is set for authorization code location in dialing chain.
- Indicate number of digits that make up LD number if "After" mode is indicated for authorization code location in dialing chain.

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# TXX-616 ELECTRONIC KEY TELEPHONE SYSTEM SECTION 6 — KSU INSTALLATION/COMMON EQUIPMENT

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#### 1.00 INTRODUCTION

- 1.01 This section describes installation procedures for system hardware components for both common equipment and station equipment. Programming system data base is detailed in Section 8.
- 1.02 Optional hardware for Station Call Detail Recorder and Single Line (SL) Telephones are detailed in Section 7.

#### 2.00 ADVANCED PREPARATION

- 2.01 Before installation of the common equipment, review the following items to insure a smooth installation process and integrity of the system.
  - a. System Programming Record has been accomplished; system building plan with station location and type indicated.
  - b. System hardware checked for completeness including installation material.
    - System backboard used to mount KSU, system components, and MDF
    - Two male 50 pin amphenol ended cables of suitable length to connect KSU to MDF station terminal blocks
    - Two MDF Terminal Blocks 66M1-50 or equivalent with bridging clips
    - Modular 4 pin cords up to 25ft. to connect to Telco provided RJ-11C standard jacks
    - Ground cable No. 16 AWG or heavier
    - Associated mounting hardware, screws, cable clamps, etc.
  - c. A suitable space for mounting the KSU/MDF has been selected.
    - Suitable space is provided for mounting all hardware
    - · Space is dry, clean, and well ventilated
    - Space conforms to system environmental requirements listed in Section 1, Paragraph 4.11
    - Telco provided standard jacks for service within 25ft. of KSU
    - Suitable AC 3 wire power single phase installed on separate service breaker.
       Include current capacity for all components installed at MDF.
    - Suitable earth ground point provided within 25ft, of KSU

#### 2.02 Situations to be avoided:

 a. Avoid location of KSU/MDF in areas of other business machines, especially copy machines.

- b. Avoid areas of location of KSU/MDF where exhaust or corrosive fumes from other machinery exist
- c. Insure that loop limits or electronic key telephones and other system components are not exceeding:
  - Electronic Key Telephone:
    - 40 ohms (730ft. using #24 AWG cable)
  - Door Phone:
    - 20 ohms (365ft. using #24 AWG cable)

#### 3.00 KSU INSTALLATION

- Unpack KSU from shipping carton. Locate 3.01 following items packed with each KSU:
  - a. Battery Cable A and B
  - b. Program Number Selection Guide
  - c. FCC Information
- Open the KSU by removing the two screws on 3.02 the side and lifting cover up and toward the front.
  - a. Check KSU to insure no damage in shipping to mother board or components.
  - b. Insure that system power supply PWS-S is held securely in place.
  - c. Insure that all cable connectors of power supply and ribbon connectors on MDFA-S circuit card are secure.
- Mount KSU on MDF backboard. For mounting 3.03 the unit on the wall of the backboard, the wall mount adaptor WREX-616 is required.

- a. Mount the KSU within 6ft. of the commercial AC power.
- b. Provide suitable ventilation space for the
- c. Provide a suitable AC surge protector for all AC components utilized at the MDF.
- Ground the KSU to Earth Ground. 3.04
  - a. FIGURE 6-1 illustrates the Earth Ground Terminal location on the side of the TXX-616 KSU. Utilize No. 16 AWG or heavier wire to connect this terminal to Earth Ground.
  - b. Connect this terminal to an Earth Ground 25ft, or closer to the KSU.

NOTE | Even though the AC power cord contains a third wire (green) that effectively grounds the KSU, it is best to insure proper grounding by installing a dedicated Earth Ground cable.

#### 4.00 MDF CABLES

- Connect two 50 pin amphenol (male ended) 4.01 cables to the two amphenol connectors EXTC1 and EXTC2 provided on the MDFA-S card in the KSU.
  - a. Route the 50 conductor cables across the top of the KSU and secure in place utilizing the clamp provided at the top of the cabinet.
  - b. Connect the 50 conductor cables to two 66M1 50 blocks. Cable EXTC1 provides terminations for EXT 20-27 while EXTC2 provides terminations for EXT 28-35.

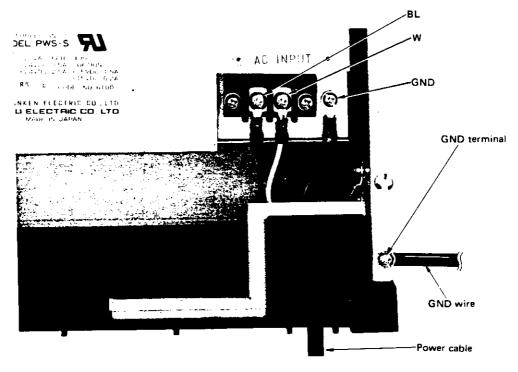


FIGURE 6-1 EQUIPMENT GROUNDING

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TABLE 6-A KSU-MDF-STATION WIRING

FUNCTION	DESIGNATION	KSU CONN. PIN NO.	KSU CABLE WIRE COLOR	TERM. BLK. PIN NO.	2-PAIR, TWISTED PAIR OR QUAD CABLE WIRE COLOR	EXT JACK PIN NO.	NOTE
		26	WHT - BLU	1			•
		1	BLU - WHT	2			
	TI	27	WHT - ORN	3	GRN	- 3	
	RI	2	ORN - WHT	4	RED	- 2	
EXT # 20	- DT1	28	WHT - GRN	5	- YEL	- 4	
<b></b> = -	- DRI	3	GRN - WHT	6	- BLK	- 1	
		29	WHT - BRN	7	_		
		4	BRN - WHT	8			
	- T2	30	WHT - SLT	9	- GRN	- 3	
EXT # 21	- R2	5	SLT - WHT	10	– RED	2	
	- DT2	31	RED - BLU	11	– YEL	- 4	
	- DR2	6	BLU - RED	12	– BLK	- 1	
		32	RED - ORN	13	-		
	-	7	ORN - RED	14	-	-	
	- T3	33	RED - GRN	15	– GRN	- 3	
EXT # 22	- R3	8	GRN - RED	16	– RED	_ 2	
	- DT3	34	RED - BRN	17	- YEL	_ 4	
	- DR3	9	BRN - RED	18	- BLK	- <u>l</u>	
		35	RED - SLT	19	-		
	_	10	SLT - RED	20	-		
	- T4	36	BLK - BLU	21	- GRN	- 3	
EXT # 23	- R4	11	BLU - BLK	22	- RED	- 2	
	- DT4	37	BLK - ORN	23	- YEL	_ 4	
	- DR4	12	ORN - BLK	24	– BLK	- 1	
		38	BLK - GRN	25	-		
		13	GRN - BLK	26	-		
	T5	39	BLK - BRN	27	GRN	3	
EXT # 24	R5	14	BRN - BLK	28	RED	2	
	- DT5	40	BLK - SLT	29	- YEL	- 4	
	- DR5	15	SLT - BLK	30	- BLK	- 1	
		41	YEL - BLU	31			
		16	BLU - YEL	32	_	_	
	_ T6	42	YEL - ORN	33	- GRN	- 3	
EXT # 25	- R6	17	ORN - YEL	34	- RED	- 2	
	- DT6	43	YEL - GRN	35	- · YEL	- 4	
	- DR6	18	GRN - YEL	36	- BLK	- 1	
		44	YEL - BRN	37	-	_	
		19	BRN - YEL	38	-	_	
		45	YEL - SLT	39	- GRN	- 3	
EXT # 26	- R7	20	SLT - YEL	40	- RED	- 2	
	- DT7	46	VIO - BLU	41	– YEL	- 4	
	- DR7	21	BLU - VIO	42	- BLK	- 1	
	- 1/K/	47	VIO - ORN	43			
		22	ORN - VIO	44			
	T8	48	VIO – GRN	45	- GRN	- 3	
EXT # 27	- 18 - R8	23	GRN - VIO	46	- RED	- 2	T
	- DT8	49	VIO - BRN	47	- YEL	- 4	Ţ
	- D18	24	BRN - VIO	48	- BLK	- 1	1
	- 576	50	VIO - SLT	49	_	-	
	-						

- c. TABLES 6-A and 6-B list cable color and terminal assignment at the MDF for the KSU 50 conductor cables.
  - Each extension utilizes 4 conductors labeled T1, R1, DT1, DR1
  - House cable colors indicated assume using standard quad cable

#### 4.02 CO/PBX line:

a. RJ-11C jacks utilized with the system are

Telco provided. Connect the jacks to the CO/PBX line appearances using a 4 pin full modular card plugged into the associated line connector on the MDFA-S cord located at the top of the KSU.

b. If a Power Failure Transfer Unit PFXU-M in installed, the CO/PBX modular connect on the MDFA-S card cannot be connected directly to the Telco RJ-11C jacks. Refer to PFXU-M installation for connection of CO/PBX lines when the unit is equipped.

#### TABLE 6-B KSU-MDF-STATION WIRING

FUNCTION	DESIGNATION	KSU CONN. PIN NO.	KSU CABLE WIRE COLOR	TERM. BLK. PIN NO.	2-PAIR, TWISTED PAIR OR QUAD CABLE WIRE COLOR	EXT JACK PIN NO.	NOTE
		26	WHT - BLU	1			
EXT # 28		l	BLU - WHT	2			
	Т9	27	WHT - ORN	3	GRN	3	
	R9	2	ORN - WHT	4	RED		
	- DT9	28	WHT - GRN	5	- YEL	_ 4	
	- DR9	3	GRN - WHT	6	– BLK	1	
<u>-</u>		29	WHT - BRN	7			
	_	4	BRN - WHT	8	<u> </u>		
EXT # 29	- T10	30	WHT - SLT	9	– GRN	3	
	- R10	5	SLT - WHT	10	- RED	- 2	
	- DT10	31	RED - BLU	11	- YEL	- 4	
	- DR10	6	BLU – RED	12	– BLK	<u> </u>	
**	-	32	RED - ORN	13	-	-	
	_	7	ORN - RED	14	- CDV		-
EVT # 10	- T11	33	RED - GRN	15	- GRN	- 3	<del></del>
EXT # 30	- R1!	8	GRN - RED	16	- RED	2	
	- DT11	34	RED - BRN	17	- YEL - BLK	<u> </u>	-
	- DR11	9	BRN - RED	18		- 1	ļ
EXT #31		35	RED - SLT	19			
		10	SLT - RED	20	GRN	- 3	
	_ T12	36	BLK - BLU	21	- GRN	- 2	
	- R12	11	BLU - BLK	22	- YEL	- 4	
	- DT12	37	BLK - ORN	24	- BLK	- i	
	- DR12	12	ORN - BLK	25	- BLR		
		38	BLK - GRN	26			<del>                                     </del>
		13	GRN - BLK	27	GRN	3	<del> </del>
EXT #32	T13	39	BLK - BRN BRN - BLK	28	RED	2	
	R13	14	BIK - SLT	29	- YEL	_ 4	1
	- DT13	40	SLT - BLK	30	- BLK	- 1	<del> </del>
	- DR13	15	YEL - BLU	31			<del>                                     </del>
		41	BLU - YEL	32	<del> </del>	_	
		16	YEL - ORN	33	- GRN	- 3	-
EXT #33	- T14	17	ORN - YEL	34	- RED	- 2	<del> </del>
	- R14	43	YEL - GRN	35	- YEL	- 4	
	- DT14	18	GRN - YEL	36	- BLK	- 1	
<u>,</u>	- DR14	44	YEL - BRN	37		_	
		19	BRN - YEL	38	_	-	
	- T15	45	YEL - SLT	39	- GRN	- 3	
EXT # 34	- R15	20	SLT - YEL	40	– RED	<b>– 2</b>	1
	- DT15	46	VIO - BLU	41	- YEL	- 4	1
	- DR15	21	BLU - VIO	42	- BLK	- 1	1
EXT # 35	- DK13	47	VIO - ORN	43		_	
		22	ORN - VIO	44		-	
	- T16	48	VIO - GRN	45	- GRN	- 3	
	- R16	23	GRN - VIO	46	- RED	- 2	1
	- DT16	49	VIO – BRN	47	- YEL	- 4	
	- DR16	24	BRN - VIO	48	- BLK	- 1	
		50	VIO - SLT	49			
		25	SLT - VIO	50	-		

#### 5.00 STATION CABLES

5.01 Electronic key stations connect to house cables using 4 pin modular 625 type jacks. FIGURE
 3-2 illustrates construction of a standard 4 pin modular jack. TABLE 6-C lists modular jack pin assignments for house cable connections.

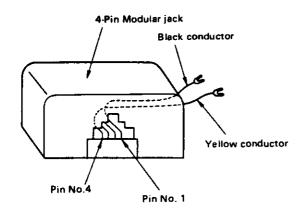
5.02 If 6 pin station modular jacks are utilized, do not connect house cable wires to WHITE and BLUE terminated conductors in the jack.

#### 6.00 PCB INSTALLATION

6.01 The TXX-616 system utilizes various PCB's that contain C-MOS components. The PCB's must be kept free from electrostatic discharge.

- a. Precaution against electrostatics include:
  - Handle PCB's after discharging static from the human body by physically touching the earth grounded KSU.
  - Hold the PCB by the ejector clips or edge

#### IWATSU PN 96507-006



# FIGURE 6-2 FOUR PIN MODULAR JACK CONSTRUCTION

#### TABLE 6-C JACK PIN NUMBER

JACK PIN NO.	CABLE COLOR	DESIGNATION
1	Black	DR
2	Red	R
3	Green	Т
4	Yellow	DT

opposite the card edge connector.

- Do not place PCB on plastics or carpets; avoid any surface that might contain a static charge.
- For maximized static protection, utilize a grounded wrist strap while handling PCB's.
- b. Other precautions include:
  - The HCPU-ST contains a battery. Do not place card on any other card or conductive surface.
  - Insure that system power supply is turned off before installing PCB's.
  - Insure that PCB is installed in correct card slot in KSU.

NOTE Installing PCB's while power is ON or attempting to install card in wrong card slot can cause damage to PCB or whole system. Card(s) damaged in this manner shall be considered out of warranty.

#### **6.02** HCPU-ST Processor Unit Installation:

a. The HCPU-ST processor card has a dedicated card slot on the KSU. The card contains the system CPU, system generic program in ROM, and system scratch pad and data base in RAM supported by a nickel cadmium battery.

- The battery supplies power to retain memory for approximately five days.
- The battery must be charged at least 48 hours in order to maximize memory support.
- The battery has a life of more than three years.
- b. The HCPU-ST PCB contains LED indicator, bit switches, and 8 bit dip switches.
  - The LED indicator lights whenever any extension is busy on the system and memory check error when system is turned on
  - The bit switch RST is utilized to reset the system.
  - Dip switch SW1 is utilized to set the system 3-digit password for entering user data, as well as clear or retain memory during reset operation.
- c. Dip switch SW1 settings are illustrated in FIGURE 6-3.

#### 6.03 4LST-S/2LST-S PCB Installation:

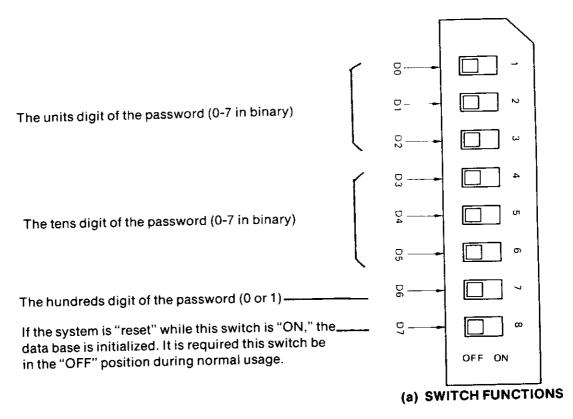
- a. The 4LST-S/2LST-S PCB provide loop start CO/PBX line interfaces. The 4LST-S provides 4 CO/PBX line appearances and is installed in a dedicated card slot. The 2LST-S provides 2 CO/PBX line appearances and is installed in a dedicated card slot.
- Each card requires individual trunk settings utilizing bit switches for CO/PBX line loop attenuation.
  - Default setting DX is utilized when CO/PBX line loss is 3 db or more.
  - Setting LC is utilized when CO/PBX line loss is less than 3 db.

#### 6.04 KTSC-S Key Telephone Interface PCB:

- a. The KTSC-S is utilized to provide four station interfaces to electronic (KT) and single line (SL) extensions on the system. Equipping KTSC-S cards in respective card slots define extension numbers utilized on the system. A KTSC-S should always be installed in PCB slot 20-23.
- b. Each KTSC-S contains four 300 ma 3AG type fuses to protect individual station circuits. Fuse F101 is connected to the lowest ICM code with F201, F301, and F401 connected in ascending order.
- c. Insure that the KTSC-S PCB is installed only in assigned card slots on the KSU.

#### 6.05 MISC-S Tone/Interface PCB:

a. The MISC-S PCB, illustrated in FIGURE 6-4, provides tone and voice interfaces, multiline conference circuit, and optional equipment interfaces. The MISC-S mounts in a



The following illustration depicts binary number settings on SW1

	D0(D3)	D1(D4)	D2(D5)	D6
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	ON
2	OFF	ON	OFF	
3	ON	ON	OFF	
4	OFF	OFF	ON	
5	ON	OFF	ON	
6	OFF	ON	ON	
7	ON	ON	ON	

(b) SW-1 SETTING

#### FIGURE 6-3 HCPU—ST PASSSWORD SETTING

dedicated slot on the KSU.

- Both the Music-on-Hold (MOH) interface using either an external music source or synthesized music source, as well as the optional door phone unit mount on the MISC-S PCB.
- Both the MOH interface PCB and door phone interface PCB can be mounted at the same time.
- b. The MOH interface MOHA-S provides for an external music source. Connection for the music source is provided on the MDFA-S utilizing a phono jack. Relay control for start/stop of the music source (tape) is provided on the optional MDFD-S interface PCB.
- c. When a music synthesizer is utilized, the MSCS-S PCB is installed on the MISC-S. Two different melodies are available on the PCB utilizing bit switch settings. Select M1 for "Home on the Range" or M2 for "Green-sleeves."
- d. The DPHA-S unit provides for two door phone stations. Door phone stations are terminated on the optional MDFD-S PCB in the KSU. Punch down terminals are utilized.
  - DH1 (+, -) terminates Door Phone No. 1.
  - DH2 (+, -) terminates Door Phone No. 2.

#### 6.06 MDFD-S Interface PCB:

a. The MDFD-S Interface PCB provides both

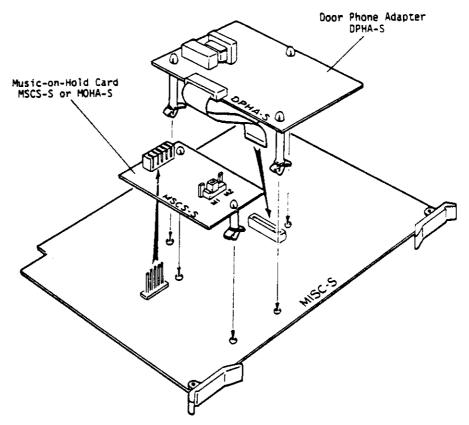


FIGURE 6-4 MISC-S PCB WITH OPTIONAL HARDWARE

relay and voice interfaces for the system. The MDFD-S is an optional PCB that is mounted on the top of the KSU next to the MDFA-S connection PCB. A ribbon cable is provided to connect the card to the KSU internal wiring. The MDFD-S, illustrated in FIGURE 6-5, provides terminations on the card for the individual functions. Most applications require use of a slave relay if the control circuit contact ratings are exceeded. Install the slave relay and protective diode IN4002 (or equivalent) illustrated utilizing an external power source conforming to the slave relay operating parameters.

- b. Music-on-Hold (MOH) Source Control:
  - A MOH phono jack is provided on the MDFA-S PCB to connect the Music-on-Hold Source. A relay contact to turn the music source device on and off appears at the punch-down terminals MHRC and M on the MDFD-S. Do not exceed the following internal relay contact specifications when these terminals are used:

CONTACT
RATING 28 VOLTS D.C., 1 AMP
INPUT IMPEDANCE
OF MOH 600 OHMS

 FIGURE 6-6 illustrates Music-on-Hold Source connection.

- c. Background Music Source Installation:
  - A BGM phono jack is provided on the MDFD-S PCB to connect a Background Music Source. A relay contact to turn the music source device on and off appears at the punch-down terminals BGRC and M on the MDFD-S PCB. Do not exceed the following internal relay contact specifications when these terminals are used:

CONTACT
RATING 28 VOLTS D.C., 1 AMP

INPUT IMPEDANCE OF MOH

600 OHMS

• FIGURE 6-7 illustrates connection of the Background Music Source.

- d. External All Call Page (PA) Installation:
  - A PAGE phono jack is provided on the MDFD-S PCB to connect the input of a customer provided PA amplifier. A relay contact to turn the amplifier on and off appears at the punch-down terminals PGRC and M on the MDFD-S PCB. Do not exceed the following internal relay contact specifications when these therminals ar used:

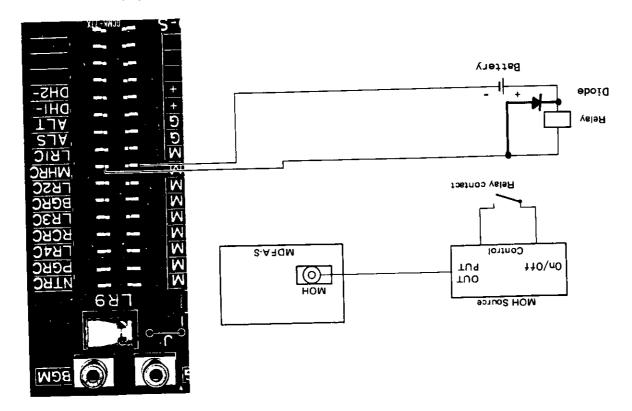
CONTACT

RATING 28 VOLTS D.C., 1 AMP

INPUT IMPEDANCE OF MOH

600 OHMS

**-----**



### FIGURE 6-6 MUSIC-ON-HOLD CONNECTION

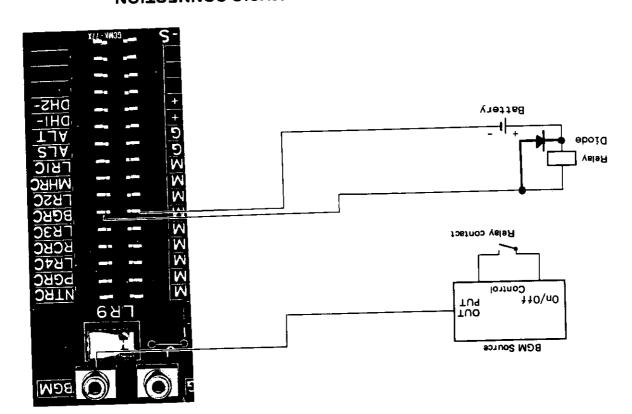


FIGURE 6-7 BACKGROUND MUSIC CONNECTION

#### 900-20996 Nd USTAWI

#### 0.1 SSI ,8861 YJUL TXX-616 KTS SYSTEM PRACTICE

specifications when these terminals are exceed the following internal relay contact lines assigned to the contacts. Do not mode when calls come in on the CO/PBX opens for three seconds during the "night" the terminals closes for one second and the Night Ringers. A relay contact across provided on the MDFD-S PCB to connect

**DNITAR** 28 VOLTS D.C., 1 AMP CONTACT

g. Remote Control Device Connection: connection. FIGURE 6-10 illustrates the Might Ringer

nals are used: contact specifications when these termiprogrammed. Do not exceed the following 616D key telephone is pressed, when so closes when the REMOTE key on the TXXof customer provided devices. The contact vide a contact closure for remote control Punch-down terminals RCRC and M pro-

**DNITAR** 28 VOLTS D.C., 1 AMP CONTACT

h.1. Alarm Adaptor Connection: (MDFD-S Only) arrangement. user provided device utilizing a slave relay FIGURE 6-11 illustrates connection of the

ceed the following specifications when assigned extension speakers. Do not ex-+3.5 volts), the alarm signal source sounds ALS and G sense logical high level (over connect the Alarm Sensor. When terminals down terminals ALS and G are provided to the Alarm Signal Source. Also, punchprovided on the MDFD-S board to connect • Punch-down terminals ALT and G are

these terminals are used:

HIGH LEVEL **HUMINIM STJOV 8.8+ ALARM SENSOR** 

**TOM LEVEL MUMIXAM STJOV 0.1+ ALARM SENSOR** 

INPUT IMPEDANCE 100 KILO-OHMS **ALARM SENSOR** 

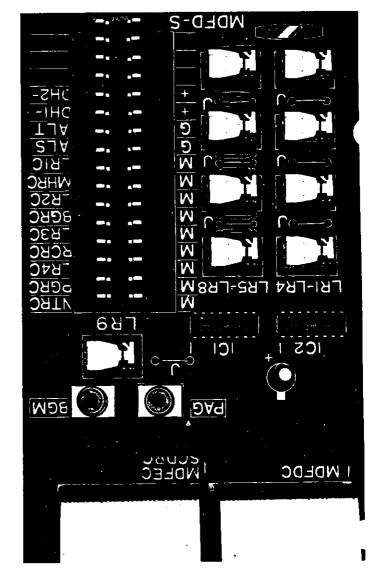
INPUT IMPEDANCE **SKITO-OHWS** ALARM SIGNAL

INPUT SENSITIVITY **STJOV-IJIM 007 ALARM SIGNAL** 

MDFD-S) to operate the alarm feature. contact (rather than logic level on the tone source and utilizes a normally open mals ni fliud a sebivorq f2-Q7GM edT •

Connected across ALS and G. The alarm sensor normally open contact is h.2. Alarm Adaptor Connection: (MDFD-S1 Only)

I. Door Phone Connection:



#### MDFD-S INTERFACE PCB FIGURE 6-5

- connection. FIGURE 6-8 illustrates the PA amplifier
- e. Loud Ringer Connection:
- :pasn specifications when these terminals are ceed the following internal relay contact programmed to the contacts. Do not exwhen calls come in on the CO/PBX lines for one second and open for three seconds respond to four relay contacts, which close Four pairs of punch-down terminals corthe MDFD-S PCB to connect loud ringers. · Punch-down terminals are provided on

**DNITAR** 28 VOLTS D.C., 1 AMP CONTACT

Loud Ringers. • FIGURE 6-9 illustrates connection of the

- f. Night Ringer Installation:
- Punch-down terminals NTRC and M are

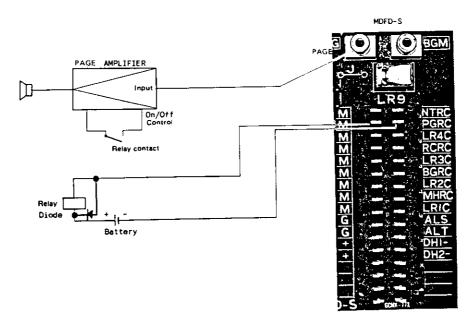


FIGURE 6-8 PA BACKGROUND MUSIC CONNECTION

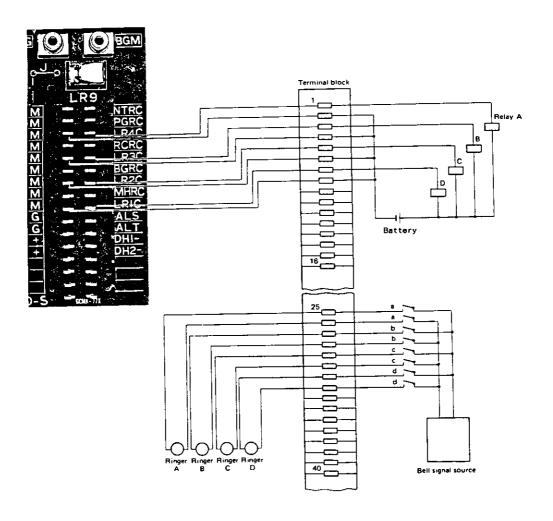


FIGURE 6-9 LOUD RINGER CONNECTION

6-10

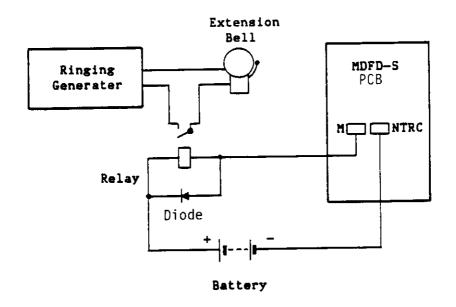


FIGURE 6-10 NIGHT RINGER CONNECTION

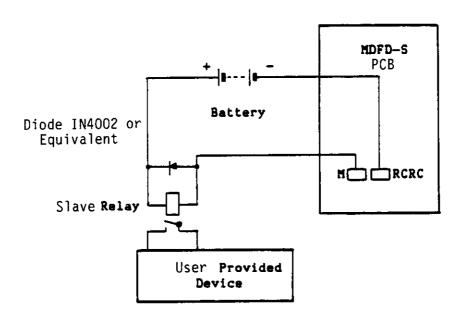


FIGURE 6-11 REMOTE CONTROL CONNECTION

- The optional Door Phone Adaptor DPHA-S must be installed on the MISC-S PCB in the KSU to activate the door phones. Punch-down terminals DH-, +/DH2-, + are provided to connect up to two door phones. Note the polarities on connections as terminal + to Door Phone Unit Terminal No. 1 and Terminal to Door Phone Unit Terminal No. 2. Use ony model DOPH Door Phone supplied by Iwatsu.
- FIGURE 6-12 illustrates connection of the door phones.
- i. SCDR Installation:
  - The optional SCDR unit requires connection to the TXX-616 KSU through the optional MDFD-S unit. Connector SCDRC provided on the MDFD-S unit is utilized.
  - Refer to SCDR installation section for more details regarding installation.

# 7.00 OTHER KSU/MDF COMPONENT INSTALLATIONS

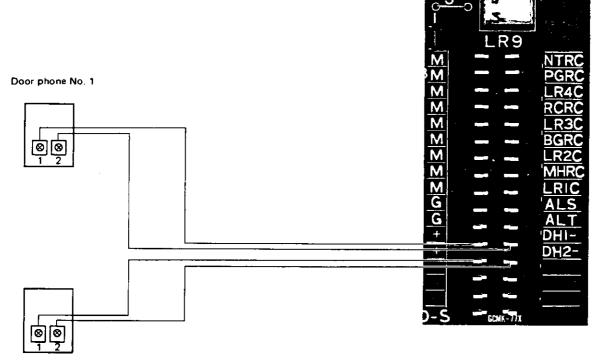
#### 7.01 Battery Support Installation:

a. The TXX-616 provides for installation of batteries to operate the system during commercial power failure. Two GC1215 Type A batteries manufactured by Globe Union Battery Division can be installed.

- Battery connection cables are supplied with each KSU.
- The KSU is designed to accept those batteries sizewise.
- Minimum backup time is 20 minutes for systems that have 11 extensions and 6 CO/PBX lines.
- b. FIGURE 6-13 illustrates battery installation in the KSU.
  - Insure that the batteries are mounted securely in place with polarities as shown.
  - Wire the batteries with the KSU cable provided, as illustrated in Figure 6-13.
  - Plug the connector of the battery cable into the connector CN1 BATT on the PWS-S Power Supply.
- c. Batteries for the system must be obtained locally.
- d. A 5A fuse (with one spare) is provided on the PWS-S Power Supply unit in series with the internal battery feed to protect the system.

### 7.02 Power Failure Transfer Unit PFXU-M Installation:

a. The Power Failure Transfer Unit PFXU-M connects CO/PBX line to Single Line (SL) telephones in the system. The SL telephones may be working extensions or dedicated for power failure operation.



Door phone No. 2

FIGURE 6-12 DOOR PHONE CONNECTION

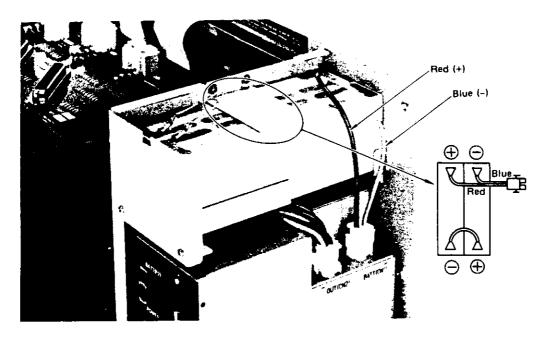


FIGURE 6-13 BATTERY INSTALLATION

- b. When commercial AC power fails, the relays internal to the PFXU-M transfer the CO/PBX line from the KSU to the SL telephones.
- c. FIGURE 6-14 illustrates the Power Failure Transfer Unit. TABLE 6-D lists pin assignment on the PFXU-M Terminal Blocks for both CO/PBX line and SL telephone connection.
- d. If no system backup battery is used, route the cable from the PFXU-M into the TXX-616 KSU, as illustrated in FIGURE 6-15. Connect to Connector CSI BATT on the PWS-S Power Supply.
- e. Mount the PFXU-M unit as close to the KSU as possible to insure that the DC power cable can connect to the PWS-S Power Supply internal to the KSU.

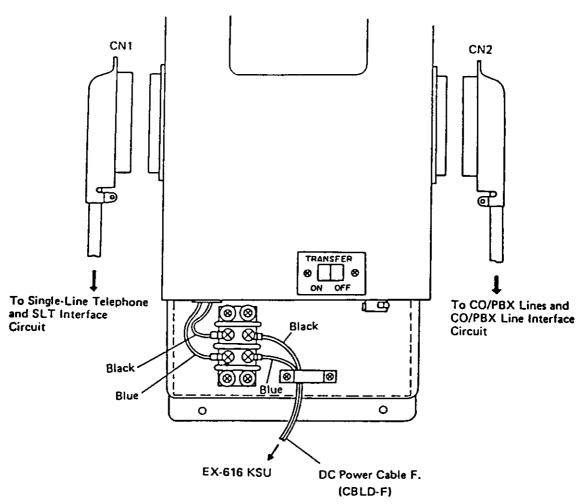
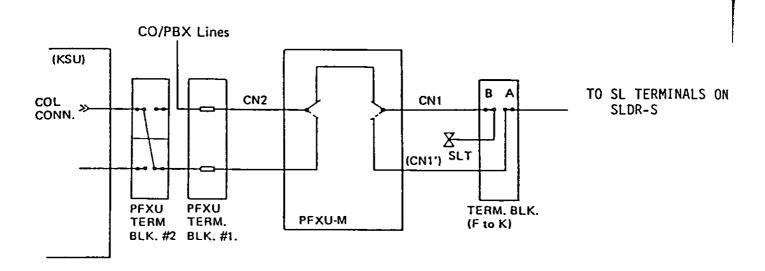


FIGURE 6-14(a) CABLE CONNECTION



If SLT is normally used in addition to its use during AC power failure, connect it to terminal TEL on the SLDR-S unit.

#### TABLE 6-D PFXU-M TERMINATION

#### **CN2 TABLE**

CN2 TABLE					
PFX	J·M (CN2)	DESIGNATION			
CN2 PIN NO.	CABL WIRE COLOR				
26	WHT-BLU	CO/PBX LINE 1T			
<u>-</u>	BLU-WHT	1 R			
27	WHT-ORN	2T			
<u>2</u>	ORN-WHT	2 R			
28	WHT-GRN	3T			
3	GRN-WHT	3 R			
29	WHT-BRN	41			
4	BRN-WHT	4R			
30	WHT-SLT	5T			
5	SLT-WHT	5R			
31	RED-BLU	6T			
6	BLU-RED	6T			
3.2	RED-ORN				
7	ORN-RED				
33	RED-GRN				
- 8	GRN-RED				
	RED-BRN	]			
	BRN-RED				
	RED-SLT				
	SLT-RED				
	BLK-BLU				
	BLU-BLK				
	BLK-ORN				
	ORN-BLK				
	BLK-GRN				
	GRN-BLK				
	BLK-BRN				
	BRN-BLK	! 			
	BLK-SLT				
	SLT-BLK	1			
	YEL-BLU				
	BLU-YEL				
	YEL-ORN				
	ORN-YEL				
43	YEL-GRN	TO KSU 1T			
18	GRN-YEL	1 R			
44	YEL-BRN	2T_			
19	BRN-YEL	2R_			
45	YEL-SLT	3T			
20	SLT-YEL	3 R			
46	VIO-BLU	4T			
21	BLU-VIO	4R_			
47	VIO-ORN	5T			
22	ORN-VIO	5R			
48	VIO-GRN	6T			
23	GRN-VIO	6R			
49	VIO-BRN				
24	BRN-VIO				
50	VIO-SLT				
25	SLT-VIO				

#### **CN1 TABLE**

TO SLS	c-s	TO SL	TO SLT		
PFXU-M	(CNI)	PFXU-M			
CABLE WIRE COLOR	CNI PIN NO.	CABLE WIRE COLOR	CNI PIN NO.	DESIGNATION	
YEL-GRN	43	WHT-BLU	26	1T	
GRN-YEL	18	BLU-WHT	I	1R	
YEL-BRN	44	WHT-GRN	28	2Т	
BRN-YEL	19	GRN-WHT	3	2R	
ŸEL-SLT	45	WHT-SLT	30	3T	
SLT-YEL	20	SLT-WHT	5	3R	
VIO-BLU	46	RED-ORN	32	4T	
BLU-VIO	21	ORN-RED	7	4R	
	47	RED-BRN	34	5T	
VIO-ORN CRN-VIO	22	BRN-RED	9	5 R	
VIO-GRN	48	BLK-BLU	36	6T	
GRN-VIO	23	BLU-BLK	11	6R	
				]	

С

3

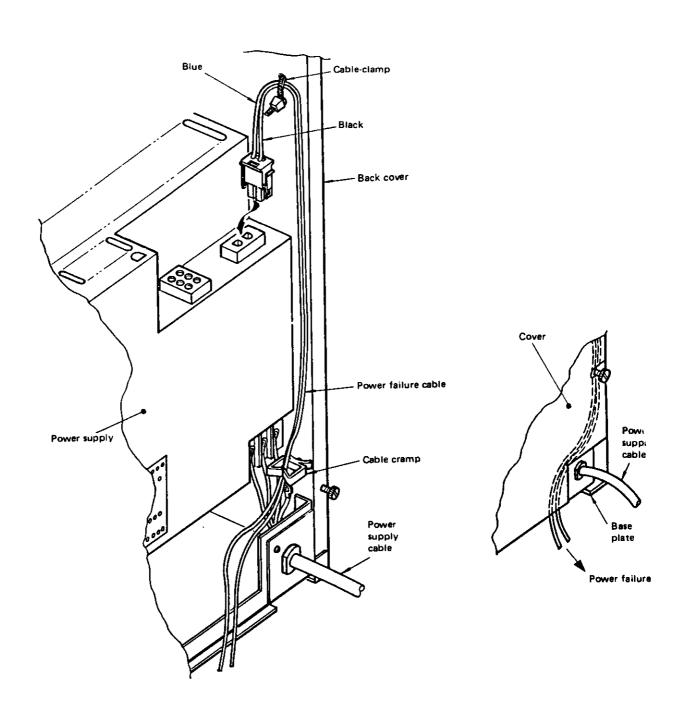


FIGURE 6-15 POWER FAILURE POWER CABLE CONNECTION METHOD

# TXX-616 ELECTRONIC KEY TELEPHONE SYSTEM SECTION 7 — KEY TELEPHONE INSTALLATION

CONT	'ENTS PA	GE
1.00	INTRODUCTION	7-1
2.00	STATION REQUIREMENTS	7-1
3 00	OPTIONAL STATION HARDWARE	7-4
0.00	SSPU-RN SPEAKERPHONE	7-4
	ESPU-S EXTERNAL SPEAKERPHONE	7-4
	SRNG-S STATION LOUD RINGER	7-4
	SHHD-SN HARD-OF-HEARING HANDSET	7-4
	SHCB-S HEADSET ADAPTOR	7-4

#### 1.00 INTRODUCTION

1.01 This section details the standard installation requirements for electronic key telephones and optional installation hardware available.

# 2.00 STATION INSTALLATION REQUIREMENTS

- 2.01 The four different models of electronic key telephone stations utilize modular jacks to connect to house wiring. Four pin modular cords are provided with each station set for connection to house wiring jacks.
- 2.02 Each telephone requires labeling of CO/PBX line pickup keys, as well as DSS and function keys on the model TXX-616D electronic key telephone.
  - a. Under each handset is a window label that can identify the extension number of the station. To remove the window, place a pin or end of a paper clip in the hole of the plastic window and apply pressure toward the center of the window. A label (provided) can then be inserted and the window replaced.

- FIGURE 7-1 illustrates the labeling of CO/PBX line keys on the respective stations.
- An extension directory card is provided for the user. After listing numbers, peel off protective paper and place on directory tray.
- d. On the model TXX-616D and TXX-616KL electronic key telephone, a 16 button DSS label is provided. This label identifies the system extensions, as well as "auto-dial" numbers programmed for the individual key. FIGURE 7-2 illustrates how the label is attached.
- e. Each model telephone includes a dial mask. The dial mask is optional for those who prefer identification of the dial pad keys for features. To install, peel off protective paper and place over dial pad of station.
  - The model TXX-616D station comes with two different dial masks, the mask utilized dependent upon whether the station is programmed as an executive station or attendant/secretary (OP) type station.
  - The model TXX-616D station also requires function key labeling dependent upon whether the telephone is programmed as an executive station or an attendant/secretary (OP) station. FIGURES 7-3 illustrates the set of function key labels provided and the respective placement on the station.
- 2.03 Wall mounting the electronic key telephone requires no optional equipment. The station pedestal and existing hookswitch is utilized.
  - a. Remove station pedestal from desk position mode and reverse mounting direction on station base causing station to lay parallel to wall. Mount on wall and snap telephone in place.
  - b. Lift liner from handset rest using pin or paper clip. FIGURE 7-4 illustrates the liner position before and after raising.

replaceu.

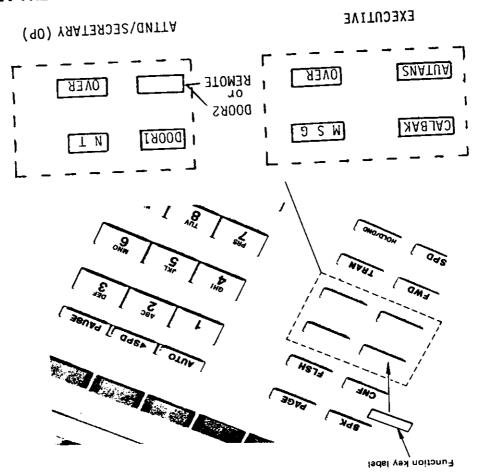
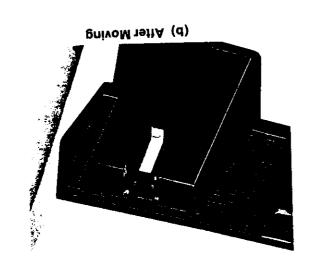


FIGURE 7-3 TXX-616D KEY TELEPHONE FUNCTION KEY LABEL



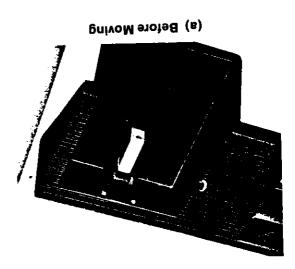


FIGURE 7-4 KEY TELEPHONE STATION LINER LOCATION

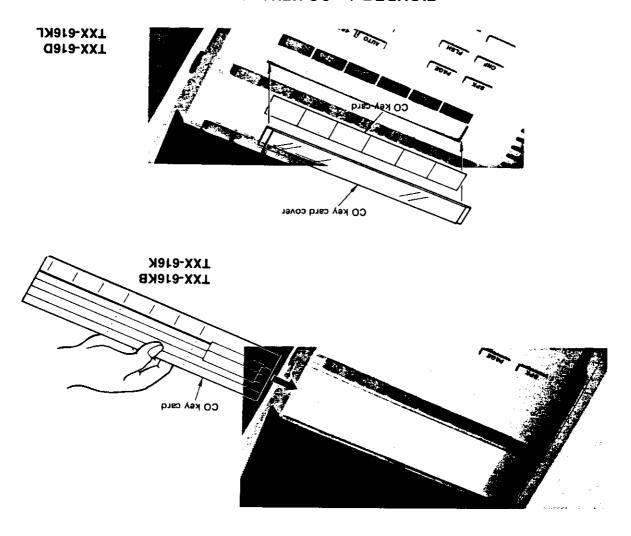


FIGURE 7-1 COKEY LABEL

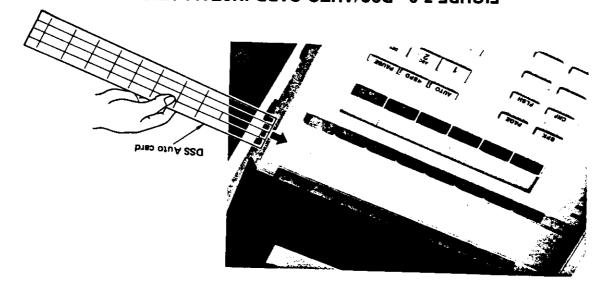


FIGURE 7-2 DSS/AUTO CARD INSTALLATION

# 3.00 OPTIONAL STATION HARDWARE INSTALLATION

#### 3.01 SSPU-RN1 Speakerphone Installation:

- a. The SSPU-RN1 Speakerphone Unit is an optional unit mounted inside the electronic key telephone. The unit provides full handsfree operation on both CO/PBX line and ICM calls.
- b. To install the SSPU-RN1, open the telephone by removing the screws from the telephone base. Insert the unit into the two card guides as illustrated in FIGURE 7-5. Insert the SSPU-RN connector into CON2 connector on the station circuit board. Figures 7-5 illustrates mounting location for all models of electronic TXX-616 key telephones.
- c. Set switch on SSPU-RN1 unit to "616" position (right hand position facing PCB).
- d. Insure that system programming (Program No. 52) is utilized to assign unit to station.

## 3.02 ESPU-S External Speakerphone Adaptor:

- a. The ESPU-S External Speakerphone Adaptor provides for connection of an external speakerphone unit or other unit requiring a two wire voice interface with supervisory control. A 4 wire modular ended cable is required RD/GRN provides TIP/RING; YL/BLK provides supervisory contact.
- b. The ESPU-S requires opening up the unit and mounting the ESPU-S in the slot normally utilized for the SSPU-RN1. Put the ESPU-S connector into connector CN3 on the station PCB. Remove SET 2 strapping jack on the station PCB. Also disconnect SET 1 strapping jack on the ESPU-S unit.
- c. On the base of the telephone unit, cut a hole in the base, as illustrated in FIGURE 7-6. Insert modular card of external 4 wire speakerphone into modular jack provided on ESPU-S unit.

#### 3.03 SRNG-S Station Loud Ringer Unit:

- a. The SRNG-S Station Loud Ringer Unit provides a relay contact closure operating at 1 sec. on/3 sec. off to operate external loud ringers. The SRNG-S unit is installed in the card slot inside the telephone utilized either for the ESPU-S or SSPU-RN1.
- b. When installing the SRNG-S, connect SRNG-S cable into connector CON5 on station PCB.
- c. Insert ringer cable through hole on key telephone base and connect to terminals SRM/SRC on the SRNG-S unit.
- d. Do not connect 120 volt commercial power to SRNG-S. Contact rating is 48 VDC/30

#### VAC maximum at 0.5 amps.

## 3.04 SHHD-SN Hard-of-Hearing Handset:

- a. The SHHD-SN Hard-of-Hearing Handset provides amplified voice receiver levels for hearing impaired persons. The handset, while providing amplified levels, does not comply with FCC Hard-of-Hearing rules/regulations as regards acoustically coupled hearing aid devices.
- To install the handset, replace the standard handset with the model SHHD-SN. On station PCB, short SET 5 STJ, 1-2, instead of 2-3.

#### 3.05 SNHD-SN Noise Cancelling Handset:

- a. The SNHD-SN Handset reduces background noise so that the talker's voice can be heard more clearly.
- b. To install the SNHD-SN Handset, replace the standard handset with the model SNHD-SN. On the station PCB, short SET 3 STJ, 1-2, instead of 2-3.

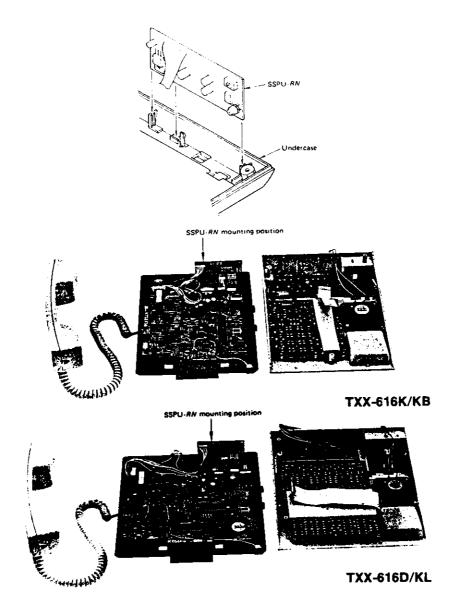


FIGURE 7-5 SSPU-RN-1 INSTALLATION

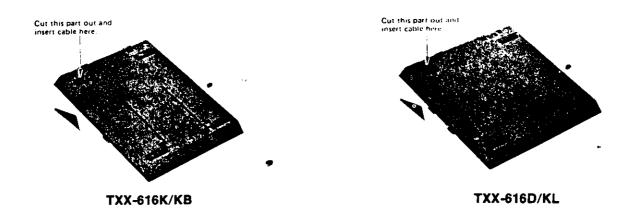


FIGURE 7-6 EXTERNAL MODULAR CABLE ENTRANCE

# - RESERVED FOR FUTURE USE -

# TXX-616 ELECTRONIC KEY TELEPHONE SYSTEM SECTION 8 — SCDR/SL TELEPHONE INSTALLATION

CONT	rents	PAGE
1.00	INTRODUCTION	8-1
2.00	SLDR-S MOUNTING CABINET	8-1
3.00	SCDR INSTALLATION	
	SCDR INTERFACE SPECIFICATION	8-3
	PCB INSTALLATION	•
4.00	SL TELEPHONE OPERATIONAL SPECIFICATION	
	PCB INSTALLATION	

#### 1.00 INTRODUCTION

- 1.01 This section details installation procedures for the Station Call Detail Recorder Unit (SCDR) and Single Line (SL) Telephone Interface.
- 1.02 Although both functions are not related, both utilize the same external mounting SLDR-S cabinet for PCB installation. Prior to installing either function, review SLDR-S instructions.

### 2.00 SLDR-S MOUNTING CABINET

- 2.01 The SLDR-S consists of a separate mounting cabinet including power supply for installing the PCB's associated with the SCDR functions and single line telephone functions.
  - a. The SLDR-S unit, illustrated in FIGURE 8-1, is provided for equipping the system with four (4) single line telephones.
  - b. Individual card slots are provided for single line PCB interfaces and SCDR interface.
     FIGURE 8-1 illustrates card slots for the two types of PCBs.
  - c. The unit contains a power supply that powers both types of circuit cards; however, single line telephones require an external Talk and Signal Battery.

- 2.02 The SLDR-S should be mounted at the MDF as close as possible to the TXX-616 KSU. Connections are required between the KSU and the SLDR-S cabinet utilizing connector ended cables provided.
  - a. No provision for wall mounting is provided. The SLDR-S unit should be placed on a pedestal at the MDF.
  - b. The unit self-contained power supply provides local power for all PCB's. Single line telephones do require an external talk/signal battery connection to the unit.
- 2.03 Specifications of the SLDR Mounting Cabinet are as follows:
  - Power Requirements 85-132 VAC,
     47-63 hz, 0.4A maximum
  - Dimensions (HxWxD) 5 X 17.5 X 9 inches
  - Weight (Lbs) 0.6 lbs.
  - Environmental Temp. Oper. -5°C to 45°C

Temp. Storage -Humidity Oper. - 10°C to 50°C

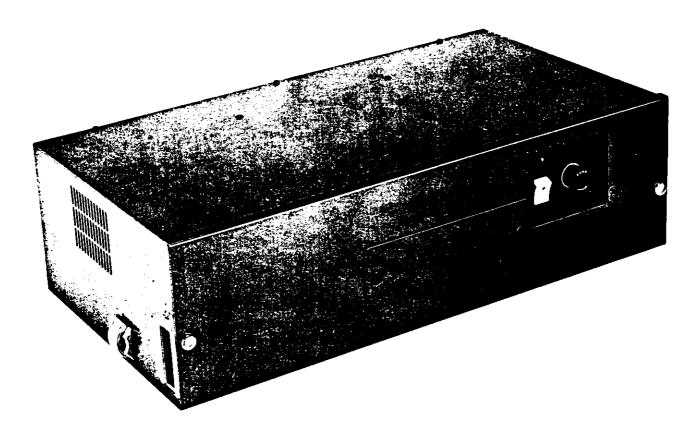
. - 10% to 90% RH non-condensing

Humidity Storage - 10% to 95% RH

non-condensing

# 3.00 STATION DETAIL CALL RECORDER (SCDR) INSTALLATION

- 3.01 The Station Call Detail Recorder (SCDR) option provides real time call detail records to a local printer or call management system. Two types of output are available. FIGURE 8-2 illustrates a typical report utilizing each type of output.
  - a. The printer output illustrated in FIGURE 8-2, is utilized with an 80 character printer. Included in the output are page headers and count as well as call data as defined in the illustration.



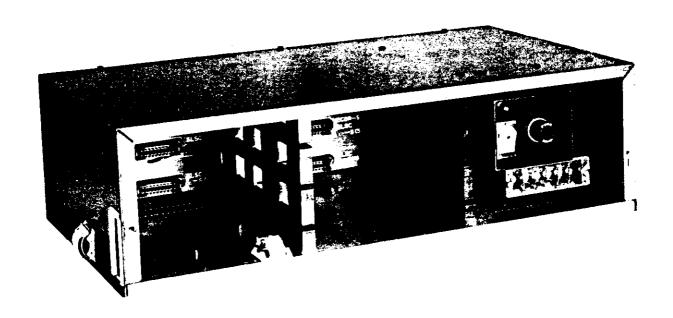
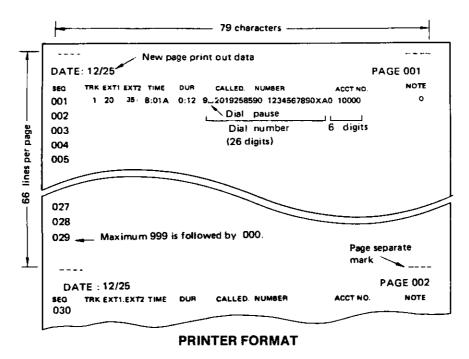
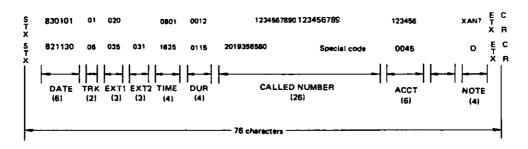


FIGURE 8-1 SLDR MOUNTING CABINET





#### **AUXILIARY FORMAT**

## FIGURE 8-2 SCDR OUTPUT FORMAT

- b. The Auxiliary output, illustrated in FIGURE 8-2, provides a serial output more conducive to call management systems or data storage/ sorting devices.
- c. TABLE 8-A lists the definition of symbols utilized in the SCDR output.
- d. Program options to selectively print programmed details are available as to SCDR output call records. TABLE 8-B lists SCDR programmable functions and default mode. Refer to System Program No. 8 for assignment of these conditions for the system.
  - All functions listed in TABLE 8-B are disabled. System programming is required to enable the individual functions.
- 3.02 SCDR interface specifications are listed in TABLE 8-C.

TABLE 8-A SCDR OUTPUT SYMBOLS

SYMBOL	MEANING
0	OUTGOING
	INCOMING
х	TOLL OUTGOING
?	A CALL ORIGINATED OR RECEIVED WITHOUT TERMINATION OF THE PRECEDING CALL

#### TABLE 8-B OUTPUT DETAILS

		_
NO.	OUTPUT SELECTION	OUTPUT DEFAULT
а	INCOMING CALL SUPRESSION	DISABLED
b	CALL-WITH ACCOUNT CODE SUPRESSION	DISABLED
С	TOLL CALL ONLY	DISABLED
đ	DURATION SCREENING	DISABLED
е	REGISTERED EXTENSION ONLY	DISABLED
f	REGISTERED TRUNK ONLY	DISABLED

#### 3.03 SCDR PCB Installation

- a. The SCDR circuit card is supplied in an electroconductive bag for protection against electrostatic. Included with the unit is the flat cable assembly to connect the SCDR unit to the MDFD-S card in the KSU and as well as mounting hardware for the PCB.
  - Avoid touching circuit components on the card as electrostatic discharge may damage card.
  - Handle card with all precautions similar to that previously described for KSU components.
- b. Switch settings are required on the SCDR for determining output format before installing the PCB into the SLDR-S cabinet.
  - FIGURE 8-3 illustrates switch settings on the SCDR interface.
  - FIGURE 8-4 illustrates switch setting on the SCDR to interface to the Texas instrument Silent 700 Model 703 Printer. These settings are factory set when the PCB is shipped. If utilizing a Silent 700, insure that the settings have not been altered.
  - Printer setting may be also required on the printer utilized. FIGURE 8-4 lists printer settings for the T.I. Silent 700 Printer. If another printer is utilized, set the interface conditions on both the SCDR unit and the printer in accordance with printer requirements.
- c. The RS-232C interface cable must be provided with the printer. While the RS-232C

# TABLE 8-C TXX-616 INTERFACE SPECIFICATION

FUNCTION	CHARACTERISTICS
INTERFACE TYPE	EIA STANDARD RS-232C OR 20MA DC CURRENT LOOP (100 OHM LOOP)
DATE TRANSMISSION	ASYCHRONOUS: SERIAL BY BIT, SERIAL BY CHARACTER
COMMUNICATION CODE	US ASCII
WORD STRUCTURE  START BIT CHARACTER LENGTH STOP BIT PARITY PARITY CHECK DATA RATE	1 BIT 7 OR 8 BITS (SELECTABLE) 1 OR 2 BITS (SELECTABLE) ENABLE OR DISABLE (SELECTABLE) EVEN OR ODD (SELECTABLE) 110, 300, 600, 1200, 2400, 4800 BPS (SELECTABLE)

standard defines Pin No. and respective signal functions on the standard 25 pin connector, individual printer requirements may be different. TABLE 8-D lists the SCDR PCB RS-232C Output Functions.

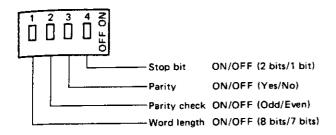
d. When utilizing a 20ma current loop in place of the RS-232C output, Receive ± and Send ± terminations on the 25 pin connector are listed in TABLE 8-D.

#### 3.04 PCB Mounting

- a. The SCDR unit mounts in a pre-determined card slot in the SLDR-S cabinet. Insure that AC power to the SLDR-S cabinet is turned off when mounting the card.
- b. When installing a SCDR unit, a face plate in the front of the cabinet covering access holes for cable connections and printer control must be removed. FIGURE 8-5 illustrates the face plate removal and access to SMDR connector.
- c. Place SCDR PCB into card slot. Pass SCDR interface cable through access hole located in left corner of SLDR-S cabinet as illustrated in FIGURE 8-6.
  - Attach SCDR KSU interface cable to connector on SCDR unit.
  - Push SCDR PCB firmly in place in card slot
  - Fasten KSU interface cable securely in place on side of SLDR-S unit with cable clamp provided.

## **IWATSU** PN 96507-008

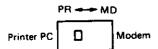
(a) SW1: Serial I/O word structure setting



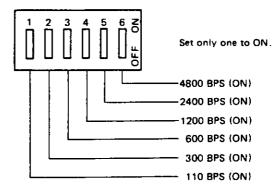
(c) SW3: Interface

RS-232C Current loop

(d) SW4:



(b) SW2: Baud rate setting



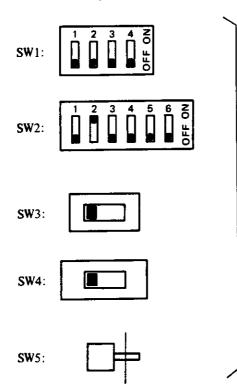
(e) SW5:



AUX operation mode

SCDR printer operation mode

## FIGURE 8-3 SCDR INTERFACE SETTING



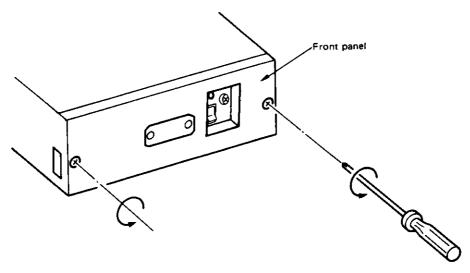
- Connect to Printer
- Interface with RS-232C
- Data transmission rate of 300 BPS
- 7 bit word
- Parity check
- Even-number parity bit
- 1 Stop bit
- SCDR printer operation mode (NORM)

Silent 700 Printer Setting

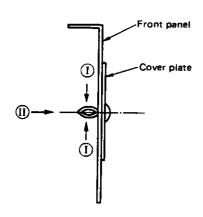
- a. On Line/Local Switch to On Line position.
- b. Full/Half Duplex Switch to Full Duplex position.
- c. Numeric/ALPHA Numeric Switch to ALPHA Numeric position.
- d. Low/High Switch

Switch to 300 BPS.....High Switch to 100 BPS.....Low

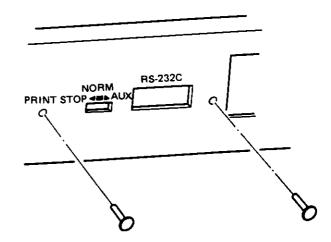
# FIGURE 8-4 T.I. SILENT 700 MODEL 703 SCDR SETTINGS



1. Remove the two screws fastening the front panel of the SCDR unit using a screwdriver.



Remove the cover plate by compressing the clip on the back side of the cover plate with your fingers and push the cover plate forward.



Insert the card clamps supplied with the SCDR-S into the holes in place of the removed clips. Push them in until they click and are secure on place.

FIGURE 8-5 SLDR-S CABINET PANEL REMOVAL

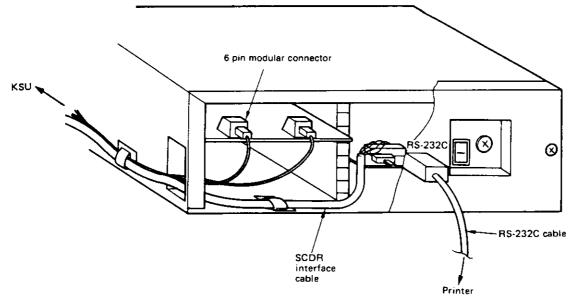


FIGURE 8-6 SLDR-S CABLE ARRANGEMENT

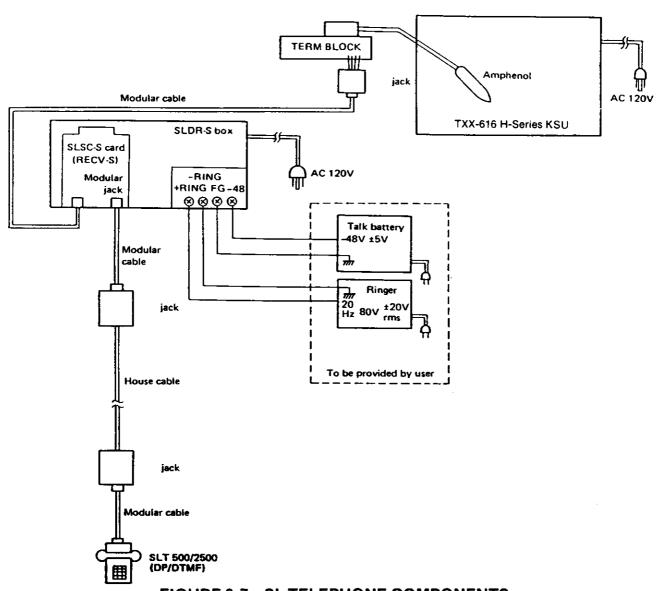


FIGURE 8-7 SL TELEPHONE COMPONENTS

TARIF 8-D	RS-232C CURRE	NT LOOP (25P	CONNECTOR)	SIGNALS
-----------	---------------	--------------	------------	---------

DESCRIPTION	SIGNAL	PIN	I. NO.	SIGNAL	DESCRIPTION
FRAME GROUND	FG	1	14	NC	NO CONNECTION
RECEIVE DATA	RD	2	15	NC	NO CONNECTION
TRANSMIT DATA	TD	3	16	NC	NO CONNECTION
REQUEST TO SEND	RTS	4	17	CLRP	CURRENT LOOP (RECEIVE) +
CLEAR TO SEND	CTS	5	18	NC	NO CONNECTION
DATA SET READY	DSR	6	19	NC	NO CONNECTION
SIGNAL GROUND	SG	7	20	DTR	DATA TERMINAL READY
RECEIVED LINE SIGNAL DETECTOR	RLSD	8	21	NC	NO CONNECTION
NO CONNECTION	NC	9	22	NC	NO CONNECTION
NO CONNECTION	NC	10	23	CLSP	CURRENT LOOP (SEND) +
NO CONNECTION	NC	11	24	CLRM	CURRENT LOOP (RECEIVE) -
NO CONNECTION	NC	12	25	CLSM	CURRENT LOOP (SEND) -
NO CONNECTION	NC	13			

- d. If SL interface circuits are not to be mounted, re-attach front panel to SLDR-S unit. Insure that SCDR unit aligns itself with front panel.
- e. Through access hole in SLDR-S front panel, connect RS-232C cable to local printer. Insure that the Switch 5 (Format) is accessible and is set properly.
- 3.05 When a key telephone in the system finishes either an outgoing or incoming call, call data is output to the printer provided that Swtich 5 on the SCDR unit is set to the printer mode. Switch 5 set to the printer stop mode halts all data to the printer. This is useful when changing printer paper. Output resumes when the switch is restored to the run position.
- 3.06 For operational check, refer to Section 10, Installation Testing.

# 4.00 SINGLE LINE TELEPHONE

- 4.01 As with the SCDR unit, single line telephones on the TXX-616 system are connected to the system on the SLDR-S cabinet. FIGURE 8-7 illustrates interconnections of the system components when installing single line telephones on the system.
  - a. Both rotary dial (DP) and tone dial (DTMF) model telephones may be equipped on the system.

- b. When equipping SL telephones, a KTSC-S PCB must be installed in the TXX-616 KSU. SL telephones, on an individual basis, are connected to respective ICM code locations on the KTSC-S terminations on the MDF.
- **4.02** Single Line (SL) Telephone operational specifications are listed in TABLE 8-E.
- 4.03 An external power supply is required for talk/ signal battery for the SL telephone interface. TABLE 8-E lists battery requirements. FIGURE 8-8 illustrates connections on the SLDR-S cabinet.
  - a. The SLDR-S front panel must be removed to install the SL interface cards and power supply connections. Insure that AC power switch on SLDR-S is turned off when installing PCB's or making connections for talk/signal battery.
  - b. Route the talk/signal battery connection through access hole on right side of SLDR-S cabinet.
  - c. Screw terminals are provided on the SLDR-S cabinet for talk/signal battery connections. Insure that battery leads are installed to respective terminals.

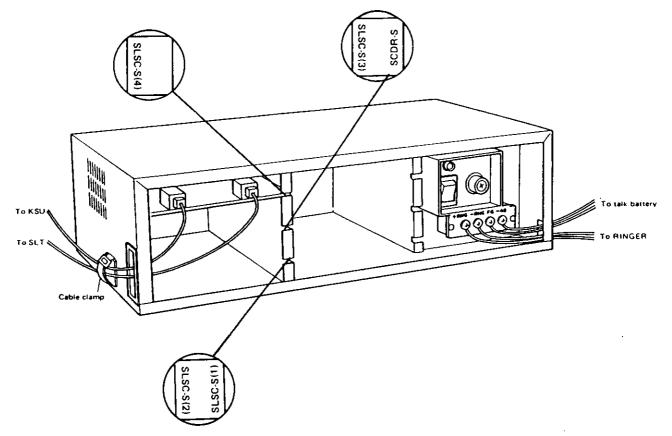


FIGURE 8-8 SLDR-S TALK/SIGNAL BATTERY TERMINATION

# 4.04 Single Line Telephone PCB Installation

- a. The SLSC-S SL telephone interface provides one telephone interface per PCB to the TXX-616 system.
  - The same PCB may be used for either DP or DTMF type telephones.
  - DTMF telephones require installation of a model RECV-S DTMF Receiver circuit on an individual SLSC-S basis. The RECV-S PCB is mounted on top of the SLSC-S card utilizing the connectors provided. Install the RECV-S before inserting SLSC-S into the SLDR-S cabinet.
- b. Each SLSC-S requires two sets of terminations to the system. Two 4-pin modular connectors are provided on each SLSC-S circuit card. Included with each SLSC-S PCB is a 6 ft. 4-pin full modular cord.
  - Connect and identify one full modular cord to KSU modular jack on SLSC-S circuit card.
  - Connect and identify one full modular cord (local provided) to extension modular jack on SLSC-S circuit card.

3

3.

O

c. Mount SLSC-S PCB in SLDR-S cabinet in card slots assigned to SLSC-S. Four card slots are provided. If the Station Call Detail Recorder (SCDR) will not be required, then

- a fifth SLSC-S SL Interface can be mounted in the SCDR card slot.
- d. Route the SLSC-S SL Interface 4-pin modular cables through the access hole on the left side of the cabinet as illustrated in FIGURE 8-8.
- e. After mounting all cards connect modular cables to respective jacks on MDF terminated in station appearance on MDF or house cable connection to single line instrument.
  - TABLE 8-F lists modular jack terminations for connection to KSU station appearance on MDF.
  - TABLE 8-G lists modular jack terminations for house cable connection to single line instrument.
- 4.04 For OPS applications, the TXX-616 system is registered for OL13C type interface. Remember, however, that SL telephones on the TXX-616 system can only receive CO/PBX calls directly. SL telephones cannot directly access CO/PBX lines and are not subject to Toll Restriction in the event a SL is connected a CO/PBX utilizing "add-on" features.
- **4.05** For installation testing of the SL interface, refer to Section 10, Installation Testing.

TABLE 8-E SL TELEPHONE SPECIFICATION

LOOP LIMIT	ONS 1200 ohms (including telephone resistance)
Ringing	Bell rings 1s ON, 3s OFF
ICM dial tone	450 Hz continuous
Busy tone	450 Hz 0.4s ON 0.4s OFF
Suitable talk battery	DC - 48 ± 5V, 0.5A Connector: Screw Terminals
Suitable ringing signal	AC 80 ± 20 Vrms 18 to 24 Hz Connector: Screw Terminals
Ring trip	Provided
Dial type	DP10pps or 20pps, DTMF
Suitable single-line Telephone	500, 2500 or equivalent
Longitudinal balance	60 dB or more (at 1 kHz)
Connector	4-pin modular

TABLE 8-F KSU MODULAR JACK

JACK PIN NO.	CABLE COLOR	DESIGNATION
1	Black	DR
2	Red	R
3	Green	Т
4	Yellow	DT

TABLE 8-G HOUSE CABLE MODULAR JACK

JACK PIN NO.	CABLE COLOR	DESIGNATION
1	Black	_
2	Red	R
3	Green	Т
4	Yellow	_

# TXX-616 ELECTRONIC KEY TELEPHONE SYSTEM SECTION 9 — SYSTEM PROGRAMMING

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	ALARM RINGING — NIGHT	
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# 1.00 INTRODUCTION

- 1.01 This section provides instruction for programming all aspects of the TXX-616 system. Each program function is individually detailed. When programming, refer to the system program parameters previously assigned in the planning sheets located in Appendix B.
- 1.02 Prior to programming, perform system initialization procedures in Section 10.
- 1.03 When programming the system, individual program numbers that require no change in default mode do not have to be addressed. TABLE 9-A lists default mode for each system program parameter. Refer to installation planning sheets in Appendix for any change in default that the installed system requires.

# TABLE 9-A LIST OF DEFAULTS

PROG. NO.	NAME	DEFAULT	PROG. NO.	NAME	DEFAULT
00	Time		30	External and Ringer Control	None
01	Calendar		31	Night Ringer Control	None
02	Station type & Installation	Not installed	32	Originate C.O. Group	Not Used in North America
03	Trunk Card Installation	Installed	33	Pre-dial	Not Used
04	Misc Card Installation	Installed	34	Optional Ringing Tone	Not Used
05	System Speed Dial	None	35	MF/DP Select	MF
06	Toll Restriction (User data)	None	36	Dial Pulse Ratio	39%
07	Back Ground Music	OFF	37	Automatic C.O. Release	Not Used
08	SCDR Out Put Class	All outputs	38	Automatic Line Transfer	Not Used
09	Tone/Voice	Voice	39	Dial 20pps Select	10 pps
10	Flash Timer	700 ms	40	Auto Answer	Auto Answer
11	Disconnect Signal Timer	700 ms	41	Toll Restriction Class	No Restriction
12	Hold Timer	2 min	42	Secretary Hot Line	None
13	Camp On Timer	20 sec	43	Speed Dial Restriction	No Restriction
14	Pause Timer	5 sec	44	Speed Dial Toll Restriction	No Restriction
15	Timed Trunk Queue	5 min	45	Page Denial	Receive
20	Direct Inward Line	Station 20 only	46	Group Page Access	Restricted
21	Night Ringing Assignment	Station 20 only	47	Group Page Receive	Deny
22	Outgoing Restriction	No Restriction	48	Executive Station	General Station
23	Pick-up Restriction	No Restriction	49	Station Protect	No Protection
24	Doorphone Ringing Assignment	Station 20 only	50	Hold Recall Enable	Enable
25	Doorphone Night Ring Assignment	Station 20 only	51	Do Not Disturb	Not Used
26	Alarm Ring Assignment	Station 20 only	52	Built-in Speakerphone	None
27	Alarm Night Ring Assignment	Station 20 only	53	Remote key	Door 2
28	Alarm Assignment	External speaker OFF	70	Other Country	Use in U.S.A.
			71	OCC setting	None

# TABLE 9-B OPERATION SYMBOLS

CLASSIFICATION	SYMBOL	DESCRIPTION
Dial	n #	Dial key 1 to 9, 0, * , #  Data change
Keys and lamps	CO	CO line selection and entry  Station selection and entry
Special keys	FLSH FWD PAUSE	Main and individual program ending  Next program selection or data entry  *1 • Used as PAUSE key in registering system speed dial or automatic line transfer.  • Used as N-code key in registering toll restriction.  • Used as "after" key in specifying digit position during OCC setting, or as PAUSE key in entering dial data.
	<b>∢</b> SPD	<ul> <li>*2 • Used as key to select the preceding program in the main process.</li> <li>• Used as speed dial number registration key if system speed dial is registered.</li> <li>• Used as "before" key in specifying digit position during OCC setting.</li> </ul>
Status change	$\Box$	Status changes to number in
Status No.		Present status number in
Display		16-digit display
Return to main process	(B)	Individual process end and return to main process

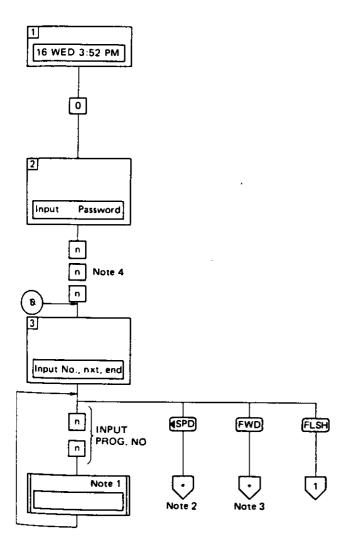
# TABLE 9-C INDEX OF FUNCTIONS

ALPHA- BET	PROG. NO.	NAME	ALPHA- BET	PROG. NO.	NAME
Α	28	Alarm Assignment	М	35	MF/DP Select
	27	Alarm Night Ring Assignment		04	Misc Card Installation
	26	Alarm Ring Assignment	N	31	Night Ringer Control
	40	Auto Answer		21	Night Ringing Assignment
	37	Automatic C.O. Release	0	71	O.C.C. Setting
	38	Automatic Line Transfer		34	Optional Ringing Tone
В	07	Back Ground Music		32	Originate C.O. Group
	52	Built-in Speaker		22	Outgoing Restriction
С	01	Calendar		70	Other Country
	13	Camp On Timer	P	45	Page Receive
				14	Pause Timer
D	39	Dial 20 pps Select		23	Pick-up Restriction
	36	Dial Pause Ratio		33	Pre-dial
	11	Disconnect Signal Timer	Ř	53	Remote Key
	20	Direct Inward Line	S	08	SCDR Output Class
	51	Do Not Disturb		42	Secretary Hot Line
	25	Doorphone Night Ring Assignment		43	Speed Dial Restriction
	24	Doorphone Ring Assignment		44	Speed Dial Toll Restriction
E	80	Error Clear		49	Station Protect
	48	Executive Station		02	Station Type & Installation
	30	External Loud Ringer	1	05	System Speed Dial
	99	External Programming	T	00	Time
F	10	Flash Timer		15	Timed Trunk
G	46	Group Page Access		41	Toll Restriction Class
	47	Group Page Receive		06	Toll Restriction (User data)
Н	50	Hold Recall Enable		09	Tone/Voice
	12	Hold Timer		03	Trunk Card Installation
M	90	Memory All Clear			

- 1.04 When following the program instruction, certain symbols are utilized during operation flow. TABLE 9-B lists symbols utilized and their functions.
- **1.05** TABLE 9-C provides an index of programming functions for easy reference to desired program location.
- 1.06 All programming is accomplished from extension 20 (primary extension), the balance of the system remaining in operation during programming. To prevent sudden change in system operational aspects, it is best to program system during low activity periods. A convenience modular jack is provided in the KSU. Disconnect the actual extension used as station 20 from service if the convenience modular jack in the KSU is utilized.

#### 2.00 MAIN PROCESSING

2.01 Starting a program, processing individual items and the ending of programming are indicated here.

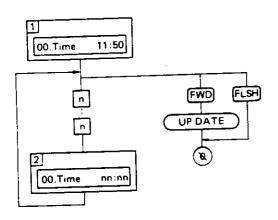


- 1. With station on hook:
  - Depress dial key 0 so that "Input Password" appear on display.
- 2. Enter a 3 digit password so that "Input NO., nxt, end" appears on display.

- 3. Input a 2-digit program number so that each item to be set appears on display.
  - If program number is wrong, return to Step 3.
  - Depress FWD key to display next program.
  - Depress SPD key to display preceding program
  - Depress FLSH key to terminate programming mode.
- NOTE 1: Go to individual process
  - 2: Go to preceding individual program
  - 3: Go to next individual program
  - 4: In case of password disagreement, a warning tone is heard. Switch SPK on and off, and start over again.

# 3.00 INDIVIDUAL PROCESSING

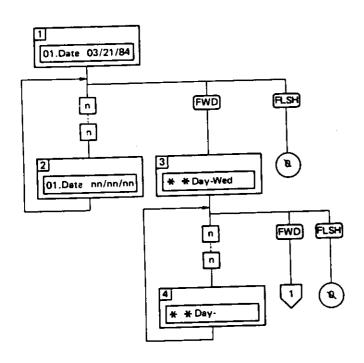
hours and minutes in a 24-hour system. When time in minutes is set, figures in seconds clear to 00.



1. Watch set time on display

- To change time, depress dial keys. Numbers entered appear in sequence of entry on display.
  - Depress FWD key to end time entry.
  - FLSH key to end, processing without time entry.

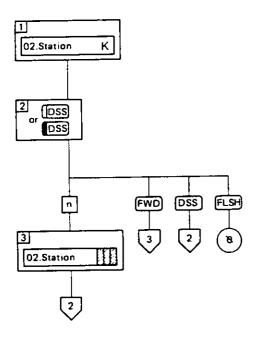
# 3.02 Calendar Setting (Prog. No. 01): Set date and day of week as follows:



1. Watch set date appearing on display.

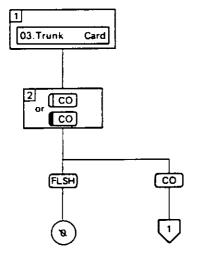
- 2. Depress dial keys so that numbers entered appear in sequence of entry on display.
- Depress FWD key so that set day of week appears on display.
  - Depress FLSH key to end processing.
- For day of week entry, dial 78 (Sunday), 66 (Monday).
   (Tuesday). 93 (Wednesday). 84 (Thursday). 37 (Friday). or 72 (Saturday):
  - Depress FWD key to set date.
  - Depress FLSH key to end calendar setting.

3.03 Station Type Setting (Prog. No. 02): (Default: Not Installed): The station type setting registers the type stations used so that the system can recognize them.



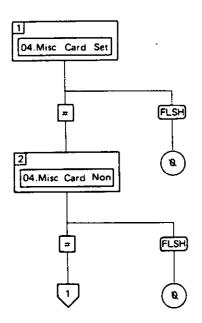
- 1. See station type appear on display.
- 2. Check that lamp lights for station being set.

- To change station type, depress dial keys as follows: 2 (KB), 3 (K), 4 (KL), 6 (D), 7 (OP), 8 (STD), 9 (STM).
  - Depress FWD key so that station type next to one on display appears on display.
  - Depress DSS key so that station setting changes.
     Lighted lamp indicates station type registration
  - Depress FLSH key to end station type registration processing.
- **3.04** Trunk Card (Prog. No. 03): (Default: Installed): Assign which CO/PBX lines are in service.



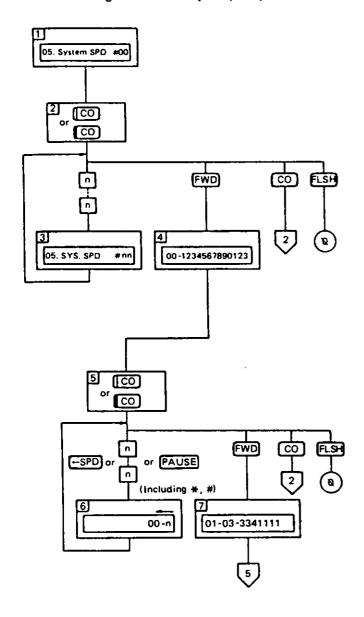
- 1. Watch "03. Trunk Card" appear on display.
- 2. CO lamps for utilized CO lines should light.
  - Depress FLSH key to end the processing
  - Depress CO key so that lamp lights if trunk is utilized and goes out if trunk card is not in use.

**3.05 Misc Card** (Prog. No. 04): (Default: Installed): Assign MISC PCB



- See "04. Misc Card Set" appear on display for Misc card installation setting. Also, "04 Misc Card Non" should appear on display for no Misc card installation.
- 2. Depress # key so that Misc card installation status changes.
  - Depress FLSH key to end processing.

- 3.06 System Speed Dialing (Prog. No. 05): (Default: None): Register the system speed dial numbers for outward CO dialing.
  - Once the CO numbers are registered as system speed dial numbers, registered CO lines get automatically accessed by simple operation.
  - when no CO numbers are registered, one of idle CO lines registered for automatic outward dialing is accessed by simple operation:



- 1. See "05. Sys. SPD #00" appear on display.
- Lighted CO lamp indicates CO/PBX line to be accessed. When all lamps are off, no line programmed.
- Depress dial keys to change present speed dial bin number so that newly input speed dial bin number appears on display.
- Depress FWD key so that the complete telephone number of outgoing speed dial number appears on display.
  - Depress CO key to change line for access; CO lamp lights for the line assigned.
  - Depress FLSH key to end the Processing.
- 5. Lighted CO lamp indicates access line.
- Depress dial keys to change complete telephone number of outgoing speed dial number. New number appears on display.
  - PAUSE key is used for pause registering.
  - SPD key is used for registering speed dial bin number to tandem numbers. In case of registering speed dial bin number, the same speed dial bin number cannot be assigned to tandem to another speed dial bin number.

Example: 00 - 01 → 02 → 03

01 - (Tel. No.)

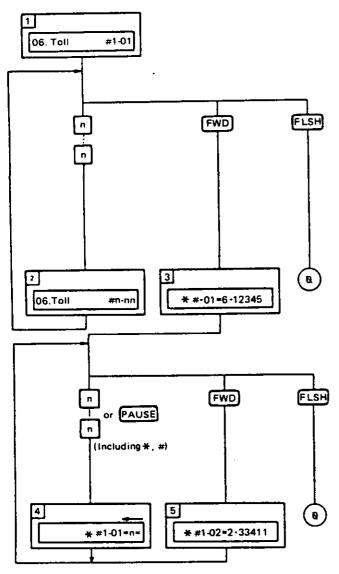
Correct

01 - 05

Wrong

Depress FWD key so that complete telephone number of next outgoing speed dial number appears, CO lamp lights, indicating access line

3.07 Toll Restriction (User Data) (Prog. No. 06): (Default: None): Dial control code for restricting outgoing toll calls.



• Toll Control Code

Code No.	Contents			
0	No control			
1	Deny			
2	Allow			
3	Allow (dial STOP)			
4	Expand			
5(Toll)	Allow			
6(Toll)	Allow (dial STOP)			

- Check that "06. Toll #1-01" appears on display. "No. 1-01" represents user data table number and corresponding item number (01-20).
- Depress dial keys to change user data table number (1-4) and item number. New user data table number and item number to appear on display.
- Depress FWD key, the control code and the dialed telephone number digits to be controlled appears on display.

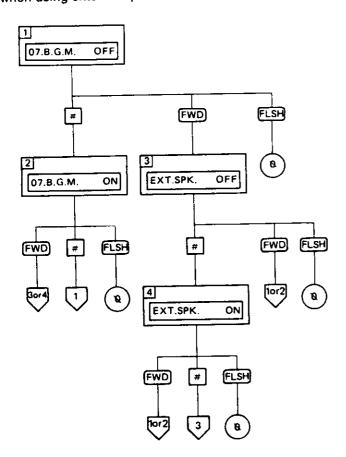
NOTE: Depress FLSH key to end the processing.

- 4. Depress dial keys so that telephone number in toll restriction changes, and newly input number appears on display. (The first number depressed inputs toll control code).
  - Depress Pause key to input N (any number) code.
  - Depress FLSH key to end the processing.

NOTE: Input dial 0 to erase data if error is made for control code or telephone number entry.

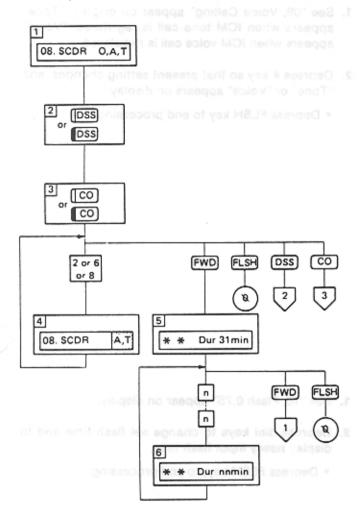
- Depress FWD key, so that the processing proceeds to next subscriber number, and dial number subject to toll restriction appears on display.
- 6. Control Code 5 and 6 are utilized if SCDR program for toll output is required.

3.08 Background Music (Prog. No. 07): (Default: OFF): Selecting whether or not background music is on the system; programming is also needed when using external speaker.



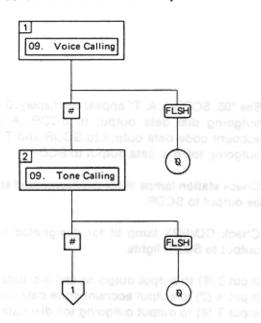
- 1. See "07. B.G.M. OFF" appear on display. "OFF" means that background music is unused.
- 2. Depress # key to change background music ON/OFF setting so that new setting appears on display.
- 3. Depress FWD key so that "EXT. SPK. OFF" appears on display. ("OFF" indicates that background music will not go to external speaker).
- Depress # key to change external speaker ON/OFF setting and so that new setting appears on display.
  - Depress FWD key to return to Steps 1 or 2.
  - Depress FLSH key to end the processing.

3.09 SCDR Output Class (Prog. No. 08): (Default: All Outputs): Select and register data for SCDR: (Output data includes outgoing dial account code, outgoing toll dial, individual extensions, individual CO/PBX lines and data output only when call duration exceeds specified time).



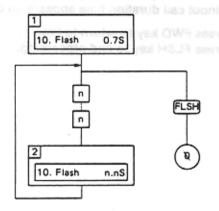
- See "08. SCDR 0, A, T" appear on display. 0 indicates outgoing dial data output to SCDR; A indicates account code data output to SCDR and T refers to outgoing toll dial data output to SCDR.
- Check station lamps lit for the designated stations to be output to SCDR.
- Check CO/PBX lamp lit for designated line to be output to SCDR lights.
- Input 0 (6) to output outgoing call dial data only.
   Input A (2) to output account code data only.
   Input T (8) to output outgoing toll dial data only.
- Depress FWD key so that call duration time appears on display (Calls exceeding set call duration are output to SCDR).
  - · Depress FLSH key to end processing.
  - Depress DSS key to return to Step 2.
  - Depress CO key to return to Step 3.
- Depress dial keys to change call duration time; newly input call duration time appears on display.
  - . Depress FWD key to return to Step 1.
  - Depress FLSH key to end processing.

3.10 Tone/Voice (Prog. No. 09): (Default: Voice): Select either tone or voice for system ICM calls:



- See "09, Voice Calling" appear on display. "Tone" appears when ICM tone call is registered; "Voice" appears when ICM voice call is registered.
- Depress # key so that present setting changes, and "Tone" or "Voice" appears on display.
  - · Depress FLSH key to end processing.

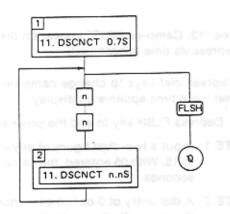
3.11 Flash Timer (Prog. No. 10): (Default: 700MS): CO flash time can be set.



- 1. See "10. Flash 0.7S" appear on display.
- Depress dial keys to change set flash time and to display newly input flash time.
  - · Depress FLSH key, to end processing.

NOTE A dial input 0.0S, 0.1S or 0.2S sets the CO flash time to 0.3S. If the dial input entered is 1.6S or more, the flash time will be set to 1.5S. A dial input of 1.1S and 1.2S, sets the flash time to 1.2S, and a dial input of 1.3S and 1.4S sets it to 1.4S.

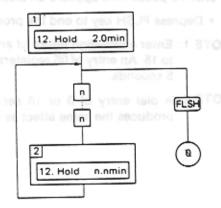
3.12 Disconnect Signal Timer (Prog. No. 11): (Default: 700MS): Register CO disconnect signal detection time:



NOTE An entry of 1.6 seconds or longer produces default. Entry of 0.0 second also produces default.

- See "11, DSCNCT 0.7S" appear on display.
- Depress dial keys to change the set disconnect signal time, and newly input time appears on display.
  - Depress FLSH key to end processing.

3.13 Hold Timer (Prog. No. 12): (Default: 2 Minutes): Register hold recall time to prevent excessively long CO holds.



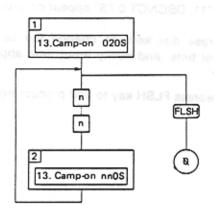
- See "12, Hold 2.0 min." appearing on display.
- Depress dial keys to change hold time; newly input time appears on display.

Example: Input 70 for 7 minutes, or 75 for 7.5 minutes

- · Depress FLSH key to end processing.
- NOTE: 2: Set time figure in 0.5 increments. Any dial entry of 0 or 7.6 (or more) produces the same effect as a default.

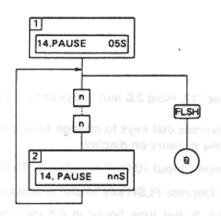
NOTE 3: The minimum time is 0.5 minute (30 seconds).

3.14 Camp-on Timer (Prog. No. 13): (Default: 20 seconds): Register time for calling back the party to whom a CO or ICM call has been transferred but who has failed to answer.



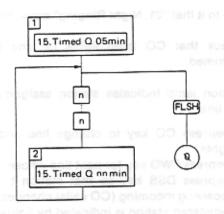
- See "13, Camp-on 020S" appear on display ("020S" represents time in seconds).
- Depress dial keys to change camp-on time and so that input time appears on display.
  - · Depress FLSH key to end the processing.
- NOTE 1: Input a two-digit figure of anywhere from 01 to 15. With 05 entered, the camp on time is 50 seconds.
- NOTE 2: A dial entry of 0 or 150 s (or more) produces the same effect as default.

3.15 Pause Timer (Prog. No. 14): (Default: 5 Seconds): Pause time needed after predialing to seize a CO line by serving PBX:

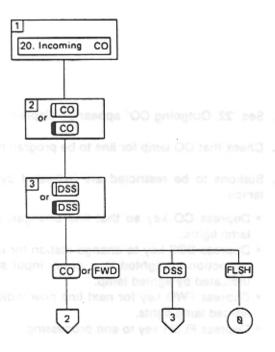


- See "14. PAUSE 05S" present set time appears on display.
- Depress dial keys to change the pause time: newly entered pause time appears on display.
  - Depress FLSH key to end the process.
- NOTE 1: Enter a two-digit figure of anywhere from 00 to 15. An entry of 05 registers a pause time of 5 seconds.
- NOTE 2: A dial entry of 0 or 16 seconds (or more) produces the same effect as default.

3.16 Timed Trunk Queue Timer (Prog. No. 15):
(Default: 5 Minutes): If called CO party is busy
or does not answer, use this feature to call that party
again after the programed time:



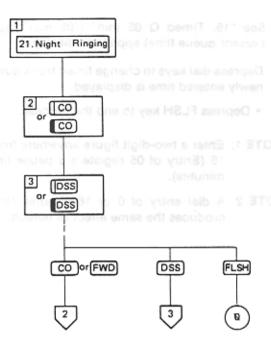
3.17 CO/PBX Ringing-Day (Prog. No. 20): (Default: Station 20 Only): Register stations toring upon receiving incoming CO calls in day mode:



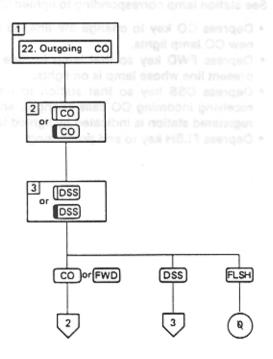
- See "15. Timed Q 05 min" ("05 min" represents present queue time) appear on display.
- Depress dial keys to change timed trunk queue time; newly entered time is displayed.
  - · Depress FLSH key to end the process.
- NOTE 1: Enter a two-digit figure anywhere from 00 to 15 (Entry of 05 registers a pause time of 5 minutes).
- NOTE 2: A dial entry of 0 or 16 minutes (or more) produces the same effect as default.

- 1. See "20. Incoming CO" appear on display.
- Check that CO lamp for CO/PBX line to be set lights.
- 3. See station lamp corresponding to lighted CO lamp.
  - Depress CO key to change the line, so that the new CO lamp lights.
  - Depress FWD key so that lamp for line next to present line whose lamp is on lights.
  - Depress DSS key so that station to ring upon receiving incoming CO calls changes, and newly registered station is indicated by lighted lamp.
  - · Depress FLSH key to end processing.

3.18 Night Ringing Assignment (Prog. No. 21): (Default: Station 20 Only): Register a station to ring upon receiving incoming CO calls in night mode.



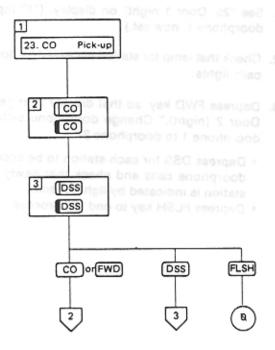
3.19 Outgoing Restriction (Prog. No. 22): (Default: No Restriction): Stations to be placed under outgoing restriction:



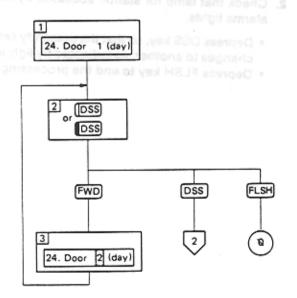
- See to it that "21. Night Ringing" appears on display.
- Check that CO lamp lights on line to be programmed.
- Station lamp indicates station assignment for the CO line.
  - Depress CO key to change line and CO lamp lights.
  - · Depress FWD key for next line whose lamp is on.
  - Depress DSS key so that station to ring upon receiving incoming (CO calls) changes, and newly registered station is indicated by lighted lamp.
  - Depress FLSH key to end processing.

- 1. See "22. Outgoing CO" appear on display.
- Check that CO lamp for line to be programmed.
- Stations to be restricted are indicated by lighted lamps.
  - Depress CO key so that line changes, and CO lamp lights.
  - Depress DSS key to change station for outgoing restriction on lighted line; newly input station is indicated by lighted lamp.
  - Depress FWD key for next line now indicated by lighted lamp lights.
  - · Depress FLSH key to end processing.

3.20 Pickup Restriction (Prog. No. 23): (Default: No Restriction): Register stations to be pick-up restricted.



3.21 Doorphone Ring Assignment (Prog. No. 24): (Default: Station 20 only): The station to be accessed by the doorphones can be registered as follows:



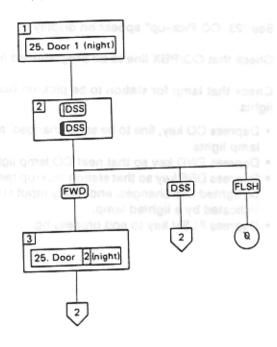
- See "23. CO Pick-up" appear on display.
- 2. Check that CO/PBX line to be programmed lights.
- Check that lamp for station to be pick-up restricted lights.
  - Depress CO key, line to be set is changed, and CO lamp lights.
  - · Depress FWD key so that next CO lamp lights.
  - Depress DSS key so that station pick-up restricted on lighted line changes, and newly input station is indicated by a lighted lamp.
  - · Depress FLSH key to end processing.

- See "24. Door 1 (day)" on display ("1" represents doorphone 1, which is now set).
- 2. Lamp for station accessed by doorphone calls lights.
- Depress FWD key so that the display changes to "24. Door 2 (day)".

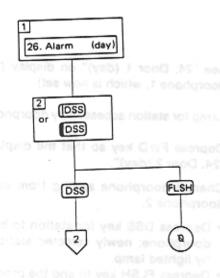
Change doorphone setting from doorphone 1 to doorphone 2.

- Depress DSS key for station to be accessed by doorphone; newly selected station is indicated by lighted lamp.
- · Depress FLSH key to end the process.

3.22 Doorphone Night Ringing Assignment (Prog. 25): (Default: Station 20 only): Register doorphone(s) station ringing in night mode.



3.23 Alarm Ring Assignment (Prog. 26):
(Default: Station 20 only): Register station to be signalled by incoming alarms in day mode as follows:

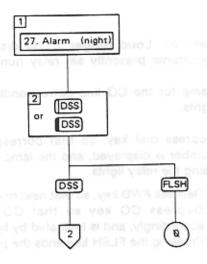


- See "25. Door 1 night" on display. ("1" represents doorphone 1, now set.)
- Check that lamp for station accessed by doorphone calls lights.
- Depress FWD key, so that display changes to "25. Door 2 (night)." Change doorphone setting from doorphone 1 to doorphone 2.
  - Depress DSS for each station to be accessed by doorphone calls and check that newly selected station is indicated by lighted lamp.
  - · Depress FLSH key to end the process.

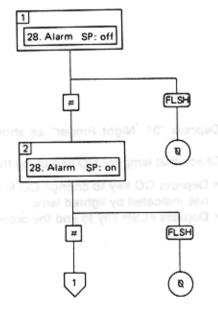
- 1. See "26. Alarm (day)" appear on display.
  - Check that lamp for station accessed by incoming alarms lights.
    - Depress DSS key, so that the presently set station changes to another, as indicated by lighted lamp.
    - Depress FLSH key to end the processing.



3.24 Alarm Night Ring Assignment (Prog. No. 27): (Default: Station 20 only): Register station to be signalled by alarms in night mode.



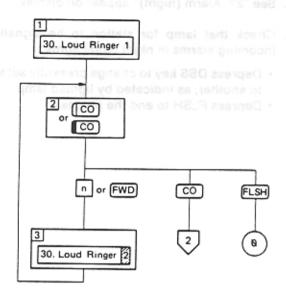
3.25 Alarm Assignment (Prog. No. 28): (Default: External Speaker OFF): Register whether to output an alarm tone to external speaker.



- See "27. Alarm (night)" appear on display.
- Check that lamp for station to be signalled by incoming alarms in night mode lights.
  - Depress DSS key to change presently set station to another, as indicated by lighted lamp.
  - · Depress FLSH to end the process.

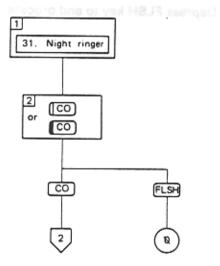
- See "28. Alarm SP: OFF" appear on display SP:OFF signifies that loud speaker is off.
- When # key depressed, loud speaker setting changes from ON to OFF or vice versa, and the selected status is displayed.
  - · Depress FLSH key to end process.

3.26 External Loud Ringer (Prog. No. 30): (Default: None): Register external loud ringer that operates upon receiving an incoming CO call: Ringers are 1-4



- See "30. Loud Ringer 1" on display. Ringer 1 represents presently set relay number.
- Lamp for the CO line corresponding to the relay lights.
- Depress dial key, so that corresponding ringer number is displayed, and the lamp for the CO line using the relay lights.
  - Depress FWD key, so that next ringer is indicated.
  - Depress CO key so that CO line changes accordingly, and is indicated by lighted lamp.
  - · Pressing the FLSH key ends the process.

3.27 Night Ringer (Prog. No. 31): (Default: None):
Register ringer that operates upon receiving an incoming CO call in night mode:

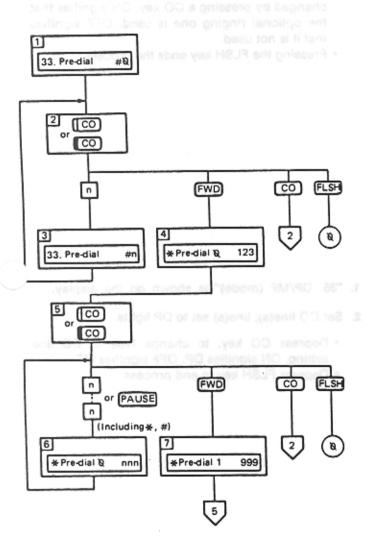


95-2

- 1. Depress "31. Night Ringer" as shown on display.
- 2. Check that lamp for CO line using that relay lights.
  - Depress CO key to change CO line; selected CO line indicated by lighted lamp.
  - · Depress FLSH key to end the process.

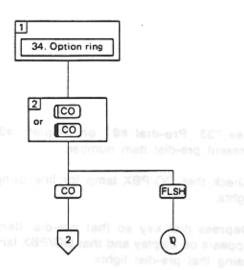
3.28 Originate CO Group (Prog. No. 32): (Default: All; No use in North America):

3.29 Pre-dialing (Prog. No. 33): (Default: Not Used): Register a PBX CO access code as common system code, and assign PBX lines that need pre-dialing of registered code.

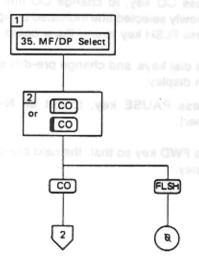


- See "33. Pre-dial #0" on display. #0 signifies present pre-dial item number.
- Check that CO/PBX lamp for line using pre-dial lights.
- Depress dial key so that pre-dial item number appears on display and that CO/PBX lamp for line using that pre-dial lights.
- Depress FWD key so that "\*Pre-dial #Ø 123" appears on display. 0 signifies pre-dial item number, and 123 indicates pre-dial number e.g.
- 5. Check that CO lamp using pre-dial lights.
  - Depress CO key, to change CO line using predial; newly selected line indicated by lighted lamp.
  - · Depress FLSH key to end the process.
- Depress dial keys, and change pre-dial setting; new entry on display.
  - Depress PAUSE key, to set an N-code (any number).
- Depress FWD key so that, the next pre-dial appears on display.

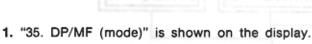
3.30 Optional Ringing Tone (Prog. No. 34): (Default: Not Used): Optional ringing tone to distinguish incoming calls on different CO/PBX lines.



MF/DP Select (Prog. No. 35): (Default: MF): Type of CO/PBX line (MF or DP):

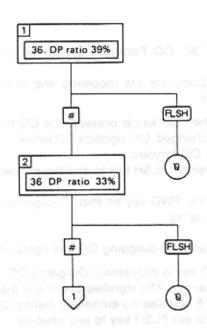


- 1. "34. Option Ring" is shown on display.
- 2. The CO/PBX lamp to use the optional ringing tone lights. If seek XS9 aplace bas leboo m
  - The line using the optional ringing tone can be changed by pressing a CO key. ON signifies that the optional ringing one is used. OFF signifies that it is not used.
  - · Pressing the FLSH key ends the process.

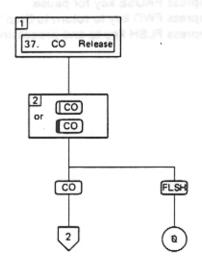


- 2. Set CO line(s); line(s) set to DP lights.
  - . Depress CO key, to change type of CO line setting. ON signifies DP. OFF signifies MF.
  - · Depress FLSH key to end process.

3.32 Dial Pulse Ratio (Prog. No. 36): (Default: 39%): Change dial make/break ratio on all DP trunks in the system:



3.33 Automatic CO Release (Prog. No. 37): (Default: Not Used): Register CO line whose short break is detected as a disconnect signal; must be enabled to activate trunk to trunk conference.

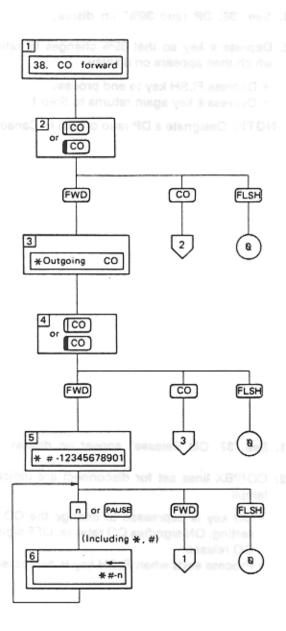


- 1. See "36. DP ratio 39%" on display.
- Depress # key so that 39% changes to ratio 33%, which then appears on display.
  - · Depress FLSH key to end process.
  - · Depress # key again returns to Step 1.

NOTE: Designate a DP ratio of 39% in Canada.

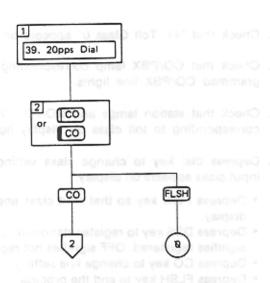
- 1. See "37. CO Release" appear on display.
- CO/PBX lines set for disconnect are indicated by lamps.
  - CO key is depressed to change the CO release setting. ON signifies CO release. OFF signifies no CO release.
  - · Process ends when FLSH key is depressed.

3.34 Automatic CO Transfer (Prog. No. 38): (Default: Not Used): Register incoming CO line(s) for automatic transfer to outgoing CO line and automatic outgoing dial number while in night mode:

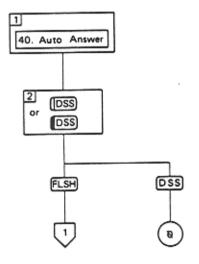


- 1. See "38. CO Forward" appear on display.
- CO Lamp for the incoming line to be transferred lights.
  - When CO key is pressed, the CO forward setting is changed. ON signifies CO forward. OFF signifies no CO forward.
  - · Depress FLSH key to and the process.
- Depress FWD key so that "\*Outgoing CO" appears on display.
- 4. CO lamp for outgoing CO line lights when:
  - CO key is depressed; Outgoing CO line setting is changed. ON signifies automatic dialing CO line.
     OFF signifies no automatic dialing CO line.
  - Depress FLSH key to end process.
- Depress FWD key so that "\*#12345678901" appears on display.
- Depress dial key to register number for automatic dialing.
  - Depress PAUSE key for pause.
  - Depress FWD key to return to Step 1.
  - Depress FLSH key to end processing.

3.35 Dial 20 PPS Select (Prog. No. 39): (Default: 10 pps): Register dial pulse rate of 20 pps. (10 ps. normal in sending dial pulses to outside lines.)



3.36 Auto Answer (Prog. No. 40): (Default: Auto Answer): Register whether station answers nooming calls by simply going off-hook.



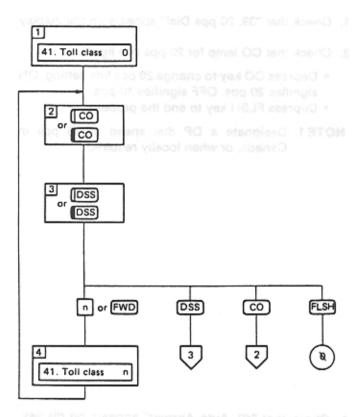
- 1. Check that "39. 20 pps Dial" appears on the diaplay
- 2. Check that CO lamp for 20 pps line lights.
  - Depress CO key to change 20 pps line setting. ON signifies 20 pps. OFF signifies 10 pps.
  - · Depress FLSH key to end the process.

NOTE 1: Designate a DP dial speed of 10 pps in Canada, or when locally required.



- 1. Check that "40. Auto Answer" appears on display.
- Check that DSS lamp for station set for auto answer lights.
  - Depress DSS key to change auto answer setting.
     ON signifies auto answer. OFF signifies manual.
  - · Depress FLSH key to end the process.

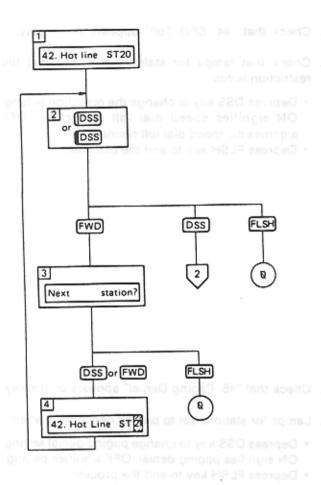
3.37 Toll Restriction Class (Prog. No. 41): (Default: No Restriction): Class of toll restriction assignment:



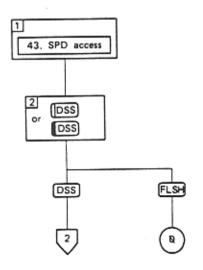
· Depress DSS key to change auto answer setting

- 1. Check that "41. Toll Class 0" appears on display.
- Check that CO/PBX lamp corresponding to programmed CO/PBX line lights.
- Check that station lamps and CO/PBX line lamp corresponding to toll class on display light.
- Depress dial key to change class setting; newly input class appears on display.
  - Depress FWD key so that next class appears on display.
  - Depress DSS key to register station toll class. ON signifies registered. OFF signifies not registered.
  - Depress CO key to change line setting.
  - . Depress FLSH key to end the process.

3.38 Secretary Hot Line (Prog. No. 42): (Default: None): A Station can be connected to another hrough an ICM Hot Line (Priority between two station) by the touch of a single key.



3.39 System Speed Dial Restriction (Prog. No. 43): (Default: No Restriction): Restrict system speed dialing access by each station.

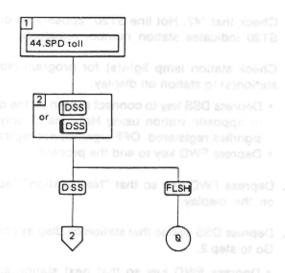


- Check that "42. Hot line ST20" appears on display; ST20 indicates station number registered.
- Check station lamp light(s) for program Hot Line station(s) to station on display.
  - Depress DSS key to connect station on the display to opposite station using Hot Line (2 only). ON signifies registered. OFF signifies not registered.
  - Depress FWD key to end the process.
- Depress FWD key so that "Next station?" appears on the display.
- Depress DSS key so that station on display changes. Go to step 2.
  - Depress FWD key so that next station appears and can be newly registered.
  - . Depress the FLSH key to end the process.

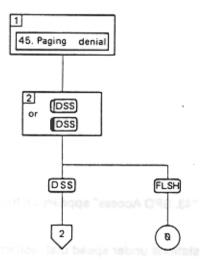
- 1. Check that "43. SPD Access" appears on the display.
- Lamps for stations under speed dial restriction light when:
  - Depressing a DSS key changes the restriction setting. ON signifies speed dial restriction. OFF signifies speed dial restriction released.
  - . Depress FLSH key to end the process.

3.40 System Speed Dial Toll Restriction

(Prog. No. 44): (Default: No Restriction): Outgoing toll calls by speed dialing can be restricted as follows:



3.41 Paging Denial (Prog. No. 45): (Default: Receive): Each station can be registered to either receive or not receive paging announcements:

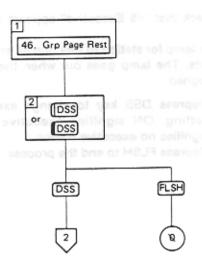


- 1. Check that "44. SPD Toll" appears on display.
- Check that lamps for stations in speed dial toll restriction lights.
  - Depress DSS key to change the restiction setting.
     ON signifies speed dial toll restriction. OFF signifies no speed dial toll restriction.
  - · Depress FLSH key to end the process.



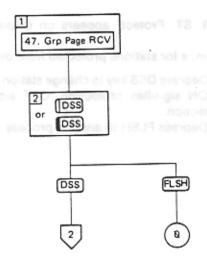
- 2. Lamps for stations set to paging denial light when:
  - Depress DSS key to change paging denial setting.
     ON signifies paging denial. OFF signifies paging.
  - Depress FLSH key to end the process.

3.42 Group Page Access (Prog. No. 46): (Default:
Restricted): Stations originating group page
calls can be registered as follows:



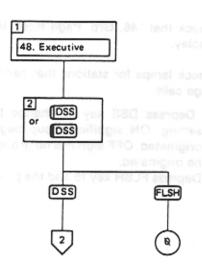
- Check that "46. Grp. Page Rest" is shown on the display.
- 2 Check lamps for stations that can originate group page calls.
  - Depress DSS key to change the group page setting. ON signifies group page calls may be originated. OFF signifies no group page calls may be originated.
  - Depress FLSH key to end the process.

3.43 Group Page Receive (Prog. No. 47): (Default: Deny): Stations receiving group page can be registered as follows:



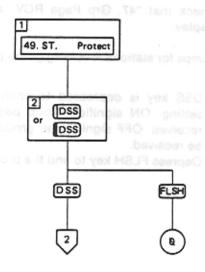
- Check that "47. Grp Page RCV" appears on the display.
- 2. Lamps for stations receiving group page light when:
  - DSS key is depressed to change group page setting. ON signifies group page calls can be received. OFF signifies no group page calls can be received.
  - · Depress FLSH key to end the process.

3.44 Executive Station (Prog. No. 48): (Default: General Station): Register station with the executive feature:



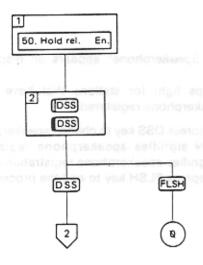
- 1. Check that "48 Executive" appears on the display.
- The lamp for station to function as executive station lights. The lamp goes out when the station is not assigned.
  - Depress DSS key to change executive station setting. ON signifies executive station. OFF signifies no executive station.
  - · Depress FLSH to end the process.

3.45 Station Protect (Prog. No. 49): (Default: No Protection): Stations registered to deny off-hook ringing and override calls:



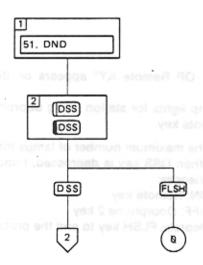
- 1. "49. ST. Protect" appears on display.
- 2. Lamps for stations protected from override light.
  - Depress DSS key to change station protect setting.
     ON signifies protection. OFF signifies no protection.
  - · Depress FLSH to end the process.

3.46 Hold Recall Enable (Prog. No. 50); (Default: Enable): Stations registered for hold recall:



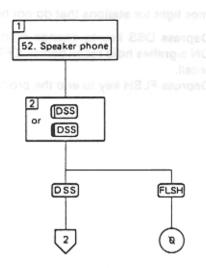
- 1. "50. Hold Rel. En" appears on display.
- 2. Lamps light for stations that do not hold recall.
  - Depress DSS key to change hold recall setting.
     ON signifies hold recall denial. OFF signifies hold recall.
  - Depress FLSH key to end the process.

3.47 Do Not Disturb (DND) (Prog. No. 51): (Default: Not Used): Stations are registered for DND features:



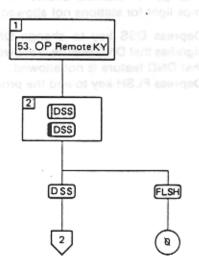
- 1. "51, DND" appears on display.
- No lamps for stations allowed the DND feature. Lamps light for stations not allowed DND feature.
  - Depress DSS key to change DND setting. ON signifies that DND feature is allowed. OFF signifies that DND feature is not allowed.
  - Depress FLSH key to end the process.

3.48 Built-In Speakerphone (Prog. No. 52): (Default: None): Station(s) with speakerphone are registered:



- 1. "52. Speakerphone" appears on display.
- Lamps light for stations that have their built-in speakerphone registered.
  - Depress DSS key to change speakerphone setting.
     ON signifies speakerphone registration. OFF signifies speakerphone registration cancelled.
  - · Depress FLSH key to end the process.

3.49 Remote Key (TXX-616D) (Prog. No. 53): (Default: Doorphone 2): Doorphone 2 key on the TXX-616D operator can be registered as a remote key.



- 1. "53. OP Remote KY" appears on display.
- Lamp lights for station using doorphone 2 keys as remote key.
  - The maximum number of lamps that light is 2.
  - When DSS key is depressed, remote key setting changes:

ON: Remote key

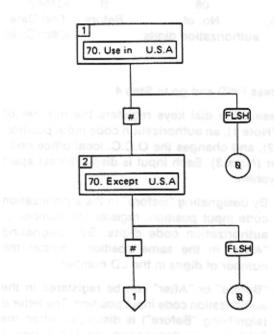
OFF: Doorphone 2 key

· Depress FLSH key to end the process.

1.

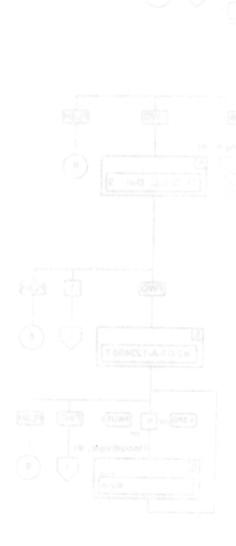
#### TXX-616 KTS SYSTEM PRACTICE JULY 1986, ISS 1.0

3.50 Other Country (Prog No. 70): (Default: U.S.A.): Register when using the system in countries outside the United States.



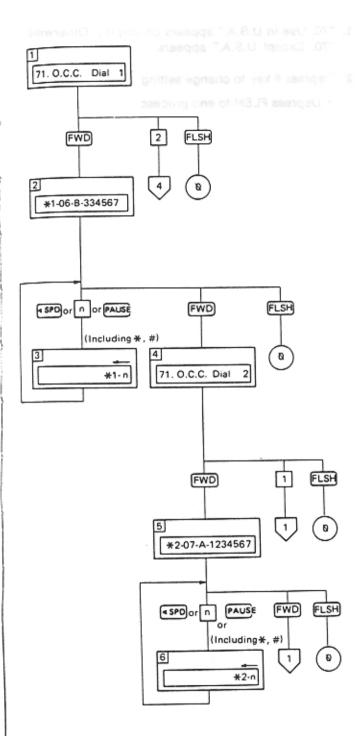
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- "70. Use in U.S.A." appears on display. Otherwise,
   "70. Except U.S.A." appears.
- 2 Depress # key to change setting.
  - . Depress FLSH to end process.



9-34

3.51 Other Common Carrier (Prog. No. 71): (Default: None): Program the office number of an OCC or other line service company, its authorization code digits, and authorization code input position.



 "71. O.C.C. Dial" appears on display. Up to two O.C.C. dial numbers can be registered. This display refers to registration of O.C.C. No. 1. Depress FWD key so that the display shows an O.C.C. dial number, its digits, digit position, and local O.C.C. office code number (dial data).

Example:

\*1 06 B 334567
O.C.C. No. No. of Before Dial Data authorization digits (Office Code)

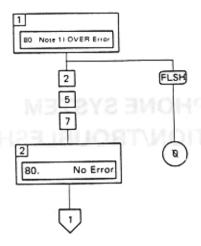
- · Depress FWD and go to Step 4.
- Depressing the dial keys registers the number of digits (Note 1), an authorization code input position (Note 2), and changes the O.C.C. local office code number (Note 3). Each input is displayed set apart by a hyphen.
- NOTE 1: By designating "Before" in the authorization code input position, register the number of authorization code digits. By designating "After" in the same position, register the number of digits in the LD number.
- NOTE 2: "Before" or "After" can be registered in the authorization code input position. The letter B (signifying "Before") is displayed when the SPD key is depressed, or the letter A (signifying "After") is displayed when the PAUSE key is depressed.
- NOTE 3: O.C.C. local office code numer of up to 14 digits can be registered. Depress the PAUSE key to register pause timing (Already programmed) between O.C.C. office code and authorization code (or LD number).
- The next O.C.C. dial registration starts when the FWD key is depressed.
- The display shows the O.C.C. dial number, its digits, digit position, and dial data when the FWD key is depressed again.

Example:

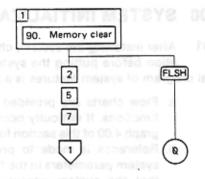
\*2 07 A 1234567 O.C.C. No. No. of After Dial Data dial data digits

- Refer to Step 3.
  - Depress FWD key to return to Step 1.
  - Depress FLSH key to end the process.
- 7. This function is only used to recognize OCC exchange numbers and authorization codes. Program OCC local office numbers and authorization code with pause time requirements in system speed dial bin number desired.

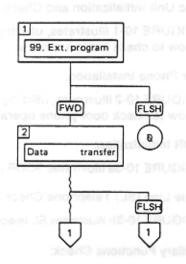
#### 3.52 Error Clear (Prog. No. 80): Erase errors



3.53 Memory All Clear (Prog. No. 90): Erase all programs set.



3.54 External Programming (Prog. No. 99)
FUTURE. The following process concerns select mode in which a special external computer may be used for programming.



- Check that "80. OVER Error" appears on display. (Over is an example of error signifying everrun. Other errors may be displayed depending on case).
- To clear, dial 257 (CLR), and depress FLSH key to end processing.

Note: Kinds of errors

No.	Display	Meaning
1	OVER	Overrun
2	DEAD	Deadlock
3	RAM	RAM
4	ROM	ROM

- 1. Check that "90. Memory Clear" appears on display.
- To clear, dial 257 (CLR), and depress FLSH key to end processing.

- 1. Check that "99. Ext. Program" appears on display.
- Check that when FWD key is depressed, display. shows "Data transfer" (This display indicates that programming data from computer is being processed). Depress FLSH key to end processing. If FLSH key is depressed during data transfer, however, processing will end halfway during data transfer.

#### TXX-616

# ELECTRONIC KEY TELEPHONE SYSTEM SECTION 10 — SYSTEM INITIALIZATION/TROUBLESHOOTING

0014	LINIS	PAGE
1.00	INTRODUCTION	10-1
2.00	SYSTEM INITIALIZATION BASIC SYSTEM CHECK DOOR PHONE CHECK SCDR CHECK SL TELEPHONE CHECK ANCILLARY FUNCTION CHECK	10-1 10-1 10-1 10-1
3.00	FUNCTION TESTING. OUTGOING CO/PBX LINE INCOMING CO/PBX LINE KTSC-S INTERFACE. MISC-S TEST KEY TELEPHONE TEST SCDR OPERATION TEST	10-2 10-2 10-2 10-2 10-2 10-2
4.00	TROUBLESHOOTING OVERALL SYSTEM DOWN KEY TELEPHONE DOWN CO/PBX LINE TROUBLE ICM TROUBLE DOOR PHONE TROUBLE SL TELEPHONE TROUBLE SCDR TROUBLE PAGING TROUBLE MOH TROUBLE	10-2 10-2 10-2 10-2 10-2 10-2 10-2 10-2
5.00	FAULT SYMPTOMS/CAUSES HARDWARE FAILURE HARDWARE SETTINGS SOFTWARE SETTINGS	10-2 10-2 10-2 10-2

#### 1.00 INTRODUCTION

- 1.01 This section details system initialization procedures, function testing and troubleshooting analysis utilizing flow charts and fault locators.
- 1.02 Unless programming the system HCPU is accomplished off premise, the procedure outlined

compliance on promise, the processio cultimes

for system initialization should be performed before programming the entire system. The system will operate in the default mode.

#### 2.00 SYSTEM INITIALIZATION

- 2.01 After installing the system, check system operation before putting the system in service an total program of system features is accomplished.
  - a. Flow charts are provided to check various functions. If difficulty occurs, consult Paragraph 4.00 of this section for troubleshooting.
  - b. Reference is made to programming some system parameters in the flow charts. Insure that the system password is set on the system HCPU-ST PCB before attempting programming. Default password is 000.
  - Key telephone station hardware options are not defined.
- 2.02 Basic Unit Initialization and Check:
  - a. FIGURE 10-1 illustrates, utilizing flow chart, how to check basic functions.
- 2.03 Door Phone Installation:
  - a. FIGURE 10-2 illustrates, utilizing a flow chart, how to check door phone operation.
- 2.04 SCDR Initialization:
  - a. FIGURE 10-3a illustrates SCDR initialization.
- 2.05 Single Line (SL) Telephone Check:
  - a. FIGURE 10-3b illustrates SL telephone check.
- 2.06 Ancillary Functions Check:
  - a. FIGURE 10-4 illustrates system ancillary functions check.

TUTICUOTIS CHECK.

### 3.00 FUNCTION TESTING

- 3.01 After accomplishing all system initialization testing, perform complete system programming as detailed in Section 9. Upon accomplishing programming, return to this section for functional test procedures.
- 3.02 Outgoing CO/PBX Line Test: Refer to FIGURE 10-5.
- 3.03 Incoming CO/PBX Line Test: Refer to FIGURE 10-6.
- 3.04 KTSC-S Subscriber PCB Test: Refer to FIGURE 10-7.
- 3.05 MISC-S Miscellaneous/Tone PCB Test: Refer to FIGURE 10-8.
- 3.06 Key Telephone Test: Refer to FIGURE 10-9.
- 3.07 SCDR Operation Test: Refer to FIGURE 10-10.

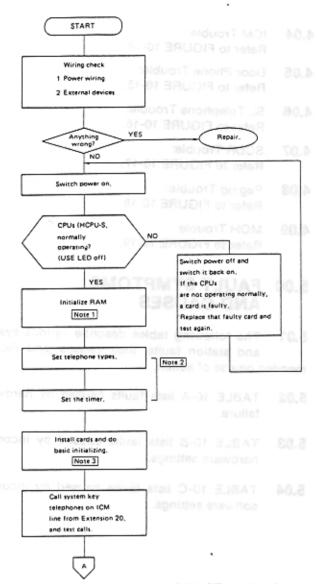
#### 4.00 TROUBLESHOOTING

- 4.01 Overall System Down: Refer to FIGURE 10-11.
- 4.02 Key Telephones Down: Refer to FIGURE 10-12.
- 4.03 CO/PBX Line Trouble: Refer to FIGURE 10-13.

- 4.04 ICM Trouble: Refer to FIGURE 10-14.
- 4.05 Door Phone Trouble: Refer to FIGURE 10-15.
- 4.06 SL Telephone Trouble: Refer to FIGURE 10-16.
- 4.07 SCDR Trouble: Refer to FIGURE 10-17.
- 4.08 Paging Trouble: Refer to FIGURE 10-18.
- 4.09 MOH Trouble: Refer to FIGURE 10-19.

#### 5.00 FAULT SYMPTOMS AND CAUSES

- 5.01 The following tables describe various system and station faults, their causes, and recommended course of action.
- 5.02 TABLE 10-A lists faults caused by hardware failure.
- 5.03 TABLE 10-B lists faults caused by incorrect hardware settings.
- 5.04 TABLE 10-C lists faults caused by incorrect software settings.

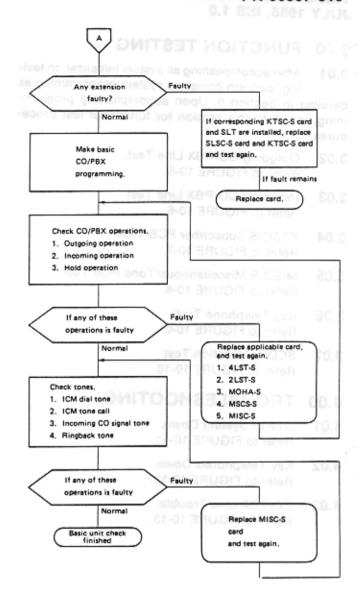


NOTE 1: Set the DIP SW 8 on HCPU-ST card and turn KSU power on. This will initialize the RAMs. When DIP SW 8 is turned, data stored in the RAMs are backed up by the battery.

NOTE 2: Set four types of key telephones according to conditions as follows: Refer to Section 9, Paragraph 3.03.

#### Hi-Feat Series

- Select programming mode at extension 20 on-hook. Dial 0 and input password by dialing.
- Dial program No. 02.
- Present data should be indicated by BLF (ON accommodated)
- BLF indication inverts when corresponding DSS key is depressed.
- Depress FLSH key twice to end programming mode.



Set time in programming mode.

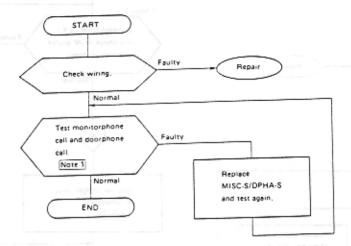
- Select programming mode.
- 2. Dial program No. 00.
- 3. Enter "clock" by dialing.
- Depress FWD key and FLSH key.
- Input date, depress FWD key, and input day of week.

Sunday SU (78)
Monday MO (66)
Tuesday TU (88)
Wednesday WE (93)
Thursday TH (84)
Friday FR (37)
Saturday SA (72)

Input by dialing.

Depress FLSH key twice to end time programming mode.

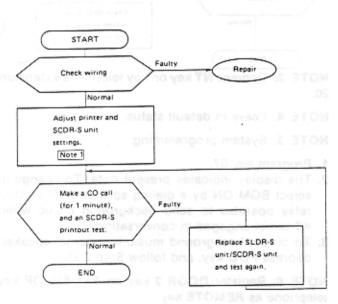
#### FIGURE 10-1 BASIC CHECK



NOTE 1: Call Extensions 36 and 37 on ICM lines by dialing from key telephone other than TXX-616D to test monitorphone.

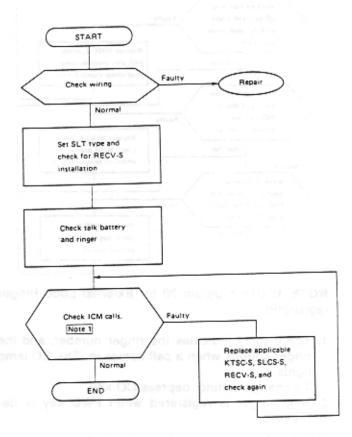
Depress doorphone call switch on to call from doorphone. In default status, doorphone call terminates at key telephone with smallest number.

# FIGURE 10-2 DOOR PHONE CHECK



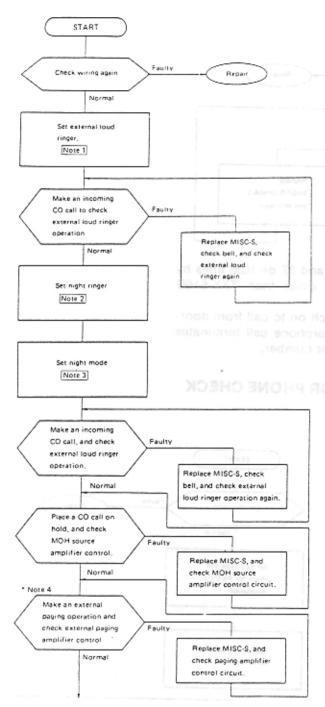
NOTE 1. Set the following by DIP switches on SCDR-S unit card.

- Transmitting speed: 110, 300, 600, 1200, 2400, 4800 bps.
- · Word length: 7 bits, 8 bits.
- Parity: Yes/no
- Parity check: Even number/odd number
   Stop bit: 1,2
- Mode: SCDR mode, setting mode
- Printer: ON/OFF



NOTE 1: Make ICM calls from key telephone.

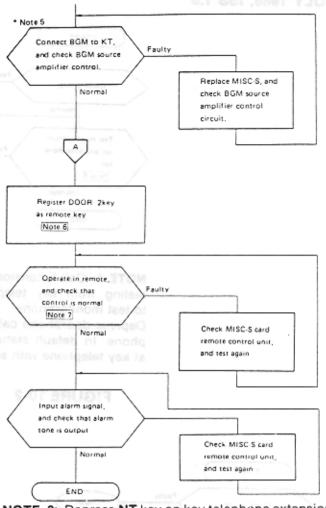
FIGURE 10-3(b) SINGLE LINE TELEPHONE CHECK



NOTE 1: Use program 30 for External Loud Ringer registration.

- The display indicates the ringer number, and the ringer sounds when a call comes in. The CO lamp lights.
  - To change setting, depress CO key.
- Next ringer is registered when FWD key is depressed.

NOTE 2: Use program 31 for Night Ringer registration. The registration procedure is the same as in Note 1.



NOTE 3: Depress NT key on key telephone extension 20.

NOTE 4. Leave in default status.

NOTE 5: System programming.

- 1. Program No. 07.
- The display indicates present data. To change it, select BGM ON by # dialing so that BGM control relay operates to send background music when KT is not engaged in conversation.
- To output background music to external speaker, depress FWD key, and follow Step 2 above.

NOTE 6: Register DOOR 2 key on TXX-616 OP key telephone as REMOTE key.

- 1. Program No. 53.
- BLF lamp key telephone with DOOR 2 key used as REMOTE key, flashes.
- BLF lamp for key telephone with DOOR 2 key used as such, lights. To change setting, press corresponding DSS key.

NOTE 7. After remote key registration at key telephone described in Note 6, depressely on that extension and check that control contact is normal.

#### FIGURE 10-4 ANCILLARY FUNCTION CHECK

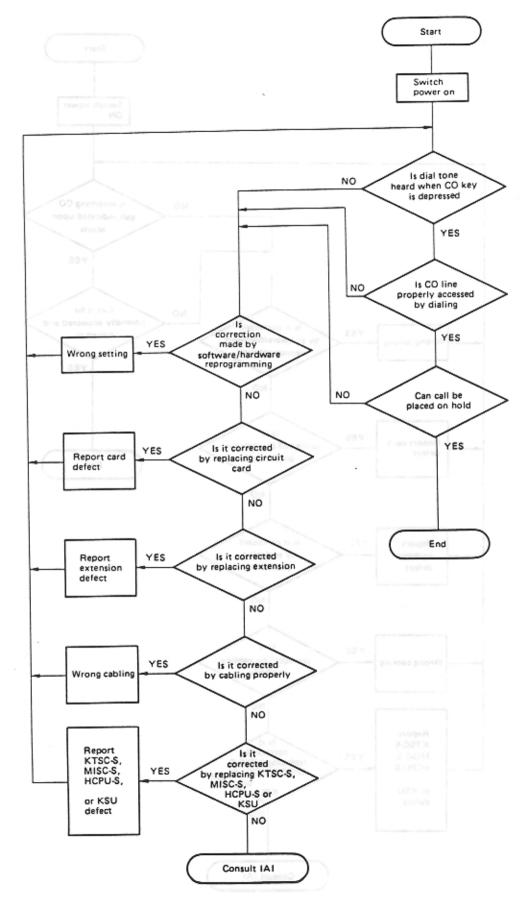


FIGURE 10-5 OUTGOING CO/PBX LINE TEST

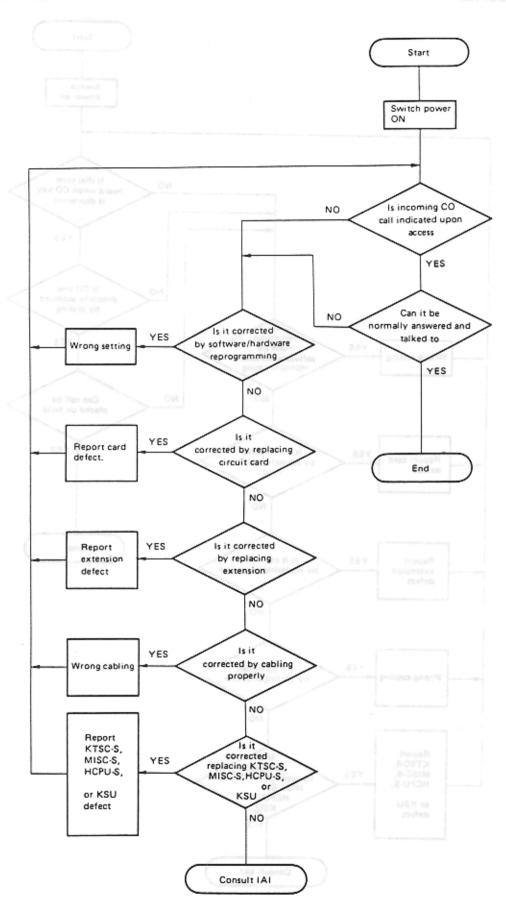


FIGURE 10-6 INCOMING CO/PBX LINE TEST

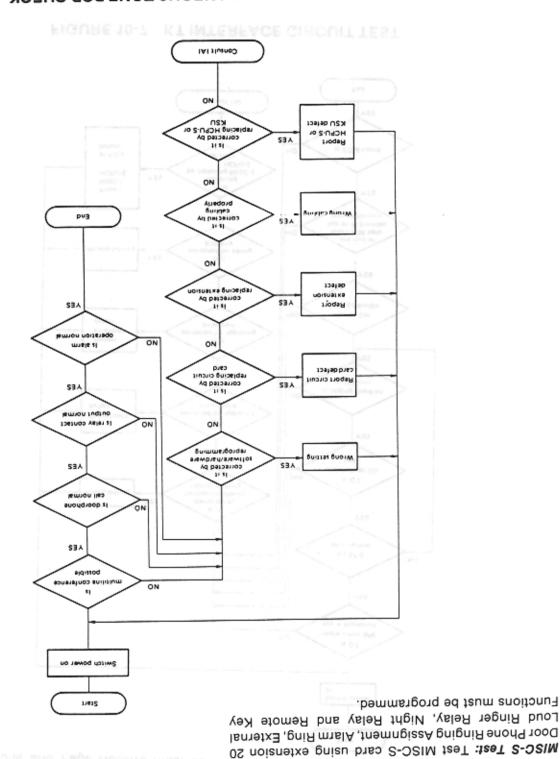


FIGURE 10-8 MISCELLANEOUS TONE PCB CHECK

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010-70286 NG

KTSC-S Test: Test all key telephones in sequence. Station BGM, CO/PBX Line Ringing Assignment, Optional Ringing Tone and Page Receive must be programmed.

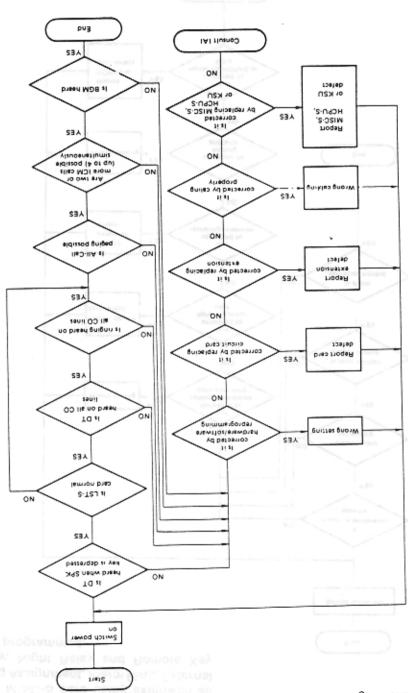


FIGURE 10-7 KT INTERFACE CIRCUIT TEST

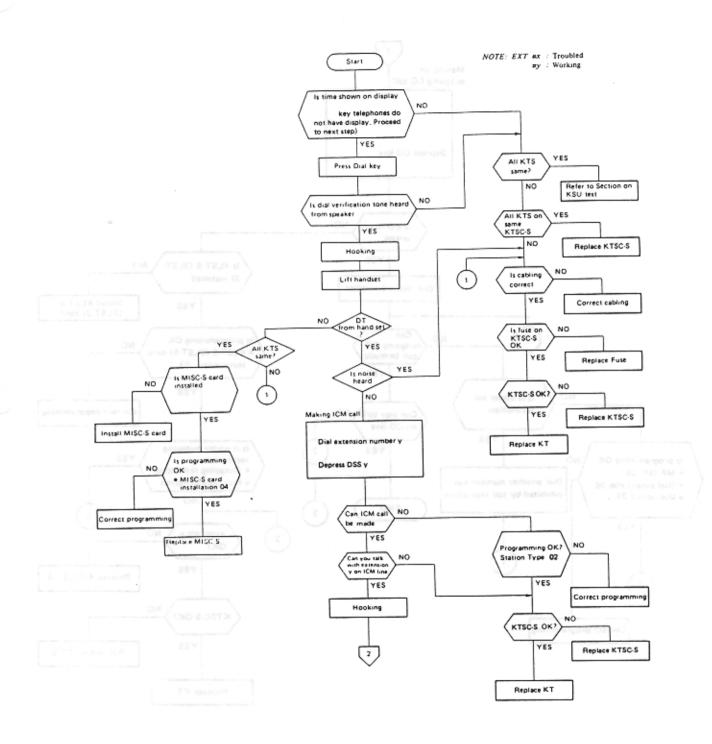


FIGURE 10-9 KEY TELEPHONE TEST

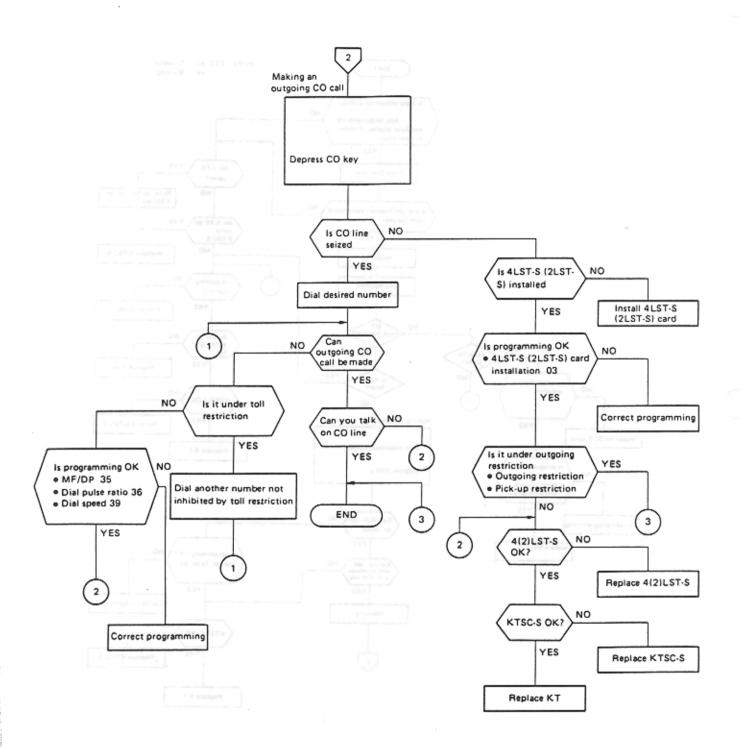
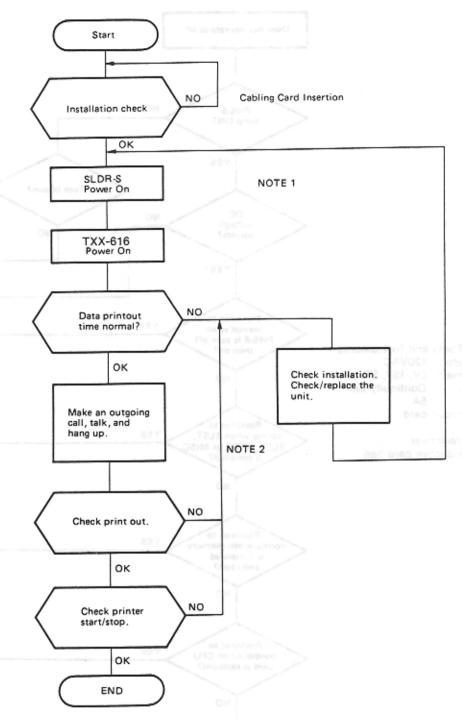


FIGURE 10-9 KEY TELEPHONE TEST (cont'd)



NOTE 1: Observe the startup sequence of SCDR-S AC power ON, then KSU AC power ON.

NOTE 2: Completely clear the system memory, and set only the extension types. The required data is printed

out. The memory can be completely cleared by setting dip switch D8 on the HCPU-S card to reset.

#### FIGURE 10-10 SCDR FUNCTION CHECK

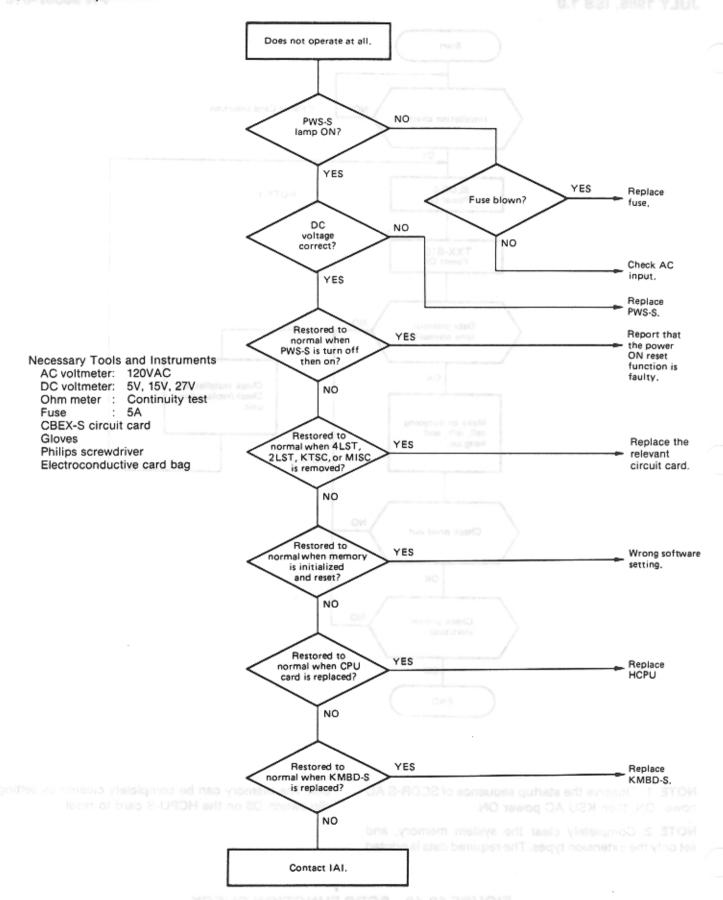


FIGURE 10-11 OVERALL SYSTEM DOWN

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# JULY 1986, ISS 1.0

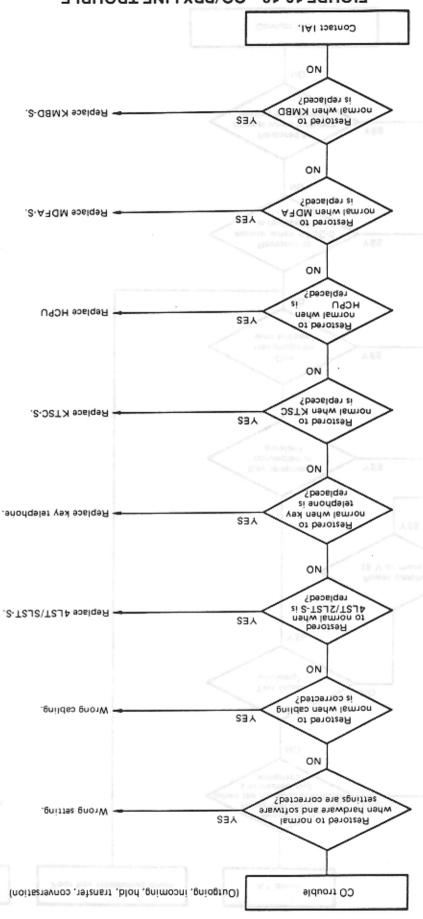
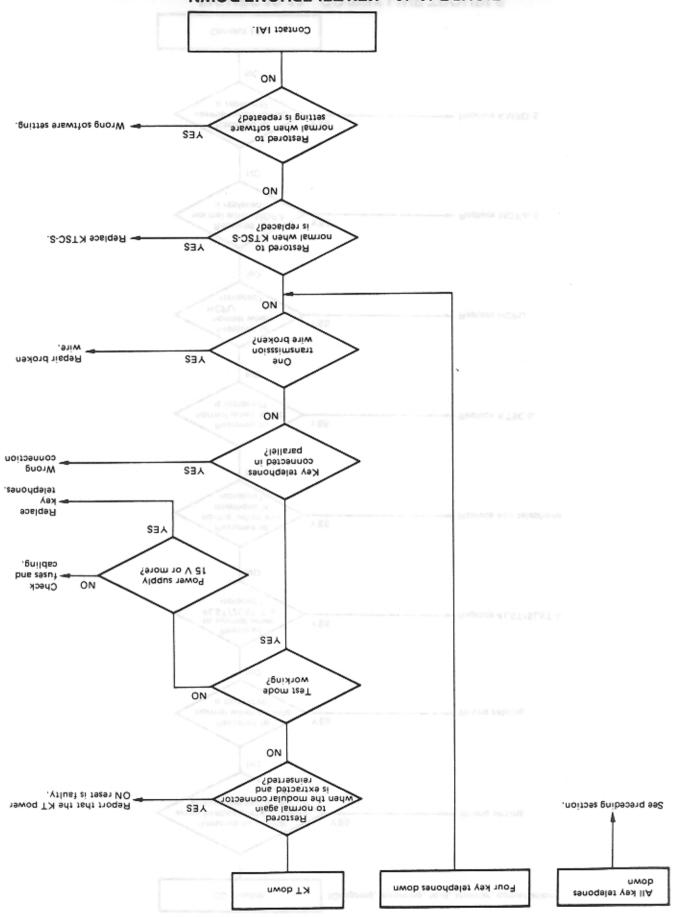


FIGURE 10-13 CO/PBX LINE TROUBLE



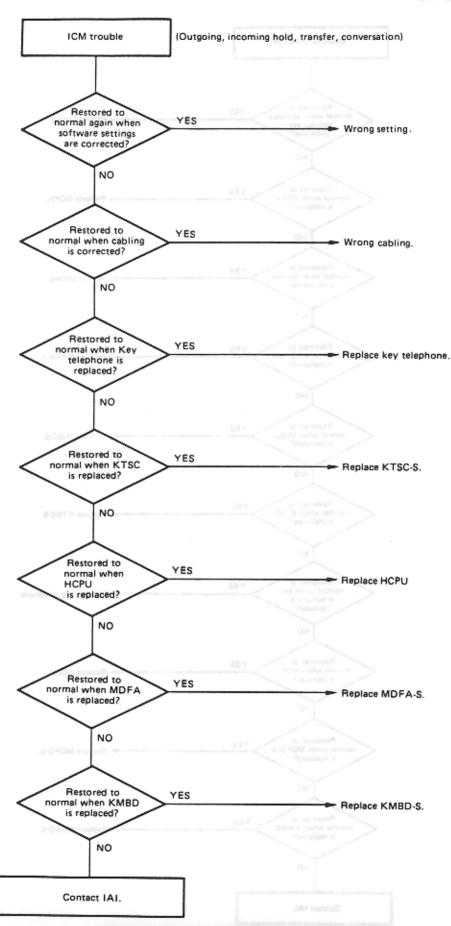


FIGURE 10-14 ICM TROUBLE

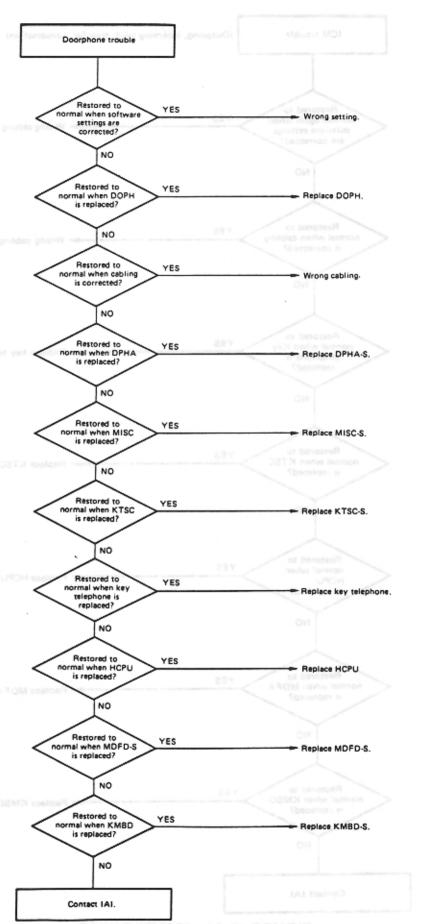


FIGURE 10-15 DOOR PHONE TROUBLE

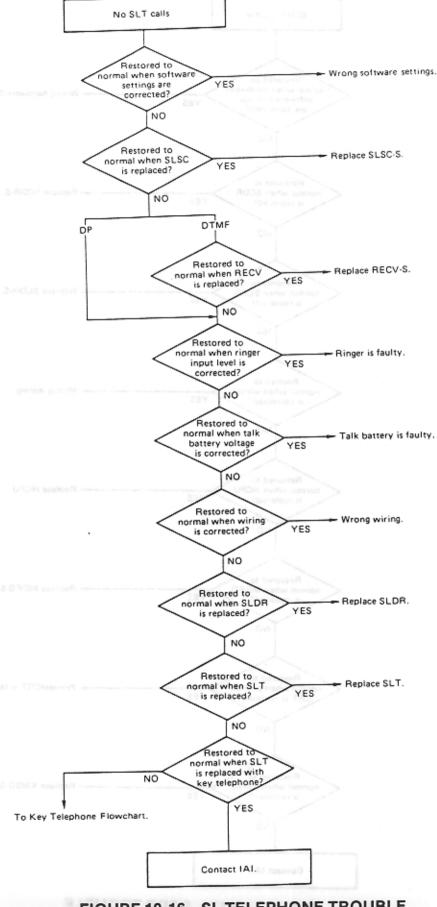


FIGURE 10-16 SL TELEPHONE TROUBLE

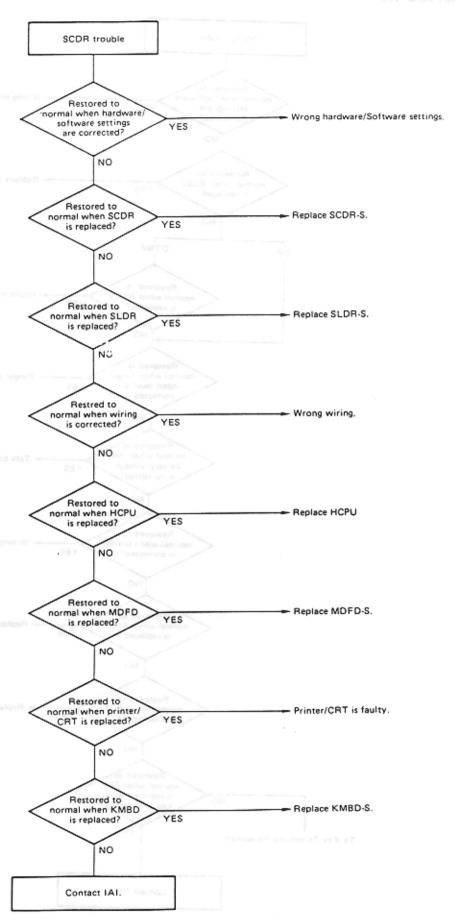


FIGURE 10-17 SCDR TROUBLE

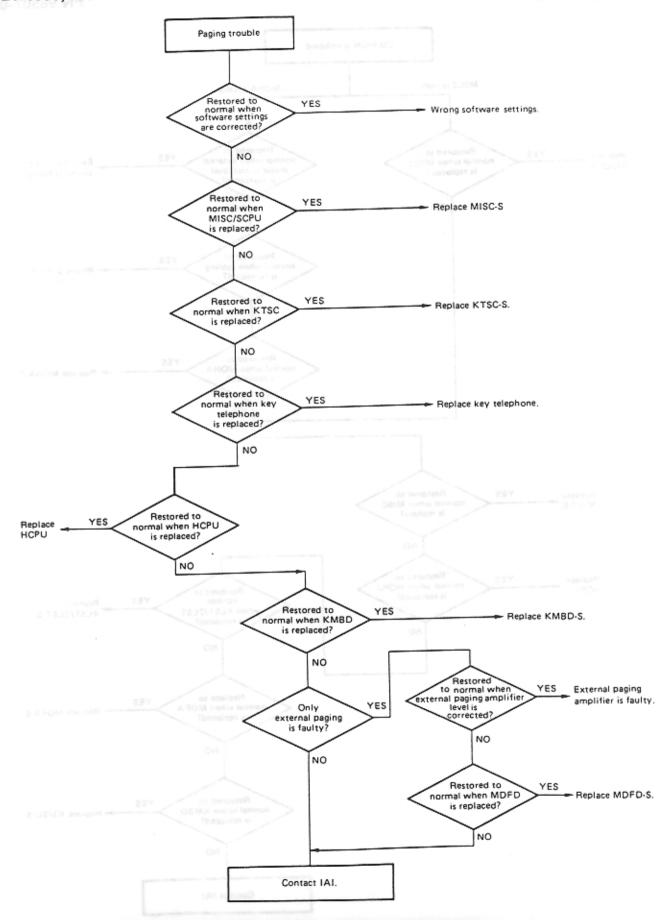


FIGURE 10-18 PAGING TROUBLE

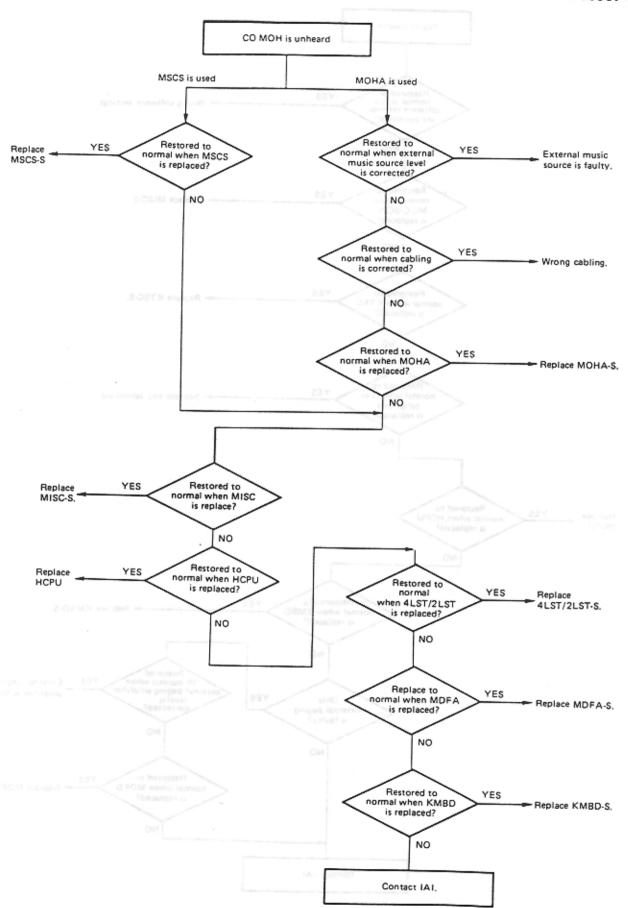


FIGURE 10-19 MOH TROUBLE

1400E 10-191010 I HOUBLE

# TABLE 10-A FAULT SYMPTOMS AND THEIR CAUSES

system down — PWS-S lamp is out.	Fuse blown by short-circuit.     PWS-S is faulty.	Check fuse,     Unload PWS-S, and check DC output voltage	
2. No incoming CO indication	4LST/2LST-S is faulty.	a. Replace 4LST/2LST-S.	
Outgoing CO calls (DP, DTMF) cannot be made.	4LST/2LST-S is faulty.	a. Replace 4LST/2LST-S.	
4. Power is not supplied to key telephones.	KTSC-S fuse blown by Shortcircuit.	a. Check fuse.	
Key telephone down but key telephone test mode check is OK.	KTSC-S is faulty.	a. Replace KTSC-S.	
6. Voice of opposite party cannot be heard.	Speech path is faulty. ICM call: KT, KTSC-S CO call: KT, KTSC-S, 4LST/2LST-S	a. Replace relevant circuit card.	
7. No tone is heard	Tone circuit is faulty.     TONE 1 to TONE3: MISC-S     BGM: MISC-S     MOH: MOHA-S/MSCS-S, MISC-S/     Chime: MISC-S, DPHA-S     Alarm: MISC-S	a. Replace relevant circuit card.	
8. Multiline conference cannot be achieved.	MISC-S is faulty.	a. Replace MISC-S.	
9. Doorphone calls cannot be made.	MISC-S or DPHA-S is faulty.	a. Replace MISC-S or DPHA-S.	
10. Relay operation is abnormal.	MISC-S or MDFD-S is faulty.	a. Replace MISC-S or MDFD-S.	
11. Clock runs fast or slow.	Clock circuit is faulty.	a. Replace HCPU	
12. SCDR date is abnormal.	HCPU or SCDR-S is faulty.	a. Replace HCPU or SCDR-S.	
13. Overrup error is frequently displayed.	HCPU is faulty.	a. Replace HCPU	
14. Deadlock error is frequently displayed.	HCPU is faulty.	a. Replace HCPU	
15. ROM or RAM error is displayed.	HCPU is faulty.	a. Replace HCPU	
<ol> <li>Software set data is erased when power goes off.</li> </ol>	Battery on HCPU is faulty.	a. Replace BFCB-S.	
<ol> <li>A key telephone is affected by high noise levels while user is speaking.</li> </ol>	One of the paired wires forming the speech path between key telephone and KTSC-S is broken.	a. Check wiring.	
<ol> <li>A key telephone shows wrong indica- tions on the LCD.</li> </ol>	One of the paired wires forming the data path between key telephone and KTSC-S is broken.	a. Checking wiring.	
<ol> <li>Key inputs on key telephone are not effective.</li> </ol>	Keys are faulty:     One key: Faulty contact     All keys: One of the keys remains depressed.	a. Replace keyboard.	
20. Auto dial erased when power goes off.	Key telephone battery is faulty.	a. Replace BFKB-S.	

#### TABLE 10-B FAULT SYMPTOMS AND INCORRECT HARDWARE SETTINGS

FAULT SYMPTOM	EXAMPLE OF INCORRECT SETTING	
1. CO voice is too faint.	4LST/2LST-S 3-dB pad is incorrectly set.	
2. Multiline conference howls.	4LST/2LST-S 3-dB pad is incorrectly set.	
3. Sidetone is too loud during conversation on CO line.	4LST/2LST-S 3-Db pad is incorrectly set.	
4. Software setting mode cannot be selected.	Password for dip switches on HCPU incorrectly set.	
5. Set software data is erased when power is turned off.	Memory initialization for dip switches on HCPU is incorrectly set.	
6. System fails when HCPU is replaced.	Resetting is necessary after memory initialization.	
7. Internal MOH gives different melody.	Wrong melody is set on MSCS-S circuit card.	
8. No. outgoing DP calls can be made from the SLT.	RECV-S circuit card is mounted on SLSC-S circuit card.	
9. No outgoing DTMF calls can be made from the SLT.	RECV-S circuit card is not mounted on SLSC-S circuit card.	
10. SCDR data cannot be output.	SW1, 2, 3, 4 on SCDR-S are incorrectly set.	
11. External speakerphone is faulty.	SET 2 is not disconnected on the KTSS-S/KTSD-S circuit card.	
12. Hard-of-hearing handset is faulty (Amplified High Volume)	SET 1 is not disconnected on the KTSS-S/KTSD-S circui card.	
13. Noise cancelling handset is faulty.	SET 3 on the KTSS-S/KTSD-S circuit card is not on side 1-2.	

### TABLE 10-C FAULT SYMPTOMS AND INCORRECT SOFTWARE SETTINGS

FAULT SYMPTOM	EXAMPLE OF WRONG SETTING
No outgoing CO calls can be made manually.	02 Station Type & Installation  03 Trunk Card Installation  06 Toll Restriction  22 Outgoing Restriction  23 Pick-Up Restriction  35 MF/DP Select  36 Dial Pulse Ratio  39 Dial 20 PPS Select  41 Toll Restriction Class  52 Built-in Speakerphone
No outgoing calls can be made by auto dialing.	14 Pause Timer
No multiline conference can be achieved.	Disconnect Signal Timer Automatic CO Release
Neither repeat nor redial is effective for PBX lines.	33 Predial
Alarm does not sound.	26 Alarm Ring Assignment 27 Alarm Night Ring Assignment 28 Alarm Assignment
Doorphone can not be accessed.	24 Doorphone Ringing Assignment 25 Doorphone Night Ringing Assignment
No group paging can be performed.	46 Group Page Access 47 Group Page Receive
No BGM is heard.	07 Back Ground Music
SCDR data indications are fautly.	08 SCDR Output Class

CABLE 10-C FAULT SYMPTOMS AND INCORRECT SOFTWARE SELLINGS

#### **TXX-616**

## ELECTRONIC KEY TELEPHONE SYSTEM APPENDIX A — ABRIDGED STATION FEATURE OPERATION

Alarm Assegnment

March   Marc							
Carl							
1   1   1   1   1   1   1   1   1   1							
March   Marc							
Telestrone   Control   C							
Company   Comp							
But   But							
But   But							
Application with   C   C   C   C   C   C   C   C   C							
Company   Comp							
C							
C							
1							
C   C   C   C   C   C   C   C   C   C							
						Acres de la companya del companya de la companya de la companya del companya de la companya de l	
The control of the							
The control of the							
Second   S							
1							
1							
C							
Section   Sect							
C							
C   C   C   C   C   C   C   C   C   C							
C   C   C   C   C   C   C   C   C   C							
C							
C							
C   C   C   C   C   C   C   C   C   C							
					<u> </u>		

#### TXX-616 KTS SYSTEM PRACTICE JULY 1986, ISS 1.0

DESCRIPTION	_	_	_	TELE	EPHOP	E TY	PE			CONDITION	OPERATION	
	_	ST		KB	K	KL		D	OP	CONDITION	OPERATION	REMARI
		0		0	0	0		0	0	idle or off-hook	0	
Operator		0								with talk	†1 O	
.,				0						with talk	FEAT 0	
					0	0		0	0	with talk	TRAN 0	
		0		0					T	idle or off-hook	1	
	$\Box$	T		$\top$	10	0		0	0	idle or of Fhook	PAGE	
Paging		0		1	$\top$		$\vdash$		1	with talk	11 [1]	
			$\vdash$	10	+	-			1	with talk	[FEAT] []	
		$\vdash$	+	+	10	10		0	6	with talk	PAGE	
		10	+	10	Tō	Ť	-	۲	<del>ا</del> ٽ	idle or off-hook	[23] 6-9]	
	$\vdash$	Ť	+	Ť	+~	6	-	6	0	idle or off-hook	[DES]	
	$\vdash$	0	+	+	+-	۲	-	۲	۲		11 [23] [0-9]	
ICM access	$\vdash$	屵	+	10	+-	-	$\vdash$	-	-	with talk		
	$\vdash$	-	-	┯	+~	$\vdash$	-	-	$\vdash$	with talk	FEAT   13   0~9	
	$\vdash$	-	$\vdash$	+	10	<del>  -</del>	-	-	-	with talk	TRAN [2] [0-9]	
	-	1		10	+	10	-	0	0	with talk	TRAN DSS	
	-	10	-	10	10	0	-	0	0	idle or off-hook	4	
Group Paging	-	0	-	+-	-	-	_	-	-	with CO talk	11 4	
	_	-	-	10	-	_	_			with CO talk	FEAT 4	
	_	_	_	_	10	0	_	0	0	with CO talk	TRAN 4	
Privacy release		_	_	10	-					with CO talk	FEAT 5	
					0	0		0	0	with CO talk	CNF	
Multiline				0						with CO talk	FEAT S LK	
Conference					0	0		0	0	with CO talk	CNF LK	
Trunk to Trunk				0						with Multiline Conference	FEAT [5]	
HUNK to HUNK					0	0		0	0	with Multiline Conference	CNF	
		0								with talk	1† [23] [0-4] 1†	
Add-on				10	$\vdash$		_			with talk	FEAT [23] [0-9] [5]	
Conference	$\vdash$		$\vdash$	Ť	6					with talk	TRAN [23] [0~9] [CNF	
	$\vdash$	_	-	+	۲	0		0	0	with talk		
	-	-	_	+	├	-	_	_	-			
DND Set/Reset	_	-	$\vdash$	╁	<del>  _</del>			_		idle	5	
	-	-	-	10	0	0		0	0	idle	DND	
Message Wait Sct/Reset	$\vdash$	0	-	10	0	0			0	with ICM Calling	6	
	-	_	_	+-	-			0	_	with ICM Calling	MSG	
Lnswering dessage Wait	_	0	_	10	0	0			0	idle or off-hook	6	
	_		_	-		$\Box$		0		idle or off-hook	MSG	
Absence dessage Set				0	0	0			0	idle	6 0 1-4 m m #	Note 1
nessage Set			_	_				0		idle	MSG 0 1~4 m m #	Note 1
Absence				0	0	0			0	idle	6 🗣	Except
lessage Reset								0		idle	MSC •	for STD
O line Pick-up		0								off-hook	5 1~6	
		0								with CO/ICM talk	¥† [7]	
all park				0						with CO/ICM talk	PEAT 7	Note 2
					0	0		0	0	with ICM talk	TRAN 7	
				0	1	-	_	Ť	-	with SYS-BT, CO-BT or CO-RBT	FEAT 7 (0-9 0-9)	
allback & Timed runk Queue	-			+-	0	0	-	$\dashv$	0	with SYS-BT, CO-BT or CO-RBT		No. 4
Dial) Set	-	-	_	-	H	~	-	$\overline{}$	~	CO-BT or CO-RBT with SYS-BT.		Note 3
	-	-		-	$\vdash$	_	_	0	_	with SYS-BT, CO-BT or CO-RBT	CALBAK ([0+4][0+4])	
allback &	_	_		0		_	_		_	idle or off-hook	7 •	
imed Trunk ueue Reset	_	_			0	의			0	idle or off-hook	7 •	
								0		idle or off-hook	CALBAK *	
			2,3	0~9	- Sta	tion N	io. (20	)~35)		(01 : return	time m = HHMM 78 = SUN , 84 = THU	
			0			sence	Messa	ee No	. (01~	04)		
				_				D- 1-0			nday m = day of week 66 = MON , 37 = FRI	

04 : time alarm m = HHMM

93 = WED

DESCRIPTION	N L			T			TYPE	_			CONDITION	OPERATION	REMARKS
DESCRIPTION		_	T		KΒ	_	KL	- 1	D	OP			
Call park Pick-u	. L		0		0	0					idle or off-hook	7 23 09	
							0		9	9	idle or off-hook	7 DSS	
Forward Set/Re	L		의		0			_	_	9	idle or off-hook	8	
rotwara set/ro						0	0		0	0	idle or off-hook	EWD .	
Forward Set		831	0	9	0	0 23	13.4	0		3.1	with ICM Calling	8 4 0 13 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Exchange	- 1	100		000	-	0	0	4	0	0	with ICM Calling	FWD	
System Hold			5	10	0	0	0	es 1	0	0	with CO talk	HOLD	
000	7. 1	and t	0	10	1 0		300	13	81	M	with talk	IT B	
Answer Hold & Split	ı	$\neg$	$\neg$		0						with talk	FEAT 8	
ac optit	- 1	7		$\neg$		0	0		0	0	with talk	FLSH	
	$\neg$	_	$\neg$		0			$\neg$	$\neg$		with CO talk	FEAT 8	
CO Flash	ı	$\rightarrow$				0	0	$\neg$	0	0	with CO talk	FLSH	
	-	$\neg$	ਰੀ		0	0	-	$\neg$			idle or off-hook	9 23 0-9	
Direct call Pick-	-up	$\rightarrow$	Ť		<del>-</del>		0	$\rightarrow$	न	0	idle or off-hook	le Desi	
	-	$\overline{}$	허	-			Ť	-	Ť	Ť	with CO talk	11 9 0-9#	
Account Code	ŀ	$\dashv$	~	-	0	$\vdash$		-	$\dashv$	-	with CO talk	FEAT 9 0-9 #	Except
Account Code	1	$\rightarrow$	-		-		$\overline{}$	-+	<del>,</del>	$\overline{}$	with CO talk	SPD * 0~9#	for STD
	_	-			_	0	9	+	4	9			
Override	1	-	의		0	0	0	$\rightarrow$	$\rightarrow$	_	with Busy Tone	OVER	Except for STD
		$\Box$			_	_		-	의	0	with Busy Tone		
1	월	$\perp$			0	_		-	_	_	idle or off-hook	0 000	
	Automatic				0	_		_	_		idle or off-hook	(FEAT) # 0-9	
Speed dial	3					0	0	_	0	0	idle or off-hook	SPD 0-4 0-4	
access	_										idle or off-hook	CO 1~6 FEAT @ 0~9 0~9	
	Select	П			0	Г					idle or off-hook	On FEAT * 0~9 0~9	
	20					0	0		0	0	idle or off-hook	COn SPD 0~9 0~9	
Tone/Voice					0	0	0		0	0	with ICM Calling	*	
		$\Box$			0						with CO talk	FEAT #	
Save dial		П				0	0		0	0	with CO talk	SPD #	
Repeat/Last No access (Automa	0			_	0	0	0	$\neg$	0	0	idle or off-hook	*	
access (Autom)	atic)		_		-	1	1	$\neg$			idle or off-hook	(CO) [1~6] FEAT #	
Repeat/Last No	о.	H		_	0	$\vdash$			$\neg$		idle or off-hook	COn FEAT #	
access (Select)		$\vdash$	-	_	Ť	10	0		0	0	idle or off-hook	COA SPD #	
	_		_	_	0	۲	Ŭ		Ť	Ť	idle	FEAT #	
B.G.M. Set/Reset		$\vdash$		-	۲	6	0	$\vdash$	0	0	idle	[ग्र.इस]	
	-	-		-	+	۲	1		$\stackrel{\smile}{-}$	5	idle	[NT]	Note 4
Set/Reset Night Assign		$\vdash$		-	-	┼	-	$\vdash$	_	-		(C) [1-6] [0-9] [0-9]	
CO access		$\vdash$		-	+	+-	-	$\vdash$		_	idle or off-hook		
		$\vdash$	_	_	10	10	0	$\vdash$	0	0	idle or off-hook		
Monitorphone		$\vdash$	<u> </u>	_	10	10	0		0	-	idle or off-hook	3 6 or 3 7	
Doorphone acc	cess			_	_	-	_			0	idle or off-hook	Door or Monitor	
Station Speed		$\sqcup$		_	0	_	_	$\square$		_	idle	FEAT FEAT # 9 0-9 1-6 0-9 0-9 FEAT #	
dial Set						0	0	$\sqcup$	0	0	idle	SD SD 9 64 64 64 65 55	
Auto dial acces	55						0		0	0	idle or off-hook	COn DSS	
Program Auto	dial						0		0	0	idle or off-hook	AUTO DSS -SPD 0-90-9 AUTO	
			0								with ICM Calling	11	
Dial Tone		$\Box$			0	T					with ICM Calling	FEAT	
Reorder		$\vdash$	-	-	۲	0	0		0	0	with ICM Calling	FLSH	
Set/Reset		$\vdash$			1	Ť	Ť	Н	0	Ť	idle	AUT ANS	
Auto Answerin	n.t.	$\vdash$	_	-	+	1	1	$\vdash$	Ť				
		Н			+	+	$\vdash$	$\vdash$					1
							1				1		

NOTE 1: NOTE 2: NOTE 3: NOTE 4:

Except for STD, STM not provided with 04. Type KB telephones can use the "call park" feature on ICM calls only.

# TXX-616 ELECTRONIC KEY TELEPHONE SYSTEM APPENDIX B — SYSTEM PROGRAM DATA BASE RECORD

#### DOTE: Received of an DSS key is departured.

	•				
•					

					TXX	-616	PLA	NNIN	G SH	EET								
						SYST	EM A	SSIGN	MENT									
Prog. No.	Prog. I	tem								Conten								
00	Time o	f day	(	) (	) H		) (	) M			iated w	hen FV	VD key	is dep	ressed.			
01	Date		(	) (	) M	_	) (	) D	(	) (	) Y							
	Day of	Week	(	) (	)	Note: SU	N(7)(	8), MON	V(6)(6)	, TUE	(8) (8),	WED(	9)(3),	THU(8	)(4), F	RI(3)(7	7), SAT	(7)(2)
02	Station Type	Station No. Type	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
			DSS20		_	_		_							_			
	(1) TXX-616D	The same of the sa	0	0		_		0	0	0	D	0	_	_	_	D	0	0
	(2) TXX-616D	EXEC.	0	D	_	0		0	0	0	0	0	D	0		D	0	0
	(3) TXX-616K		0		0	0		D	0	0	0	D	D	0	0			D
	(4) TXX-616KL	X-616KB  T-DP  T-MF  NOTE  Line No. 1  ard Installation YES 1  Message SET				0	0	0	0	0	0	0	0	0	0		Б	
	(5) TXX-616KB				0	0		D	0		0	D	D	0				D
	(6) SLT-DP				0	0	D	0	0		0	D	0	0	0	0	0	D
	(7) SLT-MF		0			0		0		0	D	D	0				0	
	<u> </u>		NOTE	; Rev	versed w	vhen D	SS key	is depi	essed.			,						
03	L		1	_	2	3	_	4			_6_	-						
	C.O. Card Install	ation				YES N		ES NO		- 1	ES NO	N	OTE.		ed who	n CO k	ey is	
			-		0 0	-		0 0	D	D	0 0			depres	ssed			——
04	L	Message	_	+	SET													- 1
	Misc Card Install	ation			NO D	NOT	ΓΕ: R	eversed	when -	#keyi	is depre	ssed.						
				•														

								T	(X-	6	ь	PL	.AI	AIN	IIN	IG	51	70	E	_					_	_		_	_				_	_
								_1	S	YS	TE	M	AS	SIC	GN!	ME	NT	- 1																
rog. No.	Prog	. Item						, in the	0							(	Con	ter			T					7			esi 1	and Or	5.1	ic i		1
05	Lat	CO. Line SPD.No.	1	2	3	4	5	6	1	Т	2	T	3	4		5		6	7		1 d	ata		10	T	11	1	12	1	3	14	1.	5	1
	11	#(0) (0)	0			0	0	0	(	)	(	) (	)	(	)	( )	) (	)	(	)	( )	(	)	(	)	(	) (		(	)	( )	(	)	(
17	c	#(0)(1)	0	0	0	0			(	)		1	7	(	)		(	)	(	)		(	)	(	)		)	( )	(	)		(	)	(
1	System	#(0) (2)	0	0	0		0	0	(	)	(	) (	)	(	)	(	) (	)	(	)	( )	(	)	(	)		) (	( )	(		()	C	)	(
	Speed	#(0) (3)	0	0		0	0	0	(	)	(	) (	)	(	)		) (	)	(	)	( )	(	)	(	)	(	) (	( )	(	)	( )	(	)	(
7	Dial	#(0) (4)			0	0	0	0	(	)	(	) (	)	(	)	(	) (	)	(	)	( )	(	)	(	)	(	)	( )	(	)	( )	(	)	(
		#(0) (5)			0	D	0	0	(	)	(	) (	)	(	)		) (	)	(	)	( )	(	)	(	)		) (	()	(	)	( )	(	)	(
	1101	#(0) (6)	0	0	0	0	0	0	(	)		1	)	(	)		1	)	(	)		1		(	)		) (	()	(	)	( )	(	)	7
	1601	#(0)(7)	0	0		0		0	(	)	(	) (	)	(	)	(	) (	)	(	)	( )	(	)	(	)	(	) (	( )	(	)	( )	(	)	(
	7:( ) (	#(0) (8)		0	0	0	0	0	(	)	(	) (	)	(	)	(	) (	)	(	)	( )	(	)	(	)	(	) (	( )	(	)	( )	(	)	(
	) ( ) (	#(0) (9)	0	0	0	0	0		(	)	(	) (	)	(	)		) (	)	(	)	( )	(	)	(	)	(	) (	( )	(	)	( )	(	)	(
	1 118	#(1)(0)	0	0				0	(	)	(	) (	)	(	)	(	) (	)	(	)	( )	(	)	(	)	(	)	( )	(	)	( )	(	)	(
	100	#(1)(1)				0	0	0	(	)		) (	)	(	)	(	) (	)	(	)	( )	(	)	(	)	(	)	( )	(	)	( )	(	)	(
	LT III	#(1)(2)	0	0	0	0	0	0	(	)	(	) (	)	(	)	(	) (	)	(	)	( )	(	)	(	)	(	)	( )	(	)	( )	(	)	(
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		#(1) (8)	0	0		0	0	0	(	)	(	) (	)	(	)	(	) (	)	(	)		1	)	(	T	(	)		(	)	( )	(	)	(
		#(1)(9)			0	0	0	0	(	)	(	) (	)	(	)	(	) (	)	(	)	( )	1	)	(	)	(	)	( )	(	)	( )	(	)	(
		#(2)(0)	0	0	0	0	0		(	)	(	) (	)	(	)	(	) (	)	(	)	( )	1	)	(	)	(	)	( )	(	)	()	(	)	7
	OR DE	#(2)(1)	0	0			0	0	(	)	(	) (	)	(	)	(	) (	)	(	)	( )	1	)	(	)	(	)	( )	(	)	( )	(	)	(
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NOTE: Select CO lines by CO keys. Regime the dates by dieling in

5 S	_	em										_								_	_		_						_	_				_
5 S	(	e m							11	S	YS	ГЕМ	A	SS	IGì	NM.	EN	T																
s	_	****							tenn								Co	nte	nt															
7		O Line					- Constant												D	ial	da	ta									_	_		_
7		SPD No.	1	2	3	4	5	6	1	1	2	3		4	5	7	6	à.	7	8	-	9	T	10	Ti	1	13	, T	13	L	4	15	T	1
7	1	#(4) (0)	0	0	0	0	0	0	(	1	1	( )	1	)	(	1	( )	1	1	(	1	(	1	-	10	1	1	1	( )	17	-	6	┧	7
7	ystem	#(4) (1)		0	0	0	0	0	(	) (	)	( )	10	)	(	1	( )	1	1	(	1	( )	1	( )	1	1	1	1	( )	17	÷	6	₩.	$\frac{1}{7}$
1	17	#(4) (2)	0	0	0	0	0	0	(	) (	)	()	10	)	(	)	( )	1	5	(	1	( )	) (		1	1	(	1		17	<del>'</del>	1	{{	7
1	Speed	#(4) (3)	0	0		0	0	0	(	) (	)	()	1	)	(	)	( )	1	)	(	í		1	( )	1	)	(	5		1	)	i	⇈	1
	Dist	#(4) (4)				0	0	0	(	) (	)	()	(	)	(	)	( )	(	)	(	)		) (		1	)	(	1		i	í	Ò	针	ì
	Dial	#(4) (5)	0			0	0	0	(	) (	)	()	(	)	(	) (	( )	(	)	(	)	( )	) (	( )	1	)	(	)	( )	1	)	Ì	źΙ	$\frac{1}{2}$
1	TIT	#(4) (6)	0	0		0		0	(	) (	)	()	(	)	(	) (	( )	(	)	(	)	( )	) (	( )	(	)	(	)	( )	10	)	Ì	jl.	ì
7	777	#(4) (7)		0	0	D	0	0	(	) (	)	()	(	)	(	) (	( )	(	)	(	)	( )	) (	( )	(	)	(	)		(	)	(	jt.	Ĉ
		#(4) (8)		0	0	0	0	0	(	) (	)	()	(	)	(	) (	()	(	)	(	)	( )	1		(	)	(	)	( )	1	)	(	)	Ī
		#(4) (9)	0	0	0	0	0	0	( )	) (	)	( )	(	)	(	) (	()	(	)	(	) (	( )	(	( )	(	)	(	)	( )	1	)	(	)	(
	111	#(5) (0)	-	0	0	0	0	0	(	1	)	( )	1	)	(	) (		(	)	(	) (	( )	1	)	(	)	(	)	( )	(	)	(	)	Ī
		#(5) (1) #(5) (2)	0	0	0		0	0	( )	) (	)	( )	1	)	(	) (	( )	(	)	(	) (	()	(	)	(	)	(	)	( )	(	)	(	)	(
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4	21	#(5) (4)	0	0	0	0	0	0	( )	110	7	( )	1	2	(	49	( )	(	2	(	) (	( )	1	)	(	)	(	) (	( )	1	)	(	)	(
4	1	#(5) (5)	-	0	0	0	0	0	( )	11	7	( )	15	4	(	219	)	(	21	(	210	( )	10	)	(	)	(	21	( )	10	)	(	)	(
	111	#(5) (6)	0	0	0	0	0	0	( )	17	7	( )	1	4	-	419		(	긴	(	119		15	)	(	7	(	219	( )	Ç	2	(	1	(
1	44	#(5) (7)	0	0	0	0	0	0	1	1	1		1	4	-	417	- /	1	7	(	4	( )	15	-	1	4	(	11	. )	Ľ	-41	(	4	(
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4-	10-1	#(6)(0)	_	0	0	0	0	0	( )	1	5	()	1	5	ì	<del>11</del>	5	1	5	0	11	3	1	5	1	3	7	11	3	1	-{	~	11	ž
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1		#(6)(3)	0	0	0		0	0	()	1	)	()	(	)	(	) (	)	(	)		) (		t	)	(	)	(	) (	)	ì	á	Ť	1	i
		#(6)(4)	0	0	0	0	0		()	(	)	( )	(	)	(	) (		(	)	( )	) (	)	(	)	(	)	(	) (		Ì	5	(	) (	į
1		#(6)(5)	0	0	0	0	0	0	()	(	)	( )	(	)	(	) (	)	(	)		) (	)	(	)	(	)	(	) (		(	7	(	1	į
		4-7 4-7					0	0	()	(		()	(	)	(	) (	)	(	)	()	) (	)	(	)	(	)	(	) (		(	)	(	1	Ĉ
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		#(6)(8)				0	0	0	()	(	)	( )	(	)	( )	) (	)	(	)	( )	) (	)	(	)	(	)	(	) (		(	)	(	0	ĺ
		#(6)(9)		0				0	()	(	)	( )	(	)		) (	)	(	)	( )	) (	)	(	)	(	)	(	) (	)	(	)	(	1	ĺ
		# (7) (0)		0	0	0	0		( )	1	)	( )	(	)		) (	)	(	)	( )	) (	)	(	)	(	)	(	) (	)	(	)	(	) (	ĺ
		# (7) (1)				0	0	0	( )	10	)	( )	(	)		) (	)	(	)	( )	) (	)	(	)	(	)	(	) (		(	)	(	1	(
		# (7) (2)	$\overline{}$	0	0	0	0	0	( )	1	)	( )	Ċ	)	( )	) (	)	(	)	( )	) (	)	(	)	(	)	(	) (	)	(	)		1	(
	/ H	# (7) (3) # (7) (4)	0	0	0	0	0	0	$\frac{()}{()}$	1	4	()	1	7	( )	110	)	(	7	( )	110	)	(	)	(	)	(	) (	)	(	21	(	110	<u>[</u>
		# (7) (5)	-	0	0	0	0		$\frac{()}{()}$	1	4		1	4	( )	110	)	(	7	( )	4		1	)	(	7	( .	) (	)	Ç	4	$\subseteq$	49	ļ
1	21 N E		0	0	0	0	0	0	$\frac{\Box}{\Box}$	1	1	-	1	1		11	,	-	4	$\sim$	44	~	1		-	4	-	49	~	5	긘	ب	49	Ļ
1		# (7) (7)	_	0	0	0	0		()	1	3		1	1		11	1	-	1	${}$	1	-	1	-	-	4	/	44	~	۶	覩	بع	45	÷
1		# (7) (8)		0	0	0	0		()	1	1		1	1		17	1	-	1	$\sim$	1	<del>'</del>	1	1	1	4	( ;	#	-	7	쉬	-	119	7
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1	I	#(8) (0)	0	0	0	0		0	()	1	1	( )	1	1			)				10	)	(	<del>'</del>		쉬	1	10		(			1	
1	[	#(8)(1)	0	0	0	0	0	0								17					- 13			)			~				쉬	~	#	ř
1		#(8)(2)	0	0	0			0	$\overrightarrow{()}$	1	5	( )	ì	5							16	_	-	_	_	쉬	(	117	<del>'</del>	1	쉬	-	110	F
		#(8)(3)			0	0	0		( )	(	)								-	$\overline{\Box}$	4	-	7		-	1	(	11	$\frac{1}{2}$	1	쉬	(	17	i
1		#(8)(4)		0		0	0	0	( )	(	)	( )		_	_	1	_	(	-		1	_	è	$\sim$	-	ál	•	-	<u> </u>		1	( )	17	Í
		#(8)(5)		0	0	0	_		( )	(	)		(	) (	_	1	Ó	-	-	Ö	_	<u> </u>		)	-	á		10	<u>,</u>	ì	í	$\ddot{c}$	10	÷
		#(8)(6)		0	0	0	0			-			(	) (	( )	(	)	(	) (		1	)	(	)	(	)	( )	1	<b></b>	(	)	$\overline{}$	1	7
	-	#(8)(7)		_			0		_	-	_			) (	( )	(	)		) (	. ,	(	)	(	)				) (			)		(	Ī
	1	#(8)(8) #(8)(9)	0	-	믕	0		0						) (				(	)	( )	(	)	(	)	(	)		1	)	(	)		(	-

Register speed dial numbers (00 to 89) by dialing in.

NOTE: Select CO lines by CO keys. Register dial datas by dialing in.

					TOLL	RESTRICTION	MOIT							
		0		0	Toll Control Code	rol Code	. 0	G			D	Dial Date	H	
	User	Deny	Allow	Allow Stop	Expand	Allow(T)	Allow st(T)	- 1	107	-	,	digit	4	4
		_	(5)	(3)	€.	(S)	9	6	(8)	1	7	3		0
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	(0) (2)			0 0	0	0	0	0	0		0	0	0	0
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Oser	(0) (4)		0 0		0	0	0	0	0	C	0	0	0	
	(6) (6)					0	0	0	0	0	0	0	0	C
Table	(9) (0)		0	0 0		0	0	0	0		0	0	C	
1100	_						0	0	0	0	0	0	C	0
+(1)#	(9) (9)				0	0	0	0	0	0	0	()	0	
Contra	(6) (6)	1	0		0	0	0	0	0	0	0	0	0	
			0		0	0	0	0	0	0	0	0		
	(3) (3)		0	0	0	0	0	0	0	0	0	0	0	_
	(1) (3)		0	0	0	0	0	0	0	0	0	0		J
	(1) (4)		0	0	0	0	0	0	0		0			4
	(3) (1)		-	0	0	0	0	٥	0	0	0	0	0	4
	(9) (1)		0	0	0	0	0	0	0	0	0	0		_
	(0) (1)		0	0	0	0	0	0	0	0	0	0	0	-
	(8) (1)		0	0	0	0	0	0	0		0			-
	(6) (1)		0	0	0	0	0	0	0	0	0	0		4
	000		0	0	0	0	0	0	0	0	0	0		_
	1/2)		0		0	0	0	G						
	(1) (0)	0	0	0	0	0	0	0	0		0	0		-
	(0) (0)		0	0	0	o	0	0	0			0		-
	(3) (3)	0	0	0	0	0	0	0	0					-
	(0) (4)		0	0	0	0	0	0	0					4
Heer	9		0	0	0	0	0	0	0.		0			-
	(9) (0)	0	0	0	0	0	0	0	0			0		-
Table			0	0	0	0	0	0	0					-
	1		0	0	0	0	0	0	0					-
#(2)-	_	1	0	0	0	0	0	0	0					-
	_		0	0	0	0	0	0	0					-
		1	0	0	0	0	0	0	0					-
Date		0 16	0	0	0	0	0	0						1
_	(3) (3)		0	0	0	0	0	0						-
06	(A) (B)		0	0	0	0	0	0	0	-				-
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60.00	(9) (1)	1	0	0	0	0	0	0	0	-				1
	000		-	0	0	0	0	0	o	-				_
	(8) (1)		0	0	0	0	0.101.0	0	0	<u>ب</u>				낟
	(6) (1)		-	0	0	0	0	0	0	<u> </u>		2		1
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						100								
-			0		0	Toll Control Code	trol Code	CHON	do			D	Dial Date	
Prog.	Csc		Deny	Allow	Allow Stop	Expand	Allow(T)	Allow st(T)					digit	
0.	Table		(1)	(2)	(3)	(4)	(5)	(9)	(1)	(8)	_	2		4 5
90		(E)	0	0	0	0	0	0	0	0		0	( )	0
_		(0) (2)	0	0	0	0	0	0	0	0	_	0	0	0
_	User	(0)		0	0	0	0	0	0	0		0	()	0
_		(9) (4)		0	0	0	0	0	0	0		( ) (	()	0
_	Table	(3)	0	0	0	0	0	0	0	0		() (	( )	
_		9 (0)		0	0	0	0	0	0	0	_	0	0	0
_	#(3)-	(0) (3)		0	0	0	0	0	0	0	_	0	0	0
		(0) (8)	0	0	0	0	0	0	0	0	_	0	0	
		(6) (0)		0	0	0	0	0	0	0	_	0	0	
1000		(1) (0)		0	0	0	0	0	0	0	_	0	( )	
		(1)(1)	0	0	0	0	0	0	0	0		0	0	
		(1) (2)	0	0	0	0	0	0	0	0	_	0	0	
		(1) (3)	0	0	0	0	0	0	0	0	_	0		
		(1) (4)	0	0	0	0	0	0	0	0	-			
		(1) (2)	0	0	0	0	0	0	0	0	-			
		(1) (9)	0	0	0	a	0	0	0	0	-		0	
		(3) (3)	0	0	0	0	0	0	0	0	-	0		
		(1) (8)	0	0	0	0	0	0	0	0		0		
		(1) (6)	0	0	0	0	0	0	0	0		0	0	
		(2) (0)	0	0	0	0	0	0	0	0		0	0	
		117 167	G	0	0	0	q	100						
		(1)(0)	0	0	0	0	0	0	0	0	0	0	0	0
		(0) (3)	0	0	0	0	0	0	0	0		0	0	
		(0) (3)	0	0	0	0	0	0	0	0		0	0	0
		(0) (4)	0	0	0	0	0	0	0	0	C	0	0	
_	User	(0) (2)	0	0	0	0	0	0	0	0		0	0	0
		(9) (0)	0	0	0	0	0	0	o	0	C	0	( )	0
	Table	(0)	0	0	0	0	0	0	0	0	Ü	0	( )	0
		(0) (8)	0	0	0	0		0	0	0	C	0	0	2
	#(4)-	(6) (0)	0	0	0	0	0	0	0	0	C	0	0	0
		(E)	0	0	0	0	0	0	0	0	0	0	0	0
100		(E)	0	0	0	0	0	0	0	0	0	0	0	0
		(1) (2)	0	0	0	0	0	0	0	0		0	0	0
_		(1) (3)	0	0	0	0	0	0	0	0		0	0	0
_		(1) (4)	0	0	0	0	0	0	0	0		0	0	
0,0		(1) (2)	0	0	0	0	0	0	0	0		0	0	
0	D.C	(1) (9)	0	0	0	0	0	0	0	0		0	0	
		(1) (2)	0	0	0	0	0	0	0	0	0	0	0	0
		(1) (8)	0	0	0	0	0	0	0	0	0	0	0	0
-		(1) (3)	0	0	0	0	0	0	0	0	0	0	0	0
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APPND. B-5

APPND. B-5

						TXX-616	PLAN	PLANNING SHEET						
		Rest	hotion			SYST	SYSTEM ASSIGNMENT	NMENT	0 0	0 0	0 0	0.0	0 0	40
Prog.	Prog. Item	decon						Content	0	0	0	0	0	
0. 0.2	B.G.M.	OFF	NO ITON	NOTE: Reversed when ≠ key is depressed	when ≠ k	ey is depres	pes	B.G.M. EXT.	NOTE: Reversed when # key is depressed	a # key is o	depressed	0 22	o g	9 %
+		+	21	23	24	25	26	4_					34	
<u>8</u>	SCDR EXT No.	NO OUT NO	OUT NO	ž o	일 ㅁ	NO OUT	NO OUT	NO OUT N	NO OUT NO OUT	NO OUT	NO OUT	NO OUT		0000
	8	100	2.0	NO I	OUT NO	4 0 OUT	NO OUT	T NO OUT	NOTE: Reversed when DSS or CO key is depressed	hen DSS o	or CO key	is depress	po	0 3
	Toll				SET		0	NOTE: Reversed	Reversed when dial key 8 (T) is depressed	pressed				
	only	~	RESET		SET	18		MOTE. Deserted	Decreed when dial key 6 (O) is depressed	passad	E	8 2	X	2
	Coine		0	A COLUMN	0				to familian man manual					1
_	Account	8	RESET		SET	0	To de	NOTE: Reversed	NOTE: Reversed when dial key 2 (A) is depressed	pressed				
	Over			Time		0	0							
_	Duration		^	( )		min	0 4	NOTE: Dial in	NOTE: Dial in figures in parentheses					a e
-	Calling		Voice			Tone	0 0	NOTE: Revers	NOTE: Reversed when # key is depressed	pa	000	0 0	0	
+		N private a	0.000	1.8 x	No.	8	- 1	Titalian	86	08		2		2
1						IIMER	ASSI	Assignment 1						
10	Flash Time	NOTE: SI	. (	( )	qual box	sec	Today di v	Claum-O-120	200					
=	Disconnect			( )		sec	0 0	=0.7sec	00					
12	Hold		•	0	p	min	0 0	=2.0min	NOTE	NOTE : Dial in figures in parentheses	ures in par	entheses		
13	Camp on Time		^	0		ose 0	0 0	=20sec	00	0 0	010			
14	Pause Time	)	ſ	^ )	WIT YOU	sec	2	=05sec	7					
15	Trunk		•	<u> </u>		mim		=05min	To make to					

Prog. No. 20																		
20 °6.				RINGING	વ્ય	PICK-UP		ASSIGNMENT	TENT									
02	Prog. Item		0000				=05m2			Content	tent							
_	Direct	TRK No.	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
_		-	0	۵	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Inward Line	2	0	0	0	0	0	0	0	0	o	0	0	0	0	0	0	0
_	TIMEN TIME	3	0	0	0	0	0	0	0	0	0	0	0	0	o	0	0	0
+		4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
_		5	0	0	0	0	o	0	0	0	0	0	0	0	٥	0	0	О
+		9	0	0	0	0	0	0	0	0	0	0	0	-	0	٥	۵	0
NO	NOTE: Select TRK No. with	CO key, a	ress DS.	S key t	o select	a telep	hone f	for ring	ging.									
21		EXT No.	. 20	21	22	23	24	25	26	27	28	29	30	31	32	33	35	35
F	Night Ringing	TRK No.			c	-			-			0	0	0	0	0	0	0
	Accionment	,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P
-	A STATE OF THE STA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		4	0	0	0	o	0	0	0	0	0	0	0	0	0	0	-	
		8	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	Đ
		9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO	NOTE: Select TRK No. with C	CO key, and depress DSS key to select a telephone for ringing.	ss DSS	key to	selects	teleph	one fo	r ringi	1g.	8 J. J. S. S. A.	8	quipue	bota					
22	Outcoing	TRK No.	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
-	Outgoing	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Restriction	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	o	0
S.		003 N	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
+		4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3		0 2	0	0	0 0	0 0	0	0	0 6	0 6		0	-	0 6	0	0	5	3 5
	OLE IN ORL NO OFF.	9			,		,	1									0	
0N	NOTE: Select a trunk No. with CO key, and then depress DSS key to register a station outgoing restriction.	ith CO key, and the	n depre	ss DSS	key to	registe	r a stat	tion on	tgoing	restric	tion.	~		12	6		1	
23	TI ON NOTE	TRK No.	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
-	Pick-up	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2
	1		0	0	0	0	0	0	0	0	0	0	0	٥	0	0	0	0
	Restriction		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		4	0	0	0	0	0	0	0	0	٥	0	0	٥	0	0	0	0
_		5	0	0	0	0	0	0	0	0	0	0	o	0	0	0	0	0
		9	0	0	o	0	0	0	0	0	0	0	0	0	0	0	0	0

Prog Item	-	TA THE PROPERTY OF THE PARTY OF																	11
Prog Item   EXT No. 20		The same of the sa	18K	i.		RINGI	NG AS	SSIGNA	MENT				3		7 100				
Firefine   FXT No. 20   21   22   23   24   25   27   28   29   30   31   32   33   34     Ringing Assignment Assignment Note: Depress # key to select telephone for tinging Assignment Assignment Street Spaces   Speaker   Spe	90	Prog Item									Cont	ent							
Note: Depress # key to select telephone   CFT Note: Depress	5 4		EXT No.	20	21	22	23	24	25	56	27	28	29	30	31	32	33	34	35
Note: Depress # key to switch doorplone   Cart Note: Depress BS key to select telephone   Cart Note: Depress BS key to selec		oorphone Rineine	Door 1	0	0	0	0	0	0	0	0	٥	0	0	0	0	0	0	
Note: Depress # key to switch doorphone	1.000	Assign	Door 2	0	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0
Door 1   Door 2   Door 2   Door 2   Door 3   Door 3   Door 3   Door 4   Door 4   Door 5   Door 6   Door 6   Door 6   Door 7   Door 8   Door 7   Door 8   Door 7   Door 8   Door 7   Door 8   Door 9   D	100	lumoting N.	EXT No.	20	21	22	23	24	25	56	27	28	29	30	31	32	33	34	35
Note: Depress # key to switch doorphone   Over to doorphone   Orest of		Doorphone Night	Door 1	0	0	0	0	D	0	0	0	0	_	0	0	0	0	_	
Note: Depress # key to switch doomphone I over to doomphone 2 or vice versa. Depress DSS key to select telephone for ringing.    Alarm   Ringing   Assignment		Ringing Assignment	Door 2	0	0	0	0	0	0	a	0	0	0	0	0	0	0	0	0
Alarm   Alarm   Assignment	9	100	EXT No.	20	21	22	23	24	25	56	27	28	29	30	31	32	33	34	35
Alarm         Assignment         O		ing ssignr		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Alarm  Alarm  External  Speaker  Speaker	-	Alarm Night Ringing Assignment	Backers of the same	0	0	0	D	0-	0	0	0	D .	0	0	0	0	0	0	0
Alarm External  Speaker  Speaker		Depress DSS	key to select tel	phone	for rin	ging.													
Se Exerces compagnition (1) CO	00	Alarm External Speaker		OFF	NO 0	Z	OTE:	Rever	sed who	en # ke	y is de	pressed							
		No. Extension consigning																	

			Ž	TXX-616	LAN	UNG	PLANNING SHEET			
			OU	OUT SIDE LINE	LINE	ASSIGNMENT	MENT			
Prog. No.	Prog. Item							Content	ent	
30		TRK	TRK No.	-	7		4	s	9	NOTE: Sets/resets when CO key
	External Loud Kinger	Ξ		0	0	0	0	0	0	is depressed. Relay
		(2)	-	0	0	0	0	n	0	selected by dialing in.
		(3)	0	0	0	0	0	0	0	
10.0		(4)		0	0	0	0	0	0	
31		TRK No.	No.	-	2	3	4	S		NOTE: Sets/resets when CO
	Night Ringer			۵.	0	0	0	0	-	key is depressed.
32		TRK No.	·o	-	7	9	4	S	T	NOTE: Sets/resets when CO key
	Original C. O. Group		-	0	0	0	0	0	0	is depressed.
33	Por School School	TRK	TRK No.	-	2	6	4	S	9	Dial data
N N		0	-	0	0	0	0	0	0	
		Ξ		0	0	0	0	0	0	
		(2)		0	0	0	0	0	0	
Š	P.B.X. Predial	(3)		-	0	0	0	0	0	
		(4)		0	0	0	0	0	0	
		(5)		0	0	0	0	0	0	
		(9)		0	0	0	0	0	0	
		9		0	0	0	0	0	0	
Ī		(8)		0	0	0	0	0	0	
		(6)		0	0	0 1	0	0	0	
		NO	NOTE: S	sts/rese	ts when	CO key	Sets/resets when CO key is depressed	ed.		
0.00			<u>.</u>	redial d	igits ar	e set by c	Predial digits are set by dialing in.			
34	Optional	TRK No.	No.	1	2	3	4	S	9	NOTE: When CO key is depressed,
	Ringing Tone	Door 1	-	0	0	0	0	0	0 0	Option → Standard or Standard → Option (Lamp ON)
35	METER Sales	TRK No.	7	4	2	3	4	5	9	
Č	Mr/Dr Select	1 1600	MF D	DP MF	å o	MF DP	MF DP	MF DP	MF DP	NOTE: When CO key is depressed MF→ DP or DP → MF.
36								70	8	NOTE: When # key is depressed,
	DP ratio		39% 3	33%		0.000		8	land	39% → 33% or 33% → 39%.
37	Automatic	TRK No.	-	0.10	2	3	4	2	9	NOTE: Set/reset when CO key is
	CO Release		٥		0	0	0	0	0	denreced

				××	919	PLAN	TXX-616 PLANNING SHEET	SHE	ET			
				TUO	SIDE	LINE	OUT SIDE LINE ASSIGNMENT	SNMEN	17			
	Prog Item	Act No 2 st P	7 5	0 Q.	0 %	0 1	0.2	0.5	Con	Content	9	240 ASL 2 2 J ST 015
3		TRK No.	-	2	3	4	s	9	NOTE: S	et/reset when	NOTE: Set/reset when CO key is depressed.	essed.
	Automatic Line Transfer	Forward	0	0	0	0	0	0	P -	To change forward depress FWD key.	ard line or outg	To change forward line or outgoing auto dial digits, depress FWD key.
		Outgoing	0		0	0	0	0	S AGE IN A	0 87	3 0	000 100 000
ā.		Auto dial	-	2	3	4	S	9	7 8	9 10	11 12	13 14 15 16
		digit	-	0	0	0	0	0	$\bigcirc$			
100				OTE:	Dial fig	gures in	parent	theses.	Input pause	data by depre	NOTE: Dial figures in parentheses. Input pause data by depressing PAUSE key.	ey.
L	Trick.	TRYNO				6	8	-	4	S	9	NOTE:
	20PPS Select	OL WAT	10PPS	20PPS	10PPS	20PPS	10PPS	20PPS	10PPS 20PP	S 10PPS 20PPS	10PPS 20PPS 10PPS 20PPS 10PPS 20PPS 10PPS 20PPS 10PPS 20PPS	CO key is de- pressed.

1			0	UT SID	E LINE	OUT SIDE LINE ASSIGNMENT	NMENT								
Prog.	Prog. Item							٥	Content					i	
o S		EXTNO	20 21	122	23	24	25 2	26 27	28	59	30	31	Н	$\vdash$	34 35
	Automatic Answer	H	+	+	0	0	0	0	0	0	0	0	0	0	
+		TRK No. 1	~	0	0	0		-	2						-
		2 (	ب م												-
_	Toll Restriction class	m 4						-		2	0		0	0	_
_		5	-				0	~	0	0	0	0	0		
		9	-	0	0	0	0	~	0		0				
			OTE:	Enter re	striction	NOTE: Enter restriction class numbers (0 to 9) in parentheses.	mbers ((	) to 9) i	n parent	heses.					
			class	0 = No 1 = Bas	class 0 = No + restrict 1 = Basic data	N. C.		6 = 7	6 = Basic + User2 & 3 7 = Basic + User1, 2 & 3	User2 & User1, 2	ر بور بور				
+				2 = Bas 3 = Bas	2 = Basic + User1 3 = Basic + User2	11 12		00 O	8 = Basic + User4 9 = Basic + User1, 2, 3 & 4	User4 User1, 2	3 & 4				
				4 = Ba: 5 = Bas	4 = Basic + User1 & 2 5 = Basic + User3	rl & 2 r3								3	
										So not u	se class	numbe:	Do not use class numbers 8 and 9 if O.C.C. is used. Basic data: 0/1 control (For America)	y if O.v	<u>ر</u> ز

								TXX-616	1 1	PLANNING	Ž		SHEET	13				-							
								STAT	STATION	CLASS		ASSIGNMENT	MEN	_											
Prog.		Prog. Item	E												Content	tent									
42				Ω	Ext No.	20	Н	21	22	23	24	25	F	26	27	78	29	30	-	12	33	33	-	t	1
					20	0	-	0	0	0	ū	0	H	0	0	0	-		-	10	3 0	3 0	5 0	+	3
				_1	21	0	_	0	0	0	U	0		0	0	0	0		+	-	0		3 6	1	
	6			_	22	0	_	0	0	0	0	0	-	-	0	0	0	10	H		0	1	1	1	0
	Secretarial				23		-	0	0	0	n	0	H	_	0	0	-	0	ŀ		0 0	1		+	0 0
				_	24	0	_	_	0	0	0	0		0	0	0	-		+			1	1	+	
	HOI TINE			_	25	0,	7	0	0	0	0	0	-	0	-	0		-	1		0	0	10		
				1	26		-		0	0	0	0		0	0	0	0	0	L	1	0		) 0	+	0 0
					17		4		0	0	0	0	_	0	0	0	0	0	$\vdash$	-	-	0	1 0	+	0 0
					28	0	4	1	0	П	0	0	Н	0	0	0	0	0	0	-	0	0		+	
					57		4		0	0		0		0	0	0	0	0	H	-	0	0	10	+	1-
					2		0		0	0		0	-		ò		٥		-	-	-	0	0	+	
					3		-		0	0	0	0		0	0	۵	0	0		-	0	0	-	+	0
					70			+		0	0	0	+		0	0	0	0	-	-	_	0	ľ	H	0
					55	D		+	0	0	0		-		0	_	0		-	-	0	0	0	H	
				$\perp$	\$ 5		7	1		0	0		0		0	0	0	0	Ľ	H	0	0	0	+	1
					3	2	4				0		-			o	0		_	-	0	0		H	
						ž	NOTE:	Up t	to two	can be	e regis	can be registered for each	for ea		station.	Reg	Register opposite station by depressing DSS	pposit	e stat	ion by	/ dep	ressin	SQ a	key.	١.
43	Ext No.	20	21		22	23		24	25	L	26	27	F	28	29	H	98	=	L	33	33	H	22	L	30
ε.	Speed Dial Restriction	No Yes No Y	No Y	S O	o Yes	No Yes	žO	Yes	No Ye	S <sub>0</sub>	o č.	No Y	S o	Yes	So.	S o	Yes	. >-	S o	Yes	No.	Yes	o Yes	ž	, Ke
4	Speed Dial Toll Restriction	No Yes	No.	Yes No	o Yes	No Yes	Š o	Yes	No Yes	2° □	Yes	No Yes	S o	Yes	No Yes	S o	Yes	No Yes	Š o	Yes	S <sub>0</sub>	y Yes	o Yes	ž	Yes
45	Paging denial	No Yes No		S o	o Yes	No Yes	S o	Yes	No Ye	\$ a	, c	No Yes	ž	Yes	S <sub>0</sub>	° c	Yes	No Yes	S.O	Yes	No Y	Yes	o Yes	°2 □	Yes a
46	Group page Restriction	No Yes No Y	No Yes	S o	o Yes	No Yes	S <sub>0</sub>	Yes	No Yes	χ° ο	۲ دو ت	No Yes	S <sub>O</sub>	Yes	No Yes	S O	Yes	No Yes	2º	√es □	No Y	S o	o Yes	2° □	Yes
47	Group page Receive	No Yes No	>4 I	S o	- š	No Y	S O	Yes	No Ye	- S -	Yes	No Yes	o 2 □	Yes	No Y	S o	Yes	No Yes	° ₽ □	Yes	No Y	Yes No	yes	2°	Yes
									1		-	-	-	1	l	ł		l	-	1	I	$\mathbf{I}$			7

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