ZT-S 616 TECHNICAL MANUAL

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IWATSU AMERICA, INC.

430 COMMERCE BOULEVARD
CARLSTADT, NEW JERSEY 07072

IAI PART NO.
081820

ZT-S 516 TECHNICAL MANUAL

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IWATSU AMERICA, INC.

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MI PART NO

00-0000

SECTION 1 INTRODUCTION

1.0 INTRODUCTION

This guide describes installation and programming procedures for the ZT-S 616 Electronic Key Telephone System. Please read this manual carefully before attempting to install or program the ZT-S System.

FCC RULES AND REGULATIONS

The ZT-S Electronic Key Telephone system is registered according to the FCC Regulations, according to Part 68, as a fully-protected key telephone system. The following information shall be supplied to the local telephone operating company when requesting service to terminate lines to the ZT-S system.

Model ..... IWATSU OMEGA-PHONE IV, ZS-616
FCC Registration No. BD6USA-61651-KF-E
DOC Certification NO. ... 577 3703 A

CO LINE INTERFACE
Ringer Equivalence No. 0.4A/0.8B
Service Order Code 9.0F
Network Addressing Signalling Code .... E
Registered Connection: RJ11C

All of the ZT-S key telephones are provided with hearing aid compatible handsets. The FCC rules prohibit the use of non-hearing aid compatible equipment in the following applications:

*Any public or semi-public location where coin operated or credit card telephones are located.

*Elevators, highways, tunnels, automobile, subway or pedestrian walkways where a person with impaired hearing might be isolated in an emergency.

*Places where telephones are specifically installed to alert emergency authorities such as fire, police or medical assistance personnel.

*Hospital rooms, residential health care facilities, convalescent homes and prisons, specifically where telephones are used for signalling life-threatening or emergency situations is alternative signalling methods are not available.

* Work stations 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.)

Single line telephones used on the system for emergency back-up purposes are also subject to FCC rules regarding the hearing impaired. Refer to the model and type of telephone used as to their eligibility.

A card is provided with each KSU detailing FCC requirements for user rights and responsibilities when connecting public telephone company lines to customer provided equipment. This card should be presented to the user and explained in accordance with FCC, Part 68, regulations.

2.0 PREINSTALLATION AND SITE PREPARATION

Before installing the ZT-S 616 Electronic Key Telephone System, you should inspect the installation site and follow the guidelines in this section to prepare for system installation. By following these simple guidelines, you can assure easy and trouble-free system installation.

2.1 ZT-S SYSTEM COMPONENTS

2.1.1 KEY SERVICE UNIT

MODEL: ZS-616 KSU
ORDER NO: 080010

The Key Service Unit, or KSU, is the heart of the ZT-S System. This cabinet functions as the "brain" of the system, processing calls and features, and controlling communications between all internal telephones, and between internal phones and outside lines.

The Key Service Unit contains the following main equipment:

a. ZT-S MAIN CONTROL UNIT (ZS-MAIN)
This is the printed circuit board which contains the system memory and controls all system functions. This unit includes interfaces to connect 3 outside lines and 8 extensions to the system. This board also contains an interface to connect a single line telephone for power failure transfer of outside line 1, an interface for the Facsimile Adaptor Unit (ZS-FAXU), and a phono jack to connect a device such as an FM tuner, for music on hold.

b. ZT-S POWER SUPPLY (ZS-PWSA)
The ZT-S requires a 120 volt AC commercial power supply for system operation. This unit converts the AC power from a standard three prong electrical outlet to power for controlling system operation.

c. ZT-S SOFTWARE PACKAGE (ZS-PKGA)
This case contains the system control software and must be plugged into the ZS-MAIN for the system to operate.

d. MEMORY BACK-UP BATTERY
This lithium battery must be installed in the KSU to protect the system memory in the event the power is turned off. The battery life is approximately 10 years, under continuous operating conditions.

2.1.2 OPTIONAL SYSTEM EQUIPMENT

a. ZT-S EXPANSION UNIT

MODEL: ZS-EXPU
ORDER NO: 080310

To expand the ZT-S system to the full capacity of 6 outside lines and 16 extensions, this unit must be installed in the KSU. This unit contains interfaces for another 3 outside lines and 8 extensions.

b. ZT-S FACSIMILE ADAPTOR

MODEL: ZS-FAXU
ORDER NO: 080410

This unit allows you to connect a facsimile machine to the ZT-S system so that one outside line can be used for facsimile transmissions and can also be used for outgoing phone calls, when the facsimile is not in use.

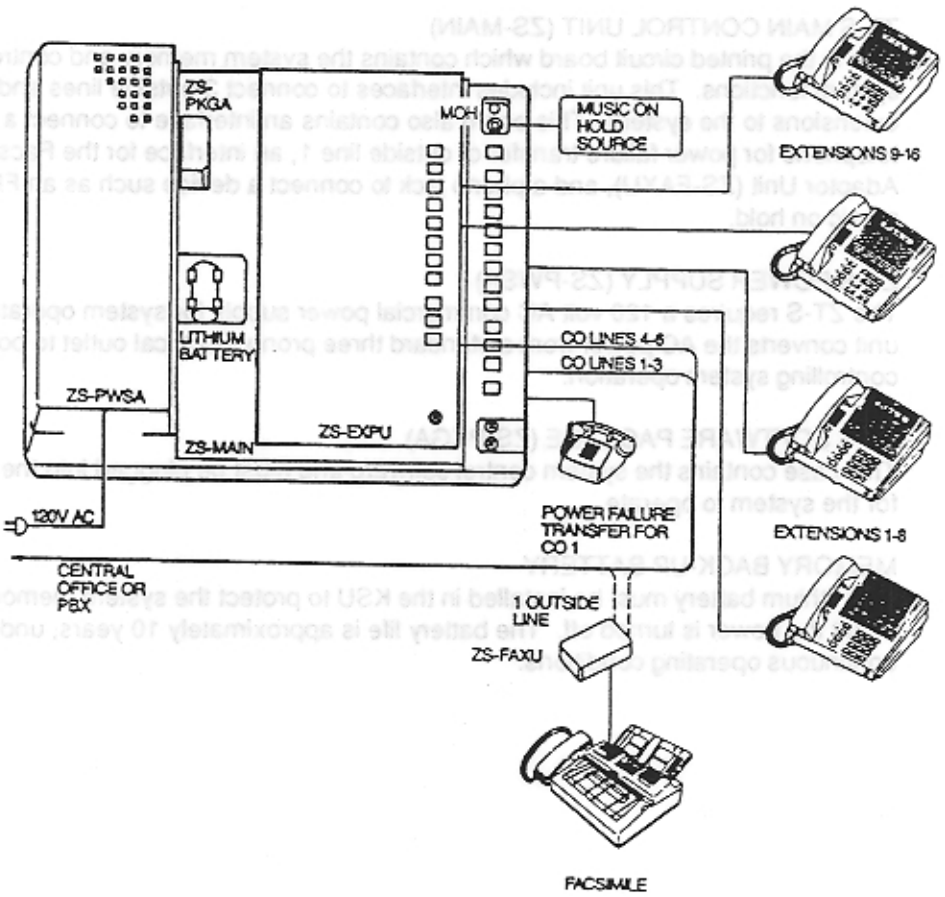


FIGURE 2-1 ZT-S SYSTEM COMPONENTS

2.1.3 ZT-S TELEPHONES

ZT-S telephones have "keys", or buttons, that allow you to directly pick up any outside line, call any extension, or use many helpful features at the touch of a button. Two models are available, display telephones, and telephones without display. The features and operation of both models are identical.

a. ZT-S Display Telephones

MODEL: ZS-6KTD
ORDER NO: 080910

ZT-S display telephones have 6 outside line buttons, with red lamps (LEDs) which indicate the status of each outside line. The telephones also include ten feature buttons with red lamp indicators, and sixteen buttons which can be used for either one touch calling to another extension (Direct Station Selection), or one touch dialing of personal speed dial numbers (Auto Dial). There are two additional buttons which are preassigned for auto dialing System Speed Dial Numbers 00 and 01. The display is a sixteen character liquid crystal display (LCD), with adjustable contrast control. The display shows the following information:

-Clock and calendar
-Dialed number
-Calling extension/called extension number
-Call duration

b. ZT-S Telephones Without Display

MODEL: ZS-6KTS
ORDER NO:080810

Non-display telephones have all of the same features and operations, but do not have the liquid crystal display.

Figures 2 and 3 show the ZT-S telephone models. Refer to Section 10 ZT-S 616 Features and Specifications for more information on features, or to the ZT-S Owner's Manual for detailed telephone features and operation information.

FIGURE 2-2 ZT-S DISPLAY TELEPHONE

FIGURE 2-3 ZT-S TELEPHONE WITHOUT DISPLAY

2.1.4 TELEPHONE OPTIONAL EQUIPMENT

The following optional equipment can be added to the ZT-S telephones.

a. **Built-In Speakerphone Unit**

MODEL: SSPU-Z1
ORDER NO: 075010

The speakerphone unit can be installed in the ZT-S telephone to allow full handsfree operation. This means that you can converse on outside calls using the telephone microphone and speaker, without lifting the telephone receiver. This unit can be used in either ZT-S or ZT-D telephones to add full handsfree operation.

If the telephone is not equipped with this unit, you can only answer an incoming intercom call through the microphone without using the receiver (refer to the ZT-S Owner's Manual, ICM Handsfree Answerback Feature).

b. **Station Noise Cancelling Handset**

MODEL: IX-SNHD
ORDER NO: 105410

This optional receiver cancels out background noise, and amplifies the receiving level, enabling comfortable conversation in noisy environments. This receiver is hearing aid compatible.

c. **Long Handset Cord**

MODEL: IX-HSCD
ORDER NO: 107340

This long cord can be used in place of the standard receiver cord. The cord is dark gray and approximately 16 feet long when stretched to the maximum length.

d. **Station Pedestal/Wall Mount Kit**

MODEL: IX-STPD
ORDER NO: 105210

The IX-STPD is used to mount the telephone on a wall, or to raise the angle of the telephone, for more convenient operation.

e. **Heavy Duty Handset Hanger**

MODEL: IX-HSHG
ORDER NO: 107410

This hanger can be used in place of the standard hanger to provide better support to the receiver when the telephone is wall mounted.

2.2 ENVIRONMENTAL AND STRUCTURAL CONSIDERATIONS

It is important that the installation site meets the environmental conditions specified in this section for system installation. The environment must be free of moisture, fumes, dust and vibration for reliable operation of the Key Service Unit (KSU) and telephones. Any deviation from the recommended environment may affect the proper operation of the ZT-S system.

Make sure that the environmental requirements meet those listed in Table 2-A before the system is installed.

TABLE 2-A
ENVIRONMENTAL REQUIREMENTS

Operating temperature	32 to 104 F (0 to 35 degrees C)
Storage temperature	14 to 122 F (-10 to 50 degrees C)
Relative humidity	10 to 90%
Static discharge	10 KV or less
Electromagnetic Interference	0.3 V/ft. or less
Ventilation	1 inch or more above and to the sides of KSU
Heat Dissipation	380 BTU
AC Input Voltage	120 Volts AC ± 10%, 50-60 Hz

For detailed system specifications, refer to Section 5, ZT-S 616 Features and Specifications.

2.3 KEY SERVICE UNIT (KSU) LOCATION

The KSU is a cabinet which can be hung on the wall or placed on a shelf. It should NEVER be placed on the floor. Make sure the location where the KSU is to be installed conforms to the following requirements:

1. The temperature never drops below 32$F, or rises above 104$F.

2. The relative humidity is always within 10% to 90%, noncondensing.

3. There is a standard 3 prong outlet within 5 feet of the KSU. The KSU requires AC power to operate the system. The outlet must be a single phase, 120 Volt AC, 60Hz, 15 Ampere grounded outlet. This outlet must be used exclusively for the ZT-S KSU; no other equipment may be plugged into the same outlet.

4. The KSU is within 25 feet of the network interface provided by the local telephone company, or the cross connect serving that area of the building.

5. There are no objects less than 1 inch away from the KSU that can block the ventilation holes and impede air circulation. NEVER place any objects on top of the KSU or covering the vents.

6. There is sufficient space to install any necessary peripheral equipment near the KSU.

7. All electrical equipment, radios, appliances, etc. are at least 10 feet away from the KSU.

CAUTION: DO NOT PLACE THE KSU IN THE FOLLOWING AREAS:

- On the floor.
- Near a sprinkler system, sweating pipes, steam pipes, or steam vents.
- In an extremely hot or cold area.
- In direct sunlight.
- In a passageway or hallway used for moving equipment.
- In an area where there may be exhaust fumes or corrosive fumes from machinery.
- In any area where there is a high power radio frequency transmitter or transmission cable.

The KSU includes a battery to protect the system memory in the event of an AC power loss. There is also a connection provided for an industry standard single line telephone, so that in the event of a power failure, you can still make and receive outside calls on the first outside line connected to the ZT-S system, using a single line telephone.

If your area suffers from frequent power outages or "brown-outs", which affect system operation, consult your authorized IWATSU dealer for more information.

2.4 AC POWER AND GROUNDING REQUIREMENTS

For problem-free operation of the ZT-S system, clean power and proper grounding of the KSU are required.

The customer must provide a dedicated single-phase, 120 volt AC, 60Hz, 15 ampere grounded outlet. This circuit should conform to the National Electrical Code (NEC) and deliver noise-free power to the KSU. Line noise in the form of electromagnetic interference (EMI) or radio frequency interference (RFI) may cause erratic system operation. Typical problems associated with these types of interference include system lock-up, calls dropping in the middle of a conversation, phantom ringing, and erroneous LED and LCD information.

To reduce the possibility of interference and protect the ZT-S system:

- Install a computer grade AC line stabilizer if the line voltage fluctuates beyond specified range for AC input shown in Table 2-A.
- Install an uninterrupted power supply (UPS) to maintain proper system power if blackouts occur often.
- Use a dedicated circuit with an isolated ground.
- Do not place the KSU near high-powered or heavy-duty RFI, EMI, or inductive devices.
- Install an effective earth ground on the KSU.

AC POWER TESTING

a. Prior to installing the ZT-S KSU, check the customer site for the following conditions:

- During daily working hours:
  Frequency of black-outs
  Frequency of brown-outs
- If any other computerized equipment is in use:
  Existence of any operational problems
  Power line running
  Use of an AC power stabilizer and quality
- Whether any heavy duty machines are used
- Neighboring businesses

b. Using available testing equipment:

- With multimeter at AC voltage setting, check:
  Lowest line voltage -- usually during peak business hours
  Highest line voltage -- usually during off-business hours
  Fluctuating line voltage -- when a heavy duty machine such as air conditioner or heater is turned on or off.
- If a line monitor is available:
  Record the line condition at least for a week at the outlet where the KSU is to be connected.

2.5 EMERGENCY BACK-UPS

There are three (3) types of emergency back-up methods available for the ZT-S system. The back-up systems consist of the following:

Standard lithium battery back-up for the customer database on the Main Control Unit (ZS-MAIN) in the KSU.

Direct transfer of the outside line connected to CO 1 to an industry standard single line telephone (SLT) operation during a power failure.

Total system backup using an uninterrupted power supply (UPS) to maintain complete system operation during power failures.

2.5.1 LITHIUM BATTERY FOR DATABASE BACKUP

A lithium battery is provided with the KSU to protect the system memory in the event of an AC power loss. This battery plugs into a connector on the ZS-MAIN board. The battery life is approximately 10 years, under continuous operating conditions. This battery only preserves the system memory during a power failure; the ZT-S system will not be operational. The battery is unplugged from the card when shipped, to avoid unnecessary discharge.

For more information on battery connection, refer to 3.1 KSU Installation.

2.5.2 POWER FAILURE TRANSFER

A connection for power failure transfer of Outside Line 1 (CO1) to an industry standard single line telephone is provided as standard equipment. By connecting a single line telephone to the PFSLT connector on the KSU, all calls on Outside Line 1 will be switched directly to the single line telephone in the event of an AC power loss.

For more information on connecting a power failure transfer single line telephone, refer to 3.4 Optional Equipment Installation.

2.5.3 UNINTERRUPTED POWER SUPPLY (UPS)

In areas where black-outs or brown-outs frequently occur, a commercially available UPS may be connected to the ZT-S system to enable full system operation during an AC power loss.

For information on UPS connection, refer to 3.5 Optional Equipment Installation.

2.6 SAFETY PRECAUTIONS

In order to ensure trouble free system operation, observe the following precautions when installing the ZT-S System.

2.6.1 RADIO FREQUENCY INTERFERENCE

The ZT-S System is an electronic device, and like other electronic appliances, is subject to radio interference. Both the KSU and telephones should never be installed in any area where there is a high power radio frequency transmitter or transmission cable.

2.6.2 STATIC DISCHARGE

All electronic components in the ZT-S System, especially printed circuit boards, can be damaged by static electricity. Be sure to discharge static electricity before handling any components, by either touching a grounded metal surface immediately before handling any components, or by wearing a static protection wrist strap with a ground lead whenever working on the ZT-S System.

Regardless of the method used to discharge static electricity, you should be careful to avoid touching any of the components on the card. When handling printed circuit boards, make sure to hold them by non-conductive areas, such as the edges of the card. Also, do not place cards on plastic or carpet, since these surfaces can carry an electrostatic charge which will damage the card.

Never stack printed circuit boards directly on top of each other, and do not place them on a metal surface. Printed circuit boards removed from a live system may carry electrical charges in the capacitors which may damage other components, and should be handled carefully.

2.7 SYSTEM PLANNING

This section provides basic guidelines for system planning. Once you have checked the site location to make sure it meets the environmental requirements and have tested the AC power source, verify the required hardware based on the customer's needs using the following information.

2.7.1 KEY SERVICE UNIT (KSU)

The KSU contains the main control unit (ZS-MAIN), a power supply (ZS-PWSA), the control software package (ZS-PKGA), and the memory backup battery as standard equipment. The Expansion Unit (ZS-EXPU) is the only optional equipment which can be added to the KSU, if more than 3 outside lines or more than 8 telephones are to be connected to the system.

TABLE 2-B KSU COMPONENT REQUIREMENTS

Outside Lines and Extension	Equipment Required
1 to 3 outside lines	Key Service Unit only
4 to 6 outside lines	KSU + ZS-EXPU
1 to 8 telephones	Key Service Unit only
9 to 16 telephones	KSU + ZS-EXPU

2.7.2 OPTIONAL EQUIPMENT

If the following optional features are desired, the following equipment must be added to the system.

TABLE 2-C OPTIONAL EQUIPMENT REQUIREMENTS

Feature	ZT-S System Optional Equipment Required	Customer Supplied Equipment Required
Facsimile Interface	ZS-Facsimile Adaptor Unit (ZS-FAXU)	Facsimile transceiver
Music On Hold	None	Music source, such as an FM tuner
Power Failure Transfer of Outside Line 1	None	Single line telephone*
External Paging	Requires one outside line interface (this reduces the maximum number of outside lines to 5).	Paging amplifier with external talk battery supplied to the ZT-S.
Complete System Operation During Power Failure	None	Uninterrupted Power Supply Unit (UPS)

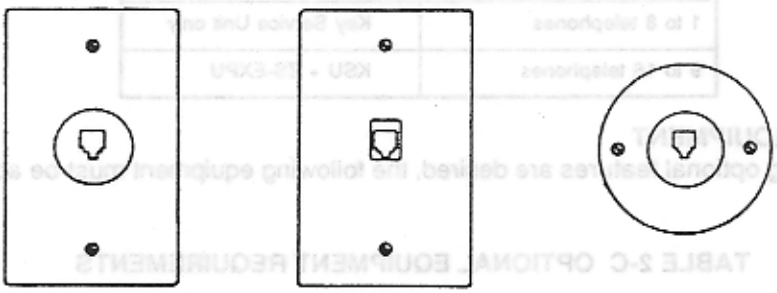
*The single line telephone used for power failure transfer of Outside Line 1 can be either dial pulse or dual tone multifrequency (DTMF), but it must be the same dial type as that programmed for Outside Line 1 (Class 8, Item 5 Type of Dial Signalling). For example, if Outside Line 1 uses DTMF address signalling, a DTMF single line telephone must be connected to the PFSLT connector.

2.8 BASIC WIRING INFORMATION

This section provides basic information regarding outside line and telephone wiring.

2.8.1 TELEPHONE LINES (OUTSIDE LINES)

The telephone company lines are usually terminated to either modular jacks or quick terminals as illustrated in Figure 2-4. In some older installations, lines may be terminated to screw terminal blocks as well. The ZT-S System requires RJ11C type terminations. Each line from the telephone company uses two wires; these wires are color coded. There are generally two types of color coding used, depending upon the supplier. Wiring for each RJ11C jack and wire color coding are shown in Table 2-D. In most installations, the telephone company provides the RJ11C interface for each outside line (central office line) connection.



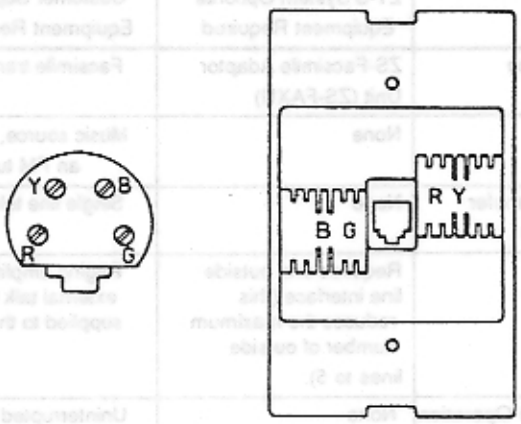
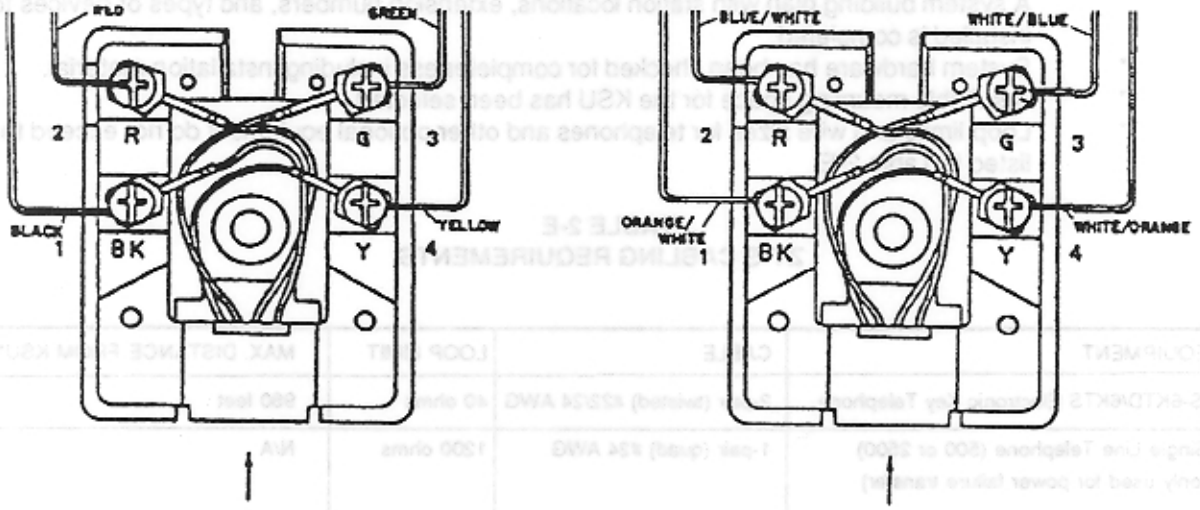


FIGURE 2-4 TYPES OF RJ11C LINE TERMINATIONS

TABLE 2-D CONVENTIONAL RJ11C JACK WIRING

Outside Line Nos.	Jack Pin No.*	Jack Wire Color	Lead Designation	Conventional Wire (Quad)	Commercial Wire
RJ11C Nos. 1 to 6 (one for each outside line)	3	Green	T1	Green	White-Blue
	2	Red	R1	Red	Blue-White
	4	Yellow	T2**	Yellow	White-Orange
	1	Black	D2**	Black	Orange-White

*Pin numbers may vary, depending on the manufacturer.
**These leads are not used when connecting central office lines to the ZT-S System.



a. Residential b. Commercial

FIGURE 2-5 CABLE CONNECTIONS

Each outside line has two conductors. The first wire (green) is called the Tip line and the second (red) is called the Ring line. The telephone wires are carrying electrical current (alive) at all times. The Ring line normally provides -48 volts respective to the Tip line, or ground, when the line is not in use. You must be careful not to touch these wires during installation. The ring line also provides a high voltage signal for ring indication. The signal appears anytime the telephone number of that outside line is called. This signal can have a voltage as high as 100V, high enough to give a shock and be dangerous. Work with properly insulated tools to avoid any possible risk of electrical shock while working on the lines.

2.8.2 TELEPHONE MODULAR JACKS

The ZT-S system requires four conductor modular jacks to connect ZT-S telephones to the system. Figure 2-5 shows typical modular jacks used for ZT-S telephone connection. Refer to 3.4.2 Telephone Cabling, for detailed information on telephone wiring.

2.8.3 TELEPHONE EXTENSION WIRING

Two pair twisted cables must be used to connect ZT-S telephones to the ZT-S System. A wire size between 24AWG and 22AWG size wires must be used to connect outside lines or extensions to the ZT-S System. 24AWG is recommended. Be sure to use well twisted pair wires to prevent noise interference on the lines. The total distance from the KSU and the maximum loop resistance must not exceed the specifications in Table 2-E. Shielded cable is not required, unless cables are run through areas where there is possible radio interference.

2.8.4 GENERAL CABLING REQUIREMENTS

Before terminating any cables to the system, verify the following information:

- All system planning sheets have been completed.
- A system building plan with station locations, extension numbers, and types of devices to be installed is completed.
- System hardware has been checked for completeness including installation material.
- A suitable mounting space for the KSU has been selected.
- Loop limits and wire sizes for telephones and other optional equipment do not exceed the limits listed in Table 2-E.

TABLE 2-E
ZT-S CABLING REQUIREMENTS

EQUIPMENT	CABLE	LOOP LIMIT	MAX. DISTANCE FROM KSU*
ZS-6KTD/6KTS Electronic Key Telephone	2-pair (twisted) #22/24 AWG	40 ohms	980 feet
Single Line Telephone (500 or 2500) (only used for power failure transfer)	1-pair (quad) #24 AWG	1200 ohms	N/A

*Distances are based on #24 AWG cable.

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SECTION 3 INSTALLATION PROCEDURES

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3.0 INSTALLATION PROCEDURES

Once you have performed all of the preinstallation checks outlined in Section 2, Preinstallation and Site Preparation, you can proceed to install the ZT-S System, according to the procedures in this section.

3.1 KEY SERVICE UNIT (KSU) INSTALLATION

The KSU is shipped with the Main Control Unit (ZS-MAIN) and the power supply (ZS-PWSA) already installed in a factory sealed portion of the cabinet. The basic Key Service Unit provides 3 outside line interfaces and 8 extension interfaces, as well as interfaces for optional equipment.

The basic system capacity can be expanded to six outside lines and sixteen expansions, using the Expansion Unit (ZS-EXPU). The Expansion Unit Card (ZS-EXPBD) contains interfaces for an additional 3 outside lines and 8 extensions.

The Expansion Unit can be installed on the inside front cover, if an additional 3 outside lines or 8 extensions are desired. Refer to 3.2 Expansion Unit Installation, for detailed installation procedures.

3.1.1 UNPACKING

Table 3-A lists the components which are included with the KSU. When you unpack the unit, check to make sure these items are provided, and that there is no damage to the equipment or accessories.

TABLE 3-A KEY SERVICE UNIT COMPONENTS

Unit	Item	Quantity
ZS-616 KSU	ZT-S Key Service Unit	1
	ZS-PKGA Software Package	1
	Lithium Battery	1
	Grounding Wire	1
	Owner's Manual	1

3.1.2 KSU WALL MOUNTING

The KSU cabinet can either be placed on a shelf or mounted on a wall. To wall mount the KSU, a flat surface of at least 19 inches in width and 17 inches in height that can support the weight of the KSU (10lbs.) is required. Use three No. 10, 1-inch panhead selftapping wood or sheet metal screws to wall mount the KSU, according to the procedure shown in Figure 3-1.

To wall mount the KSU:

1. Remove the two screws that secure the outside front cover of the KSU, and remove the outside front cover.
2. Using a level, mark an 18 inch horizontal line on the wall surface on which the KSU is to be mounted.
3. Drill two holes, each exactly 5 inches from the center of the horizontal line, that is, exactly 10 inches apart from each other. Insert and tighten two wood screws, leaving a 1/8" to 3/16" gap between the screw heads and the wall surface.
4. Mount the KSU on the two screws. The screws should fit into the two key hole mounting slots in the back of the KSU.
5. Insert the third screw into the mounting slots located at the bottom center of the inside front cover of the KSU, below the slot for connector CN1. Insert the screw through the KSU and into the wall surface.
6. Reattach the outside front cover.

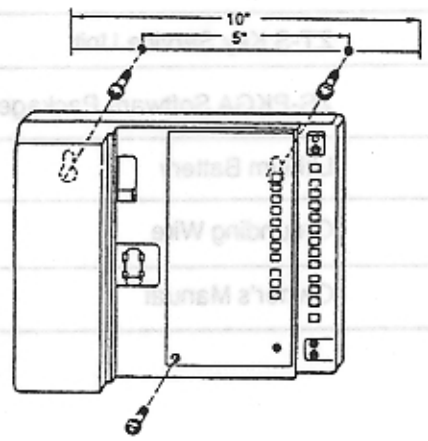


FIGURE 3-1 KSU WALL MOUNTING

3.1.3 KSU DISTRIBUTION POINTS AND MOUNTING SLOTS

When the outside front cover of the KSU is removed, you can see the slots for interfaces for outside lines, extensions, external music source, facsimile adaptor and a single line telephone for power failure transfer of outside line 1.

Slots for mounting the system software package and memory back-up battery are provided on the left side of the cabinet, directly to the right of the power supply area.

Refer to 3.1.7 ZT-S Main Control Unit (ZS-MAIN) Description and 3.2 Expansion Unit (ZS-EXPU) Installation for detailed nformation regarding interfaces in the ZT-S KSU.

Figure 3-2 shows a ZT-616 KSU with the outside front cover removed to show the major components and slot locations.

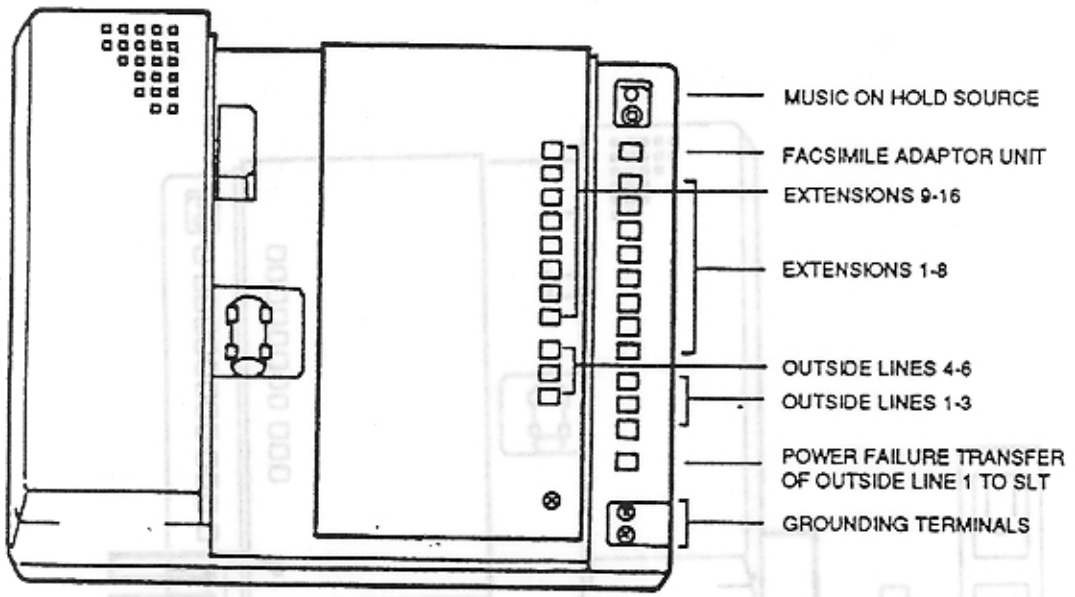


FIGURE 3-2 ZT-S KSU INTERNAL VIEW

3.1.4 GROUNDING

The KSU must be properly grounded to ensure trouble-free system operation. By bonding the KSU to an earth ground, the KSU and power supply will be protected from external interference, primarily lightning surges in the telephone lines, static discharge, and radio frequency interference.

The grounding conductor must be run from the ground terminal FG1 on the KSU to an effective earth ground as described in Article 250 of the National Electrical Code. The grounding conductors should be a minimum of AWG 14 or larger wire. The insulation should be green or green-and-yellow striped. Use crimp terminals for all stranded wire.

Figure 3-3 shows the recommended method for terminating the ground on the KSU.

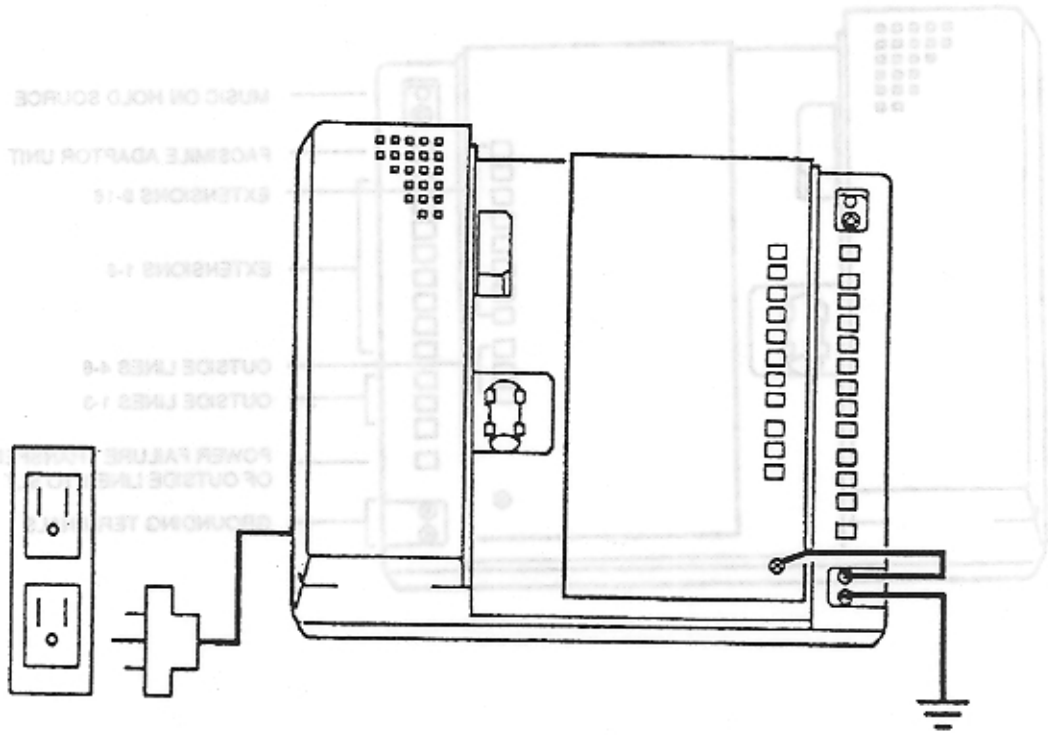
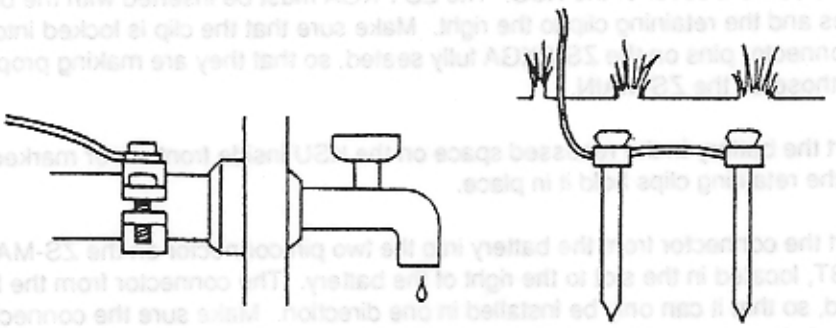


FIGURE 3-3 GROUND TERMINATION

To ground the KSU:

1. Connect one end of the grounding wire provided with the KSU to screw terminal FG1 on the bottom right side of the KSU.

2. Connect the other end of the grounding wire to a suitable ground point, such as a cold water pipe, or a grounding rod. Typical grounding procedures are shown in Figure 3-4.



a. Metal Cold Water Pipe **b. Copper Ground Rod**

FIGURE 3-4 SAMPLE GROUND POINTS

If installing the Expansion Unit (ZS-EXPU), continue to Steps 3 and 4.

3. If the ZS-EXPU is installed in the KSU, connect one end of the grounding wire provided with the unit to terminal FG2 on the ZS-EXPU.

4. Connect the other end of the grounding wire to terminal FG2 on the bottom right side of the KSU.

If the Facsimile Adaptor Unit is used, this unit must also be grounded. Refer to 3.5 Optional Equipment Installation, for detailed grounding information.

It is important to connect the grounding wires from each unit to separate ground points. If the grounding wires are bound together at any point instead of being run separately, their common impedance will make the grounding less effective.

3.1.5 INSTALLATION OF KSU ACCESSORIES

The ZS-MAIN Card and the ZS-PWSA power supply are factory installed, so there should be no need to remove the inside front cover of the KSU during installation. The only items requiring installation in the KSU are the ZS-PKGA software package and the memory back up battery. Before installing these items, **make sure that the AC power cable is unplugged, so the power to the KSU is off.**

After making sure that the power to the KSU is off, install these items according to the following procedure.

1. Loosen the two screws that secure the outside front cover of the KSU, and remove the cover.

2. Install the ZS-PKGA by plugging the connector into the slot marked SOFTWARE PACKAGE on the inside front cover of the KSU. The ZS-PKGA must be inserted with the beveled edges and the retaining clip to the right. Make sure that the clip is locked into place, with all connector pins on the ZS-PKGA fully seated, so that they are making proper contact with those on the ZS-MAIN.

3. Insert the battery in the recessed space on the KSU inside front cover marked BATTERY, so that the retaining clips hold it in place.

4. Insert the connector from the battery into the two pin connector on the ZS-MAIN marked CN-BT, located in the slot to the right of the battery. The connector from the battery is keyed, so that it can only be installed in one direction. Make sure the connector is securely inserted, so that the clips on the connector snap into place.

5. When installation is completed, replace the outside front cover. Make sure that all cables are routed through the cutout at the top of the KSU, so that they are not pinched between the covers.

NOTE: ALWAYS MAKE SURE THAT THE POWER TO THE KSU IS OFF BEFORE INSERTING OR REMOVING THE ZS-PKGA. ONCE DATABASE PROGRAMMING IS PERFORMED, THE BATTERY SHOULD BE LEFT PLUGGED IN AT ALL TIMES IN ORDER TO RETAIN THE SYSTEM MEMORY. IF THE BATTERY IS LEFT UNPLUGGED AND THE SYSTEM LOSES POWER, ALL OF THE USER DATABASE WILL BE LOST.

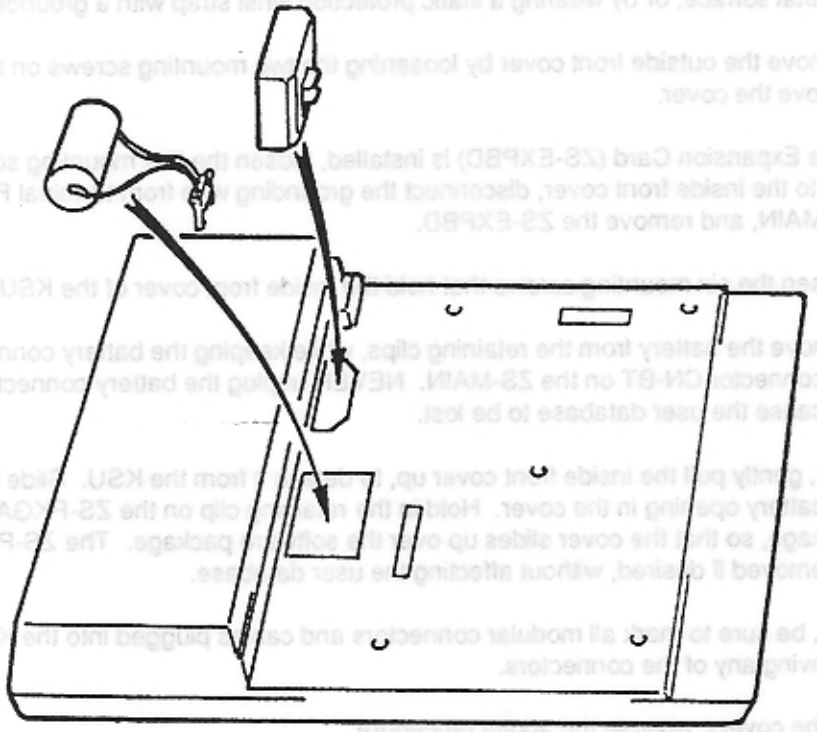


FIGURE 3-5 KSU ACCESSORY INSTALLATION

3.1.6 ACCESSING THE ZS-MAIN AND ZS-PWSA

The ZS-MAIN and the ZS-PWSA are factory installed in the KSU, and there should be no need to open up the inside front cover of the KSU to access these units under normal operating conditions. However, if it becomes necessary to access either of these units (for example, to replace fuses), make sure the power to the KSU is off, then follow the procedure outlined below. Before touching any components, be sure to discharge any static electricity by holding a grounded metal surface, or by wearing a static protection wrist strap with a grounded lead.

1. Remove the outside front cover by loosening the two mounting screws on the right side, then remove the cover.

2. If the Expansion Card (ZS-EXPBD) is installed, loosen the five mounting screws that attach the unit to the inside front cover, disconnect the grounding wire from terminal FG2 on the ZS-MAIN, and remove the ZS-EXPBD.

3. Loosen the six mounting screws that hold the inside front cover of the KSU in place.

4. Remove the battery from the retaining clips, while keeping the battery connector plugged into the connector CN-BT on the ZS-MAIN. NEVER unplug the battery connector, since this will cause the user database to be lost.

5. Now, gently pull the inside front cover up, to detach it from the KSU. Slide the battery through the battery opening in the cover. Hold in the retaining clip on the ZS-PKGA Software Package, so that the cover slides up over the software package. The ZS-PKGA can also be removed if desired, without affecting the user database.

   Also, be sure to mark all modular connectors and cables plugged into the KSU, before removing any of the connectors.

To reattach the covers, reverse the above procedure.

NOTE: ALWAYS MAKE SURE TO RECONNECT ALL COMPONENTS AND CONNECTORS TO THEIR ORIGINAL POSITIONS BEFORE TURNING THE POWER TO THE KSU BACK ON.

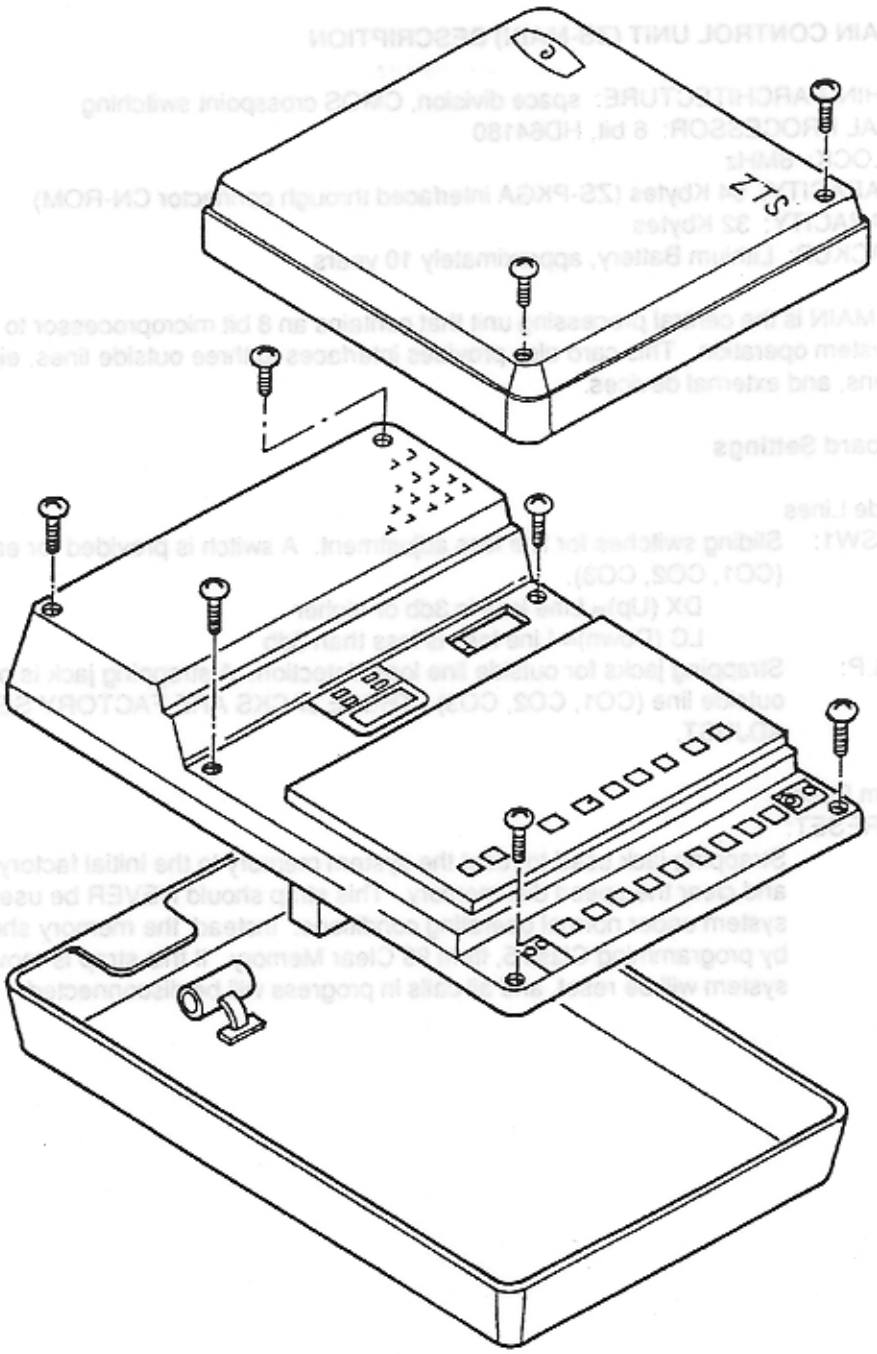


FIGURE 3-6 ACCESSING THE ZS-MAIN AND ZS-PWSA

3.1.7 ZT-S MAIN CONTROL UNIT (ZS-MAIN) DESCRIPTION

SWITCHING ARCHITECTURE: space division, CMOS crosspoint switching
CENTRAL PROCESSOR: 8 bit, HD64180
CPU CLOCK: 8MHz
ROM CAPACITY: 64 Kbytes (ZS-PKGA interfaced through connector CN-ROM)
RAM CAPACITY: 32 Kbytes
RAM BACKUP: Lithium Battery, approximately 10 years

The ZS-MAIN is the central processing unit that contains an 8 bit microprocessor to control the entire system operation. This card also provides interfaces to three outside lines, eight extensions, and external devices.

a. On Board Settings

1. Outside Lines

SW1: Sliding switches for line loss adjustment. A switch is provided for each outside line (CO1, CO2, CO3).

DX (Up)= Line loss is 3db or higher
LC (Down)= Line loss is less than 3db

LP: Strapping jacks for outside line loop detection. A strapping jack is provided for each outside line (CO1, CO2, CO3). THESE JACKS ARE FACTORY SET, DO NOT ADJUST.

2. System Reset

RESET:

Strapping jack used to reset the system memory to the initial factory set values and clear the speed dial memory. This strap should NEVER be used to reset the system under normal operating conditions. Instead, the memory should be reset by programming Class 5, Item 99 Clear Memory. If this strap is moved, the system will be reset, and all calls in progress will be disconnected.

b. Indicators

D11: Red LEDs indicating status of each outside line (CO1, CO2, CO3)
On= Line is in use or on hold
Off= Line is not in use or in ringing state

D201: Green LED for ZS-MAIN + 5V DC voltage indicator
On= +5V DC normal output
Off= no +5V DC output*

*Note: If LED D201 is off, this indicates that the voltage regulator on the ZS-MAIN has failed. Follow the procedure below to isolate the problem and take corrective action.

1. Remove the covers from the KSU according to 3.1.6 Accessing the ZS-MAIN and ZS-PWSA.

2. If LED D201 (Upper left corner of ZS-MAIN) is off, check LED1 on the ZS-PWSA power supply.

3. If LED 1 on the ZS-PWSA is on, unplug the AC power cord, wait 10 seconds, then reconnect the power cord. If D201 remains off, replace the KSU.

4. If LED 1 on the ZS-PWSA is off, unplug the AC power cord, replace fuses F1 and F2 on the ZS-PWSA (refer to 3.1.9 Fuse Replacement for replacement procedures).

5. If changing fuses F1 and F2 still does not correct the problem, replace the KSU.

c. Circuit Protection

1. Telephones

PTH1: Solid state posistors for high current protection. One is provided for each telephone. Posistors conduct during normal operation, and open during high current conditions.

2. Outside Lines

F1: Fuses for high current protection on the Tip line conductors of Outside Lines 1 to 3. One is provided for each outside line circuit (CO1, CO2, CO3).

F2: Fuses for high current protection on the Ring line conductors of outside lines 1 to 3. One fuse is provided for each outside line (CO1, CO2, CO3).

VA1-VA4:
Varistors for high voltage surge protection, connected to the Tip and Ring conductors and ground. One set of VA1, VA2, VA3, and VA4 is provided for each outside line.
VA1, VA2, VA3= 200V
VA4= 120V

d. ZS-MAIN Interfaces and Connectors

1. Main Distribution Panel Interfaces

CO1-CO3:	Interfaces to Outside Lines 1,2, and 3
KT1-KT8:	Interfaces to Telephones 1 to 8
CO1-PF:	Power failure transfer of Outside Line 1 - connection to single line telephone.
CN-FAX:	Facsimile Adaptor Unit (ZS-FAXU) interface
CN-MOH:	Interface to external music source

2. Connectors

CN-PWS:	Power supply output connection - +27V DC input to ZS-MAIN voltage regulator.
CN-ROM:	Interface to ZS-PKGA software package
CN-1:	Interface to ZS-EXPBD
CN-2:	Interface to ZS-EXPBD
CN-BT:	Interface to memory back-up battery

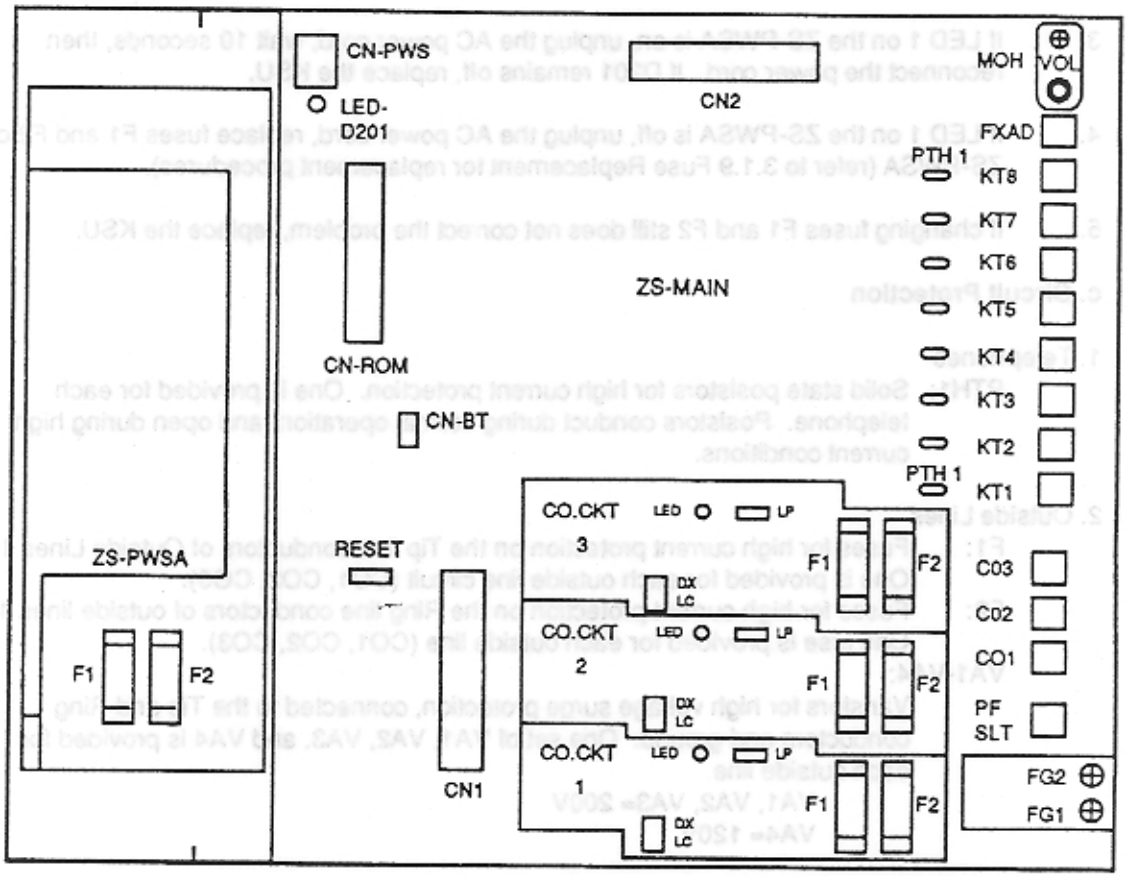


FIGURE 3-7 ZS-MAIN AND ZS-PWSA

3.1.8 POWER SUPPLY (ZS-PWSA)

The KSU includes a built-in power supply. The power supply requires a dedicated 120 Volt AC single phase NEMA 5-15R grounded outlet.

The power supply does not have an AC power ON/OFF switch. To turn off the power to the KSU, you must unplug the AC power cord from the outlet.

The ZS-PWSA converts the 120V AC power to the DC voltages required for system operation. The power supply output is a two pin connector CN1, which is plugged into the connector CNPWS on the ZS-MAIN Card at the factory. The connector CN1 on the ZS-PWSA supplies +27V DC output to the ZS-MAIN. The ZS-MAIN contains a power supply, voltage divider, and voltage regulator to convert the +27V DC supplied from the ZS-PWSA to system operating voltages of 12V DC, 6V DC, and 5V DC. The power supply circuit on the ZS-MAIN is not field serviceable.

The ZS-PWSA contains two bus type fuses for AC input protection. For detailed information regarding fuse replacement, refer to 3.1.9 Fuse Replacement.

Power supply specifications are shown in Table 3-B.

TABLE 3-B SYSTEM POWER SUPPLY SPECIFICATIONS

ITEM	SPECIFICATIONS
AC Input Voltage	120 Volts AC
AC Input Current	1.8 amps.
DC Output (+24 Vdc)	2.5 amps.
Circuit Protection	One 125V 3.15A fuse One 125V 5A fuses
Power Consumption	120 W maximum

3.1.9 FUSE REPLACEMENT

The ZTS KSU contains eight fuses for circuit protection. Six of these fuses are located on the ZS- MAIN Card and two fuses are located on the ZS-PWSA.

The six fuses on the ZS-MAIN are used for circuit protection of Outside Lines 1,2, and 3. There are two fuses for each circuit. The fuses F1 and F2 for each outside line circuit correspond to the Tip and Ring lines, respectively.

The two fuses on the ZS-PWSA are used for AC line protection. If necessary, be sure to replace any of these fuses with a fuse of the same type and rating for continued protection against damage and risk of fire.

The Expansion Unit also contains two fuses for each outside line (CO4 to CO6). For more information, refer to 3.2.4 ZS-EXPU Fuse Replacement.

Table 3-C shows the fuse ratings and designations. Figure 3-8 shows the fuse locations on the ZS- MAIN and ZS-PWSA.

TABLE 3-C FUSES

Fuse Location	Qty.	Fuse Designation	Rating	Circuit Protection
ZS-MAIN	3	F1	250 Volts, 1.5 Amperes	Outside Line Circuits 1,2,3 Tip Line
	3	F2	250 Volts, 1.5 Amperes	Outside Line Circuits 1,2,3 Ring Line
ZS-PWSA	1	F1	125 Volts, 3.15 Amperes	AC Input
	1	F2	125 Volts, 5 Amperes	AC Inpu

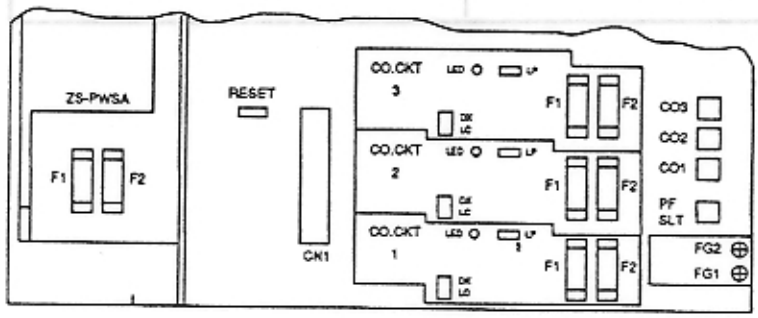


FIGURE 3-8 ZS-MAIN AND ZS-PWSA FUSE LOCATIONS

3.2 EXPANSION UNIT (ZS-EXPU) INSTALLATION

The Expansion Unit (ZS-EXPU) provides interfaces for three additional outside lines and eight additional extensions. This unit consists of the ZS-EXPBD Card and the components shown in Table 3-D. The ZS-EXPBD is mounted on top of the inside front cover of the KSU, through connectors CN1 and CN2.

Refer to 3.2.4 ZS-EXPBD Card Description for detailed information regarding the ZS-EXPBD.

3.2.1 UNPACKING

Table 3-D shows all components shipped with the Expansion Unit. When unpacking the unit, check to make sure that the following items are provided.

TABLE 3-D ZS-EXPU COMPONENTS

Unit	Components	Qty.
ZS-EXPU	ZS-EXPBD Card	1
	Grounding Wire	1
	Mounting Screws	5

3.2.2 ZS-EXPU INSTALLATION PROCEDURE

After making sure that the power to the KSU is off, install the ZS-EXPU according to the following procedure.

1. Loosen the two screws securing the outside front cover of the KSU, and remove the cover.

2. Mount the ZS-EXPBD Card on the inside front cover of the KSU. Insert connector CN1 on the left underside of the unit into the connector marked CN1 on the inside front cover of the KSU and insert connector CN2 on the top underside of the ZS-EXPBD into the slot marked CN2 on the inside front cover of the KSU.

3. Secure the unit to the inside front cover of the KSU, using the 5 screws provided. The screw holes are located in the four corners and in the center of the ZS-EXPBD.

4. Ground the unit, according to the procedure in 3.2.4 Grounding the ZS-EXPU.

5. When installation is completed, replace the outside front cover. Make sure that all cables are routed through the opening at the top of the KSU, so that they are not pinched between the covers.

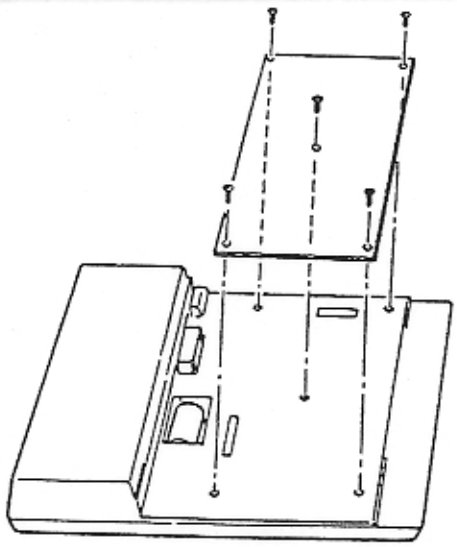


FIGURE 3-9 ZS-EXPU INSTALLATION

3.2.3 GROUNDING THE ZS-EXPU

1. Connect one end of the grounding wire provided with the unit to terminal FG2 at the bottom right of the ZS-EXPBD.

2. Connect the other end of the grounding wire to terminal FG2 on the KSU.

For detailed information regarding grounding, refer to 2.3 AC Power and Grounding Requirements, and 3.1.4 Grounding.

3.2.4 ZS-EXPBD CARD DESCRIPTION

TELEPHONE CIRCUITS: 8
OUTSIDE LINE CIRCUITS: 3

a. On Board Settings

SW1: Sliding switches for line loss adjustment. A switch is provided for each outside line (CO4, CO5, CO6).
DX (Up)= Line loss is 3db or higher
LC (Down)= Line loss is less than 3db

LP: Strapping jacks for outside line loop detection. A strapping jack is provided for each outside line (CO4, CO5, CO6). THESE JACKS ARE FACTORY SET, DO NOT ADJUST.

b. Indicators

D11: Red LEDs indicating status of each Outside line (CO4,CO5,CO6)
On= Line is in use or on hold
Off= Line is not in use or in ringing state

c. Circuit Protection

1. Telephones
PTH1: Solid state posistors for high current protection.

2. Outside Lines
F1: Fuses for high current protection on the Tip line conductors of Outside Lines 4 to 6. One is provided for each outside line circuit (CO4, CO5, CO6).
F2: Fuses for high current protection on the Ring line conductors of Outside Lines 1 to 3. One fuse is provided for each outside line (CO4, CO5, CO6).
VA1-VA4:
Varistors for high voltage surge protection, connected to the Tip and Ring conductors and ground for each outside line. One set of VA1, VA2, VA3, VA4 is provided for each outside line (CO4, CO5, CO6).
VA1, VA2, VA3= 200V
VA4= 120V

d. On Board Interfaces and Connectors

1. Distribution Panel Interfaces

CO4-CO6:

Interfaces to Outside Lines 4,5, and 6

KT9-KT16:

Interfaces to Telephones 9 to 16

2. Connectors

CN1: Interfaces to ZS-MAIN

CN2: Interfaces to ZS-MAIN

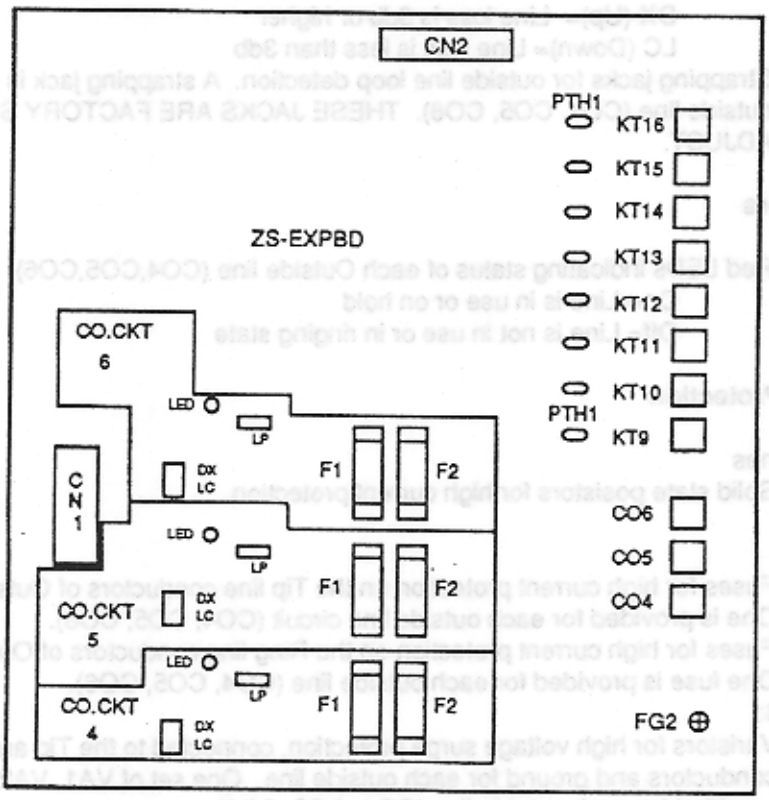


FIGURE 3-10 EXPANSION CARD (ZS-EXPBD)

3.2.5 ZS-EXPU FUSE REPLACEMENT

The ZS-EXPBD Card contains six fuses for protection of Outside Lines 4,5, and 6. There are two fuses for each outside line circuit. The fuses are in series with the Tip and Ring lines. If necessary, be sure to replace any of these fuses with a fuse of the same type and rating for continued protection against damage and risk of fire.

Table 3-E shows fuse specifications. Figure 3-11 shows fuse locations on the ZS-EXPBD.

TABLE 3-E FUSES

Fuse Location	Qty	Fuse Designation	Report	Function
ZS-EXPBD	3	F1	250 Volts, 1.5 Amperes	Outside Line Circuits 4,5,6 Tip Line
	3	F2	250 Volts, 1.5 Amperes	Outside Line Circuits 4,5,6 Ring Line

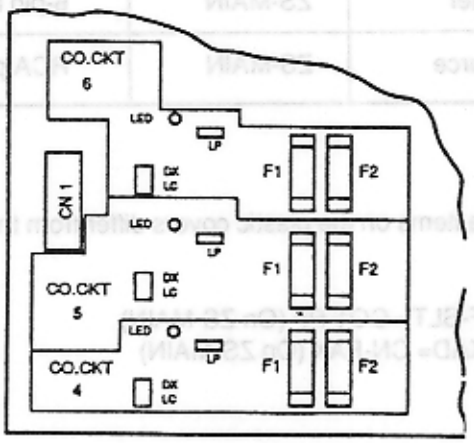


FIGURE 3-11 ZS-EXPBD CARD FUSES

3.3 KSU DISTRIBUTION PANEL

When the KSU cover is removed, you will find distribution points for three to outside lines, eight extensions, external MOH source input and a facsimile adapter. These points are all located on the right side of the KSU. With the Expansion Unit installed in the KSU, interfaces for an additional three outside lines and eight extensions are provided on the right side of the ZS-EXPBD Card.

Table 3-F shows the distribution points for each function.

TABLE 3-F
KSU DISTRIBUTION POINTS

DESIGNATION	FUNCTION	LOCATION	TYPE OF CONNECTOR
CO1 - C03	Outside Lines 1-3	ZS-MAIN	2-pin Modular Jacks
CO4 - CO6	Outside Lines 4-6	ZS-EXPU	2-pin Modular Jacks
KT1 - KT8	Telephones 1-8	ZS-MAIN	4-pin Modular Jacks
KT9 - KT16	Telephones 9-16	ZS-EXPU	4-pin Modular Jacks
PF-SLT*	SLT for Power Failure Transfer	ZS-MAIN	2-pin Modular Jacks
FXAD*	Fax Adapter	ZS-MAIN	6-pin Modular Jacks
CN-MOH	Music Source	ZS-MAIN	RCA phono-jack

*The designations for these items on the plastic covers differ from the designations on the ZS-MAIN:

PF-SLT= CO1-PF (On ZS-MAIN)
FXAD= CN-FAX (On ZS-MAIN)

3.4 OUTSIDE LINE (CO/PBX LINE) AND EXTENSION CABLING

3.4.1 OUTSIDE LINE CABLING

Two types of outside lines can be terminated to the ZT-S System, either central office lines from the telephone company (CO lines), or PBX extensions. Either dial pulse lines or dual tone multi-frequency (DTMF) lines may be used.

a. **Preparation**

The local telephone company should have installed RJ11 interfaces for each outside line terminated to the ZT-S System. The maximum outside line capacity for the ZT-S is 6 lines (with the ZS-EXPU).

b. **Card Settings for Outside Line Interfaces**

Line Loss adjustment is the only on board setting required for outside line connection. The setting switches are marked SW1 and are also labeled by the circuit number of the corresponding outside line.

SW1 labeled CO1-CO3 correspond to outside lines 1-3 and are located on the ZS-MAIN. SW1 labeled CO4-CO6 correspond to outside lines 4-6 and are located on the ZS-EXPU. The line loss must be set for each outside line by moving the SW1 switch corresponding to that line to the desired position, either DX or LC.

DX (Switch Up) = CO/PBX line loss 3dB or higher (Normal setting)
LC (Switch Down) = CO/PBX line loss is less than 3dB (This setting should be used in cases where the installation site is located near the central office, and the handset volume is too loud or there is a high side tone).

The initial factory setting for all lines is DX (higher than 3dB).

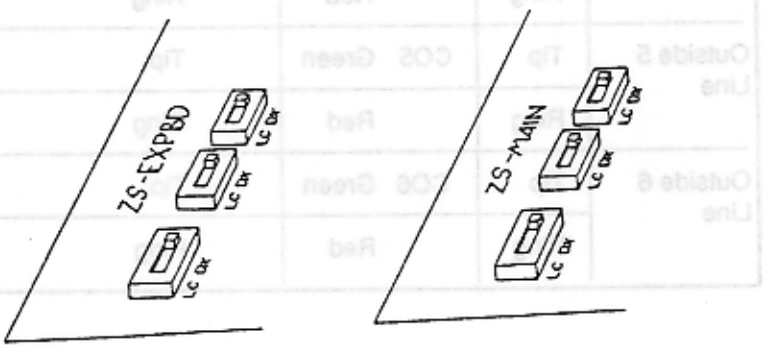


FIGURE 3-12 LINE LOSS SETTING SWITCHES

c. **Connection**

There are three RJ11 modular jacks on the ZS-MAIN for outside lines 1 to 3 and an additional three RJ11 jacks on the ZS-EXPBD for outside lines 4 to 6. Use interconnecting modular jacks between the telephone company RJ11 interfaces and the ZTS System for line connection.

Figure 3-13 shows the outside line terminations to the KSU. Table 3-G lists the CO line designations between the KSU and the interconnecting modular jacks.

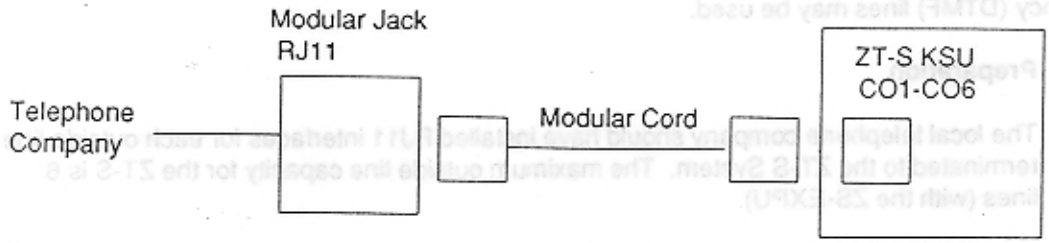


FIGURE 3-13 OUTSIDE LINE TERMINATIONS

TABLE 3-G CO/PBX LINE DESIGNATIONS

Function		RJ11 Jack	616 KSU Modular Jack
Outside 1 Line	Tip	CO1 Green	Tip
	Ring	Red	Ring
Outside 2 Line	Tip	CO2 Green	Tip
	Ring	Red	Ring
Outside 3 Line	Tip	CO3 Green	Tip
	Ring	Red	Ring
Outside 4 Line	Tip	CO4 Green	Tip
	Ring	Red	Ring
Outside 5 Line	Tip	CO5 Green	Tip
	Ring	Red	Ring
Outside 6 Line	Tip	CO6 Green	Tip
	Ring	Red	Ring

d. **Programming**

Several parameters must be programmed for each outside line, including dial type (DP or DTMF), ringing assignment, and various timing parameters. Refer to Section 4, ZT-S System Programming, for more detailed information.

3.4.2 TELEPHONE CABLING

ZT-S telephones require 4 wires for the interface to the system. The four wires are the tip, ring, data tip and data ring leads. Table 3-H shows the wire assignments for ZT-S telephones.

TABLE 3-H ZT-S TELEPHONE WIRE ASSIGNMENTS

DESIGNATION	WIRE COLOR	FUNCTION
T	Green	Analog audio path and 27V DC power supply
R	Red	
DT	Yellow	Data Path and Ground Power Supply
DR	Black	

ZT-S telephones should be interfaced to the KSU using two pair twisted cables, between the wall jacks where telephones are installed and either the modular jacks from the flat cables interfacing the lines to the KSU or the Main Distribution Frame (MDF). The wire size should be between 22AWG and 26AWG; 24AWG cable is recommended. All telephones must be installed within 980 feet of the KSU, and the maximum loop resistance is 40 ohms. The maximum distance and loop resistance specifications must not be exceeded, regardless of the wire gauge used. Shielded cabling is not required unless the cables are run through areas where there is possible radio interference.

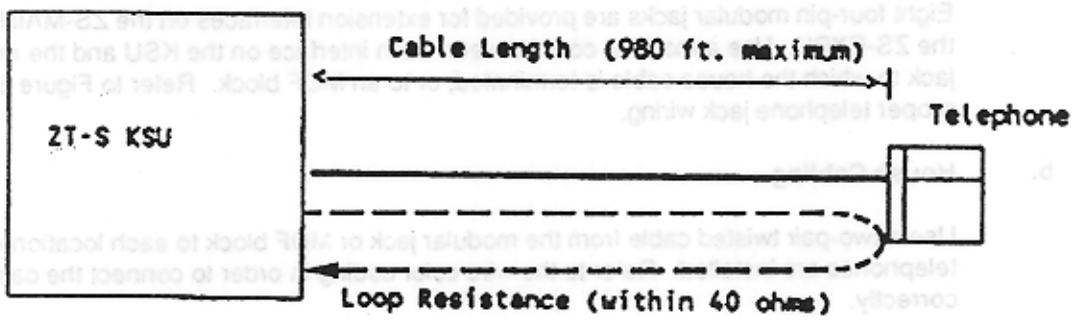
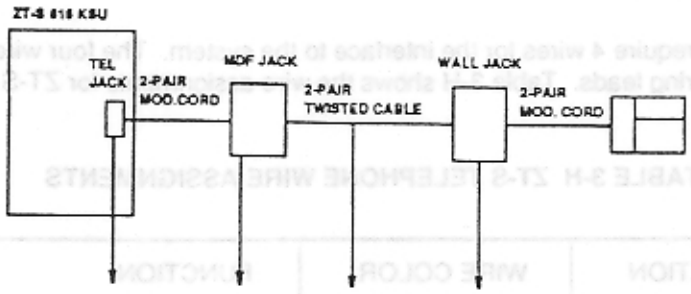


FIGURE 3-14 TELEPHONE CABLING AND LOOP RESISTANCE

Figure 3-15 shows a sample extension cabling layout.



KSU MODULAR TEL. JACK		MDF MODULAR JACK		TWO PAIR TWISTED CABLE	TELEPHONE MODULAR JACK		
PIN NO	DESIG	PIN NO	COLOR		PIN NO	DESIG.	COLOR
1	DR	4	BLACK	BLACK/ORANGE-WHITE	1	DR	BLACK
2	R	2	RED	RED/BLUE WHITE	2	R	RED
3	T	3	GREEN	GREEN/BLUE-WHITE	3	T	GREEN
4	DT	1	YELLOW	YELLOW/WHITE-ORANGE	4	DT	YELLOW

a: **Wiring Between the KSU and the Modular Jack**

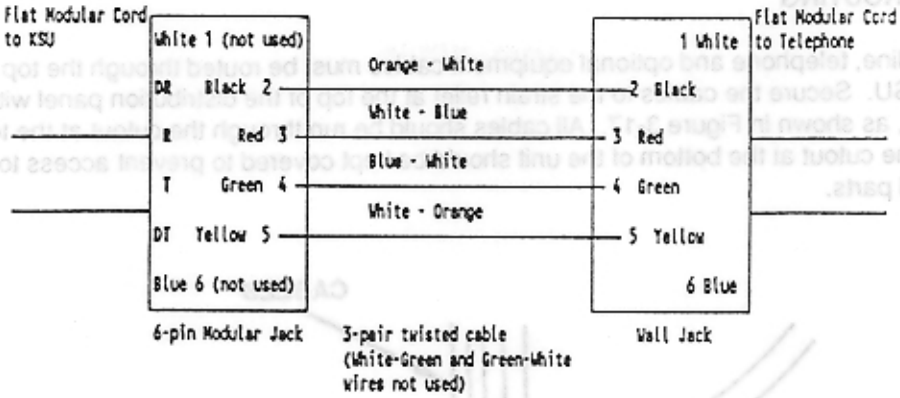
Eight four-pin modular jacks are provided for extension interfaces on the ZS-MAIN and the ZS-EXPU. Use a modular cord between each interface on the KSU and the modular jack to which the house cable is terminated, or to an MDF block. Refer to Figure 3-15 for proper telephone jack wiring.

b. **House Cabling**

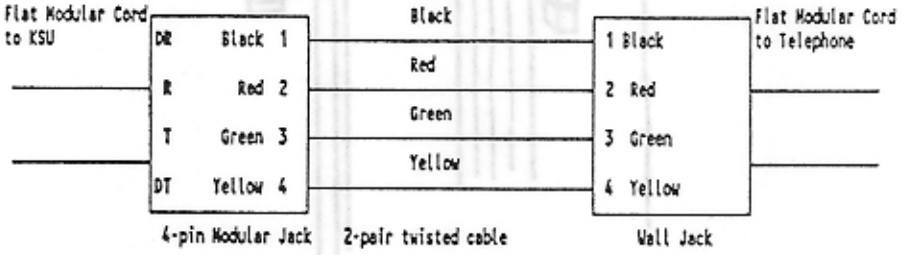
Use a two-pair twisted cable from the modular jack or MDF block to each location where telephones are installed. Refer to the wire color coding in order to connect the cables correctly.

c. **ZT-S Telephone Connection**

Each ZT-S telephone is provided with a four-pin modular flat cable to connect the telephone to a wall jack. The telephone leads are for tip, ring, data tip, and data ring. The modular cords use RJ11C/W type modular connectors. ZT-S telephones can also be connected to wall jacks having six pin connectors; in this case, the pins connected to the white and blue leads are not used.



a. Commercial Wiring



b. Residential Wiring

FIGURE - 3-16 ZT-S TELEPHONE CABLING

NOTE: IT IS RECOMMENDED THAT THE FLAT CABLES INSTALLED BE KEPT TO THE SHORTEST LENGTH POSSIBLE TO REDUCE THE OCCURRENCE OF STATIC NOISE ON THE SPEECH PATH.

3.4.3 CABLE ROUTING

Outside line, telephone and optional equipment cables must be routed through the top right side of the KSU. Secure the cables to the strain relief at the top of the distribution panel with a plastic cable tie, as shown in Figure 3-17. All cables should be run through the cutout at the top of the KSU. The cutout at the bottom of the unit should be kept covered to prevent access to live electrical parts.

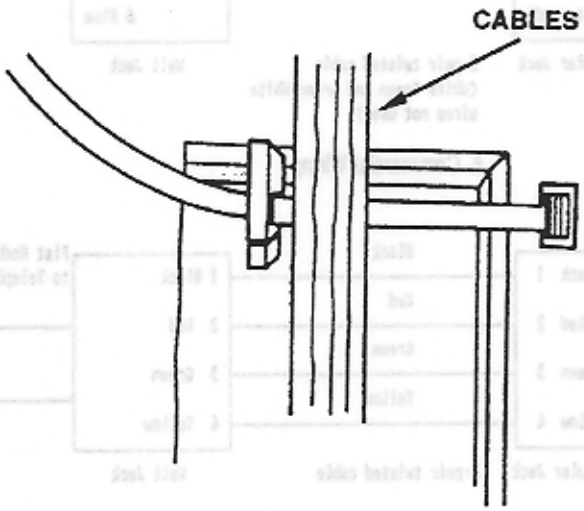


FIGURE 3-17 CABLE ROUTING

After installation procedures have been completed, the outside front cover must be attached to the KSU. Before attaching the cover, remove the plastic tab which is taped to the top of the cover. Place the cover on the KSU, and route the cables through the cutout, making sure that the cables are not pinched between the covers. Secure the outside front cover using the two screws provided.

Figure 3-18 shows the cable routing from the distribution panel on the right side of KSU.

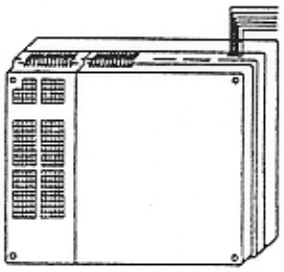


FIGURE 3-18 KSU CABLE RACEWAY

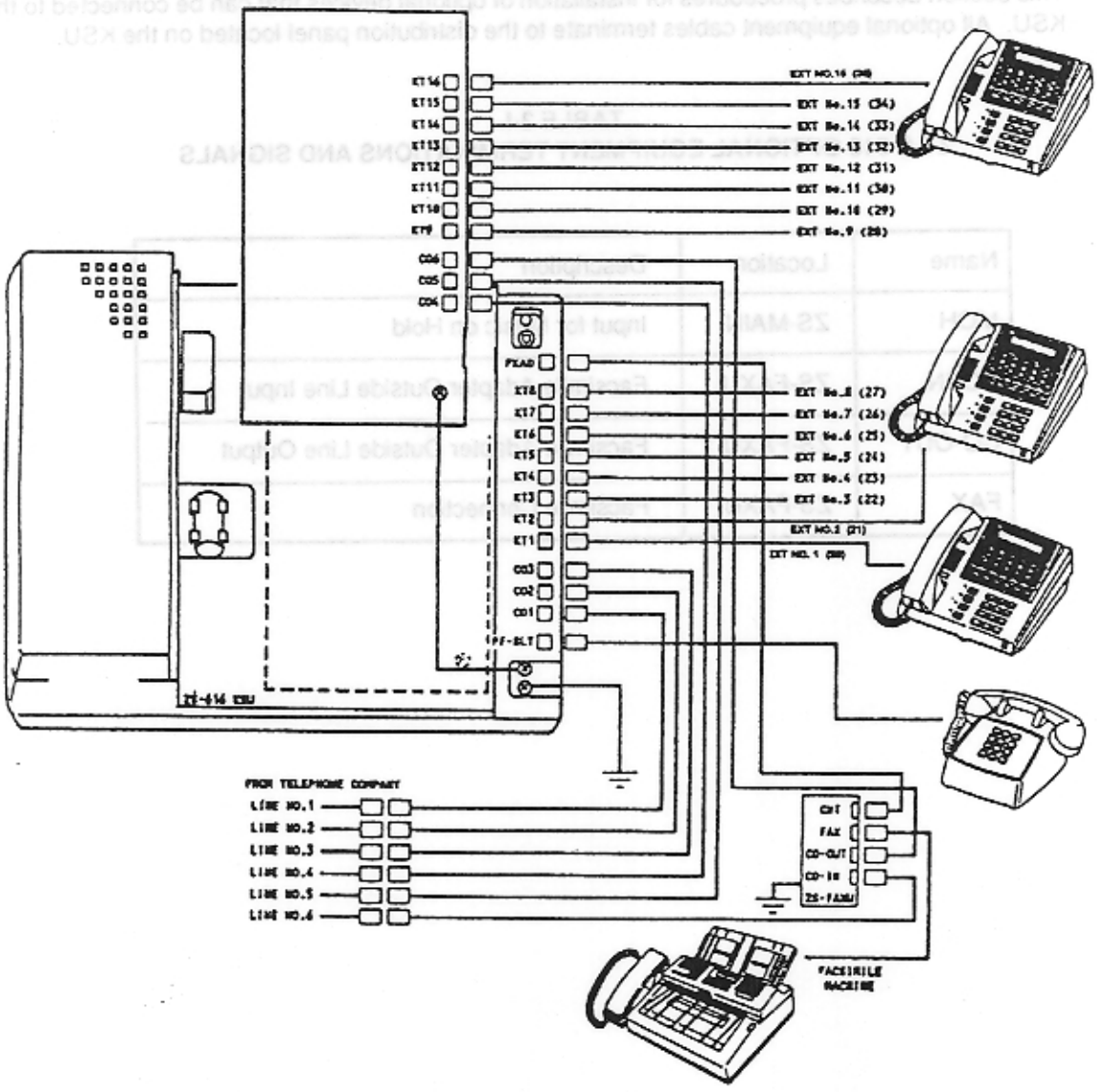


FIGURE 3-19 COMPLETED CABLE CONNECTIONS

3.5 OPTIONAL EQUIPMENT INSTALLATION

This section describes procedures for installation of optional devices that can be connected to the KSU. All optional equipment cables terminate to the distribution panel located on the KSU.

TABLE 3-I
ZT-S 616 OPTIONAL EQUIPMENT TERMINATIONS AND SIGNALS

Name	Location	Description
MOH	ZS-MAIN	Input for Music on Hold
CO-IN	ZS-FAXU	Facsimile Adapter Outside Line Input
CO-OUT	ZS-FAXU	Facsimile Adapter Outside Line Output
FAX	ZS-FAXU	Facsimile Connection

3.5.1 EXTERNAL MUSIC ON HOLD SOURCE

A customer supplied device such as an FM tuner can be connected to the system to play music to outside calls placed on hold. An FM tuner or tape player is commonly used as the MOH source. MOH specifications are shown in Table 3-J.

a. Wiring

1. Connect the output terminal from the MOH source to the "MOH" RCA terminal located at the top of the distribution panel on the KSU.

2. Adjust the volume by turning the volume control above the jack using a philips head screw driver. Turning the volume control clockwise increases the volume.

TABLE 3-J MOH SPECIFICATIONS

ITEM	SPECIFICATION
Signal Level	0.1V
Input Impedance	600 ohms
Connector	RCA type phono jack

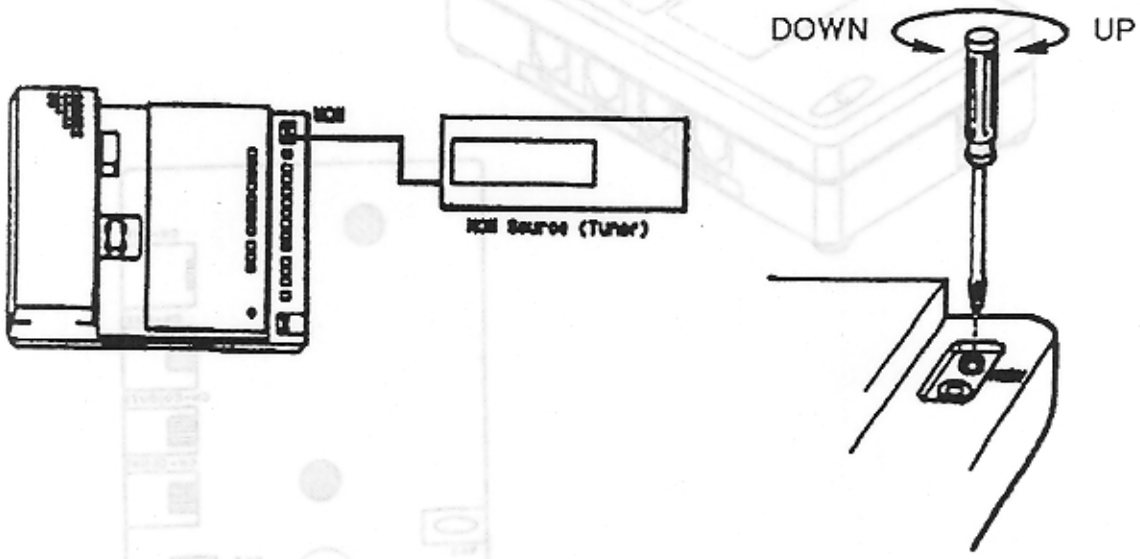


FIGURE 3-20 EXTERNAL MOH CONTROL RELAY CONNECTION

b. Programming

None

3.5.2 FACSIMILE ADAPTER (ZS-FAXU) INSTALLATION

A customer supplied facsimile can be connected to the ZT-S System using the optional Facsimile Adaptor Unit (ZS-FAXU). This allows the same outside line to be used for facsimile transmissions and for making outgoing voice calls when not in use for facsimile transmissions. The line must also be assigned as the facsimile line in the system installer programming in order to function correctly.

a. Components

The Facsimile Adaptor Unit is shipped with the equipment shown in Table 3-K.

TABLE 3-K ZS-FAXU COMPONENTS

Component	Accessories	Qty.
ZS-FAXU	ZS-FAXU Facsimile Adaptor Unit	1
	6-pin Modular Cord	1
	4-pin Modular Cord	1

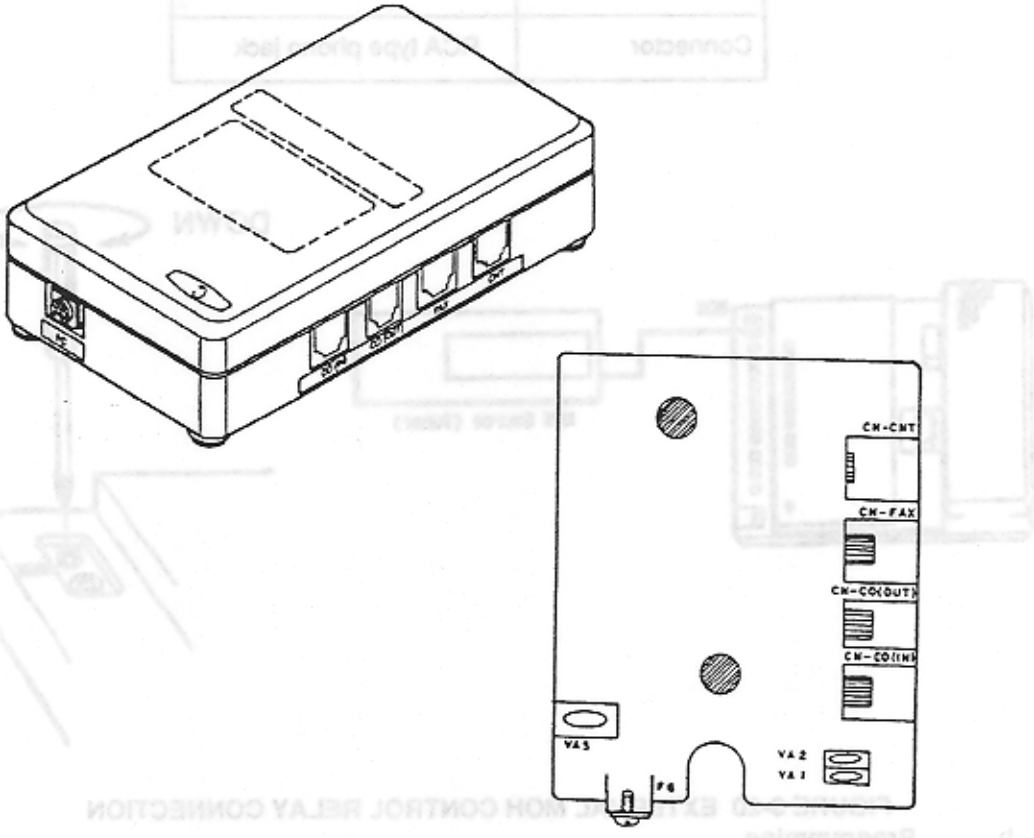


FIGURE 3-21 FACSIMILE ADAPTOR UNIT-INTERNAL VIEW

b. Wiring

1. After making sure that the power to the KSU is off, connect the modular jack terminating the outside line to be used for facsimile transmissions to connector CO IN on the ZS-FAXU.

2. Connect one end of the 6-pin modular cord provided with the ZS-FAXU to the connector CN-FAX on the KSU distribution panel. Connect the other end to the connector CNT on the ZS-FAXU.

3. Insert one end of a modular cord to the connector CO OUT on the ZS-FAXU. Connect the other end to the modular jack corresponding to the desired outside line (COn) on either the ZS-MAIN or the ZS-EXPU.

4. Connect the facsimile to the connector FAX on the ZS-FAXU using the 4-pin modular cord.

5. Ground the unit by connecting one end of the grounding wire to the FG terminal on the ZS-FAXU and the other end to a suitable ground point (refer to 2.4 AC Power and Grounding Requirements and 3.1.4 Grounding, for more information regarding grounding).

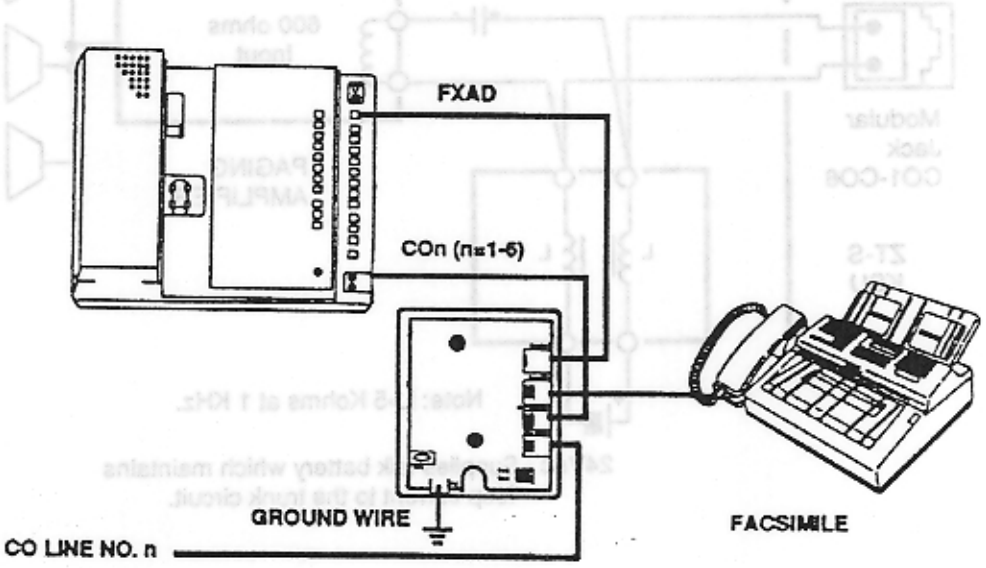


FIGURE 3-22 FACSIMILE ADAPTOR WIRING

c. Programming

Class 6, Item 7 Facsimile Ringing Timeout: Specify the length of time incoming calls on the facsimile line will ring.

Class 8, Item 3 Facsimile Line: Specify the circuit number of the outside line interfaced to the facsimile.

3.5.3 PAGING AMPLIFIER INSTALLATION

If desired, an external P.A. system can be connected to the ZT-S system. Connection of a P.A. system requires one outside line termination, reducing the maximum number of outside lines that can be equipped in the system from 6 to 5.

a. **P.A. Amplifier Wiring**

Connect the audio input/output terminal of the paging amplifier to any unused outside (CO) modular jack located at the KSU distribution panel. The P.A. amplifier used must supply talk battery in order for the trunk circuit to operate properly.

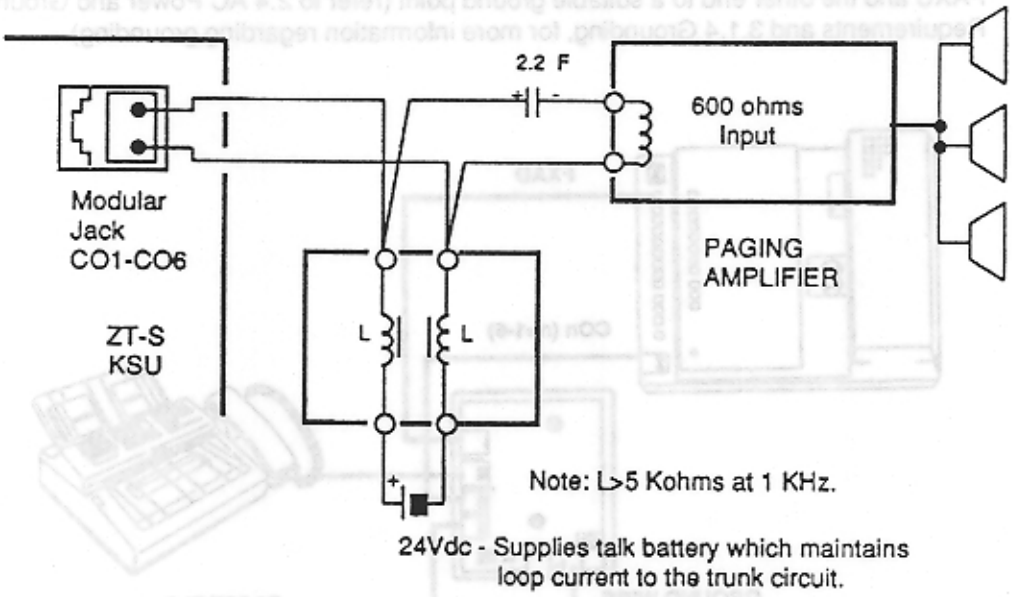


FIGURE 3-23 P.A. AMPLIFIER WIRING

b. **Programming**

None

3.5.4 POWER FAILURE TRANSFER TELEPHONE

By connecting an industry standard single line telephone to the system, calls on outside line no. 1 can automatically be transferred from the ZT-S system to the single line telephone (SLT) during a power failure. The SLT should have the same type of dial as that specified for outside line no.1 in the system installer programming (either Dial Pulse or Dual Tone Multifrequency).

a. Wiring

Connect the modular cord from the single line telephone to the modular jack marked PFSLT on the KSU distribution panel.

Figure 3-24 shows the connection of a single line telephone for power failure transfer of outside line 1.

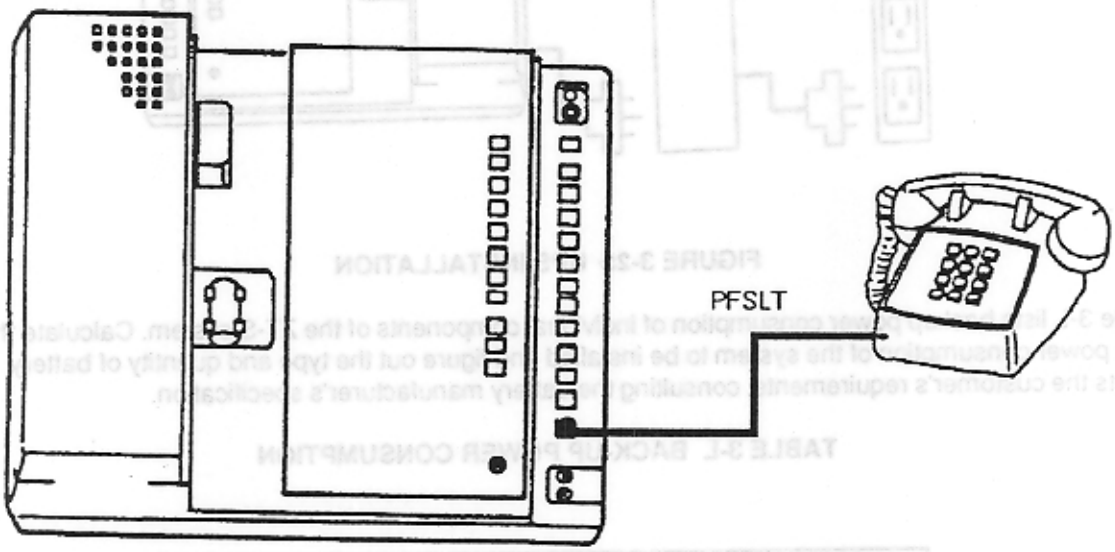


FIGURE 3-24 POWER FAILURE TRANSFER OF OUTSIDE LINE 1

b. Programming

None

3.5.5 POWER FAILURE BACK-UP BATTERY (UPS) INSTALLATION

If the ZT-S system is to be operational during a power failure, the system should be connected to an uninterrupted power supply (UPS) that contains a set of rechargeable batteries. The support time varies depending upon the capacity of the UPS and system configuration.

a. Connection

Connect the AC plug from the KSU into the uninterrupted power supply, and connect the plug from the UPS to the AC power outlet.

Figure 3-25 shows UPS installation.

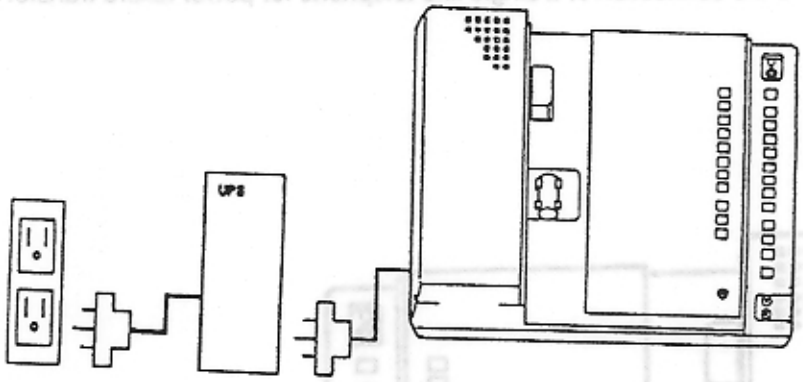


FIGURE 3-25 UPS INSTALLATION

Table 3-L lists backup power consumption of individual components of the ZT-S system. Calculate the total power consumption of the system to be installed and figure out the type and quantity of battery meets the customer's requirements, consulting the battery manufacturer's specification.

TABLE 3-L BACK-UP POWER CONSUMPTION

Component	AC Input Current
ZS-616 KSU	85mA (Avg.
ZS-616 KSU & ZS-EXPU	117mA (Avg.)
Each ZS-6KTS/KTD	20mA (Avg.), 100mA (Max.)

b. Programming

None

3.6 ZT-S TELEPHONE INSTALLATION

This section describes procedures for installing ZT-S telephones and telephone optional components. Installation procedures and available options are the same for both the display telephones (ZS-6KTD) and the telephones without display (ZS-6KTS).

Figure 3-26 shows a ZT-S telephone, detailing the main components.

FIGURE 3-26 ZT-S TELEPHONE AND ACCESSORIES

3.6.1 ZT-S TELEPHONE INSTALLATION

a. Unpacking

Inspect all the components and accessories provided with the telephones and telephone optional equipment, referring to Table 3-M.

TABLE 3-M ZT-S TELEPHONE COMPONENTS AND ACCESSORIES

Components	Accessories	Qty.
ZT-S Telephones	Handset (SSHD-Z)	1
	Handset Cord	1
	Modular Cord	1
	Feature Key Label	1 set
	Directory Card	1
	Directory Tray	1
	Dial Mask	1
	Tel. Quick Ref. Guide	1
IX-STPD	Mounting Screw	2
SSPU-Z1	None	
IX-SNHD	None	

For ZT-S telephone features and operations, refer to Section 5 ZT-S System Features and Specifications, or for detailed information, refer to the ZT-S Owners Manual.

b. **Assembly and Connection**

Assemble the ZT-S telephones according to the following procedure.

1. Remove the protective plastic film from the panel covering the button labels on the telephone. If the telephone is a non-display telephone (ZS-6KTS), the plastic film covering the logo nameplate must also be removed.

2. Place the directory card in the directory tray. Insert the tray upside down into the slots on the underside of the telephone, and slide it in as far as it will go.

3. Connect one end of the modular cord into the recessed modular connector on the underside of the telephone. Connect the other end to the wall jack. Thread the modular cable through the clips so that the telephone sits flat on the desk or table surface.

4. Connect one end of the handset cord into the modular jack on the telephone handset. Connect the other end to the modular connector on the side of the telephone.

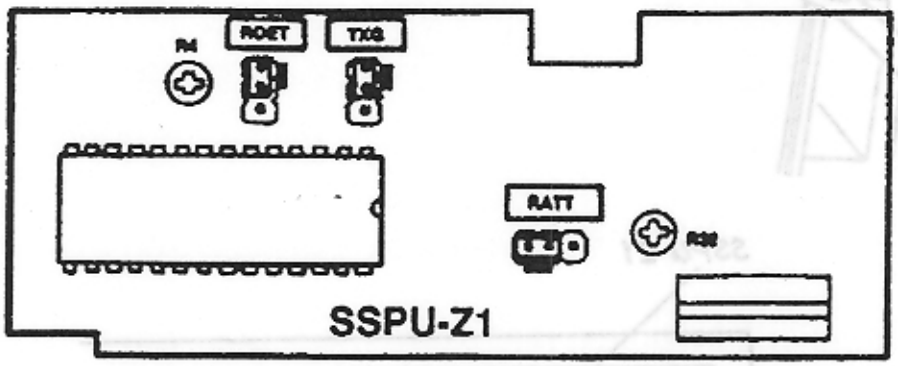
FIGURE 3-27 TELEPHONE INSTALLATION

c. Programming

Several parameters are programmable for each telephone. Class 3 includes parameters that can be set in the system administrator or system installer programming. Class 8 contains additional parameters that can only be set through the system installer programming. Refer to Section 4, ZT-S System Programming for more detailed information.

3.6.2 STATION SPEAKERPHONE UNIT (SSPU-Z1) INSTALLATION

The optional station built-in speakerphone card provides ZT-S telephones with handsfree conversation capability for communications on outside (CO/PBX) lines.



GURE 3-28 SSPU-Z1

a. **Installation**

1. Remove the small panel at the top of the telephone lower housing by pushing it in on the side, then sliding it up.

2. Change two strapping jack positions on the Station Circuit Card, referring to Figure 26:

   SPT: 2-3 to 1-2
   SPR: 2-3 to 1-2

3. Plug the SSPU-Z1 into the CNSSP plug on the Station Circuit Card.

4. Adjust the following straps and potentiometers on the SSPU-Z1 if you experience voice clipping, referring to Figure 3-29.

   Receiving Switch Power:
   Change strap RDET to the adjusting position and turn R4 clockwise
   Receiving power for the switch becomes stronger.

   Transmission Switch Power:
   Change strap TXG to the adjusting position
   Transmitting power for the switch becomes stronger.

   Receiving Level Adjust:
   Change strap RATT
   Clockwise turn of the R32 increases attenuation of the receiving voice.

5. After installation is completed, slide the panel back into place.

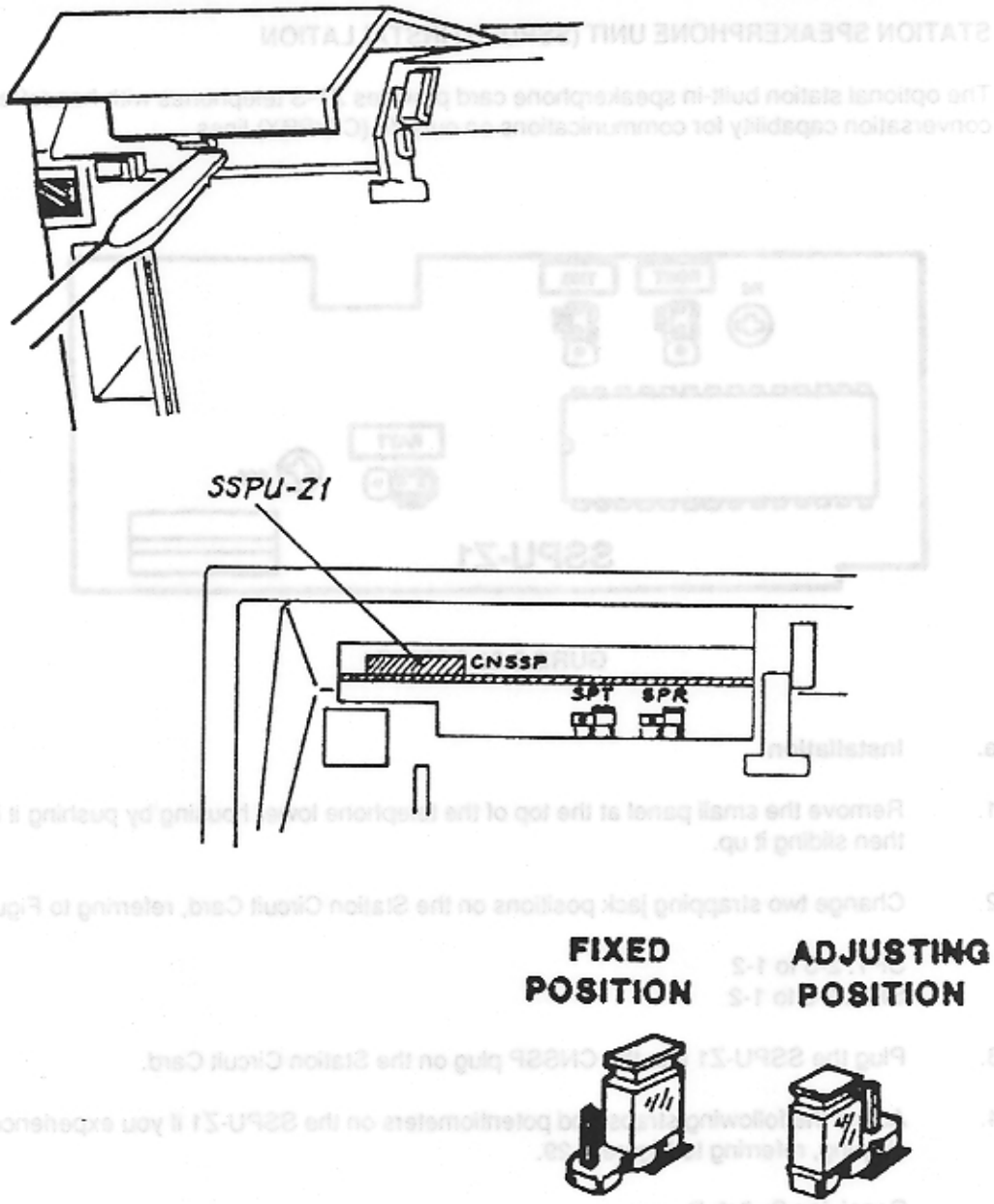


FIGURE 3-29 SSPU-Z1 ADJUSTMENT

b. Programming

Class 8, Item 6 Speakerphone: Specify all telephones equipped with the SSPU-Z1.

3.6.3 STATION PEDESTAL

The optional IX-STPD unit can be used to change the angle of the telephone for easier viewing.

a. Installation

1. Mount the Station Wall Mount Bracket (IX-STPD) on the wall using the two screws provided with the unit.

2. Remove the Handset Hook from the center of the IX-STPD and insert it into the slot on the upper cradle of the key telephone as shown in Figure 3-30.

3. Insert the bottom two tabs first on the back of the key telephone, then two upper tabs as shown in Figure 3-30.

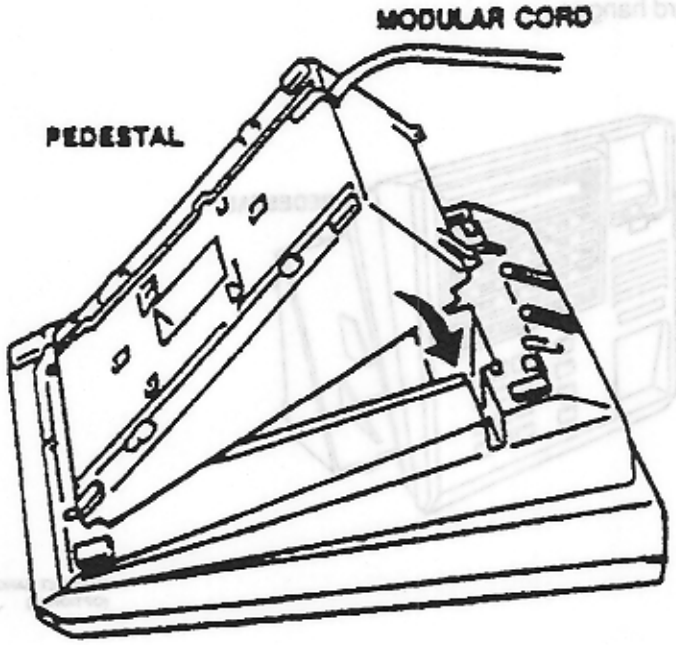


FIGURE 3-30 STATION PEDESTAL MOUNTING

b. Programming

None

3.6.4 WALL MOUNTING

The optional IX-STPD unit can also be used as a wall mount bracket for the ZT-S telephones.

a. Installation

1. Mount the Station Wall Mount Bracket (IX-STPD) on the wall using the two screws provided with the unit.

2. Using a flat bladed screwdriver, slide the handset hook out of the slot in the upper cradle. Turn the hook upside down, then reinsert the hook in the slot, as shown in Figure 3-31.

3. Insert the top two tabs first into the back of the key telephone, then insert the two bottom tabs, as shown in Figure 3-31.

The optional Heavy Duty Handset Hanger (IX-HSHG) can be installed in place of the standard hanger.

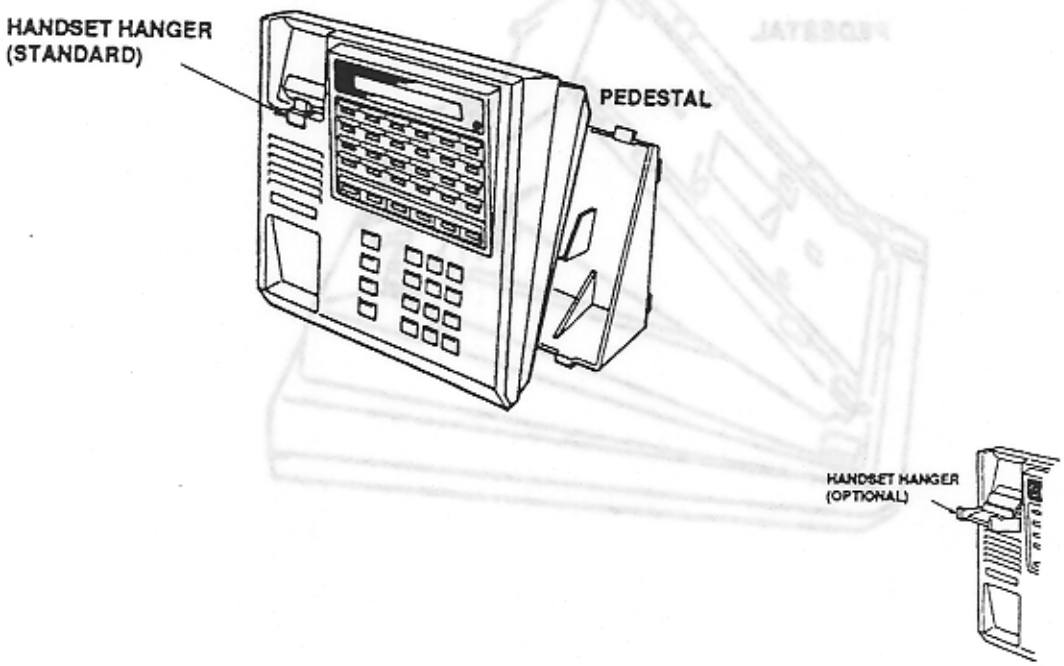


FIGURE 3-31 KEY TELEPHONE WALL MOUNTING

b. Programming

None

3.6.5 STATION NOISE CANCELLING HANDSET (IX-SNHD)

The station noise cancelling handset is designed for use in locations where the environment may have loud or distracting noises. When used, background noise is canceled in the microphone so that the user's voice can be clearly transmitted.

a. **Installation**

1. Unplug the handset cord from the standard handset.
2. Plug in the cord into the IX-SNHD referring to Figure 3-32.

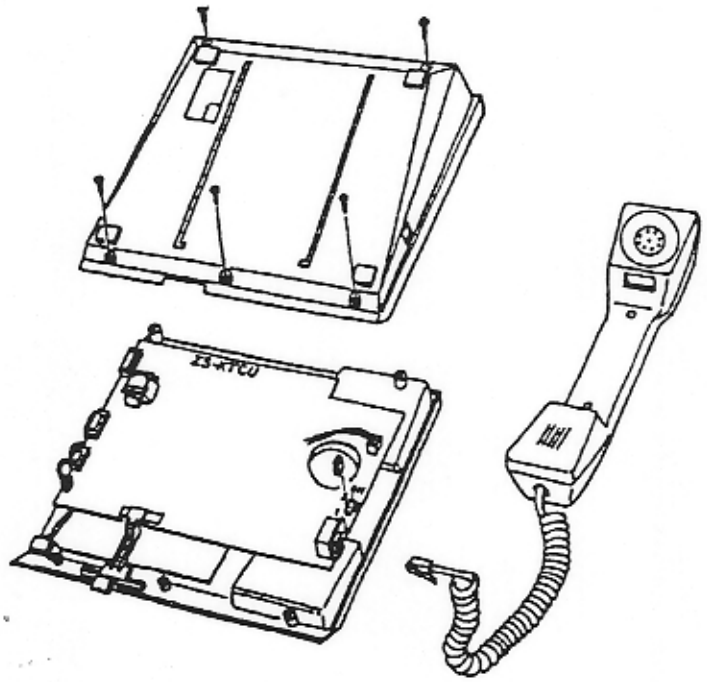


FIGURE 3-32 IX-SNHD INSTALLATION

b. **Programming**

None

3.6.6 STATION AMPLIFIED HANDSET INSTALLATION (IX-SHHD)

This handset provides acoustic receiving voice amplification for the hearing impaired.

a. **Installation**

1. Loosen the five screws that secure the telephone lower housing, and remove the lower housing, to expose the Station Circuit Card.

2. Change the position of strapping jack SH on the Station Circuit Card from positions 2-3 to positions 1-2.

3. Reattach the telephone lower housing by reinserting and tightening the five screws.

b. **Programming**

None

SECTION 4 ZT-S SYSTEM PROGRAMMING

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SECTION 4 ZT-S PROGRAMMING - Continued

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4.0 ZT-S SYSTEM PROGRAMMING

Many of the features in the ZT-S system are programmable, so that the system can be customized to suit the needs of the end user.

Two levels of programming are provided:

1. System Administrator Programming: The end user can set the calendar, time and certain outside line and extension data. The system administrator password allows access to Classes 0 to 3.

2. System Installer Programming: The system installer can program all data. The system installer password allows access to all data classes, that is, Classes 0 to 9.

All programming must be performed from the telephone designated as the Master KT. Additionally, the Master KT can set the system clock and program system speed dial numbers.

4.1 PROGRAMMING CLASSES AND ITEMS

The ZT-S database is divided into several main groups, or **Classes** according to the different types of data. Classes are comprised of **Items**, which are the individual programming parameters. Several items are further divided into **Elements**.

The programming classes and items are listed below. Classes 0 to 3 are the only classes that can be accessed in system administrator programming. All classes can be accessed in system installer programming. Programming procedures are explained in 4.4 Programming Items.

Additionally, the Master KT can enter 84 frequently dialed telephone numbers for System Speed Dialing, and set the system clock.

CLASS	ITEM	DESCRIPTION	RANGE OF VALUES	INITIAL VALUE
CLASS	0	SYSTEM CONFIGURATION		
0	1	CALENDAR SETTING	YEAR,MONTH,DAY,DAY OF WEEK	NONE
CLASS	1	SYSTEM PARAMETERS		
1	1	CAMP-ON RECALL TIMER	10 - 240 SEC.	20 SEC.
	2	HOLD RECALL TIMER	10 - 240 SEC.	120 SEC.
CLASS	2	SYSTEM FEATURES		
2	1	BUSY OVERRIDE SIGNALLING	0=DENY 1=ALLOW	1 (ALLOW)
CLASS	3	OUTSIDE LINE/EXTENSION DATA		
3	1	RINGING TELEPHONES - DAY MODE	1-16 (CIRCUIT NUMBERS OF RINGING TELEPHONES)	TEL. 01 (EXT.20) RINGS FOR ALL OUTSIDE LINES.
	2	RINGING TELEPHONES - NIGHT MODE	1-16 (CIRCUIT NUMBERS OF RINGING TELEPHONES)	TEL. 01 (EXT.20) RINGS FOR ALL OUTSIDE LINES.
	3	DO NOT DISTURB	1-16 (CIRCUIT NUMBERS OF TELEPHONES ALLOWED TO USE DO NOT DISTURB)	ALL TELEPHONES ARE DENIED USE OF DO NOT DISTURB.
	4	PAGING ACCESS	1-16 (CIRCUIT NUMBERS OF TELEPHONES ALLOWED TO MAKE PAGING ANNOUNCEMENTS)	ALL TELEPHONES ARE ALLOWED TO MAKE PAGING ANNOUNCEMENTS.
	5	PAGING CALL - RECEIVING TELEPHONES	1-16 (CIRCUIT NUMBERS OF ALL PHONES TO RECEIVE PAGING ANNOUNCEMENTS)	ALL TELEPHONES ARE ALLOWED TO RECEIVE PAGING ANNOUNCEMENTS.
	6	AUTO DIAL BUTTON ASSIGNMENT	1-16 (FIRST AUTO DIAL BUTTON) 0 (NO AUTO DIAL BUTTONS)	0 (NO AUTODIAL; BUTTONS 1-16 ARE DSS 20-DSS 35.
CLASS	4	OUTSIDE LINE RESTRICTION DATA		
4	1	OUTSIDE LINE OUTGOING RESTRICTION	1-16 (CIRCUIT NUMBERS OF TELEPHONES TO BE ALLOWED/DENIED MAKING OUTGOING CALLS ON EACH LINE)	ALL TELEPHONES ARE ALLOWED TO MAKE OUTGOING CALLS ON ALL LINES.
	2	OUTSIDE LINE PICKUP RESTRICTION	1-16 (CIRCUIT NUMBERS OF TELEPHONES TO BE ALLOWED/DENIED USE OF EACH OUTSIDE LINE)	ALL TELEPHONES ARE ALLOWED TO USE ALL LINES.
	3	TOLL RESTRICTION OF SYSTEM SPEED DIAL	1-16 (CIRCUIT NUMBERS OF TELEPHONES TO HAVE SYSTEM SPEED DIALING RESTRICTED ACCORDING TO THEIR TOLL PLAN OR NOT RESTRICTED BY THEIR TOLL PLAN)	ALL TELEPHONES' SYSTEM SPEED DIALING IS RESTRICTED ACCORDING TO THEIR TOLL PLAN.
	4	SYSTEM SPEED DIAL ACCESS	1-16 (CIRCUIT NUMBERS OF TELEPHONES ALLOWED/DENIED USE OF SYSTEM SPEED DIAL)	ALL TELEPHONES ARE ALLOWED TO USE SYSTEM SPEED DIAL.

CLASS	ITEM	DESCRIPTION	RANGE OF VALUES	INITIAL VALUE
CLASS	5	ADDITIONAL SYSTEM CONFIGURATION		
5	1	MASTER KT	1-16 (CIRCUIT NUMBER OF THE TELEPHONE ALLOWED TO PERFORM PROGRAMMING AND NIGHT TRANSFER - ONE ONLY)	1 (EXT.20)
	2	NORTH AMERICA/OTHER COUNTRIES	0 (NORTH AMERICAN INSTALLATION, USA AND CANADA 1 (OTHER COUNTRY)	0 (NORTH AMERICAN INSTALLATION)
	99	CLEAR MEMORY (RAM CLEAR) NOTE: THIS ITEM CAN ONLY BE PROGRAMMED WHEN ALL TELEPHONES ARE IDLE.	1 (CLEAR ALL DATA, INCLUDING SPEED DIAL MEMORY, RESET USER DATABASE TO TO INITIAL VALUES) 2 (RESET USER DATABASE TO INITIAL VALUES) 3 (CLEAR BACK UP DATA AREA, IE, SPEED DIAL MEMORY)	NONE
CLASS	6	ADDITIONAL SYSTEM PARAMETERS		
6	1	DTMF SIGNAL DURATION	1-5 (X100MS)	1 (100MS)
	2	DIAL PULSE LINES: BREAK RATIO	0=UNUSED 1=61% 2=UNUSED 3=UNUSED	1 (61%)
	3	DIAL PULSE LINES: MINIMUM PAUSE TIME	3-24 (X100MS)	8 (800MS)
	4	DIAL INTERDIGIT TIMEOUT	1-24 SEC.	6 SEC.
	5	DIAL FIRST DIGIT GUARD TIME	1-240 (X100MS)	10 (1000MS, OR 1 SEC.)
	6	OUTSIDE LINE DISCONNECT SIGNAL DETECTION TIMER	1-30 (X100MS)	7 (700MS)
	7	FACSIMILE RINGING TIMEOUT	5-240 SEC.	20 SEC.
	8	DIAL PAUSE TIME (FOR PAUSE REGISTERED IN SPEED DIAL NOS.)	1-9 SEC.	3 SEC.
	9	LONG FLASH TIMING (FOR DIAL TONE REORDER)	2-240 (X100MS)	10 (1,000MS, OR 1 SEC.)
	10	CENTREX FLASH TIMING (SHORT FLASH)	1-40 (X50MS)	12 (600MS)
	11	PAGING CIRCUIT TIMEOUT	10-240 SEC.	20 SEC.

CLASS	ITEM	DESCRIPTION	RANGE OF VALUES	INITIAL VALUE
CLASS 7 ADDITIONAL SYSTEM FEATURES				
7	1	DIALING ON OUTSIDE LINES AFTER CALL ANSWER	0 (DENY) 1 (ALLOW)	0 (ALL TELEPHONES ARE DENIED DIALING AFTER CALLS ARE ANSWERED.)
	2	CONFERENCE STATUS LAMP INDICATION	0 (NO LAMP INDICATION DURING A CONFERENCE) 1 (ADD LAMP FLASHES DURING A CONFERENCE)	0 (NO LAMP INDICATION)
	3	PRIMARY ICM CALL MODE	0 (VOICE CALL) 1 (TONE CALL)	0 (VOICE CALL)
CLASS 8 ADDITIONAL OUTSIDE LINE/EXTENSION DATA				
8	1	OUTSIDE LINES INSTALLED	1-6 (CIRCUIT NUMBERS OF OUTSIDE LINES INSTALLED)	ALL CIRCUITS HAVE OUTSIDE LINES INSTALLED.
	2	PBX OUTSIDE LINE ACCESS CODES (PREDIAL CODES)	UP TO 4 DIGITS (0,-9,*,#), UP TO TEN ENTRIES	BLANK
	3	PBX LINES FOR EACH PREDIAL CODE	1-6 (CIRCUIT NUMBERS OF OUTSIDE LINES CORRESPONDING TO PREDIAL CODES ENTERED IN ITEM 2)	NO OUTSIDE LINES USED AS PBX LINES.
	4	DIAL PULSE SPEED (DP LINES ONLY)	1-6 (CIRCUIT NUMBERS OF OUTSIDE LINES WITH DP DIAL SPEED OF 10PPS)	DIAL SPEED FOR ALL LINES IS 10PPS.
	5	TYPE OF DIAL SIGNALLING	1-6 (CIRCUIT NUMBERS OF OUTSIDE LINES THAT ARE DP/DTMF)	ALL OUTSIDE LINES ARE DTMF.
	6	OPTIONAL SPEAKERPHONE	1-16 (CIRCUIT NUMBERS OF TELEPHONES WITH BUILT-IN SPEAKERPHONE INSTALLED/NOT INSTALLED)	NO TELEPHONES WITH SPEAKERPHONES.
	7	FACSIMILE LINE IDENTIFICATION	0 (NO FACSIMILE LINE) 1-6 (CIRCUIT NUMBER OF OUTSIDE LINE INTERFACED TO FACSIMILE)	0 (NO FACSIMILE LINE)
	8	CONDITIONS FOR DISCONNECT DETECTION	0 (NO DISCONNECT DETECTION) 1 (LOOP OPEN SIGNAL USED TO DETECT DISCONNECT)	0 (NO DISCONNECT DETECTION)
	9	BARGE-IN STATION	1-16 (CIRCUIT NUMBERS OF ALL TELEPHONES TO BE ALLOWED/DENIED USE OF THE BARGE-IN FEATURE)	ALL TELEPHONES ARE DENIED USE OF THE BARGE-IN FEATURE.
	10	HOLD RECALL TELEPHONES	1-16 (CIRCUIT NUMBERS OF ALL TELEPHONES TO BE ALLOWED/DENIED RECEIVING RECALLS)	ALL TELEPHONES ARE ALLOWED TO RECEIVE RECALLS.

CLASS	ITEM	DESCRIPTION	RANGE OF VALUES	INITIAL VALUE
CLASS	9	TOLL RESTRICTION DATA		
9	1	DAY TOLL RESTRICTION LEVELS - OUTSIDE LINE 1	0-7 (TOLL RESTRICTION LEVEL OF EACH TELEPHONE FOR THE LINE IN THE DAY MODE)	0 (ALL TELEPHONES HAVE UNRESTRICTED DIALING ON ALL OUTSIDE LINES.
	2	DAY TOLL RESTRICTION LEVELS - OUTSIDE LINE 2		
	3	DAY TOLL RESTRICTION LEVELS - OUTSIDE LINE 3		
	4	DAY TOLL RESTRICTION LEVELS - OUTSIDE LINE 4		
	5	DAY TOLL RESTRICTION LEVELS - OUTSIDE LINE 5		
	6	DAY TOLL RESTRICTION LEVELS - OUTSIDE LINE 6		
	7	NIGHT TOLL RESTRICTION LEVELS - OUTSIDE LINE 1	0-7 (TOLL RESTRICTION LEVEL OF EACH TELEPHONE FOR THE LINE IN THE NIGHT MODE)	0 (ALL TELEPHONES HAVE UNRESTRICTED DIALING ON ALL OUTSIDE LINES.
	8	NIGHT TOLL RESTRICTION LEVELS - OUTSIDE LINE 2		
	9	NIGHT TOLL RESTRICTION LEVELS - OUTSIDE LINE 3		
	10	NIGHT TOLL RESTRICTION LEVELS - OUTSIDE LINE 4		
	11	NIGHT TOLL RESTRICTION LEVELS - OUTSIDE LINE 5		
	12	NIGHT TOLL RESTRICTION LEVELS - OUTSIDE LINE 6		
	13	USER DATA TABLE 1	1-5 DIGITS FOR EACH ENTRY (UP TO 20 ENTRIES FOR RESTRICTION)	BLANK
	14	CONTROL CODES FOR USER DATA TABLE 1	0 (DENY DIALING) 1 (ALLOW DIALING) 2 (ALLOW, STOP) 3 (EXPAND)	0 (DENY)
	15	USER DATA TABLE 2	1-5 DIGITS FOR EACH ENTRY (UP TO 20 ENTRIES FOR RESTRICTION)	BLANK
	16	CONTROL DATA FOR USER DATA TABLE 2	0 (DENY DIALING) 1 (ALLOW DIALING) 2 (ALLOW, STOP) 3 (EXPAND)	0 (DENY)
	17	USER DATA TABLE 3	1-5 DIGITS FOR EACH ENTRY (UP TO 20 ENTRIES FOR RESTRICTION)	BLANK
	18	CONTROL CODES FOR USER DATA TABLE 3	0 (DENY DIALING) 1 (ALLOW DIALING) 2 (ALLOW, STOP) 3 (EXPAND)	0 (DENY)
	19	USER DATA TABLE 4	1-5 DIGITS FOR EACH ENTRY (UP TO 20 ENTRIES FOR RESTRICTION)	BLANK
	20	CONTROL CODES FOR USER DATA TABLE 4	0 (DENY DIALING) 1 (ALLOW DIALING) 2 (ALLOW, STOP) 3 (EXPAND)	0 (DENY)
	21	OTHER COMMON CARRIER (OCC) ACCESS CODES	1-14 DIGITS (ENTER ACCESS CODES FOR UP TO 4 OTHER COMMON CARRIERS)	BLANK
	22	NUMBER OF DIGITS IN AUTHORIZATION CODES (PIN)	0-20 (ENTER NUMBER OF DIGITS IN PIN NOS. FOR EACH EQUAL ACCESS NUMBER)	0
	23	AUTHORIZATION CODE (PIN) POSITION	0 (BEFORE NUMBER) 1 (AFTER NUMBER)	0 (BEFORE NUMBER)

4.2 SYSTEM INSTALLER PROGRAMMING

4.2.1 THE PROGRAMMING TERMINAL

The telephone which has been designated as the "Master KT" by the system installer is the only telephone which can be used to program the ZT-S system. In the initial factory setting, the telephone connected to circuit number 1, or Extension 20 is the Master KT.

A display telephone should always be installed in the location designated as the Master KT.

Read this section carefully to familiarize yourself with system programming procedures. Then, follow the programming instructions to enter the programming data, using the planning sheets at the end of this section to record all information programmed.

4.2.2 PROGRAMMING FUNCTION BUTTONS

When you enter the programming mode, the feature buttons and dial pad buttons become programming function buttons and data entry buttons. The following charts show the functions assigned to each button and describe the functions in detail.

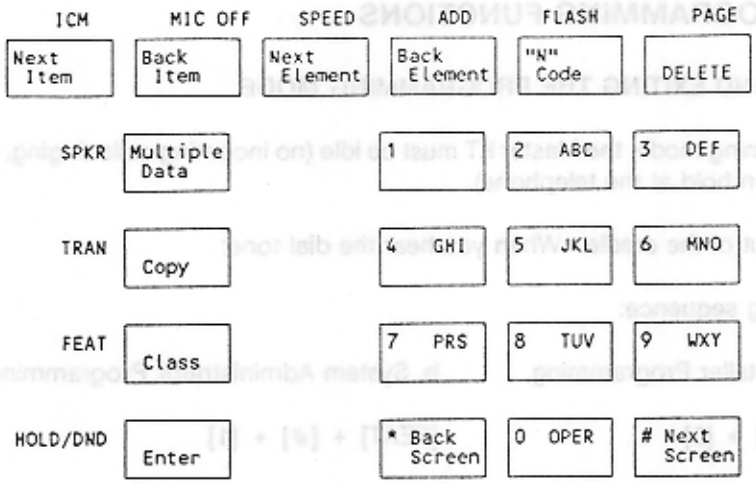


FIGURE 4-1 TELEPHONE PROGRAMMING FUNCTION BUTTONS

TABLE 4-1 PROGRAMMING BUTTON FUNCTIONS

BUTTON NAME	PROGRAMMING MODE	PROGRAMMING FUNCTION
ICM	NEXT ITEM	PROCEED TO THE NEXT ITEM IN A CLASS.
MIC OFF	BACK ITEM	GO BACK TO THE PREVIOUS ITEM IN A CLASS.
SPEED	NEXT ELEMENT	PROCEED TO THE NEXT ELEMENT IN A CLASS.
ADD	BACK ELEMENT	GO BACK TO THE PREVIOUS ELEMENT IN A CLASS.
FLASH	"N" CODE	REGISTERS "N", THAT IS, "ANY NUMBER FROM 0-9" IN THE DIAL DATA.
PAGE	DELETE	DELETES THE CLASS NUMBER, ITEM NUMBER, ELEMENT NUMBER, OR DATA WHICH WAS JUST ENTERED.
SPKR	MULTIPLE DATA	USED TO ENTER DATA WITH MULTIPLE VALUES.
TRAN	COPY	COPIES THE DATA ENTERED FOR ONE ELEMENT NUMBER TO A DIFFERENT ELEMENT NUMBER.
FEAT	CLASS	USED TO SELECT CLASS, ITEM, AND ELEMENT NUMBERS.
* (STAR)	BACK SCREEN	USED DURING MULTIPLE DATA ENTRY OR COPYING OPERATIONS. GO BACK TO THE PREVIOUS SCREEN.
# (POUND)	NEXT SCREEN	USED DURING MULTIPLE DATA ENTRY OR COPYING OPERATIONS. PROCEED TO THE NEXT SCREEN.

During the programming operation, the buttons which can be used for the next step in whatever operation you are performing will be lit or flashing.

If you press another button which is not lit or flashing during the operation, nothing will happen.

4.3 BASIC PROGRAMMING FUNCTIONS

4.3.1 ENTERING AND EXITING THE PROGRAMMING MODE

To enter the programming mode, the Master KT must be idle (no incoming calls ringing, no calls in progress, and no calls placed on hold at the telephone).

(1) Lift the receiver out of the cradle. When you hear the dial tone:

(2) Press the following sequence:

a. System Installer Programming	b. System Administrator Programming
[FEAT] + [#] + [5]	[FEAT] + [#] + [1]

(3) Enter the password:

a. System Installer Programming	b. System Administrator Programming
[4][7][8]	[8][7][3]

The display shows:

`Install Program`	`User's Program`

(4) Hang up the receiver. If you have entered the system installer programming mode, the operating software version number will be displayed.

```
ZTS V1.0    R00
```

(5) Press the Feature button.

[FEAT]

The following display appears:

```
Class 0
```

You are now ready to select programming classes, items, and elements.

To exit the programming mode, simply lift the receiver out of the cradle, then hang up again. The telephone will return to normal operation, and the display will change back to the clock and calendar display.

4.3.2 SELECTING A PROGRAMMING CLASS AND ITEM

a. To select a programming item

For example, to select Class 1 Item 2, Hold Recall Timer:

When the display shows any Class number, for example:

```
Class 0
```

(1) Enter the desired class number (If that class number is already displayed, you can skip this step).

[1] (System Parameters)

The display shows the class number you have entered.

```
Class 1
```

(2) Press the Feature button again. The first item in that class will be displayed.

[FEAT]

```
Item 1
```

(3) Press the desired item number (If that item number is already displayed, you can skip this step).

[2]

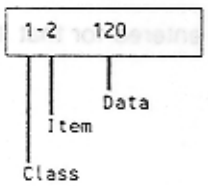
The display shows the item number you have entered.

```
Item 2
```

(4) When you have entered the desired class and item numbers, press the Feature button again.

[FEAT]

The data entry for that programming item will be displayed.



(5) Enter the desired data. For example, if you want calls on hold to recall the telephone if not answered within 3 minutes, enter 180, for 180 seconds.

[1][8][0]

The data you have entered will be displayed.

1-2 180

(6) Press the Hold button to enter the information.

[HOLD/DND]

b. To select a different class, press the Feature button.

[FEAT]

The display shows the last class number selected.

Class 1

(N= the last class number selected)

Enter the desired class numbers to select another class.

[2] (System Features)
The class number you have entered will be displayed.

c. To move to the next item in the same class, press the Intercom button.

For example, if you are in Class 1, Item 1, Camp-On Recall Timer, and want to move to Item 2 Hold Recall Timer:

When the Class 1, Item 1 display is shown (the last data value entered is displayed):

1-1 20

Press the Intercom button.

[ICM]

The next item in the same class will be displayed with the data currently entered for that item.

1-2 180

d. To go back to the previous item in the same class, press the Microphone button.

For example, if you are in Class 1, Item 2, Hold Recall Timer, and want to go back to Item 1 Camp-On Recall Timer:

When the Class 1, Item 2 display is shown (the last data value entered is displayed):

1-2 180

Press the Microphone button.

[MIC OFF]

The previous item in the same class will be displayed with the data currently entered for that item.

1-1 20

4.3.3 SELECTING ITEMS WITH ELEMENTS

Certain programming items are subdivided into Elements. When you wish to program an item which has elements, after selecting the item, you must go on to select an element before entering any data.

For example, to set the tenth button on Extension 25 as the first Autodial button:

When you are in the programming mode and the Class display is shown, follow the sequence shown below.

Class 0

(1) Enter the desired class number.

[3] (Class 3 Outside Line/Extension Data)

The display shows the class number you have entered.

Class 3

(2) Press the Feature button.

[FEAT]

The first item in that class will be displayed.

Item 1

(3) Enter the desired item number.

[6] (Autodial Button Assignment)

The display shows the item number you have entered.

Item 6

(4) Press the Feature button again.

[FEAT]

Now the first element for that item will be displayed.

Elem 1

(5) Enter the desired element number. In this example, data is being entered for Extension 25, which is the sixth telephone connected to the system. Therefore, you should enter [6] for Element 6.

[6] (Circuit 06, Extension 25)

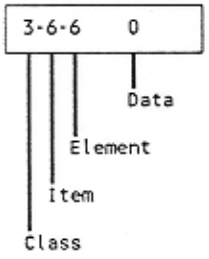
The display shows the element number you have entered.

Elem 6

(6) Press the Feature button again.

[FEAT]

Now the data currently entered for that element will be displayed. In the factory setting, no Autodial buttons are assigned, so the initial value is 0. This means that the first sixteen buttons on Extension 25 will function as DSS buttons (DSS 20 to DSS 35).



(7) Enter the number of the first button that is to be an Autodial button. In this example, the tenth through sixteenth buttons are to be assigned as Autodial buttons, so the number "10" should be entered.

[1][0]

The new data you have entered will be displayed.

3-6-6 10

(8) Press the Hold button to enter the information.

[HOLD/DND]

Now buttons 1 to 9 on Extension 25 will function as DSS buttons to call Extensions 20 to 28. Buttons 10 to 16 will function as Autodial buttons for one touch dialing of Station Speed Dial Numbers 93 to 99, respectively.

You can use the Speed button to move to the next element in the same programming item, or use the Add button to go back to the previous element in the same item.

To move to Element 7 (Extension 26), when the data for 6 is displayed:

Press the Speed button.

[SPEED]

The display changes to show the last data entered for Element 7.

3-6-7 0

To go back to Element 6 (Extension 25), when the data for Element 7 is displayed:

Press the Add button.

[ADD]

The display changes to show the last data entered for Element 6.

3-6-6 10

4.3.4 COPYING DATA

For any programming items which have elements, you can copy the data entered for one element to other elements.

For example, if you have set the tenth button on Extension 25 as the first Autodial button, and you also want the tenth button on Extensions 21, 23 and 31 to be the first Autodial button:

(1) Follow the procedure in 4.3.3 Selecting Items with Elements to enter the data for Autodial Button Assignment for Extension 25. After you have pressed the Hold button to enter the data, you can begin the copy operation.

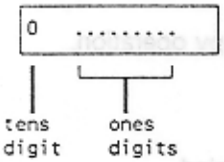
[HOLD/DND]

```
3-6-6     10
```

(2) Press the Transfer button to start the copy operation.

[TRAN]

The display shows the first nine elements of this item (circuits 01 to 09, or Extensions 20 to 28). The zero at the left corresponds to the tens digit, and the dots correspond to the ones digits for circuits 01 to 09.



(3) Press the numbers corresponding to the ones digits for any telephone circuit numbers (Extension numbers 20 to 28), to which you want to copy the data. In this example, the data is to be copied to circuits 02 and 04 (Extensions 21 and 23), so press 2 and 4.

[2] + [4] (Circuits 02 and 04, or Extensions 21 and 23)

The display changes to indicate the numbers you have entered, in place of the dots. The data will be copied to these numbers.

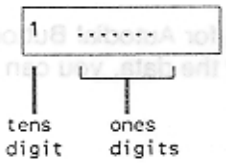
```
0  .2.4.....
```

If you make a mistake, or want to change your entry, press the button for that number again, and the number displayed will change back to a dot.

(4) The second 7 elements (Extensions 29 to 35) are displayed on a second screen. To move to the second screen, press the Pound button.

[#]

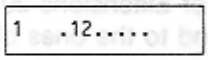
The second screen will be displayed. The dots correspond to the ones digits for circuits 10 to 16 (Extensions 29 to 35).



(5) Press the numbers corresponding to the ones digits for the extension numbers to which you want to copy the data. In this example, the data is to be copied to circuits 11 and 12 (Extensions 30 and 31), so press 1 and 2.

[1] + [2] (Circuits 11 and 12, or Extensions 30 and 31)

The display changes to indicate the numbers you have entered.

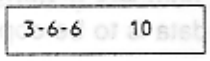


(If you need to go back to the first screen, press the Star button [*]).

(6) Press the Hold button to enter the data and the Transfer button to end the copy operation.

[HOLD/DND] + [TRAN]

The display will change back to the element from which the data was copied.



4.3.5 ENTERING MULTIPLE DATA

Several programming items in Classes 3,4, and 8 have multiple data values which must be entered for each element. To enter multiple data values for any of the elements in these programming items, use the following procedure.

For example, when you want to assign Extensions 20, 21, 22, and 30 to ring when there is an incoming call on outside line 2 when the system is in the Night Mode:

When you are in the programming mode and the Class display is shown, follow the sequence shown below.

Class 0

(1) Enter the desired Class Number.

[3] (Outside Line/Extension Data)

The display shows the class number you have entered.

Class 3

(2) Press the Feature button.

[FEAT]

The first item in the class will be displayed.

Item 1

(3) Enter the desired item number.

[2] (Ringing Telephones - Night Mode)

The display shows the item number you have entered.

Item 2

(4) Press the Feature button.

[FEAT]

The first element for that item will be displayed.

Elem 1

(5) Enter the desired element number.

[2] (Outside Line 2)

The display shows the number you have entered.

```
Elem 2
```

(6) Press the Feature button.

[FEAT]

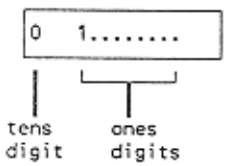
The following display appears:

```
3-2-2  Multiple
```

(7) Press the Speaker button to begin the multiple data entry operation.

[SPKR]

The display shows the current data values for the first nine telephones (circuits 01 to 09, or Extensions 20 to 28.) The digit at the left is the tens digit, and the numbers or dots to the right correspond to the ones digits for each circuit number.



(8) Press the numbers for the ones digits of the telephones you want to ring in the Night Mode. In this example, Extensions 20, 21, and 22 are to ring, and circuit 01 (Extension 20) is already assigned to ring. Press the numbers 2 and 3, for circuits 02 and 03 (Extensions 21 and 22).

[2] + [3] (Circuits 02 and 03, or Extensions 21 and 22)

The display changes to indicate the numbers you have entered in place of the dots.

```
0  123.....
```

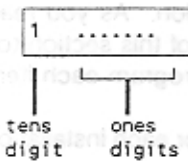
The telephones connected to Circuits 01, 02, and 03 (Extensions 20,21, and 22) will now ring when there is an incoming call on Outside Line 2 when the system is in the Night mode.

If you make a mistake, or want to change your entry, press the button for that number again, and the number displayed will change back to a dot.

(9) Press the Pound button to move to the second screen.

[#]

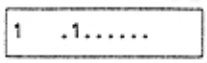
The second screen displays the data for circuits 10 to 16 (Extensions 29 to 35).



(10) Press the numbers for the ones digits of the telephones you want to ring in the Night Mode.

[1] (circuit 11, or Extension 30)

The display changes to indicate the numbers you have entered in place of the dots.

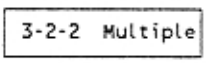


The telephones connected to Circuits 11 (Extension 30) will ring when there is an incoming call on Outside Line 2 when the system is in the Night mode.

(11) Press the Hold button to enter the data and the Speaker button to end the multiple data entry operation.

[HOLD/DND] + [SPKR]

The display changes back to the original item display.

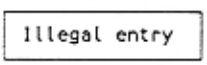


4.3.6 DELETING AN INCORRECT ENTRY

When you are entering any data for a programming item, the PAGE lamp is lit, signalling that this button can be used to delete the data.

Each time the Page button is pressed, the last digit of the data will be deleted.

If you enter incorrect data, after you press the Hold button to enter the data, the following display appears:



Press the Page button to delete the entry, and the display changes back to the data previously set for that item.

4.4 PROGRAMMING ITEMS

Once you have practiced and understand the basic programming procedures, you are ready to program the ZT-S system.

First, read through the descriptions of each programming item in this section. As you read this information, use copies of the System Planning Sheets provided at the end of this section to write in the data you want to program for each item. Then, follow the steps to program each item.

It is important that you complete a copy of part 4.5 System Planning Sheets for each installation and keep a copy available for easy reference.

Setting The Time

To set the system clock, perform the following operation when the Master KT is idle.

Operation

(1) Lift the receiver, and listen for the dial tone.

(2) Press the following buttons:

[FEAT] + [#] + [2]

(3) Enter the time in four digits, using the twenty four hour clock.

For example, to enter 1:35pm (13:35 hrs.)
[1] + [3] + [3] + [5]

(4) Hang up.

Now all display telephones will show the correct time.

CLASS 0 SYSTEM CONFIGURATION

ITEM 1 Calendar Setting

Description: This item sets the year, month, day, and day of the week.

Data Entry:

(1) Last two digits of the calendar year
(2) Month, from 01 (January) to 12 (December)
(3) Day of the month, from 01 to 31
(4) Day of the week: 1 = Sunday, 2 = Monday, 3 = Tuesday, 4 = Wednesday, 5 = Thursday, 6 = Friday, 7 = Saturday

Initial Factory Setting: None

How to Program: To set the calendar to Wednesday, March 5, 1990:

Operation	Display

When you have accessed this item:

```
YYMMDDW:
```

(1) Enter the last two digits of the year.

[9][0] (1990)

```
YYMMDDW:90
```

(2) Enter two digits for the month of the year.

[0][3] (March)

```
YYMMDDW:9003
```

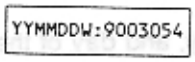
(3) Enter two digits for day of the month.

[0][5] (5th day)

```
YYMMDDW:900305
```

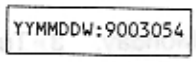
(4) Enter one digit for the day of the week.

[4] (Wednesday)



(5) Press the Hold button to enter the data.

[HOLD/DND]



Now you can press the Feature button to select another class.

CLASS 1 SYSTEM PARAMETERS

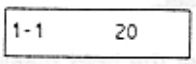
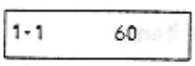
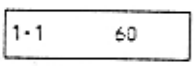
ITEM 1 Camp-On Recall Timer

Description: This item sets the length of time a call will remain "camped-on", or transferred to a busy extension. Once the time programmed for this item has elapsed, the camp-on call will recall the telephone that performed the camp-on operation.

Data Entry: Camp-On time in seconds, from 10sec. to 240sec.

Initial Factory Setting: 20sec.

How to Program: To set the camp-on recall timer to 1 minute:

Operation	Display
When you have accessed this item:	
(1) Enter the time in seconds. [6][0]	
(2) Press the Hold button to enter the data. [HOLD/DND]	

Now you can press the Feature button to select another class, or press the Intercom button to move to the next item in Class 1.

CLASS 1 SYSTEM PARAMETERS

ITEM 2 Hold Recall Timer

Description: This item sets the length of time a call will remain on system or exclusive hold. After a call has been on hold for this amount of time, the call will recall the telephone which placed the call on hold. The call will not recall the telephone unless the telephone is allowed to receive recalls in Class 8, Item 10 Hold Recall Telephones.

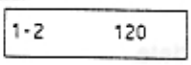
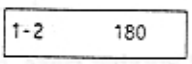
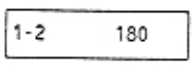
Related Programming: The following parameter must also be programmed in order for the Hold Recall feature to operate correctly:

Class 8, Item 10 Hold Recall Telephones

Data Entry: Hold time in seconds, from 10 sec. to 240 sec.

Initial Factory Setting: 120 sec.

How to Program: To set the hold recall timer to 3 minutes:

Operation	Display
When you have accessed this item:	
(1) Enter the time in seconds. [1][8][0]	
(2) Press the Hold button to enter the data. [HOLD/DND]	

Now you can press the Feature button to select another class, or press the Microphone button to go back to the previous item in Class 1.

CLASS 2 SYSTEM FEATURES

ITEM 1 Busy Override Signalling

Description: This item allows you to choose whether all telephones in the system will hear a busy override signal through the telephone speaker when they are busy on a call, to inform them of a second incoming call. If this feature is denied, there will be no override signal and the calling telephone will hear a busy signal. Note that this feature can only be allowed or denied for the entire system; it is not possible to allow or deny by individual telephones.

Data Entry: 0 = Deny busy override signalling
1 = Allow busy override signalling

Initial Factory Setting: 1 (Allow busy override signalling)

How to Program: To deny busy override signalling in the system:

Operation	Display
When you have accessed this item:	2-1 1
(1) Press 0 to deny the feature. [0]	2-1 0
(2) Press the Hold button to enter the data. [HOLD/DND]	2-1 0

Now you can press the Feature button to select another class.

CLASS 3 OUTSIDE LINE/EXTENSION DATA

ITEM 1 Ringing Telephones - Day Mode

Description: This item determines which telephones will ring when there is an incoming call on each outside line while the system is in the Day Mode.

This item is divided into six elements. Elements 1 to 6 correspond to outside lines 1 to 6. For each line or element, you must select the circuit numbers of the telephones to ring when there is an incoming call.

Related Programming: The following parameter must also be programmed in order for outside line incoming call access to function correctly:

Class 4, Item 2 Outside Line Pickup Restriction

Data Entry: This item displays multiple data for each element. You must enter the last digit of each telephone circuit number for which you want to change the data.

Telephone connected to Circuit Number	Is Extension Number	Telephone connected to Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

A dot = not a ringing telephone
A number = ringing telephone

If you want to enter the same data for more than one outside line, you can use the copy operation to copy the data from one element to others.

NOTE: WHEN YOU PROGRAM THIS ITEM, MAKE SURE THAT THE RINGING TELEPHONES HAVE NOT BEEN DENIED ACCESS TO THE LINE IN CLASS 4, ITEM 2 OUTSIDE LINE PICKUP RESTRICTION.

Initial Factory Setting: The telephone connected to Circuit 01 (Extension 20) will ring for incoming calls on any outside lines in the day mode.

How to Program: To set Extensions 21, 22, 25 and 30 to ring when there is an incoming call on Outside line 2, in the Day Mode:

Operation	Display

When you have accessed this item:

```
Elem 1
```

(1) Select an element.

[2]

```
Elem 2
```

(Outside Line 2)

(2) Press the Feature button.

[FEAT]

```
3-1-2  Multiple
```

(3) Press the Speaker button to begin the multiple data entry operation.

[SPKR]

Screen 1 will be displayed.

```
0  1........
```

(Circuits 01 to 09, or Extensions 20 to 28)

(4) Press the buttons for the last digit of each number for which you want to change the data.

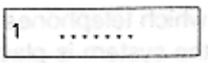
[1] + [2] + [3] + [6]

```
0  .23..6...
```

Circuit 01 (Extension 20) will become a non ringing telephone. Circuits 02, 03, and 06 (Extensions 21, 22, and 25) will become ringing telephones.

(5) Press the Pound button to move to Screen 2.

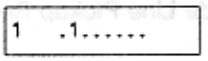
[#]



(Circuits 10 to 16, or Extensions 29 to 35)

(6) Press the buttons for the last digit of each number for which you want to change the data entry.

[1]

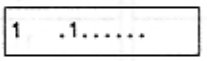


Circuit 11 (Extension 30) will become a ringing telephone.

(If you want to go back to Screen 1, press the Star button [*].)

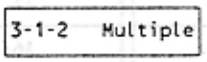
(7) Press the Hold button to enter the data.

[HOLD/DND]



(8) Press the Speaker button to end the multiple data entry operation.

[SPKR]



You can press the Speed button to move to the next element, or the Add button to go back to the previous element and manually enter the data for the next outside line. Or, you can copy the data already entered to other elements, using the copy operation.

Then, you can press the Feature button to select another class, or press the Intercom button to move to the next item in Class 3.

CLASS 3 OUTSIDE LINE/EXTENSION DATA

ITEM 2 Ringing Telephones - Night Mode

Description: This item determines which telephones will ring when there is an incoming call on an outside line while the system is placed in the Night Mode.

This item is divided into six elements. Elements 1 to 6 correspond to outside lines 1 to 6. For each line or element, you must select the circuit numbers of the telephones to ring when there is an incoming call.

Related Programming: The following parameter must also be programmed in order for outside line incoming call access to function correctly:

Class 4, Item 2 Outside Line Pickup Restriction

Data Entry: This item displays multiple data for each element. You must enter the last digit of each telephone circuit number to change the data value.

Telephone connected to Circuit Number	Is Extension Number	Telephone connected to Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

A dot = not a ringing telephone
A number = ringing telephone

If you want to enter the same data for more than one outside line, you can use the copy operation to copy the data from one element to others.

NOTE: WHEN YOU PROGRAM THIS ITEM, MAKE SURE THAT THE RINGING TELEPHONES HAVE NOT BEEN DENIED ACCESS TO THE LINE IN CLASS 4, ITEM 2 OUTSIDE LINE PICKUP RESTRICTION.

Initial Factory Setting: The telephone connected to Circuit 01 (Extension 20) will ring for incoming calls on any outside lines in the night mode.

How to Program: To set Extensions 21, 22, 25 and 30 as the only telephones to ring for incoming calls on Outside Line 2 in the night mode:

Operation	Display

When you have accessed this item:

```
Elem 1
```

(1) Select an element.

[2]

```
Elem 2
```

(Outside Line 2)

(2) Press the Feature button.

[FEAT]

```
3-2-2  Multiple
```

(3) Press the Speaker button to begin the multiple data entry operation.

[SPKR]

Screen 1 will be displayed.

```
0  1........
```

(Circuits 01 to 09, or Extensions 20 to 28)

(4) Press the buttons for the last digit of each number for which you want to change the data.

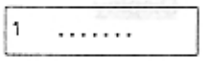
[1] + [2] + [3] + [6]

```
0  .23..6...
```

Circuit 01 (Extension 20) will become a non ringing telephone. Circuits 02, 03, and 06 (Extensions 21,22, and 25) will become ringing telephones.

(5) Press the Pound button to move to Screen 2.

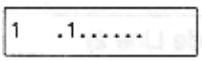
[#]



(Circuits 10 to 16, or Extensions 29 to 35)

(6) Press the buttons for the last digit of each number for which you want to change the data entry.

[1]

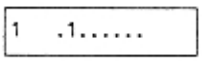


Circuit 11 (Extension 30) will become a ringing telephone.

(If you want to go back to Screen 1, press the Star button [*].)

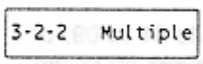
(7) Press the Hold button to enter the data.

[HOLD/DND]



(8) Press the Speaker button to end the multiple data entry operation.

[SPKR]



You can press the Speed button to move to the next element, or the Add button to go back to the previous element and manually enter the data for the next outside line. Or you can copy the data already entered to other elements, using the copy operation.

Then, you can press the Feature button to select another class, the Intercom button to move to the next item in Class 3, or the Microphone button to go back to the previous item in Class 3.

CLASS 3 OUTSIDE LINE/EXTENSION DATA

ITEM 3 Do Not Disturb

Description: This item determines whether each telephone will be allowed or denied use of the Do Not Disturb feature. This allows you to prevent a telephone such as a secretarial position from placing itself in the Do Not Disturb Mode.

Data Entry: This item displays multiple data. You must enter the last digit of each telephone circuit number for which you want to change the data entry.

Telephone connected to Circuit Number	Is Extension Number	Telephone connected to Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

A dot= The telephone is denied use of Do Not Disturb.
A number= The telephone is allowed to use Do Not Disturb.

Initial Factory Setting: All telephones are denied use of the Do Not Disturb feature.

How to Program: To set Extensions 23 to 35 to allow them to use Do Not Disturb:

Operation	Display

When you have accessed this item:

```
3-3 Multiple
```

(1) Press the Speaker button to begin the multiple data entry operation.

[SPKR]

Screen 1 will be displayed.

```
0 .........
```

(Circuits 01 to 09, or Extensions 20 to 28)

(2) Press the numbers for the last digit of each telephone circuit number to change the data value.

[4] + [5] + [6] + [7] + [8] + [9]

```
0 ...456789
```

(3) Press the Pound button to move to Screen 2.

[#]

```
1 .......
```

(Circuits 10 to 16, or Extensions 29 to 35)

(4) Press the numbers for the last digit of each telephone circuit number to change the data.

[0] + [1] + [2] + [3] + [4] + [5] + [6]

```
1 0123456
```

(If you want to go back to Screen 1, press the Star button [*].)

(5) Press the Hold button to enter the data.

[HOLD/DND]

1 0123456

(6) Press the Speaker button to end the multiple data entry operation.

[SPKR]

3-3 Multiple

Circuits 04 to 16 (Extensions 23 to 35) will be allowed to place themselves in the Do Not Disturb Mode.

Now you can press the Feature button to select another class, the Intercom button to move to the next item in Class 3, or the Microphone button to go back to the previous item in Class 3.

CLASS 3 OUTSIDE LINE/EXTENSION DATA

ITEM 4 Paging Access

Description: This item determines which telephones will be allowed to make paging announcements. This does not affect the ability to receive paging announcements.

Related Programming: The following parameters must also be programmed in order for paging to operate correctly:

Class 3, Item 5 Paging Call - Receiving Telephones
Class 6, Item 11 Paging Circuit Timeout

Data Entry: This item displays multiple data. You must enter the last digit of each telephone circuit number for which you want to change the data entry.

Telephone connected to Circuit Number	Is Extension Number	Telephone connected to Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

A dot = Paging is not allowed from the telephone.
A number = Telephone is allowed to make paging announcements.

Initial Factory Setting: All telephones are allowed to make paging announcements.

How to Program: To allow Extensions 20 to 32 to use paging, and deny paging from Extensions 33, 34, and 35.

Operation	Display

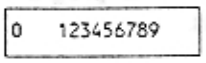
When you have accessed this item:

3-4 Multiple

(1) Press the Speaker button to begin the multiple data entry operation.

[SPKR]

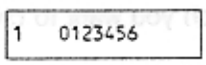
Screen 1 will be displayed.



(Circuits 01 to 09, or Extensions 20 to 28)

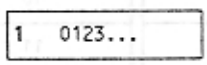
(2) Since you do not need to change the data for Screen 1, press the Pound button to move to Screen 2.

[#]



(3) Press the numbers for the last digit of each circuit number to change the data.

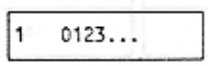
[4] + [5] + [6]



(If you want to go back to Screen 1, press the Star button [*].)

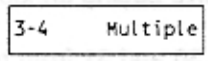
(4) Press the Hold button to enter the data.

[HOLD/DND]



(5) Press the Speaker button to end the multiple data entry operation.

[SPKR]



Now you can press the Feature button to select another class, the Intercom button to move to the next item in Class 3, or the Microphone button to go back to the previous item in Class 3.

CLASS 3 OUTSIDE LINE/EXTENSION DATA

ITEM 5 Paging Call - Receiving Telephones

Description: This item determines which telephones will receive paging announcements through the telephone speaker. This programming does not affect the ability to make paging announcements.

Related Programming: The following parameters must also be programmed in order for paging to operate correctly:

Class 3, Item 4 Paging Access
Class 6, Item 11 Paging Circuit Timeout

Data Entry: This item displays multiple data. You must enter the last digit of each telephone circuit number for which you want to change the data entry.

Telephone connected to Circuit Number	Is Extension Number	Telephone connected to Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

A dot= The telephone is denied receiving paging announcements.
A number= Telephone is allowed to receive paging announcements.

Initial Factory Setting: All telephones will receive paging announcements when not in use.

How to Program: To prevent Extensions 30 and 31 from receiving paging announcements:

Operation	Display

When you have accessed this item:

3-5 Multiple

(1) Press the Speaker button to begin the multiple data entry operation.

[SPKR]

Screen 1 will be displayed.

0 123456789

(Circuits 01 to 09, or Extensions 20 to 28)

(2) Since you do not need to change the data for Screen 1, press the Pound button to move to Screen 2.

[#]

1 0123456

(Circuits 10 to 16, or Extensions 29 to 35)

(3) Press the numbers for the last digit of the telephone circuit numbers to change the data value.

[1] + [2]

1 0..3456

Extensions 30 and 31 will not receive paging announcements.

(If you want to go back to Screen 1, press the Star button [*].)

(4) Press the Hold button to enter the data.

[HOLD/DND]

1 0..3456

(5) Press the Speaker button to end the multiple data entry operation.

[SPKR]

1 0..3456

Now you can press the Feature button to select another class, the Intercom button to move to the next item in Class 3, or the Microphone button to go back to the previous item in Class 3.

CLASS 3 OUTSIDE LINE/EXTENSION DATA

ITEM 6 Auto Dial Button Assignment

Description:

The first sixteen buttons on the ZT-S telephones can be used as Direct Station Selection (DSS) buttons, or as Autodial buttons. This item specifies the first button which will be assigned as an Autodial button on each telephone. The assigned button and all higher buttons will automatically become Autodial buttons.

The DSS button assignment is fixed and cannot be changed. That is, if the first button on the telephone is a DSS button, it will automatically be assigned as DSS 20, for calling Extension 20. It cannot be assigned to call another extension. Likewise, if the first button on the telephone is assigned as an Autodial button, that button will automatically be assigned to autodial Station Speed Dial No. 84. It cannot be assigned to auto dial another station speed dial number. Also, once you assign the first Autodial button, all higher buttons will automatically become Autodial buttons. You cannot go back and assign any of the higher buttons as DSS buttons. The chart below shows the value that each key will assume if assigned as an Autodial button, or if left as a DSS button.

Note that the seventeenth and eighteenth buttons on ZT-S telephones are preassigned for autodialing of System Speed Dial Nos. 00 and 01, and this assignment cannot be changed.

This item is divided into elements. Elements 1 to 16 correspond to the telephones connected to circuits 01 to 16, or Extensions 20 to 35 respectively.

Data Entry: Enter the number of the first button to be used as an Autodial button, from 1 to 16, or 0, if no Autodial buttons are desired.

1 to 16 = Buttons 1 to 16
0 = No Autodial buttons; the first 16 buttons are all DSS buttons.

Depending on the value programmed for this item, buttons will be assigned as either DSS buttons or Autodial buttons in the following order:

Button No.	If DSS Button, Calls Extension No.	If Autodial Button, Calls Station Speed Dial No.
1	20	84
2	21	85
3	22	86
4	23	87
5	24	88
6	25	89
7	26	90
8	27	91
9	28	92
10	29	93
11	30	94
12	31	95
13	32	96
14	33	97
15	34	98
16	35	99

Note: All DSS/Autodial buttons are automatically assigned in order of the extension numbers or station speed dial numbers. So, button 1 will call Extension 20 or Station Speed Dial No. 84, button 2 will call Extension 21 or Station Speed Dial No. 85, etc. This assignment is fixed, and cannot be changed.

Initial Factory Setting: 0 (The first sixteen buttons on all telephones are DSS 20 to DSS 35.)

How to Program: To program the tenth button on the telephone connected to circuit 11 (Extension 30) as the first autodial button:

Operation	Display

When you have accessed this item:

```
Item 6
```

(1) Press the Feature button.

[FEAT]

```
Elem 1
```

(2) Press the number to select the desired element.

[1][1]

```
Elem 11
```

(Circuit 11, or Extension 30)

(3) Press the Feature button.

[FEAT]

```
3-6-11  0
```

(4) Enter the number of the first button to be assigned as an Autodial button.

[1][0] (Tenth button)

```
3-6-11  10
```

(5) Press the Hold button to enter the data.

[HOLD/DND]

```
3-6-11  10
```

The first 9 buttons on Extension 30 will remain as DSS buttons for calling Extensions 20 to 28. Buttons 10 to 16 will become Autodial buttons for one touch dialing of Station Speed Dial Numbers 93 to 99.

You can press the Speed button to move to the next element, or Add button to go back to the previous element and manually enter data for another telephone. Or, you can copy the data already entered to other elements, using the copy operation.

Then you can press the Feature button to select another class, or press the Microphone button to go back to the previous item in Class 3.

CLASS 4 OUTSIDE LINE RESTRICTION DATA

ITEM 1 Outside Line Outgoing Restriction

Description: This item determines which telephones will be allowed to make outgoing calls on each outside line. This assignment applies in both the day and night modes.

This item is divided into six elements. Elements 1 to 6 correspond to outside lines 1 to 6. For each line, or element, you must select the circuit numbers of the telephones allowed or denied making outgoing calls on the line. Note that telephones restricted by this item will still be able to answer incoming calls, calls placed on hold, or calls transferred from another telephone.

Data Entry: This item displays multiple data for each element. You must enter the last digit of each telephone circuit number to change the data value.

Telephone connected to Circuit Number	Is Extension Number	Telephone connected to Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

A dot= Telephone is denied making outgoing calls on the line.
A number= Telephone is allowed to make outgoing calls on the line.

Initial Factory Setting: All telephones are allowed to make outgoing calls on all outside lines.

How to Program: To prevent extensions 25,26, and 30 from making outgoing calls on Outside Line 5:

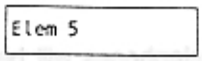
Operation	Display

When you have accessed this item:

Elem 1

(1) Select an element.

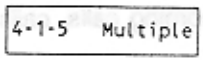
[5]



(Outside Line 5)

(2) Press the Feature button.

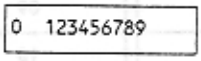
[FEAT]



(3) Press the Speaker button to begin the multiple data entry operation.

[SPKR]

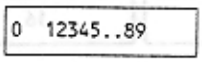
Screen 1 will be displayed.



(Circuits 01 to 09, or
Extensions 20 to 28)

(4) Press the buttons for the last digit of each telephone circuit number for which you want to change the data.

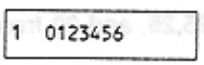
[6] + [7]



The telephones connected to Circuits 06 and 07 (Extensions 25 and 26) will be denied making outgoing calls on Outside Line 5.

(5) Press the Pound button to move to Screen 2.

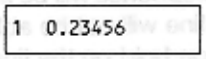
[#]



(Circuits 10 to 16, or
Extensions 29 to 35)

(6) Press the buttons for the last digit of each telephone circuit number for which you want to change the data.

[1]

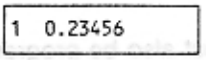


The telephone connected to Circuit 11 will be denied making outgoing calls on Outside Line 5.

(If you want to go back to Screen 1, press the Star button [*].)

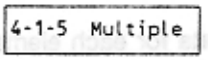
(7) Press the Hold button to enter the data.

[HOLD/DND]



(8) Press the Speaker button to end the multiple data entry operation.

[SPKR]



You can press the Speed button to proceed to the next element or the Add button to go back to the previous element and manually enter data for another outside line. Or, you can copy the data you have already entered to other elements, using the copy operation.

Now you can press the Feature button to select another class, or press the Intercom button to move to the next item in Class 4.

CLASS 4 OUTSIDE LINE RESTRICTION DATA

ITEM 2 Outside Line Pickup Restriction

Description: This item determines which telephones will be allowed to use each outside line. Telephones denied access to an outside line will not be able to make outgoing calls, answer incoming calls, or pickup calls placed on hold on the line. Telephones restricted in this item will be allowed to answer calls transferred to them by another telephone. Note that when a telephone is denied access to an outside line in this item, this programming takes priority over the value programmed for Class 4, Item 1 Outside Line Outgoing Restriction.

This item is divided into six elements. Elements 1 to 6 correspond to outside lines 1 to 6. For each line, or element, you must select the circuit numbers of the telephones allowed or denied access to the line.

Related Programming: The following parameters must also be programmed in order for calls on outside lines to be handled correctly:

Class 3, Item 1 Ringing Telephones - Day Mode
Class 3, Item 2 Ringing Telephones - Night Mode
Class 4, Item 1 Outside Line Outgoing Restriction

Data Entry: This item displays multiple data for each element. You must enter the last digit of each telephone circuit number to change the data value.

Telephone connected Circuit Number	Is Extension Number	Telephone connected Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

A dot = Telephone is denied access to the line.
A number = Telephone is allowed access to the line.

Initial Factory Setting: All telephones are allowed to use all outside lines.

How to Program: To restrict extensions 25,26, and 30 from using Outside Line 5:

Operation	Display

When you have accessed this item:

```
Elem 1
```

(1) Select an element.

[5]

```
Elem 5
```

(Outside Line 5)

(2) Press the Feature button.

[FEAT]

```
4-2-5  Multiple
```

(3) Press the Speaker button to begin the multiple data entry operation.

[SPKR]

Screen 1 will be displayed.

```
0  123456789
```

(Circuits 01 to 09, or Extensions 20 to 28)

(4) Press the buttons for the last digit of each telephone circuit number for which you want to change the data.

[6] + [7]

```
0  12345..89
```

Circuits 06 and 07 (Extensions 25 and 26) will be denied all access to Outside Line 5.

(5) Press the Pound button to move to Screen 2.

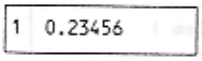
[#]

```
1  0123456
```

(Circuits 10 to 16, or Extensions 29 to 35)

(6) Press the buttons for the last digit of each telephone circuit number for which you want to change the data.

[1]

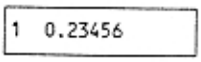


Circuit 11 (Extension 30) will be denied all access to Outside Line 5.

(If you want to go back to Screen 1, press the Star button [*].

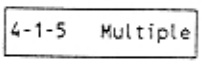
(7) Press the Hold button to enter the data.

[HOLD/DND]



(8) Press the Speaker button to end the multiple data entry operation.

[SPKR]



You can press the Speed button to proceed to the next element or the Add button to go back to the previous element and manually enter data for another outside line. Or, you can copy the data you have already entered to other elements, using the copy operation.

Then you can press the Feature button to select another class, the Intercom button to move to the next item in Class 4, or the Microphone button to go back to the previous item in Class 4.

CLASS 4 OUTSIDE LINE RESTRICTION DATA

ITEM 3 Toll Restriction of System Speed Dial

Description: This item determines whether system speed dialing performed by each telephone will be controlled according to that telephone's toll restriction plan. This assignment applies in both the day and night modes.

If the telephone is specified as not restricted in this item, all system speed dialing by that telephone will be allowed, regardless of the toll restriction assigned for the telephone. Also, the telephone must be allowed use of system speed dial in 4-4 System Speed Dial Access, in order to use system speed dial.

The telephone must be allowed use of System Speed Dial in Class 4, Item 4 System Speed Dial Access in order for this programming to be valid.

Related Programming: The following parameters must also be programmed in order for system speed dialing to be handled correctly:

Class 4 Item 4 System Speed Dial Access
Class 9 Toll Restriction Data

Data Entry: This item displays multiple data. You must enter the last digit of each telephone circuit number to change the data value.

Telephone connected to Circuit Number	Is Extension Number	Telephone connected to Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

A dot= System speed dialing is not subject to the toll restriction plan.
A number= System speed dialing is subject to the toll restriction plan.

Initial Factory Setting: All telephones' system speed dialing is not controlled by their toll restriction plan.

How to Program: To have all system speed dialing controlled according to the dialing telephone's toll restriction plan:

Operation	Display

When you have accessed this item:

```
4-3    Multiple
```

(1) Press the Speaker button to begin the the multiple data entry operation.

[SPKR]

Screen 1 will be displayed.

```
0 .........
```

(Circuits 01 to 09, or Extensions 20 to 28)

(2) Press the buttons for the last digit of each number for which you want to change the data.

[1] + [2] + [3] + [4] + [5] + [6] + [7] + [8] + [9]

```
0 123456789
```

All system speed dialing performed by telephones connected to Circuits 01 to 09 (Extensions 20 to 28) will be controlled according to each telephone's toll restriction plan.

(3) Press the Pound button to move to Screen 2.

[#]

```
1 .......
```

(Circuits 10 to 16, or Extensions 29 to 35)

(4) Press the buttons for the last digit of each number for which you want to change the data.

[0] + [1] + [2] + [3] + [4] + [5] + [6]

```
1 0123456
```

All system speed dialing performed by telephones connected to circuits 10 to 16 (Extensions 29 to 35) will be controlled according to the telephone's toll restriction plan.

(If you want to go back to Screen 1, press the Star button [*].)

(5) Press the Hold button to enter the data.

[HOLD/DND]

1 0123456

(6) Press the Speaker button to end the multiple data entry operation.

[SPKR]

4-3 Multiple

Now you can press the Feature button to select another class, the Intercom button to move to the next item in Class 4, or the Microphone button to go back to the previous item in Class 4.

CLASS 4 OUTSIDE LINE RESTRICTION DATA

ITEM 4 System Speed Dial Access

Description: This item determines whether telephones will be allowed or denied use of the system speed dial feature. Telephones denied use of system speed dial in this item will not be allowed to use any of the system speed dial numbers; they must manually dial outgoing calls or register numbers at that telephone for station speed dialing.

Related Programming: The following parameter must also be programmed in order for system speed dialing to be handled correctly.

Class 4, Item 3 Toll Restriction of System Speed Dial

Data Entry: This item displays multiple data. You must enter the last digit of each telephone circuit number to change the data value.

Telephone connected to Circuit Number	Is Extension Number	Telephone connected to Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

A dot = Telephone is denied use of System Speed Dial.
A number = Telephone is allowed to use System Speed Dial.

Initial Factory Setting: All telephones are allowed to use System Speed Dial.

How to Program: To prevent Extensions 25,29 and 30 from using the System Speed Dial Feature:

Operation	Display

When you have accessed this item:

```
4-4     Multiple
```

(1) Press the Speaker button to begin the the multiple data entry operation.

[SPKR]

Screen 1 will be displayed.

```
0  123456789
```

(Circuits 01 to 09, or Extensions 20 to 28)

(2) Press the buttons for the last digit of each telephone circuit number for which you want to change the data.

[6]

```
0  12345.789
```

The telephone connected to Circuit 06 (Extension 25) will not be allowed to perform any system speed dialing.

(3) Press the Pound button to move to Screen 2.

[#]

```
1  0123456
```

(Circuits 10 to 16, or Extensions 29 to 35)

(4) Press the buttons for the last digit of each telephone circuit number for which you want to change the data.

[0] + [1]

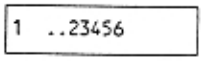
```
1  ..23456
```

The telephones connected to Circuits 10 and 11 (Extensions 29 to 30) will not be allowed to perform any system speed dialing.

(If you want to go back to Screen 1, press the Star button [*].)

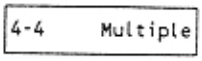
(5) Press the Hold button to enter the data.

[HOLD/DND]



(6) Press the Speaker button to end the multiple data entry operation.

[SPKR]



Now you can press the Feature button to select another class, or the Microphone button to go back to the previous item in Class 4.

CLASS 5 ADDITIONAL SYSTEM CONFIGURATION

ITEM 1 Master KT

Description: This item specifies the telephone to be allowed to perform programming and switch the system into the day and night modes. Only one telephone can be assigned as the Master KT in a system.

If the Master KT is changed in this item, this programming will only take effect after the telephone that programs this item exits the programming mode.

Data Entry: Enter the circuit number of the telephone to be assigned as the Master KT, from 1 to 16.

Telephone connected to Circuit Number	Is Extension Number	Telephone connected to Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

Initial Factory Setting: Circuit 01 (Extension 20)

How to Program: To assign Extension 30 (Circuit 11) as the Master KT:

Operation Display

When you have accessed this item:

5-1 1

(1) Enter the circuit number of the telephone.

[1][1]

5-1 11

(Circuit 11, or Extension 30)

(2) Press the Hold button to enter the data.

[HOLD/DND]

5-1 11

Once you exit the programming mode, the telephone connected to Circuit 11 (Extension 30) will function as the Master KT.

Now you can press the Feature button to select a new class, or press the Intercom button to proceed to the next item in Class 5.

CLASS 5 ADDITIONAL SYSTEM CONFIGURATION

ITEM 2 North America/Other Countries

Description: This item specifies whether the ZT-S System is installed in North America (the United States or Canada) or in another country. This setting will affect the operation of the toll restriction feature. If this item is set to "North America", the toll restriction plan will include the Fixed Basic Data Table, which contains all the data necessary to restrict long distance dialing in North America. User Data Table 4 will be used for restriction of dialing through Other Common Carriers (OCC Dialing). If this item is set to "other countries", User Data Table 4 must be programmed as the basic data table for long distance dialing restriction.

NOTE: DO NOT CHANGE THE FACTORY SETTING UNLESS THE ZT-S SYSTEM IS INSTALLED OUTSIDE OF THE USA OR CANADA.

Related Programming: The following parameters must also be programmed in order for the toll restriction to function correctly, depending on the value programmed for this item:

Class 9, Item 19 User Data Table 4
Class 9, Item 20 Control Codes for User Data Table 4
Class 9, Item 21 OCC Access Codes (only if set to North America)
Class 9, Item 22 No. of Digits in Authorization Codes (PIN) (only if set to North America)
Class 9, Item 23 Authorization Code (PIN) Position (only if set to North America)

Data Entry: 0 = North American installation
1 = Other Countries

Initial Factory Setting: 0 (North American installation)

How to Program: To change this setting, if the ZT-S System is installed outside of North America:

Operation	Display

When you have accessed this item:

	5-2 0

(1) Enter the new setting value.

[1] (Other Countries)

	5-2 1

(2) Press the Hold button to enter the new data.

[HOLD/DND]

	5-2 1

Now you can press the Feature button to select a new class, press the Intercom button to proceed to the next item in Class 5, or press the Microphone button to go back to the previous item in Class 5.

CLASS 5 ADDITIONAL SYSTEM CONFIGURATION

ITEM 99 Clear Memory (RAM Clear)

Description: The user database, which includes all programmed information, is stored in a Random Access Memory (RAM) in the ZT-S KSU. By programming this item, you can reset all programmed items back to the initial factory set values, or clear certain areas of the memory where speed dial numbers are stored.

NOTE: ALL TELEPHONES MUST BE IDLE (NOT IN USE) IN ORDER TO PROGRAM THIS ITEM.

Data Entry:
1 = Clear all previously programmed data including speed dial memory, reset all data to initial factory settings.
2 = Reset all database programming to initial factory settings, except speed dial memory.
3 = Clear speed dial memory only

Initial Factory Setting: None

How to Program: To clear all previously programmed information, including the system speed dial memory area, and reset the system to the initial factory set values:

Operation	Display

When you have accessed this item:

RAM Clear:

(1) Enter the number for the desired command.

[1] (Clear memory, reset to initial values)

RAM Clear: 1

(2) Press the Hold button to enter the data.

[HOLD/DND]

RAM Clear: 1

After you exit the programming mode, all previously programmed data will be cleared, and all programming items will be reset to the initial factory set values. **This feature will not operate until you exit the programming mode.**

Now you can press the Feature button to select another class, or press the Microphone button to go back to the previous item in Class 5.

CLASS 6 ADDITIONAL SYSTEM PARAMETERS

ITEM 1 DTMF Signal Duration

Description: This item determines the length of each DTMF signal output to the central office. This time can be changed depending on the signal length required by the local central office, in order to correctly recognize DTMF signals output from the ZT-S system.

This parameter only applies to outside lines which have been assigned as Dual Tone Multifrequency (DTMF) lines in Class 8, Item 5 Type of Dial Signalling.

Related Programming: The following parameter must also be programmed in order for DTMF lines to function correctly:

Class 8, Item 5 Type of Dial Signalling

Data Entry: DTMF signal duration from 1 to 5. The value you enter is multiplied by 100ms to determine the actual time (for example, if you enter 2, the DTMF signal duration will be 2 x 100ms, or 200ms).

Initial Factory Setting: 1 (100ms)

How to Program: To change the DTMF signal duration to 200ms:

Operation	Display

When you have accessed this item:

6-1 1

(1) Enter the number for the desired time.

[2] (x100ms)

6-1 2

(2) Press the Hold button to enter the data.

[HOLD/DND]

6-1 2

Now you can press the Feature button to select a new class, or press the Intercom button to move to the next item in Class 6.

CLASS 6 ADDITIONAL SYSTEM PARAMETERS

ITEM 2 Dial Pulse Lines: Break Ratio

Description: Dial pulse signalling consists of a series of on/off signals corresponding to each digit dialed. If you dial [8], for example, the system will send out 8 rapid pulses. The "on" period is called the "make time", that is, the period contact is made. The off period in between is called the "break" time, that is, when contact is broken. The break time is a ratio, or percentage, of the total make/break time.

This item determines the make/break ratio, or the length of off time relative to the length of on time in dial pulse signalling. This parameter only applies to outside lines which have been assigned as Dial Pulse lines in to Class 8, Item 5 Type of Dial Signalling. One value applies to all DP lines.

NOTE: THE DEPARTMENT OF COMMUNICATIONS (DOC) IN CANADA PROHIBITS THE USE OF A MAKE/BREAK RATIO OTHER THAN 39%/61%. DIAL PULSE TRUNKS IN CANADA MUST BE ASSIGNED A BREAK RATIO OF 61%, WITH A DIAL SPEED OF 10PPS.

Related Programming: The following parameters must also be programmed for any Dial Pulse lines connected to the ZT-S System:

Class 6, Item 3 DP Lines: Minimum Pause Time
Class 8, Item 4 Dial Pulse Speed (no change required)
Class 8, Item 5 DP Lines: Type of Dial Signalling

Data Entry:

0= Not used
1= 61%
2= Not used
3= Not used

(Values 0, 2 or 3 should only be used in installations outside of North America)

Initial Factory Setting: 1 (61%,Near)

DO NOT CHANGE THE FACTORY SETTING (VALUE 1, 61%) UNLESS THE ZT-S SYSTEM IS INSTALLED OUTSIDE OF THE UNITED STATES OR CANADA.

How to Program: To change the break ratio setting for all Dial Pulse lines, if the system is installed outside of North America:

Operation	Display

When you have accessed this item:

6-2 1

(1) Enter the number for the desired break ratio.

[0]

6-2 0

(2) Press the Hold button to enter the data.

[HOLD/DND]

6-2 0

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item or press the Microphone button to go back to the previous item in Class 6.

CLASS 6 ADDITIONAL SYSTEM PARAMETERS

ITEM 3 Dial Pulse Lines: Minimum Pause Time

Description: This item determines the minimum length of time the system will pause between each digit dialed on a Dial Pulse (DP) line, until the next digit is sent.

This parameter only applies to outside lines which have been assigned as Dial Pulse (DP) lines in Class 8, Item 5 Type of Dial Signalling.

Related Programming: The following parameters must also be programmed for any Dial Pulse lines connected to the ZT-S System:

Class 6, Item 2 DP Lines: Break Ratio
Class 8, Item 4 Dial Pulse Speed
Class 8, Item 5 DP Lines: Type of Dial Signalling

Data Entry: Pause time from 3 to 24. The value you enter is multiplied by 100ms to determine the actual time (for example, if you enter 4, the minimum pause time will be 4 x 100ms, or 400ms).

Initial Factory Setting: 8 (800ms)

How to Program: To change the minimum pause time to one second (1000ms):

Operation	Display
When you have accessed this item:	6-3 8
(1) Enter the number for the desired minimum pause time. [1] [0] (x100ms)	6-3 10
(2) Press the Hold button to enter the data. [HOLD/DND]	6-3 10

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 6, or press the Microphone button to go back to the previous item in Class 6.

CLASS 6 ADDITIONAL SYSTEM PARAMETERS

ITEM 4 Dial Interdigit Timeout

Description: This item determines the length of time the system will wait after one digit is dialed on an outside line until another digit is dialed. If another digit is not dialed within the time set in this item, the call duration display will be shown.

Data Entry: Time between each digit, from 1 to 24 seconds.

Initial Factory Setting: 6 seconds

How to Program: To change the interdigit timeout to 10 seconds:

Operation	Display
When you have accessed this item:	6-4 6
(1) Enter the number for the desired interdigit time. [1][0] (10 seconds)	6-4 10
(2) Press the Hold button to enter the data. [HOLD/DND]	6-4 10

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 6, or press the Microphone button to go back to the previous item in Class 6.

CLASS 6 ADDITIONAL SYSTEM PARAMETERS

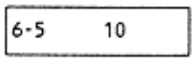
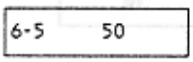
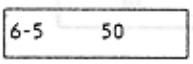
ITEM 5 Dial First Digit Guard Time

Description: This item determines the length of time the system will wait, after picking up an outside line, until sending the first dial output to the central office. This delay time can be changed according to the local central office requirements.

Data Entry: Guard time for first dial output, from 1 to 240. The value you enter is multiplied by 100ms to determine the actual time (for example, if you enter 100, the guard time will be 100 x 100ms, or 10,000ms, that is 10sec.).

Initial Factory Setting: 10 (1 second)

How to Program: To change the guard time for the first dial output to 5 seconds:

Operation	Display
When you have accessed this item:	
(1) Enter the number for the desired guard time. [5][0] (x100ms)	
(2) Press the Hold button to enter the data. [HOLD/DND]	

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 6, or press the Microphone button to go back to the previous item in Class 6.

CLASS 6 ADDITIONAL SYSTEM PARAMETERS

ITEM 6 Outside Line Disconnect Signal Detection Timer

Description: The ZT-S System can detect that an outside call has been disconnected if a loop open disconnect signal is provided from the central office. This enables the ZT-S system to monitor outside lines on hold or in a multiline conference to detect when the call has been terminated. When the ZT-S system detects a loop open signal from the central office, signalling that the outside party has hung up, the system will automatically drop the line, and return it to the idle state. This item specifies the length of time that the loop open signal from the central office must be detected for the ZT-S system to accurately detect disconnect. This timing can be changed according to the local central office requirements.

Related Programming: The following parameters must also be programmed for disconnect detection to operate correctly:

Class 8, Item 8 Conditions for Disconnect Detection

Data Entry: Disconnect signal detection time, from 1 to 30. The value you enter is multiplied by 100ms to determine the actual time (for example, if you enter 10, the disconnect signal detection time will be 10 x 100 ms, or 1 sec.).

Initial Factory Setting: 7 (700ms)

How to Program: To change the disconnect signal detection timer to 1 second (100ms):

Operation	Display
When you have accessed this item:	6-6 7
(1) Enter the number for the desired disconnect detection time. [1][0] (x100ms)	6-6 10
(2) Press the Hold button to enter the data. [HOLD/DND]	6-6 10

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 6, or press the Microphone button to go back to the previous item.

CLASS 6 ADDITIONAL SYSTEM PARAMETERS

ITEM 7 Facsimile Ringing Timeout

Description: When there is an incoming call on the outside line designated as the facsimile line (Class 8, Item 7), the call will automatically be switched to ring at the facsimile. This item determines the length of time the incoming call will ring at the facsimile. If the facsimile does not "answer" within the time programmed for this item, the system will switch the line to ring at the telephones assigned as ringing telephones in Class 3, Item 1 or 2 Ringing Telephones - Day Mode or Night Mode.

The outside line designated as the facsimile line must be connected to the Facsimile Adaptor Unit (ZS-FAXU).

Related Programming: The following parameters must also be programmed for the facsimile interface to operate correctly:

Class 8, Item 7 Facsimile Line Identification

Data Entry: Facsimile ringing time in seconds, from 5 to 240sec.

Initial Factory Setting: 20sec.

How to Program: To change the facsimile ringing timeout to 30 seconds:

Operation	Display
When you have accessed this item:	6-7 20
(1) Enter the desired facsimile ringing time in seconds. [3][0]	6-7 30
(2) Press the Hold button to enter the data. [HOLD/DND]	6-7 30

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 6, or press the Microphone button to go back to the previous item in Class 6.

CLASS 6 ADDITIONAL SYSTEM PARAMETERS

ITEM 8 Dial Pause Time

Description: A pause can be programmed in speed dial numbers, where necessary.

This item determines the length of the pause. Only one pause time can be programmed for the system, however, more than one pause can be registered together in a speed dial number, if a longer pause is necessary.

Data Entry: Pause time in seconds, from 1 to 9 seconds.

Initial Factory Setting: 3 seconds

How to Program: To set the pause length to 5 seconds:

Operation	Display
When you have accessed this item:	6-8 3
(1) Enter the number for the desired pause time in seconds. [5]	6-8 5
(2) Press the Hold button to enter the data. [HOLD/DND]	6-8 5

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 6, or press the Microphone button to go back to the previous item in Class 6.

CLASS 6 ADDITIONAL SYSTEM PARAMETERS

ITEM 9 Long Flash Timing

Description: Two flash times can be programmed for the ZT-S System, to send a momentary line opening on an outside line.

This item determines the length of the hookswitch flash to be provided for dial tone reorder. This is also called "Long Flash."

Data Entry: Long flash time from 2 to 240. The value you enter is multiplied by 100ms to determine the actual time (for example, if you enter 50, the actual value is 50 x 100ms, or 5 sec.).

Initial Factory Setting: 10 (1sec.)

How to Program: To change the flash time to 2 seconds:

Operation	Display
When you have accessed this item:	6-9 10
(1) Enter the number for the desired flash time. [2][0] (x100ms)	6-9 20
(2) Press the Hold button to enter the data. [HOLD/DND]	6-9 20

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 6, or press the Microphone button to go back to the previous item in Class 6.

CLASS 6 ADDITIONAL SYSTEM PARAMETERS

ITEM 10 Centrex Flash Timing (Short Flash)

Description: Two flash times can be programmed for the ZT-S System, to send a momentary line opening on an outside line.

This item determines the length of the short flash, or Centrex flash, which is used for access to Centrex features if the ZT-S System is used in conjunction with Centrex service provided from the local telephone company. If the ZT-S System is used behind a PBX, this short flash can be used for access to PBX features.

Data Entry: Centrex flash time from 1 to 40. The value you enter is multiplied by 50ms to determine the actual time (for example, if you enter 10, the actual value is 10 x 50ms, or 500ms).

Initial Factory Setting: 12 (600ms)

How to Program: To change the Centrex flash time to 500ms:

Operation	Display

When you have accessed this item:

6-10 12

(1) Enter the number for the desired Centrex flash time.

[1][0] (x50ms)

6-10 10

(2) Press the Hold button to enter the data.

[HOLD/DND]

6-10 10

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 6, press the Microphone button to go back to the previous item in Class 6.

CLASS 6 ADDITIONAL SYSTEM PARAMETERS

ITEM 11 Paging Circuit Timeout

Description: When a telephone presses the Page button to make a paging announcement, that telephone will be connected to the paging circuit, and the PAGE lamp will light at other telephones, indicating that the paging circuit is in use.

This item determines the length of time that the page circuit will be held after the Page button is pressed. Once this time has elapsed, the page circuit will be released.

Related Programming: The following parameters must also be programmed in order for paging to operate correctly:

Class 3, Item 4 Paging Access
Class 3, Item 5 Paging Call-Receiving Telephones

Data Entry: Page circuit on time in seconds, from 10 to 240sec.

Initial Factory Setting: 20 seconds

How to Program: To change the paging circuit on time to 15 seconds:

Operation	Display

When you have accessed this item:

6-11 20

(1) Enter the number for the desired paging time in seconds.

[1][5]

6-11 15

(2) Press the Hold button to enter the data.

[HOLD/DND]

6-11 15

Now you can press the Feature button to select a new class, or press the Microphone button to go back to the previous item in Class 6.

CLASS 7 ADDITIONAL SYSTEM FEATURES

ITEM 1 Dialing on Outside Lines After Call Answer

Description: This item determines whether ZT-S telephones will be allowed to dial on an outside line, after answering an incoming call on that line. The value you set for this item will allow or deny this feature for all telephones in the ZT-S System on all outside lines. This programming applies to incoming calls only.

Data Entry:
0 = Deny dialing on outside lines after call answer
1 = Allow dialing on outside lines after call answer

Initial Factory Setting: 0 (Deny all dialing after call answer)

How to Program: To set the system to allow telephones to dial after answering an incoming call:

Operation	Display
When you have accessed this item:	7-1 0
(1) Press 1 to allow the feature. [1]	7-1 1
(2) Press the Hold button to enter the data. [HOLD/DND]	7-1 1

Now you can press the Feature button to select a new class, or press the Intercom button to move to the next item in Class 7.

CLASS 7 ADDITIONAL SYSTEM FEATURES

ITEM 2 Conference Status Lamp Indication

Description: During an Add-On Conference or Multiline Conference, or after Barge-in on an outside line, you can have the conference status indicated at the ZT-S telephone(s) participating in the call.

This item determines whether the ADD lamp will flash at telephones in a conference to indicate a conference in progress.

Data Entry:
0 = No conference status indication during conference calls
1 = ADD lamp flashes to indicate a conference call in progress

Initial Factory Setting: 0 (No conference status indication)

How to Program: To set the system to indicate a conference in progress by making the ADD lamp flash at participating ZT-S telephones:

Operation	Display
When you have accessed this item:	7-2 0
(1) Enter 1 to allow conference lamp status indications. [1]	7-2 1
(2) Press the Hold button to enter the data. [HOLD/DND]	7-2 1

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 7, or press the Microphone button to go back to the previous item in Class 7.

CLASS 7 ADDITIONAL SYSTEM FEATURES

ITEM 3 Primary Intercom Call Mode

Description: The ZT-S System has two types of intercom calling, tone and voice. In tone calling, the called extension rings, and the called party must lift the receiver to answer an incoming call. In voice calling, a burst tone is heard through the speaker of the called extension, followed by the caller's voice. The called party can respond using the Intercom Handsfree Answerback feature, or can lift the receiver to answer the call.

This item selects either tone or voice as the primary intercom calling mode. The calling telephone can change the mode to the other mode by feature operation, if desired.

Data Entry: 0 = Voice calling
1 = Tone calling

Initial Factory Setting: 0 (Voice calling)

How to Program: To change the primary intercom calling mode to tone calling:

Operation	Display
When you have accessed this item:	7-3 0
(1) Press 1 to make tone calling the primary intercom calling mode. [1]	7-3 1
(2) Press the Hold button to enter the data. [HOLD/DND]	7-3 1

Now you can press the Feature button to select a new class or press the Microphone button to go back to the previous item in Class 7.

CLASS 8 ADDITIONAL OUTSIDE LINE/EXTENSION DATA

ITEM 1 Outside Lines Installed

Description: This item specifies which outside line circuits have outside lines (either CO or PBX lines) installed. All circuits which do not have outside lines connected should be programmed as "no line installed" in this item.

Related Programming: The following parameters must also be programmed in order for outside lines to function correctly in the ZT-S System:

Dial Pulse Lines only:
Class 6, Item 2 Dial Pulse Lines: Break Ratio (no change required)
Class 6, Item 3 Dial Pulse Lines: Minimum Pause Time
Class 8, Item 4 Dial Pulse Speed (no change required)

DTMF Lines only:
Class 6, Item 1 DTMF Signal Duration

Dial Pulse and DTMF Lines:
Class 3, Item 1 Ringing Telephones - Day Mode
Class 3, Item 2 Ringing Telephones - Night Mode
Class 6, Item 4 Dial Interdigit Timeout
Class 6, Item 5 Dial First Digit Guard Time
Class 6, Item 6 Outside Line Disconnect Signal Detection Timer
Class 8, Item 5 Type of Dial Signalling
Class 8, Item 8 Conditions for Disconnect Detection

Data Entry: This item displays multiple data. You must enter the last digit of each outside line circuit number for which you want to change the data entry, from 1 to 6.

A number= Outside line connected.
A dot= No outside line connected.

Initial Factory Setting: Outside lines are installed for all six outside line circuits.

How to Program: To change the setting for Outside Lines 4 to 6, if only three outside lines are connected to the ZT-S System:

Operation	Display

When you have accessed this item:

8-1 Multiple

(1) Press the Speaker button to begin the multiple data entry operation.

[SPKR]

0 123456

(Circuits 01 to 06, or Outside Lines 1 to 6)

(2) Enter the numbers of all outside lines for which you want to change the data entry.

[4] + [5] + [6]

0 123...

(3) Press the Hold button to enter the data.

[HOLD/DND]

0 123...

(4) Press the Speaker button to end the multiple data entry operation.

[SPKR]

8-1 Multiple

Now you can press the Class button to select a new class, or press the Intercom button to move to the next item in Class 8.

CLASS 8 ADDITIONAL OUTSIDE LINE/EXTENSION DATA

ITEM 2 PBX Outside Line Access Codes (Predial Codes)

Description: If the ZT-S System is used behind a PBX, the outside line access code(s) used by the PBX system must be entered in this item, in order for the ZT-S system to correctly recognize dialing on these lines. This is especially important if dialing on PBX lines is to be controlled according to the ZT-S Toll Restriction feature. These access codes are also referred to as predial codes.

This item is divided into elements. Elements 1 to 10 correspond to the ten available spaces for entering PBX Access Codes.

Related Programming: The following parameter must also be programmed in order for the system to function correctly behind a PBX:

Class 8, Item 3 PBX Lines for Each Predial Code

Data Entry: One PBX Outside Line Access Code for each element. Each code can consist of one to four digits. Valid entries include 0-9,#,*.

Initial Factory Setting: Blank

How to Program: Since this programming item is related to Class 8, Item 3 PBX Lines for Each Predial Code, programming procedures for both items are explained together. Refer to the following item for detailed information.

CLASS 8 ADDITIONAL OUTSIDE LINE/EXTENSION DATA

ITEM 3 PBX Lines for Each Predial Code

Description: For each predial code registered in Class 8, Item 2 PBX Access Codes, the outside lines on which that code will be dialed must be specified in this item. This will enable the system to correctly recognize outgoing dialing on PBX lines.

This programming item and Class 8, Item 2 PBX Access Codes must be programmed, if PBX lines are connected to the ZT-S System. These programming items affect Toll Restriction and Last Number Redial features on PBX lines. In Toll restriction of outgoing calls on PBX lines, the system will automatically disregard the predial code when applying the restriction. When a telephone performs Last Number Redial on a PBX line, the system will automatically add the predial code before dialing the number previously dialed.

This item is divided into Elements. Elements 1 to 10 correspond to the ten spaces for PBX predial codes.

Related Programming: The following parameter must also be programmed in order for the system to function correctly behind a PBX:

Class 8, Item 2 PBX Outside Line Access Codes (Predial Codes)

Data Entry: This item displays multiple data for each element. For each element for which an access code (predial code) has been entered, you must enter the outside line circuit number(s) on which the access code must be recognized as a PBX code in outgoing dialing.

A dot = Not a PBX line for that predial code.
A number = PBX line where that predial code will be used.

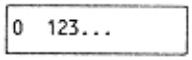
Initial Factory Setting: Blank (No PBX lines installed)

How to Program: To register the PBX outside line access code "90" for outgoing dialing on outside lines 1 to 3 connected to the ZT-S System:

Operation	Display
When you have accessed Class 8, Item 2, PBX Access Codes:	`Elem 1`
(1) Press the Feature button to select Element 1 (if selecting another element, first enter the number of the desired element, then press the Feature button). [FEAT]	`8-2-1`
(2) Enter the PBX outside line access code (from 1 to 4 digits). [9][0]	`8-2-1 90`
(3) Press the Hold button to enter the data. [HOLD/DND]	`8-2-1 90`
(4) Press the Intercom button to move to Item 3, PBX Lines for Each Predial Code. [ICM]	`8-3-1 Multiple`
(5) Press the Speaker button to begin the multiple data entry operation. [SPKR]	`0 .....` (Circuits 01 to 06, or Outside Lines 1 to 6)

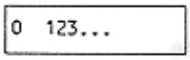
(6) Enter the numbers for any outside lines to be used for dialing with the access code registered in Class 8, Item 2, Element 1.

[1] + [2] + [3] (Outside Lines 1,2,3)



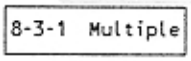
(7) Press the Hold button to enter the data.

[HOLD/DND]



(8) Press the Speaker button to end the multiple data entry operation.

[SPKR]



Once you have completed the above programming, when any telephone picks up outside lines 1,2, or 3 and dials "90", the ZT-S System will recognize this as an outside line access code of the PBX.

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 8, or press the Microphone button to go back to Item 2 and enter data for another element.

CLASS 8 ADDITIONAL OUTSIDE LINE/EXTENSION DATA

ITEM 4 Dial Pulse Speed

Description: For all outside lines in the ZT-S System which use dial pulse (DP) address signalling, the dial speed is programmed as 10pps. This item determines the dial speed for each DP outside line. This programming item does not apply to DTMF lines.

NOTE: THE ZT-S SYSTEM ONLY SUPPORTS A DP DIAL SPEED OF 10PPS. DO NOT ATTEMPT TO CHANGE THE FACTORY SETTING FOR THIS ITEM.

Related Programming: The following parameters must also be programmed for any Dial Pulse lines connected to the ZT-S System:

Class 6, Item 2 DP Lines: Break Ratio (no change required)
Class 6, Item 3 DP Lines: Minimum Pause Time
Class 8, Item 5 DP Lines: Type of Dial Signalling

NOTE: THE DEPARTMENT OF COMMUNICATIONS (DOC) IN CANADA PROHIBITS THE USE OF A DIALING SPEED OTHER THAN 10PPS. DIAL PULSE TRUNKS IN CANADA MUST BE ASSIGNED A BREAK RATIO OF 61%, WITH A DIAL SPEED OF 10PPS.

Data Entry: This item displays multiple data. For each outside line, 10pps is assigned as the dial speed. No other data may be entered for this item.

A dot = 10pps.

Initial Factory Setting: 10pps. for all outside lines

How to Program: Not necessary.

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 8, or press the Microphone button to go back to the previous item in Class 8.

CLASS 8 ADDITIONAL OUTSIDE LINE/EXTENSION DATA

ITEM 5 Type of Dial Signalling

Description: Either dial pulse (DP) or dual tone multifrequency (DTMF) lines can be connected to the ZT-S System.

This item specifies the type of dial address signalling used by each outside line.

Related Programming: The following parameters must also be programmed in order for outside lines to function correctly in the ZT-S System:

Dial Pulse Lines Only:
Class 6, Item 2 DP Lines: Break Ratio (no change required)
Class 6, Item 3 DP Lines: Minimum Pause Time
Class 8, Item 4 DP Lines: Dial Pulse Speed (no change required)

DTMF Lines Only:
Class 6, Item 1 DTMF Signal Duration

Dial Pulse and DTMF Lines:
Class 3, Item 1 Ringing Telephones - Day Mode
Class 3, Item 2 Ringing Telephones - Night Mode
Class 6, Item 4 Dial Interdigit Timeout
Class 6, Item 5 Dial First Digit Guard Time
Class 6, Item 6 Outside Line Disconnect Signal Detection Timer
Class 8, Item 1 Outside Lines Installed
Class 8, Item 8 Conditions for Disconnect Detection

Data Entry: This item displays multiple data. For each outside line, you must select either DP or DTMF address signalling.

A dot= DTMF
A number= DP

Initial Factory Setting: DTMF for all outside lines

How to Program: To change the signalling method of outside lines 1,2, and 3 to dial pulse:

Operation	Display

When you have accessed this item:

```
8-5  Multiple
```

(1) Press the Speaker button to start the multiple data entry operation.

[SPKR]

```
0  .....
```

(Circuits 01 to 06, or Outside Lines 1 to 6)

(2) Enter the numbers for which you want to change the data.

[1][2][3] (Outside Lines 1,2,3)

```
0  123...
```

(3) Press the Hold button to enter the data.

[HOLD/DND]

```
0  123...
```

(4) Press the Speaker button to end the multiple data entry operation.

[SPKR]

```
8-5  Multiple
```

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 8, or press the Microphone button to go back to the previous item in Class 8.

CLASS 8 ADDITIONAL OUTSIDE LINE/EXTENSION DATA

ITEM 6 Optional Speakerphone

Description: This items specifies which ZT-S telephones are equipped with the optional Speakerphone Unit (SSPU-Z1). This programming must be performed in order for the Full Handsfree Operation feature to function correctly. For speakerphone installation procedures, refer to 3.6.2 Optional Speakerphone Unit Installation.

Data Entry: This item displays multiple data. You must enter the circuit number of each telephone for which you want to change the data value.

Telephone connected to Circuit Number	Is Extension Number	Telephone connected to Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

A dot = Speakerphone unit not installed
A number = Speakerphone unit installed

Initial Factory Setting: No speakerphone unit installed in any telephone.

How to Program: To program Extensions 25 and 30 as telephones with the optional speakerphone unit:

Operation	Display

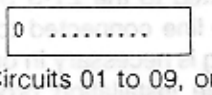
When you have accessed this item:

8-6 Multiple

(1) Press the Speaker button to begin the multiple data entry operation.

[SPKR]

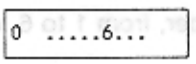
Screen 1 will be displayed.



(Circuits 01 to 09, or
Outside Lines 20 to 28)

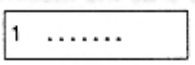
(2) Press the last digit of each telephone circuit number for which you want to change the data.

[6] (Extension 25)



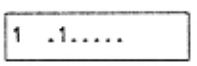
(3) Press the Pound button to move to Screen 2.

[#]



(4) Press the last digit of each telephone circuit number for which you want to change the data entry.

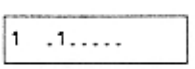
[1] (Extension 30)



(If you want to go back to Screen 1, press the Star button [*].)

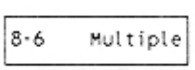
(5) Press the Hold button to enter the data.

[HOLD/DND]



(6) Press the Speaker button to end the multiple data entry operation.

[SPKR]



Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 8, or press the Microphone button to go back to the previous item in Class 8.

CLASS 8 ADDITIONAL OUTSIDE LINE/EXTENSION DATA

ITEM 7 Facsimile Line Identification Number

Description: If a facsimile is connected to the ZT-S System using the Facsimile Adaptor Unit (ZS-FAXU), the outside line connected to the ZS-FAXU must be identified in this item. This programming is necessary in order for the facsimile interface to function correctly. For facsimile installation procedures, refer to 3.5.2 ZT-S Facsimile Adaptor Installation.

Related Programming: The following parameter must also be programmed for the facsimile interface:

Class 6, Item 7 Facsimile Ringing Timeout

Data Entry: Outside line circuit number, from 1 to 6, or 0 if facsimile interface is not used.

Initial Factory Setting: 0 (No facsimile interface)

How to Program: To program Outside Line 6 as the facsimile line:

Operation	Display

When you have accessed this item:

8-7 0

(1) Enter the circuit number of the outside line interfaced to the ZS-FAXU.

[6] (Outside Line 6)

8-7 6

(2) Press the Hold button to enter the data.

[HOLD/DND]

8-7 6

All incoming calls on Outside Line 6 will automatically be switched to ring at the facsimile. Also, incoming facsimile calls and facsimile transmissions in progress will deny any busy override signalling and barge-in calls.

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 8, or press the Microphone button to go back to the previous item in Class 8.

CLASS 8 ADDITIONAL OUTSIDE LINE/EXTENSION DATA

ITEM 8 Conditions for Disconnect Detection

Description: If the local telephone company provides a momentary loop open signal when a telephone call has been terminated, the ZT-S System can monitor outside lines on hold or in a multiline conference for the disconnect signal. This will enable the system to release the lines upon detecting the disconnect signal.

This item determines whether the ZT-S System will monitor lines for the disconnect signal. If the local telephone company does not provide a momentary loop open disconnect signal, the ZT-S System Disconnect Detection Feature will not operate, and this item should be programmed for no disconnect detection.

This item is divided into Elements. Elements 1 to 6 correspond to Outside Lines 1 to 6.

Related Programming: The following parameter must also be programmed for disconnect detection:

Class 6, Item 6 Outside Line Disconnect Signal Detection Timer

Data Entry: For each element (outside line) enter the desired value:
0: No disconnect detection
1: Disconnect upon detection of momentary loop open signal

Initial Factory Setting: 0 (No disconnect detection)

How to Program: To program Outside Line 1 for disconnect detection:

Operation	Display
When you have accessed this item:	Item 8
(1) Press the Feature button. [FEAT]	Elem 1

(2) Press the Feature button to display data for Element 1 (Outside Line 1). If you wish to select another element, enter the desired element number, then press the Feature button.

[FEAT]

8-8-1 0

(3) Enter the desired value.

[1]

8-8-1 1

(4) Press the Hold button to enter the data.

[HOLD/DND]

8-8-1 1

The ZT-S System will monitor all calls on hold or conferences on Outside Line 1 for disconnect.

You can copy the data entered for this element to other outside lines, using the copy operation. Or you can press the Speed button to move to the next element in this item, and manually enter the data.

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 8, or press the Microphone button to go back to the previous item in Class 8.

CLASS 8 ADDITIONAL OUTSIDE LINE/EXTENSION DATA

ITEM 9 Barge-In Station

Description: This item determines which ZT-S telephones will be allowed to interrupt other extensions' outside calls in progress. A telephone programmed as a barge-in station in this item can enter an outside call in progress, creating a forced add-on conference.

Barge-in stations cannot interrupt calls under the following conditions:

- Facsimile incoming or outgoing calls
- Conference calls
- Intercom calls
- Calls on which the interdigit timeout has not ellapsed
- Calls on lines which the telephone is denied access in Class 4, Item 2 Outside Line Pickup Restriction

Related Programming: The following parameters must also be programmed in order for the Barge-In Feature to operate correctly:

Class 4, Item 2 Outside Line Pickup Restriction
Class 7, Item 2 Conference Status Lamp Indication (optional)
Class 8, Item 7 Facsimile Line Identification

Data Entry: This item displays multiple data. You must enter the circuit numbers of all telephones to be allowed to use the Barge-In Feature.

Telephone connected to Circuit Number	Is Extension Number	Telephone connected to Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

A dot = Barge-In feature denied
A number = Barge-In Station

Initial Factory Setting: All telephones are denied use of the Barge-In feature.

How to Program: To assign Extensions 25 and 30 as Barge-In Stations:

Operation	Display

When you have accessed this item:

8-9 Multiple

(1) Press the Speaker button to begin the multiple data entry operation.

[SPKR]

0 .....

Screen 1 will be displayed. (Circuits 01 to 09, or Extensions 20 to 28)

(2) Press the last digit of each telephone circuit number for which you want to change the data entry.

[6] (Extension 25)

0 .....6...

(3) Press the Pound button to move to Screen 2.

[#]

1 .....

(Circuits 10 to 16, or Extensions 29 to 35)

(4) Press the last digit of each telephone circuit number for which you want to change the data entry.

[1] (Extension 30)

1 .1.....

(If you want to go back to Screen 1, press the Star button [*].)

(5) Press the Hold button to enter the data.

[HOLD/DND]

1 .1.....

(6) Press the Speaker button to end the multiple data entry operation.

[SPKR]

8-9 Multiple

Now you can press the Feature button to select a new class, press the Intercom button to move to the next item in Class 8, or press the Microphone button to go back to the previous item in Class 8.

CLASS 8 ADDITIONAL OUTSIDE LINE/EXTENSION DATA

ITEM 10 Hold Recall Telephones

Description: Calls which have been left on hold beyond the time programmed for Class 1, Item 2 Hold Recall Timer will automatically recall the telephone which placed the call on hold, if the telephone is allowed to receive recalls. This item determines which telephones will be allowed to receive hold recalls. This parameter applies to calls placed on system or exclusive hold.

If a telephone places a call on exclusive hold and that telephone is allowed to receive hold recalls in this item, if the call remains on hold beyond the time set for Class 1, Item 2 Hold Recall Timer, when the call recalls the telephone, the hold status changes to system hold.

If a telephone is denied receiving hold recalls in this item, when the telephone leaves a call on hold beyond the time programmed for hold recall, the call will not recall any telephone.

Related Programming: The following parameter must also be programmed in order for the Hold Recall Feature to operate correctly:

Class 1, Item 2 Hold Recall Timer

Data Entry: This item displays multiple data. You must enter the circuit number of the telephone(s) for which you want to change the data value.

Telephone connected to Circuit Number	Is Extension Number	Telephone connected to Circuit Number	Is Extension Number
01	20	09	28
02	21	10	29
03	22	11	30
04	23	12	31
05	24	13	32
06	25	14	33
07	26	15	34
08	27	16	35

A dot = Hold recalls denied for the telephone.
A number = Hold recalls allowed to the telephone.

Initial Factory Setting: All telephones are allowed to receive hold recalls.

How to Program: To program Extensions 25 and 30 not to receive any hold recalls:

Operation	Display
When you have accessed this item:	8-10 Multiple
(1) Press the Speaker button to begin the multiple data entry operation. [SPKR]	
Screen 1 will be displayed.	0 123456789 (Circuits 01 to 09, or Extensions 20 to 28)
(2) Press the last digit of each telephone circuit number for which you want to change the data value. [6] (Extension 25)	0 12345.789
(3) Press the Pound button to move to Screen 2. [#]	1 0123456 (Circuits 10 to 16, or Extensions 29 to 35)
(4) Press the last digit of each telephone circuit number for which you want to change the data value. [1] (Extension 30)	1 0.23456

(If you want to go back to Screen 1, press the Star button [*].)

(5) Press the Hold button to enter the data.

[HOLD/DND]

1 0.23456

(6) Press the Speaker button to end the multiple data entry operation.

[SPKR]

8-10 Multiple

Now you can press the Feature button to select a new class, or press the Microphone button to go back to the previous item in Class 8.

CLASS 9 TOLL RESTRICTION DATA

The ZT-S toll restriction feature allows you to restrict all outgoing calls according to the outside line used, the number dialed, and the telephone performing the dialing. A different toll restriction plan can be programmed for the day and night modes.

The ZT-S toll restriction plan is extremely flexible, giving the end user the ability to allow or deny any dial data. This plan includes the following features:

1. Seven Levels of Restriction
   One of seven restriction levels can be assigned to a telephone for each outside line.

2. Day and Night Mode Toll Restriction Plan
   Each telephone can be assigned a different toll restriction level on each outside line when the system is placed in the Night Mode.

3. 30 Digit Restriction
   Any number up to thirty digits can be entered in the toll restriction data to be allowed or denied dialing.

4. Other Common Carrier (OCC) Dialing Restriction
   By entering OCC access codes and authorization PIN codes in a data table, all equal access dialing can be controlled.

5. PBX Dialing
   If the ZT-S system is used behind a PBX, the ZT-S System can recognize and control outgoing dialing after accessing an outside line from the PBX.

6. System Speed Dial
   Each telephone can be programmed to allow/deny all system speed dialing, and to either have system speed dialing controlled according to the telephone's toll plan or unrestricted.

7. North American/Other Countries
   The toll restriction data can be changed, depending on whether the system is programmed as a North American installation.

TOLL RESTRICTION PROGRAMMING (Class 9 Programming)

The ZT-S System controls all outgoing dialing using a group of data tables. These tables are described below.

1. Toll Restriction Plan Tables:

Class 9, Item 1: Day Toll Restriction Levels for Outside Line 1
Class 9, Item 2: Day Toll Restriction Levels for Outside Line 2
Class 9, Item 3: Day Toll Restriction Levels for Outside Line 3
Class 9, Item 4: Day Toll Restriction Levels for Outside Line 4
Class 9, Item 5: Day Toll Restriction Levels for Outside Line 5
Class 9, Item 6: Day Toll Restriction Levels for Outside Line 6
Class 9, Item 7: Night Toll Restriction Levels for Outside Line 1
Class 9, Item 8: Night Toll Restriction Levels for Outside Line 2
Class 9, Item 9: Night Toll Restriction Levels for Outside Line 3
Class 9, Item 10: Night Toll Restriction Levels for Outside Line 4
Class 9, Item 11: Night Toll Restriction Levels for Outside Line 5
Class 9, Item 12: Night Toll Restriction Levels for Outside Line 6

Description: In the toll restriction plan tables for each outside line, you must enter a toll restriction level for each telephone. The toll restriction level specifies the data tables that will be used to apply the toll restriction. Items 1 to 6 are the Toll Restriction Levels for Outside Lines 1 to 6 respectively in the Day Mode. Items 7 to 12 are Toll Restriction Levels for Outside Lines 1 to 6 in the Night Mode. Each of these items is divided into 16 elements; each element corresponds to a telephone circuit number, from 01 to 16 (Extensions 20 to 35).

Data Entry: For each element or telephone circuit number, you must enter a toll restriction level, which specifies the restriction to be applied to all outgoing dialing by that telephone.

Toll restriction levels are as follows:

0= No restriction
1= Dialing restricted according to the basic data table
2= Dialing restricted according to User Data Table 1 and the basic data table
3= Dialing restricted according to User Data Table 2 and the basic data table
4= Dialing restricted according to User Data Tables 1,2 and the basic data table
5= Dialing restricted according to User Data Table 3 and the basic data table
6= Dialing restricted according to User Data Tables 2,3 and the basic data table
7= Dialing restricted according to User Data Tables 1,2,3 and the basic data table

Initial Factory Setting: 0 (All telephones are unrestricted on all outside lines in the day and night modes.)

2. User Data Tables 1-3

Class 9, Item 13: User Data Table 1
Class 9, Item 14: Control Codes for User Data Table 1
Class 9, Item 15: User Data Table 2
Class 9, Item 16: Control Codes for User Data Table 2
Class 9, Item 17: User Data Table 3
Class 9, Item 18: Control Codes for User Data Table 3

Description: The user data tables contain the actual dial input that is to be controlled in each toll plan. Each user data table (Items 13,15, and 17) contains 20 elements. Each element is a 5 digit field for entering dial data.

Each user data table is followed by a control table (Items 14,16, and 18). Each control table is divided into the same 20 elements, and the data entered in the control table specifies the actual treatment of the dial data entered for the same element in the user data table.

If the data to be restricted has more than five digits, the expansion code can be entered for that element, then the additional digits can be entered in the next element in the same table. Up to 5 expansions can be added to the initial data, enabling restriction of numbers with up to 30 digits.

When the system searches any of the tables for data matching the dialed number, it will always look from the first entry line in the lowest table in that toll restriction level. Once matching data is found, the system will apply the restriction and will not search any further. Hence, it is important to enter the data in the correct order so that the restriction will be applied correctly.

For example, if you want to set up User Data Table 1 to allow long distance dialing (1+dialing) to the 201 area code only, you can do so by entering the data "201" to be allowed on the first line of the table. All other long distance dialing can be denied by entering all area codes (using the "N" symbol to enter all other numbers) as denied in subsequent lines of the table. The "N" entry (using the Flash button) signifies any number from 0 to 9.

Telephone dials:
1-201-935-8580

Items Elements	9-13 User Data Table 1	9-14 Control Codes
1st Entry	1 2 0 1	1 (Allow)
2nd Entry	1 N 0 N	0 (Deny)
3rd Entry	1 N 1 N	0 (Deny)

Begin Dialing

When the telephones subject to this restriction dial any number beginning with "1201", the system will find the matching data in the first line of the table, and will allow the dialing. Any other long distance dialing will be denied, according to the entries in lines 2 and 3.

However, if the entries in the above table were reversed when the telephone dials a number beginning with "1201", the system would reach the entry "1NON-deny" first, and would deny dialing, even though an instruction to allow dialing "1201" was entered in a higher line of the table.

Telephone dials:
1-201-935-8580

Items Elements	9-13 User Data Table 1	9-14 Control Codes
1st Entry	1 N 0 N	0 (Deny) Deny Dialing
2nd Entry	1 N 1 N	0 (Deny)
3rd Entry	1 2 0 1	1 (Allow)

Likewise, if the toll restriction level contains more than one User Data Table, you must be careful to enter the data in each table according to the order in which the restriction should be applied.

The system will begin searching at the lowest User Data Table in the toll restriction level assigned, and if no matching data is found, the system will proceed to search the next higher numbered table in the toll restriction level. If no matching data is found in any of the user data tables, only then will the system search the Basic Data Table.

Data Entry: Each of these items is divided into 20 elements. Each element is a space for registering dial data and a control code.

a. Class 9, Items 13,15,17: User data tables 1,2, and 3

Enter dial data up to 5 digits.
Valid data includes: 0-9, #, *, "N" (any number, from 0 to 9)

b. Class 9, Items 14,16,18: Control Data for User Data Tables 1,2, and 3

0 = Deny dialing
1 = Allow dialing
2 = Allow dialing that matches the data in the table, but deny any additional dialing
3 = Expand data to next element (Up to 5 expansions can be added to the initial data, for a total of 30 digits)

Initial Factory Setting: Class 9, Items 13,15,17: Blank (no data entered)
Class 9, Items 14,16,18: 0 (Deny dialing)

3. User Data Table 4

Class 9, Item 19: User Data Table 4
Class 9, Item 20: Control Codes for User Data Table 4

Description: User Data Table 4 is similar to the other three user data tables. It consists of 20 spaces, or elements, for entering data to be controlled in the toll restriction plan. Class 9, Item 19 contains the dial data for each element, up to 5 digits. Class 9, Item 20 contains the control data for each element.

This table has two functions, depending on the programming of Class 5, Item 2 North America/Other Countries:

a. If Class 5, Item 2 is programmed as a North American installation (data value 0), User Data Table 4 is used for toll restriction of any dialing using an OCC (Other Common Carrier) Access Code. OCC Access codes must be registered in Class 9, Item 21, OCC Access Codes.

b. If Class 5, Item 2 has been programmed as another country outside of North America (data value 1), User Data Table 4 is used as a basic data table, in place of the fixed Basic Data Table.(The Fixed Basic Data Table is described in No.4).

Related Programming:
Class 5, Item 2 North America/Other Countries
Class 9, Item 21 OCC Access Codes
Class 9, Item 22 Number of Digits in Authorization Code (PIN
Class 9, Item 23 Authorization Code (PIN) Position

Data Entry: These items are divided into twenty elements. Elements 1 to 20 are the spaces for registering dial data and a control code.

a. Class 9, Item 19: User Data Table 4

Enter dial data up to 5 digits.
Valid data includes: 0-9,#,*,"N" (any number from 0 to 9)

b. Class 9, Item 20: Control Data for User Data Table 4

0 = Deny dialing
1 = Allow dialing
2 = Allow dialing that matches the data in the table, but deny any additional dialing
3 = Expand data to the next element (Up to 5 expansions can be added to the initial data, for a total of 30 digits)

NOTE: IF OCC DIALING IS TOLL RESTRICTED THROUGH THE ZT-S SYSTEM, THE TOTAL OF DIGITS ENTERED FOR THE OCC ACCESS CODE, THE NUMBER OF DIGITS IN THE AUTHORIZATION CODE, AND THE DIAL DATA REGISTERED IN USER DATA TABLE 4 MUST NOT EXCEED 30 DIGITS.

Initial Factory Setting: Class 9, Item 19: Blank (no data entered)
Class 9, Item 20: 0 (Deny dialing)

4. Fixed Basic Data Table

Description: This table contains data for restricting all long distance dialing, except for directory information, toll free dialing, and emergency numbers. This table is configured for North American dialing, so if "Other Countries" is selected for Class 5, Item 2, this table will not be used. In this case, User Data Table 4 will function as the Basic Data Table, and basic data to restrict long distance dialing in that country should be programmed in that table.

This table is used as a "default" restriction. In toll restriction levels 1 to 7, the system will search this table for data matching the dialed number only if no data matching the dialed telephone number has been found in any of the other User Data Tables included in the toll restriction level. This allows you to limit long distance dialing to specific area codes or numbers, by entering the dialing to be allowed in a user data table, and letting all other dialing be restricted according to the basic data table.

The data entered in the Fixed Basic Data Table cannot be changed. The data is shown below. The control codes are the same as those used for the user data tables:

0= Deny dialing
1= Allow dialing
2= Allow dialing that matches the data in the table, but deny any additional dialing
3= Expand data to the next line (Up to 5 expansions can be added to the initial data, for a total of 30 digits)

Related Programming: Class 5, Item 2 North America/Other Countries

TABLE 4-2 BASIC DATA TABLE (Fixed-North America)

No.	Basic Data Table						
	Digit 1	Digit 2	Digit 3	Digit 4	Digit 5	Control Code	
1	0					0	Deny
2							
3	1	1	N			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							
13							
14	1	N	0	N	5	3	Expand
15	5	5				1	Allow
16	1	N	1	1		0	Deny
17	1	N	1	N	5	3	Expand
18	5	5				1	Allow
19	1	N	0	N		0	Deny
20	1	N	1	N		0	Deny
21	1	N				0	Deny
22							
37							
38	6	1	1			2	Allow-Stop
39	8	0	0			1	Allow
40	9	1	1			2	Allow-Stop
41							
42							
43							
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			0	Deny
50	N	1	N			0	Deny

5. Other Common Carrier (OCC) Access Code Table

Class 9, Item 21: OCC Access Codes
Class 9, Item 22: Number of Digits in Authorization Codes(PIN)
Class 9, Item 23: Authorization Code (PIN) Position

Description: Outgoing dialing using another common carrier, called equal access dialing, can also be controlled through the ZT-S System's toll restriction plan. In order for the system to correctly recognize dialing through other common carriers, the OCC access codes, authorization (PIN) numbers and positions must be entered in the OCC Access Code Table.

The OCC Access Code Table is divided into four elements. Each item has the same four elements; spaces for entering data for one other common carrier. The data includes an access code for another common carrier, the number of digits in the authorization codes and the position of the authorization code in the dialed number.

NOTE: THESE ITEMS ONLY APPLY IF CLASS 5, ITEM 2 NORTH AMERICA/OTHER COUNTRIES IS SET TO 0 (NORTH AMERICAN INSTALLATION). IF THIS ITEM IS SET TO 1 (OTHER COUNTRIES), THE OCC ACCESS DATA WILL NOT BE VALID.

Related Programming:
Class 5, Item 2 North America/Other Countries
Class 9, Item 19 User Data Table 4
Class 9, Item 20 Control Codes for User Data Table 4

Data Entry: For each element, or other common carrier, you must enter the following data:

Item 21: OCC Access Code, from 1 to 14 digits, Valid data includes 0-9, #,*
Item 22: Number of Digits in Authorization (PIN) Code, from 0 to 14 digits
Item 23: Authorization (PIN) Code Position

0 = Before the dialed telephone number
1 = After the dialed telephone number

NOTE: IF OCC DIALING IS TOLL RESTRICTED THROUGH THE ZT-S SYSTEM, THE TOTAL OF DIGITS ENTERED FOR THE OCC ACCESS CODE, THE NUMBER OF DIGITS IN THE AUTHORIZATION CODE, AND THE DIAL DATA REGISTERED IN USER DATA TABLE 4 MUST NOT EXCEED 30 DIGITS.

Initial Factory Setting:
Item 21: Blank (No data entered)
Item 22: 0 (No digits)
Item 23: 0 (Before the telephone number)

Note: 1. Class 9, Item 22 Number of Digits in Authorization Codes (PIN) has different meaning depending on the value entered for Class 9 Item 23 Authorization (PIN) Code Position.

If you set the value 0 (Before the dialed number) in Class 9, Item 23, the value refers to the number of digits in the Authorization (PIN) Codes to be dialed before the telephone number.

If you set the value "1" (After the dialed number) in Class 9, Item 23, the value refers to the maximum number of digits the telephone number which you can dial before dialing the Authorization (PIN) Code.

2. When you plan the Toll Restriction Table for OCC Access using User Data Table 4, please note the following:

a. Whenever you dial "OCC Access Code + 1 (Prefix) + Telephone Number", the system will automatically ignore the dialing "1" (Prefix), when referencing the telephone number to User Data Table 4. Therefore, when planning the data for User Data Table 4, it is not necessary to include the "1" with the telephone number to be restricted. For example, if you want to deny dialing the area code "201" through OCC Access, you must enter the data "201" in Class 9, Item 19 and the data value 0 (Deny) in Class 9, Item 20. Even though the number actually dialed is "OCC Access Code + 1 + 201-935-8580", it will be correctly restricted.

b. If you program Class 9, Item 23 Authorization Code (PIN) Position as the value "1" (After the dialed number), you cannot use the control code 2 (Allow-stop) in User Data Table 4 for toll restriction. This is because if the dialed telephone number is restricted as Allow-stop, you would not be able to dial the Authorization (PIN) Code after the number.

Figure 4-2 shows the process by which outgoing dialing is controlled by the ZT-S System.

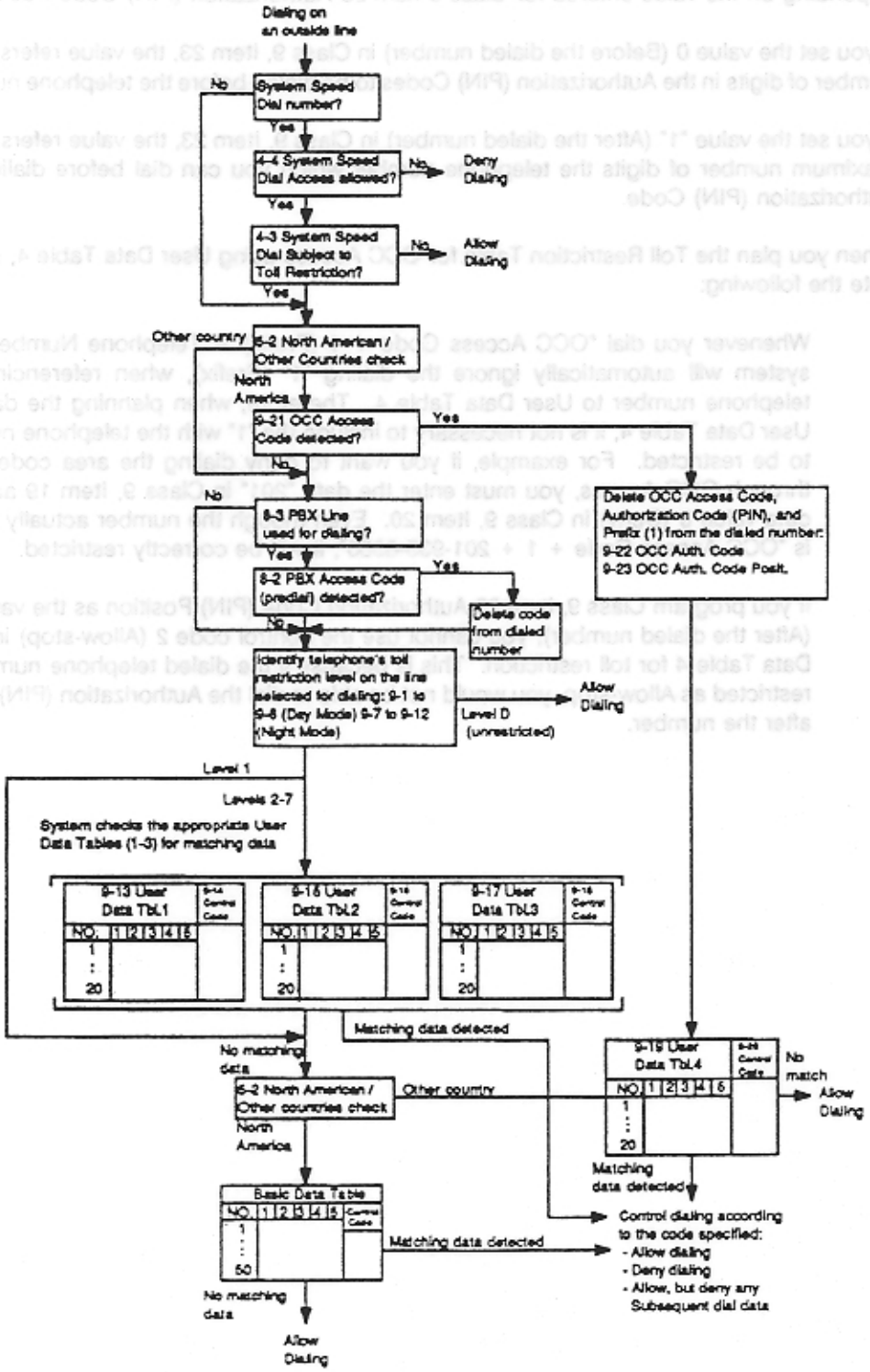


FIGURE 4-2 TOLL RESTRICTION PLAN

How to Program: NOTE: These examples are based on North American installations.

1. Programming toll restriction levels and user data tables

To program the following restriction:

a. Three outside lines are connected to the system. Toll restriction data must be programmed for dialing on Outside Lines 1,2, and 3.

b. Extension 20 is to be allowed to make long distance calls only to the following area codes in the day mode: 212, and 516. This restriction should be the same for all outside lines.

c. Extension 25 is to be allowed to make any long distance dialing in the day mode.

d. Extensions 20 and 25 are to be denied all long distance dialing when the system is in the night mode.

You must assign the data for control to a User Data Table, and assign each telephone a toll restriction level in the day and night modes.

Description	Data Entry - toll restriction level, from 0 to 7															
	Tel Ext	01 20	02 21	03 22	04 23	05 24	06 25	07 26	08 27	09 28	10 29	11 30	12 31	13 32	14 33	15 34	16 35
9-1 Day Toll Restr. Level Outside Ln.1		2	0														
9-2 Day Toll Restr. Level Outside Ln.2		2	0														
9-3 Day Toll Restr. Level Outside Ln.3		2	0														
9-7 Night Toll Restr. Level Outside Ln.1		1	1														
9-8 Night Toll Restr. Level Outside Ln.2		1	1														
9-9 Night Toll Restr. Level Outside Ln.3		1	1														

0 (unrestricted)
1 (Basic Data Tbl.)
2 (User Data Tbl. 1 & Basic Data Tbl.)

	9-17 User Data Table 3					9-18 Control Codes for User Data Table 3
	Data Entry					
Elements	1	2	3	4	5	Control Code (0-3)
1	1	2	1	2		1 (Allow)
2	1	5	1	6		1 (Allow)

Operation Display

When you have accessed Class 9:

Class 9

(1) Press the Feature button.

[FEAT]

Item 1

(2) Enter 13, to proceed to Item 13 User Data Table 1.

[1][3]

Item 13

(3) Press the Feature button.

[FEAT]

Elem 1

(4) Press the Feature button to display the data for Element 1.

[FEAT]

9-13-1

(5) Enter one of the area codes for restriction.

[1][2][1][2]

9-13-1 1212

(It may not be necessary to enter the prefix "1", depending on the central office specifications in the location where the ZT-S System is installed.)

(6) Press the Hold button to enter the data.

[HOLD/DND]

9-13-1 1212

(7) Press the Intercom button to move to Item 14, Control Codes for User Data Table 1. The control code corresponding to the data you entered in Item 13 will be displayed.

[ICM]

9-14-1 0

(8) Enter 1 to allow dialing the data entered for Item 13, Element 1.

[1] (Allow)

9-14-1 1

(9) Press the Hold button to enter the data.

[HOLD/DND]

9-14-1 1

(10) Press the Microphone button to go back to Item 13.

[MIC OFF]

9-13-1 1212

(11) Press the Speed button to move to Item 13, Element 2.

[SPEED]

9-13-2

(12) Repeat steps (5) to (9) to enter the other code to be allowed dialing.

9-13-2 1516

9-14-2 1

(13) Move to Item 1 Day Toll Restriction Levels, Outside Line 1. Select Element 1 (Extension 20).

[1]

9-1-1 0

(14) Enter Level 2 for Circuit 01 (Extension 20). This will allow Extension 20 to make long distance calls to area codes 212 and 516 only. All other long distance dialing will be restricted according to the Fixed Basic Data Table.

[2] (User Data Table 1 + Basic)

9-1-1 2

(15) Press the Hold button to enter the data.

[HOLD/DND]

9-1-1 2

(16) Use the Intercom button to move to the next items. Repeat steps (14) and (15) to enter the same restriction level for Outside Lines 2 and 3 (Items 2 and 3)

Extension 20 will be restricted from all long distance dialing on all outside lines, except for calls to area codes 212 and 516, when the system is in the day mode. Since Extension 25 is to be unrestricted on all lines, there is no need to change the factory setting for Element 6 (Extension 25).

Now you must enter toll restriction level 1 (deny all long distance dialing, by the Fixed Basic Data Table) for both extensions when the system is in the night mode.

(17) Move to Item 7 (Toll Restriction Levels, Outside Line: Night Mode). Select Element 1 (Extension 20).

9-7-1 0

(18) Enter Restriction Level 1 (Fixed Basic Data Table).

[1]

9-7-1 1

(19) Press the Hold button to enter the data.

[HOLD/DND]

9-7-1	1

(20) Use the Intercom button to move to Items 8 and 9, and repeat steps (18) and (19) to enter the same data for Outside Lines 2 and 3.

Now you can either manually enter the same data to Element 6 (Circuit 6, or Extension 25), or you can use the copying operation to copy the data entered for Element 1 in each item to Element 6.

2. Programming Toll Restriction of Other Common Carrier Dialing

To program the following restriction:

a. All 1+ dialing in the system goes through the AT&T network, but the end user has dial access to MCI. The network access number is 950-1022.

b. All PIN numbers have 6 digits.

c. The PIN number is dialed before the telephone number, ie:
Access Code + PIN + telephone number

d. Long distance dialing through MCI is to be allowed for calls made to area codes 212 and 201. All other dialing using MCI should be denied, so that dialing will not be performed using equal access.

You must enter the OCC Access data in the OCC Access Code Table. The data to be restricted (allow 212 and 201 area code dialing only, deny all other long distance dialing) must be entered in User Data Table 4.

	9-21 Other Common Carrier Access Codes														9-22 No. of Digits in Auth. Codes	9-23 Auth. Code (PIN) Position
Elements	1	2	3	4	5	6	7	8	9	10	11	12	13	14	0 to 20 digits	0=Bef. 1=After
1	9	5	0	1	0	2	2								6	0
2																

	9-19 User Data Table 4					9-20 Control Codes for User Data Tbl. 4
	Data Entry					
Elements	1	2	3	4	5	Control Code (0-3)
1	2	1	2			1 (Allow)
2	2	0	1			1 (Allow)
3	N	0	N			0 (Deny)
4	N	1	N			0 (Deny)

Operation	Display

When you have accessed Class 9:

Class 9

(1) Press the Feature button.

[FEAT]

Item 1

(2) Enter 21, to move to Item 21 (OCC Access Codes)

[2][1]

Item 21

(3) Press the Feature button.

[FEAT]

Elem 1

(4) Press the Feature button.

[FEAT]

9-21-1

(5) Enter the access code.

[9][5][0][1][0][2][2]

9-21-1 9501022

(6) Press the Hold button to enter the data.

[HOLD/DND]

9-21-1 9501022

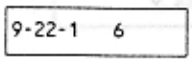
(7) Press the Intercom button to move to Item 22, No. of Digits in Authorization Code.

[ICM]

9-22-1 0

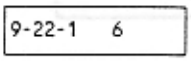
(8) Enter the number of digits in the Authorization codes (PIN).

[6]



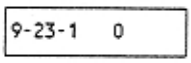
(9) Press the Hold button to enter the data.

[HOLD/DND]



(10) Press the Intercom button to move to Item 23 Authorization Code Position.

[ICM]

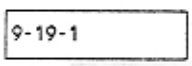


If you need to change the data entry, enter the number for the desired data value, then press the Hold button to enter the data. In this example, the PIN is before the number, so the initial factory setting does not need to be changed.

Now you need to enter the data to be controlled in User Data Table 4.

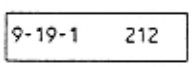
(11) Use the Microphone button to go back to Item 19 (User Data Table 4). You should be at Element 1.

[MIC OFF] + [MIC OFF] + [MIC OFF] + [MIC OFF]



(12) Enter one of the area codes to be controlled.

[2][1][2]



(Note that since User Data Table 4 is used for toll restriction of OCC dialing, it is not necessary to include the prefix "1" with the area code.)

(13) Press the Hold button to enter the data.

[HOLD/DND]

9-19-1 212

(14) Use the Intercom button to move to Item 20, Control Codes for User Data Table 4. You should be at Element 1.

[ICM]

9-20-1 0

(15) Enter the number for the desired code (1: Allow) corresponding to the data entered for the same element in Item 19, then press the Hold button to enter the data.

[1] + [HOLD/DND]

9-20-1 1

(16) Press the Microphone button to go back to Item 19, and press the Speed button to move to Element 2.

[MIC OFF] + [SPEED]

9-19-2

(17) Repeat steps (12) to (14) to enter another area code, and the control code to allow this data (Items 19 and 20, Element 2).

9-19-2 201

9-20-2 1

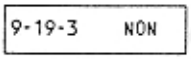
(18) Press the Microphone button to go back to Item 19, and press the Speed button to move to Element 3.

[MIC OFF] + [SPEED]

9-19-3

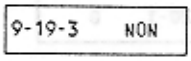
(19) Enter dial data for all other area codes, from 202 to 909, using the Flash button to register "N".

[FLASH][0][FLASH]



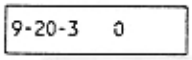
(20) Press the Hold button to enter the data.

[HOLD/DND]



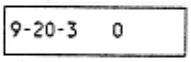
(21) Press the Intercom button to move to Item 20.

[ICM]

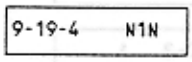


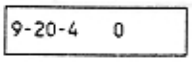
(22) If necessary, enter the number for the desired code, corresponding to the data entered in User Data Table 4, Element 3.

In this example, the dialing is to be denied, so the default setting does not need to be changed.



(23) Repeat steps (17) to go (22) to enter dial data for all other area codes from 211 to 919, and the control code to deny this dialing.





Now all telephones will only be allowed to perform equal access dialing to area codes 201 and 212 only. All other long distance equal access dialing will be denied.

PROGRAMMING SYSTEM SPEED DIAL NUMBERS

The Master KT can register up to 84 frequently dialed numbers for system speed dialing by all telephones in the ZT-S system. System speed dial code numbers are 00 to 83.

This operation must be performed when the Master KT is idle, and not in the programming mode. It is always necessary to enter the number of the outside line to be used for dialing system speed dial numbers.

Note that if a telephone is denied access to the outside line which is assigned for speed dialing the number (Class 4, Item 1 Outside Line Outgoing Restriction or Class 4, Item 2 Outside Line Pickup Restriction), that telephone can only speed dial the number by manually selecting an outside line before performing the speed dial operation ([SPEED] + [nn]).

For example, to register 935-8580 for System Speed Dialing, using outside line 3:

Operation	Display
When the Master KT is idle and not in the programming mode:	(clock&calendar)
(1) Lift the receiver and listen for the dial tone. (The Speaker button cannot be used).	
(2) Press the Feature and Speed buttons. [FEAT] + [SPEED]	
(3) Dial the System Speed Dial Code Number. For example: [0][0]	00 CO0

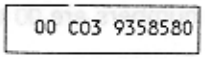
The display shows the code number, and CO 0 (Outside Line 0).

If a number was previously registered under this code number, the outside line and telephone numbers will be displayed.

(4) Enter the number of the outside line to be used for dialing. (from 1 to 6, for outside lines 1 to 6) [3]	00 CO3

(5) Enter the number to be dialed. (up to 30 digits)

[9][3][5][8][5][8][0]



You can enter the following data, in the telephone number:

0-9, * or # = dialed number

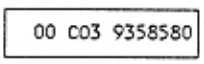
[FEAT] + [*] = Dial Reverse (the system will automatically change all dialing which follows from dial pulse to DTMF). The symbol "R" will appear in the display.

[FEAT] + [FLASH] = Short Flash, for access to Centrex services or a PBX. This timing is set in the system installer programming. The symbol "S" will appear in the display.

[HOLD/DND] = Pause before dialing the next digit. This timing is set in the system installer programming. The symbol "-n" will appear in the display.

(6) Press the Speed button to enter the number.

[SPEED]



(7) To enter another number, go back to step 3, enter another Speed Dial Code Number and repeat steps 4, 5, and 6.

(8) When you are finished entering system speed dial numbers, hang up the receiver to end the operation.

If necessary, you can clear the system speed dial memory, by entering the system installer programming mode and entering value 3 for Class 5, Item 99 Clear Memory.

4.5 ZT-S SYSTEM PLANNING SHEETS

Be sure to complete a copy of these sheets before performing any programming. Keep the completed sheets available for reference for programming additions or changes.

Class 0 System Configuration

Class	Item	Description	Data Entry	Initial Value
0	1	Calendar Setting	Year ____(00-99) Month ___(01-12) Day ____(01-31) Day of ___ Week (1-7) 1=Sun 5=Thurs 2=Mon 6=Fri 3=Tues 7=Sat 4=Wed	0001011 (1900,Jan,01,Sun)

Class 1 System Parameters

Class	Item	Description	Data Entry	Initial Value
1	1	Camp-On Recall	___ ___ (10-240)	20 sec.
	2	Hold Recall Timer	___ ___ (10-240)	120 sec.

Class 2 System Features

Class	Item	Description	Data Entry	Initial Value
2	1	Busy Override Signalling	___ (0 or 1) 0= Deny 1= Allow	1 (Allow)

Class 3 Outside Line/Extension Data

Class	Item	Description	Elements	Data Entry (Check all telephones to ring)	Initial Value
3	1	Ringing Telephones - Day Mode	Outside Line	Tel 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 Ext 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	Tel. 01 (Ext.20) is the only telephone which rings on all lines in the day mode.
			1		
			2		
			3		
			4		
			5		
			6		
3	2	Ringing Telephones - Night Mode	Outside Line	Data Entry (Check all telephones to ring) Tel 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 Ext 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	Tel. 01 (Ext.20) is the only telephone which rings on all lines in the night mode.
			1		
			2		
			3		
			4		
			5		
			6		

Class	Item	Description	Enter A (Allow) or D (Deny) use of Do Not Disturb	Initial Value
3	3	Do Not Disturb	Tel 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 Ext 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 Data Entry	All telephones are denied use of Do Not Disturb.

Class	Item	Description	Enter A (Allow) or D (Deny) use of Paging	Initial Value
3	4	Paging Access	Tel 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 Ext 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 Data Entry	All telephones are allowed to make paging announcements.

Class	Item	Description	Enter A (Allow) or D (Deny) receiving Paging Announcements	Initial Value
3	5	Paging Call Receiving Telephones	Tel 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 Ext 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 Data Entry	All telephones are allowed to receive paging announcements.

Class 3 Outside Line/Extension Data - continued

Class	Item	Description	Elements	Data Entry - Enter the button number of the first Autodial button (1 to 16, or 0)	Initial Value
3	6	Autodial Button Assignment	Tel.01 (Ext.20)		0 = The first 16 buttons on all telephones are DSS buttons (DSS 20 to DSS 35)
			Tel.02 (Ext.21)		
			Tel.03 (Ext.22)		
			Tel.04 (Ext.23)		
			Tel.05 (Ext.24)		
			Tel.06 (Ext.25)		
			Tel.07 (Ext.26)		
			Tel.08 (Ext.27)		
			Tel.09 (Ext.28)		
			Tel.10 (Ext.29)		
			Tel.11 (Ext.30)		
			Tel.12 (Ext.31)		
			Tel.13 (Ext.32)		
			Tel.14 (Ext.33)		
			Tel.15 (Ext.34)		
			Tel.16 (Ext.35)		

Class 4 Outside Line Restriction Data

Class	Item	Description	Elements	Data Entry - Enter A (Allow) or D (Deny) outgoing calls	Initial Value
4	1	Outside Line Outgoing Restriction	Outside Line	Tel Ext: 01 20, 02 21, 03 22, 04 23, 05 24, 06 25, 07 26, 08 27, 09 28, 10 29, 11 30, 12 31, 13 32, 14 33, 15 34, 16 35	All telephones are allowed to make outgoing calls on all lines.
			1		
			2		
			3		
			4		
			5		
			6		
4	2	Outside Line Pickup Restriction	Outside Line	Enter A(Allow) or D(Deny) use of each outside line Tel Ext: 01 20, 02 21, 03 22, 04 23, 05 24, 06 25, 07 26, 08 27, 09 28, 10 29, 11 30, 12 31, 13 32, 14 33, 15 34, 16 35	All telephones are allowed to use all outside lines.
			1		
			2		
			3		
			4		
			5		
			6		

Class	Item	Description	Enter R (Restricted) or U (Unrestricted) use of System Speed Dial	Initial Value
4	3	Toll Restriction of System Speed Dial	Tel Ext: 01 20, 02 21, 03 22, 04 23, 05 24, 06 25, 07 26, 08 27, 09 28, 10 29, 11 30, 12 31, 13 32, 14 33, 15 34, 16 35 Data Entry	All telephones' system speed dialing is unrestricted.
4	4	System Speed Dial Access	Enter A (Allow) or D (Deny) use of System Speed Dial Tel Ext: 01 20, 02 21, 03 22, 04 23, 05 24, 06 25, 07 26, 08 27, 09 28, 10 29, 11 30, 12 31, 13 32, 14 33, 15 34, 16 35 Data Entry	All telephones are allowed to use syst speed dial.

Class 5 Additional System Configuration

Class	Item	Description	Data Entry	Initial Value
5	1	Master KT (Programming Terminal)	____ (Circuit number of the telephone)	01 (Extension 20)
	2	North America/ Other Countries	____ (0 or 1) 0= North American installation, 1= Other Country	0 (North America)
	99	Clear Memory (RAM Clear)*	____ (1 to 3) 1= Clear all data & backup (speed dial memory), 2= Reset user database to initial values only, 3= Clear speed dial area only	Blank

* This item can only be programmed when all telephones are idle.

Class 6 Additional System Parameters

Class	Item	Description	Data Entry line	Initial Value
6	1	DTMF Signal Duration	____ (1-5)	1 (100ms)
	2	Dial Pulse Lines: Break Ratio	____ (0-3) 0= Not used 1= 60% 2= Not used 3= Not used	1 (60%)
	3	Dial Pulse Lines: Minimum Pause Time	_____ (3-24)	8 (800ms)
	4	Dial Interdigit Timeout	_____ (1-24)	6 sec.
	5	Dial First Digit Guard Time	_____ (1-240) multiplied by 100ms	10 (1 sec.)
	6	Outside Line Disconnect Signal Detection Timer	_____ (1-30) multiplied by 100ms	7 (700ms)
	7	Facsimile Ringing Timeout	_____ (5-240)	20 sec.
	8	Dial Pause Time Timeout	___ (1-9)	3 sec.
	9	Long Flash Timing Timeout	_____ (2-240) multiplied by 100ms	10 (1 sec.)
	10	Centrex Flash Timing Timeout	_____ (1-40) multiplied by 50ms	12 (600ms)
	11	Paging Circuit Timeout	_____ (10-240)	20 sec.

Class 7 Additional System Features

Class	Item	Description	Data Entry (Enter 0 or 1 for system)	Initial Value
7	1	Dialing on Outside Lines After Call Answer	___ (0 or 1) 0= Deny 1= Allow	0 (Deny)
	2	Conference Status Lamp Indication	___ (0 or 1) 0= No lamp indication 1= Lamp indication	0 (No lamp indication)
	3	Primary Intercom Call Mode	___ (0 or 1) 0= Voice Call 1= Tone Call	0 (Voice Call)

Class 8 Additional Outside Line/Extension Data

Class	Item	Description	Data Entry (Check all circuits with outside lines installed)						Initial Value
			1	2	3	4	5	6	
8	1	Outside Lines Installed							Outside lines are installed for all circuits.

Class	Items	8-2 PBX Outside Line Access Codes (Predial)	8-3 PBX Lines for Each Predial Code					
		Data Entry						
8	Elements	1-4 digits (0-9,#,*)	Check circuit numbers of PBX Lines					
			1	2	3	4	5	6
	1	____ ____ ____ ____						
	2	____ ____ ____ ____						
	3	____ ____ ____ ____						
	4	____ ____ ____ ____						
	5	____ ____ ____ ____						
	6	____ ____ ____ ____						
	7	____ ____ ____ ____						
	8	____ ____ ____ ____						
	9	____ ____ ____ ____						
	10	____ ____ ____ ____						
	Initial Value	Blank	No PBX Lines					

Class 8 Additional Outside Line/Extension Data - continued

Class	Item	Description	Data Entry - 10 (10pps) for each DP line (no data entry)							Initial Value
8	4	Dial Pulse Speed	Outside Line	1	2	3	4	5	6	10pps for all outside lines
			Data Entry							
8	5	Type of Dial Signalling	Enter P (Dial Pulse) or T (DTMF) for each line							DTMF (Touch Tone) for all outside lines
			Outside Line	1	2	3	4	5	6	
			Data Entry							

Class	Item	Description	Data Entry - Check circuit numbers of telephones with speakerphone installed																Initial Value
8	6	Optional Speakerphone	Tel Ext	01 20	02 21	03 22	04 23	05 24	06 25	07 26	08 27	09 28	10 29	11 30	12 31	13 32	14 33	15 34	16 35	No telephones are equipped with the optional speakerphone.
			Data Entry																	
8	7	Facsimile Line	___ (circuit number of the outside line connected to the facsimile)																	0 (No facsimile line)
8	8	Conditions for Disconnect	___ (0 or 1) 0= No disconnect detection 1= Momentary loop open signal																	0 (No disconnect detection)
Class	Item	Description	Enter A (Allow) or D (Deny) use of Barge-In																Initial Value
8	9	Barge-In Stations	Tel Ext	01 20	02 21	03 22	04 23	05 24	06 25	07 26	08 27	09 28	10 29	11 30	12 31	13 32	14 33	15 34	16 35	All telephones are denied use of Barge-In.
			Data Entry																	
Class	Item	Description	Enter A (Allow) or D (Deny) receiving Hold recalls																Initial Value
8	10	Hold Recall Telephones	Tel Ext	01 20	02 21	03 22	04 23	05 24	06 25	07 26	08 27	09 28	10 29	11 30	12 31	13 32	14 33	15 34	16 35	All telephones are allowed to receive recalls.
			Data Entry																	

Class 9 Toll Restriction Data

Class	Item	Description	Data Entry - Enter restriction level for each telephone circuit number, from 0 to 7*																Initial Value
			Tel 01 Ext 20	02 21	03 22	04 23	05 24	06 25	07 26	08 27	09 28	10 29	11 30	12 31	13 32	14 33	15 34	16 35	Level 0: All telephones are unrestricted on all lines in the day and night modes.
9	1	Day Toll Restriction Levels for Outside Line 1																	
	2	Day Toll Restriction Levels for Outside Ln.2																	
	3	Day Toll Restriction Levels for Outside Ln.3																	
	4	Day Toll Restriction Levels for Outside Ln.4																	
	5	Day Toll Restriction Levels for Outside Ln.5																	
	6	Day Toll Restriction Levels for Outside Ln.6																	
	7	Night Toll Restriction Levels for Outside Ln.1																	
	8	Night Toll Restriction Levels for Outside Ln.2																	
	9	Night Toll Restriction Levels for Outside Ln.3																	
	10	Night Toll Restriction Levels for Outside Ln.4																	
	11	Night Toll Restriction Levels for Outside Ln.5																	
	12	Night Toll Restriction Levels for Outside Ln.6																	

* Toll Restriction Levels:

0= No restriction
1= Dialing restricted according to the basic data table
2= Dialing restricted according to User Data Table 1 and the basic data table
3= Dialing restricted according to User Data Table 2 and the basic data table
4= Dialing restricted according to User Data Table 1,2, and the basic data table
5= Dialing restricted according to User Data Table 3 and the basic data table
6= Dialing restricted according to User Data Tables 2,3, and the basic data table
7= Dialing restricted according to User Data Table 1,2,3, and the basic data table

Class 9 Toll Restriction Data - continued

Class	Items												
9		9-13 User Data Table 1					9-14 Control Codes for User Table 1	9-15 User Data Table 2					9-16 Control Codes for User Data Table 2
		Data Entry											
	Elements	1	2	3	4	5	Control Code (0-3)	1	2	3	4	5	Control Code (0-3)
	1												
	2												
	3												
	4												
	5												
	6												
	7												
	8												
	9												
	10												
	11												
	12												
	13												
	14												
	15												
	16												
	17												
	18												
	19												
	20												

Dial Data: 0-9,*,#

Control Codes:
0= Deny dialing
1= Allow dialing
2= Allow dialing matching the data, but stop all additional dialing
3= Expand data to the next element (Up to 5 expansions can be added to the initial data)

Class 9 Toll Restriction Data - continued

Class	Items												
9		9-17 User Data Table 3					9-18 Control Codes for User Data Table 3	9-19 User Data Table 4 (OCC Access dialing or Basic Data for other countries)					9-20 Control Codes for User Data Table 4
		Data Entry											
	Elements	1	2	3	4	5	Control Code (0-3)	1	2	3	4	5	Control Code (0-3)
	1												
	2												
	3												
	4												
	5												
	6												
	7												
	8												
	9												
	10												
	11												
	12												
	13												
	14												
	15												
	16												
	17												
	18												
	19												
	20												

Dial Data: 0-9,*,#

Control Codes:
0= Deny dialing
1= Allow dialing
2= Allow dialing matching the data, but stop all additional dialing
3= Expand data to the next element (Up to 5 expansions can be added to the initial data)

Class 9 Toll Restriction Data - continued

Class	Items															
9	Elements	9-21 Other Common Carrier Access Codes													9-22 No. of Digits in Authorization Codes (PIN)	9-23 Authorization Code (PIN) Position
		Data Entry														
		0-9,#,*													0-20 digits	0= Before 1= After
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	1															
	2															
	3															
	4															
	Initial Value	Blank													0 for all OCC Codes	0 (before the telephone no.)

NOTE: IF OCC DIALING IS TO BE SUBJECT TO TOLL RESTRICTION, THE TOTAL NUMBER OF DIGITS ENTERED FOR THE FOLLOWING ITEMS MUST NOT EXCEED 30 DIGITS:

CLASS 9, ITEM 19 USER DATA TABLE 4 (DIAL DATA ENTRY)
CLASS 9, ITEM 21 OTHER COMMON CARRIER ACCESS CODES
CLASS 9, ITEM 22 NUMBER OF DIGITS IN AUTHORIZATION CODES (PIN)

SYSTEM SPEED DIAL NUMBER PLANNING SHEETS

Enter the numbers (up to 30 digits) for dialing by all telephones using System Speed dialing. Note that an outside line number (1 to 6) corresponding to outside line buttons 1 to 6 must always be entered before the telephone number.

The following symbols may be used in entering telephone numbers for system speed dialing. Each symbol uses one digit.

1-9, 0, *, # =	telephone numbers
[FEAT] + [*] =	Dial reverse - 1 digit (change all the following dialing from dial pulse to touch tone). The symbol "R" appears in the display.
[FEAT] + [FLASH] =	Short flash - 1 digit (enters a pause after a centrex access code or PBX access code). The symbol "S" appears in the display.
[HOLD/DND] =	Pause - 2 digits (enters a longer pause).The symbol "-n" appears in the display.

If necessary, you can clear the system speed dial memory by programming Class 5, Item 99 Clear Memory.

SECTION 5 ZT-S 616 FEATURES AND SPECIFICATIONS

TABLE OF CONTENTS

SECTION 5 ZT-S 616 FEATURES AND SPECIFICATIONS

TABLE OF CONTENTS

5.0 ZT-S 616 FEATURES AND SPECIFICATIONS

This section lists ZT-S 616 features, basic feature operations, and specifications. For detailed feature operation information, refer to the ZT-S Owner's Manual.

5.1 ZT-S 616 FEATURES

5.1.1 SYSTEM FEATURES

Centrex Compatibility
CO/PBX Line Compatibility
Data Security On CO/PBX Lines (Facsimile transmissions)
Dial Pulse (DP)/DTMF Signalling
Disconnect Signal Detection
Distinctive Ringing - CO/ICM
Equal Access Services (OCC Access)
Facsimile Adaptor
Flash (Long/Short)
Flexible Night Service
Flexible Incoming Ringing Assignment
Flexible Toll Restriction
Intercom Dialing
Multiple Answering Positions
Music On Hold (External)
Outside Line Outgoing Restriction
Outside Line Pickup Restriction
Privacy
Power Failure Transfer
Station Class of Service
Station Class of Service Change

5.1.2 TELEPHONE FEATURES

Add-On Conference
Alphanumeric Display
Alternate Tone/Pulse Dialing (Dial Reverse)
Auto Dial
Automatic Hold & Paging
Barge-In Station
Built-in Speakerphone (Full Handsfree Operation)
Busy Override-Signalling
Call Forward
Call Pickup
Call Release
Call Transfer-Screened/Unscreened
Camp-on with Recall
Consultation Hold with Recall
Dial Tone Reorder
Direct CO/PBX Line Access Buttons
Direct Station Selection (DSS) Buttons
Do Not Disturb
Exclusive Hold with Recall
Incoming Call Automatic Answer
Intercom Automatic Access
Intercom Handsfree Answerback
Last Number Redial
Meet-Me Answer
Monitoring
Multiline Conference
On-Hook Dialing
Optional Handset Connection
Paging
Privacy Release
Quick Mode Dialing
Station Speed Dial
System Hold with Recall
System Speed Dial
Volume Adjustment (Handset and Speaker)
Wall Mounting

5.1.3 ZT-S SYSTEM FEATURES AND RELATED PROGRAMMING

FEATURE	RELATED PROGRAMMING	OPTIONAL EQUIPMENT
Centrex Compatibility	6-10 Centrex Flash Time	Centrex service from local telephone company required.
CO/PBX Line Compatibility	3-1 Ringing Telephones - Day Mode 3-2 Ringing Telephones - Night Mode 6-4 Dial Interdigit Timeout 6-5 Dial First Digit Guard Time 8-2 PBX Outside Line Access Codes 8-3 PBX Lines for Each Predial Code (Also, see DP-DTMF Signalling)	
Data Security on CO/PBX Lines (Facsimile Transmissions)	8-7 Facsimile Line Identification	Facsimile Adaptor Unit (ZS-FAXU) and customer supplied facsimile required.
Dial Pulse (DP)/Dual Tone Multifrequency (DTMF) Signalling	6-1 DTMF Signal Duration 6-2 Dial Pulse Lines: Break Ratio (no change) 6-3 Dial Pulse Lines: Minimum Pause Time 8-4 Dial Pulse Speed (no change) 8-5 Type of Dial Signalling	
Disconnect Signal Detection	6-6 Outside Line Disconnect Signal Detection Timer 8-8 Conditions for Disconnect Detection	Loop open disconnect signal required from local telephone company
Distinctive Ringing - CO/ICM	No programming required	
Equal Access Services (Other Common Carrier Access)	5-2 North America/Other Countries 9-19 User Data Table 4 9-20 Control Codes for User Data Tbl. 4 9-21 Other Common Carrier (OCC) Access Codes 9-22 Number of Digits in Authorization Codes (PIN) 9-23 Authorization Code (PIN) Position	
Facsimile Connection	6-7 Facsimile Ringing Timeout 8-7 Facsimile Line Identification	Facsimile Adaptor Unit (ZS-FAXU) and customer supplied facsimile required
Flash (Long) Flash	6-9 Long Flash Timing	
Centrex (Short) Flash	6-10 Centrex Flash Timing	Centrex service from local telephone company required.
Flexible Night Service	3-2 Ringing Telephone - Night Mode 5-1 Master KT 9-7 to 9-12 Night Toll Restriction Levels - Outside Lines 1 to 6	
Flexible Incoming Ringing Assignment	3-1 Ringing Telephones - Day Mode 3-2 Ringing Telephones - Night Mode 4-2 Outside Line Pickup Restriction	
Flexible Toll Restriction	4-3 Toll Restriction of System Speed Dial 5-2 North America/Other Countries Class 9 Toll Restriction Data (Items 9-1 to 9-23)	

FEATURE	RELATED PROGRAMMING	OPTIONAL EQUIPMENT
Intercom Dialing	7-3 Primary Intercom Call Mode	
Multiple Answering Positions	3-1 Ringing Telephones - Day Mode 3-2 Ringing Telephones - Night Mode 4-2 Outside Line Pickup Restriction	
Music On Hold	None	Customer supplied external music source required
Outside Line Outgoing Restriction	4-1 Outside Line Outgoing Restriction	
Outside Line Pickup Restriction	4-2 Outside Line Pickup Restriction	
Privacy	None	
Power Failure Transfer	None	Single Line telephone required for power failure transfer of outside line 1. Customer supplied uninterrupted power supply (UPS) required for full system operation during power failure.
Station Class of Service	9-1 to 9-6 Day Toll Restriction Levels - Outside Lines 1 to 6 9-7 to 9-12 Night Toll Restriction Levels - Outside Lines 1 to 6	
Station Class of Service Change	5-1 Master KT	

5.1.4 TELEPHONE FEATURES, OPERATIONS, AND RELATED PROGRAMMING

FEATURE	OPERATION	RELATED PROGRAMMING
Add On Conference	(Speaking on a call)--[TRAN]+ Ext. No.] or [DSSn]+[ADD]	7-2 Conference Status Lamp Indication
Alphanumeric Display (verify Extension No.)	(Idle)--[Off-Hook]+[FEAT]+[#]+[4]	None
Alternate Tone/Pulse Dialing (Dial Reverse)	(After call answer)--[FEAT]+[*]	7-1 Dialing on Outside Line After Call Answer (applies to incoming calls only.)
Autodial With Automatic line select: With manual line selection:	 (Idle)--[Off-Hook]+(AUTOn] (Idle)--[Off-Hook]+[COn]+[AUTOn]	3-6 Autodial Button Assignment
Automatic Hold & Paging To receive transfer using Meet Me Answer:	(Speaking on a call)--[PAGE] (During page)--[Off-Hook]+[6]+[Paging Ext. On-Hook]	3-4 Paging Access 3-5 Paging Call - Receiving Telephones 6-11 Paging Circuit Timeout
Barge-In	(Called extension busy)--[COn]	7-2 Conference Status Lamp Indication 8-9 Barge-In Telephones
Built-In Speakerphone Operation	[SPKR]	8-6 Optional Speakerphone
Busy Override Signalling	(Called Extension busy)--[*]	2-1 Busy Override Signalling
Calendar Setting (Master KT only)	See 4.4 Programming Items	0-1 Calendar Setting
Call Forward To set: To cancel: To reactivate to same ext. already set:	 (Idle)--[Off-Hook]+[Ext.No.]or[DSSn]+[FEAT]+[7] (In Call FWD Mode)--[Off-Hook]+[FEAT]+7 (Idle)--[Off-Hook]+[FEAT]+[7]	None
Call Release	(Speaking on a call)--[FEAT]+[9]	None
Camp-On with Recall	(Speaking on a call)--[TRAN]+ [Ext.No.] or [DSSn]+[On-Hook]	1-1 Camp-On Recall Timer
Centrex Access	(Off-Hook)--[COn]+[FEAT]+[FLASH]	6-10 Centrex Flash Timing
Consultation Hold	(Speaking on a call)--[TRAN]	1-2 Hold Recall Timer 8-10 Hold Recall Telephones
Dial Tone Reorder	(Idle)--[Off-Hook]+[FLASH]	6-9 Long Flash Timing
Direct Outside (CO/PBX) Line Access	(Idle)--[Off-Hook]+[COn]	4-1 Outside Line Outgoing Restriction 4-2 Outside Line Pickup Restriction
Direct Station Selection	(Idle)--[Off-Hook)+[DSSn]	None
Do Not Disturb To set or cancel:	 (Idle)--[HOLD/DND]	3-3 Do Not Disturb
Exclusive Hold with Recall	(Speaking on an outside line)--[COn]	1-2 Hold Recall Timer 8-10 Hold Recall Telephones
Incoming Call (CO) Automatic Answer	(Incoming call ringing)--[Off-Hook]	3-1 Ringing Telephones - Day Mode 3-2 Ringing Telephones - Night Mode 4-2 Outside Line Pickup Restriction

FEATURE	OPERATION	RELATED PROGRAMMING
Intercom Automatic Access	(Idle)--[SPKR][Off-hook]	None
Intercom Call Mode Change	(Idle)--[Off-Hook]+[Ext.No]or[DSSn]+[#]	7-3 Primary Intercom Call Mode
Intercom Handsfree Answerback	(Incoming ICM ringing)--Answer (Tone Calls only)	7-3 Primary Intercom Call Mode
Last Number Redial	(Idle)--[Off-Hook]+[SPEED]+[#]	None
Microphone On/Off	(Idle)--[MIC OFF]	None
Monitoring	(Speaking on a call)--[SPKR]	None
Multiline Conference	(Speaking on an outside line)-- [HOLD/DND]+[COn]+[Tel.No.]+[ADD]	7-2 Conference Status Lamp Indication 6-6 Outside Line Disconnect Signal Detection Timer
Night Transfer To set or cancel:	From the Master KT only: (Idle)--[Off-Hook]+[FEAT]+[#]+[3]+ [On-Hook]	3-2 Ringing Telephones - Night Mode 5-1 Master KT 9-7 to 9-12 Night Toll Restriction Levels - Outside Lines 1 to 6
On Hook Dialing	(Idle)--[SPKR]+[COn]+[Tel.No.]	None
Paging	(Idle)--[Off-Hook+[PAGE] (Speaking on a call)--[HOLD/DND]+[PAGE] (During page)--[Off-Hoof]+[6]	3-4 Paging Access 3-5 Paging Call - Receiving Telephones 6-11 Paging Circuit Timeout
Privacy Release	(Speaking on an outside line)--[ADD]	None
Quick Mode Dialing	Outside Call:(Idle)--[COn]+ [Tel. No.] or [AUTOn] ICM Call:(Idle)--[DSSn]or[ICM]+[Ext.No.	4-1 Outside Line Outgoing Restriction 4-2 Outside Line Pickup Restriction
Speed Dial Station To register numbers: To dial: System To register numbers: (Master KT only) To dial:	 (Idle)--[Off-Hook]+[FEAT]+[SPEED]+ [Stn.SPDnn]+[Tel.No.]+[On-Hook] (Idle)--[Off-Hook]+([COn])+[SPEED]+[nn] [Stn. SPD nn] (Idle)--[Off-Hook]+[FEAT]+[SPEED]+ [Sys.SPD nn]=[Outside Ln. No.]+ [SPEED]+[On-Hook] (Idle)--[Off-Hook]+([COn])+[SPEED]+ [Sys SPD nn] (System Speed Dial Code Nos: 00-83) (Station Speed Dial Code Nos: 84-99)	4-1 Outside Line Outgoing Restriction 4-2 Outside Line Pickup Restriction System Speed Dial Only: 4-3 Toll Restriction of System Speed Dial 4-4 System Speed Dial Access 5-1 Master KT
System Hold with Recall To answer a call on hold:	(Speaking on a call)--[HOLD/DND] (Idle)--[Off-Hook]+[COn)	1-2 Hold Recall Timer
Time Setting (Master KT only)	(Idle)--[Off-Hook]+[FEAT]+[#]+[2]+ [HH:MM]	5-1 Master KT

5.2 ZT-S 616 SPECIFICATIONS

5.2.1 SYSTEM CAPACITIES

Outside (CO/PBX) Lines	3 lines standard, 6 lines with ZS-EXPU
Intercom Lines	4 lines
Extensions	8 sets standard, 16 sets with ZS-EXPU
Paging Circuits	1 line
MOH Source	1 external

5.2.2 SWITCH PARAMETERS

Space division switching using CMOS cross-point switches
Speech paths: Non-blocking, single stage connection
Stored Program Control
ROM Capacity: 64K-bytes
RAM Capacity: 32K-bytes

5.2.3 SOFTWARE

System Speed Dial:	84 telephone numbers, 30 digits/number
Station Speed Dial:	16 telephone numbers/station, 30 digits/number
Extension Numbering Plan:	20 to 35 (fixed)
Database:	All system database programming can be performed by the system installer. Several of these items can also be programmed by the end user.
Programming Terminal:	Extension Number 20 (Master KT)
CO Incoming Ringing Assignment:	Programmable, up to 16 extensions for each outside line in the day and night modes.

5.2.4 TRUNK SPECIFICATIONS

Types of Lines:		Loop start trunks, PBX extensions
Loop Current:		20-130 mA DC
Loop Resistance:		1600 ohms maximum (from the central office)
Dial Signalling Methods:		Dial Pulse (DP) or dual tone multifrequency (DTMF), can be set individually for each line.
Signalling Characteristics		
DP	Speed:	10 +/- 1pps
	Break ratio:	61 +/- 3%
	Minimum pause:	700ms
DTMF	Transmitting frequency:	Conforms to the CCITT standard
	Deviation:	+/-1.5%
	Sending Level:	Low Group: -4 +/- 2dBm High Group: -2 +/- 2dBm
	Cycle Time:	Programmable, from 100ms to 500ms in 100ms increments
	Minimum Pause:	Automatically set to the same value as the sending time.
Disconnect Detection:		Loop open disconnect signal detection. Detection time is programmable, from 100ms to 3000ms in 100ms increments.

5.2.5 KEY TELEPHONE SPECIFICATIONS

Types of Extensions:	Display Key Telephones (ZS-6KTD) Key Telephones Without Display (ZS-6KTS)
Keys:	6 line keys, 16 DSS/Autodial keys, 10 feature keys
Cabling:	2 pair twisted cabling (22 to 24 AWG)
Loop Resistance:	40 ohms or less
Maximum Distance from KSU:	approximately 980 ft. (300 m)
Display:	16 digit alphanumeric Liquid Crystal Display (LCD)

5.2.6 POWER SUPPLY

AC Input Voltage:	90-135VAC
AC Input Frequency:	48-63 Hz, single phase
Maximum Input Current:	1.6 Amperes
Power Consumption:	120 Watts maximum

5.2.7 POWER FAILURE BACKUP

A single line telephone can be connected to the ZS-MAIN card to switch outside line 1 (CO 1) to that telephone in the event of a commercial power failure.

The lithium battery installed in the KSU protects the system memory when power is off. Battery life is approximately 10 years under continuous operating conditions.

5.2.8 PHYSICAL

Dimensions
KSU: 3.8 "H x 14.2 W x 16.5" D
Stations: 4.5 "H x 8.9 "W x 9"D

Weight
KSU (fully loaded): 10 lbs.
Stations: 2 lbs.

5.2.9 ENVIRONMENTAL

Operating Temperature:	32 to 104 degrees F/0 to 40 degrees C
Storage Temperature:	14 to 122 degrees F/-10 to 50 degrees C
Relative Humidity:	10 to 90% (non-condensing)
Heat Dissipation:	380 BTU
Ventilation:	1 inch on all sides

5.2.10 GOVERNMENT REGISTRATION

The ZT-S 616 Key Telephone System is registered under the FCC standard Part 68 as a fully protected key telephone system.

FCC Registration Number: BD6USA-61651-KF-E
Ringer Equivalence Number: 0.4A/0.8B
Department of Communications (DOC) Certification Number: 577 3703 A

All of the ZT-S stations are equipped with hearing aid compatible handsets, in accordance with the FCC regulations regarding the hearing impaired.

5.2.11 SAFETY APPROVALS

KSU: UL Listed
CSA Approved
Power Supply Unit: UL Recognized
CSA Approved

5.2.12 ZT-S SIGNAL CHARACTERISTICS

Tone	Frequency	Signal Pattern
ICM Dial Tone	440 Hz.	Continuous
ICM Ringback Tone	440/480 Hz.	1 sec. on, 3 sec. off repeated
Busy Tone	440/620 Hz.	0.5 sec. on, 0.5 sec. off repeated
Warning Tone	440/620Hz.	0.2 sec. on, 0.2 sec. off repeated
Incoming CO Ringing	440/480 Hz.	1 sec. on, 3 sec. off repeated
Incoming ICM Ringing	440 Hz.	1 sec. on, 3 sec. off repeated
CO Recall	440/480 Hz.	0.4 sec. on, 0.2 sec. off, 0.4 sec. on 3 sec. off repeated
ICM Recall	440/480 Hz.	0.4 sec. on, 0.2 sec. off, 0.4 sec. on, 3 sec. off repeated
ICM Busy Override Tone	1 KHz.	0.2 sec. on, 20 sec. off repeated
CO Busy Override Tone	1 KHz.	0.2 sec. on, 0.2 sec. off 0.2 sec. on, 20 sec. off repeated
ICM Voice Call (Burst Tone)	440 Hz.	0.1 sec. on, 0.1 sec. off, 5 bursts

5.2.13 KEY TELEPHONE LAMP INDICATIONS

Status	Lamp Indication
I-use (CO, ICM, SPKR, ADD)	0.1 sec. on, 0.1 sec. off repeated (fast flash)
I-hold (CO, ICM, HOLD/DND)	0.5 sec. on, 0.1 sec. off 0.1 sec. on, 0.1 sec. off, 0.1 sec. on repeated (fast and short flash)
System Hold, Privacy Release (CO, ADD)	0.9 sec. on, 0.1 sec. off repeated
Incoming CO/PBX call	0.1 sec. on, 0.9 sec. off, repeated
Incoming ICM Call, Camp-on, Recall, Call Forward (ICM, TRAN)	0.1 sec. on, 0.1 sec. off, 0.1 sec. on, 0.7 sec. off repeated
Busy	continuously on

5.2.14 TELEPHONE DISPLAYS

Status	Indication
Dialing an outgoing call	1201935858
Receiving an intercom call from Extension 20	EXT CALL 20
Speaking with Extension 20 on an intercom call	EXT 20
Called extension is busy	EXT busy 23
Called extension is set in the Do Not Disturb mode	EXT busy/DND 23
Outside (CO) call is camped on by Extension 25	CO3 camp fm 25
Intercom (ICM) call is camped on by Extension 26	EXT35 camp fm 26
Outside (CO) call placed on hold recalls the same extension	CO4 Recall
Outside (CO) call camped on to Ext. 30 recalls the original telephone	CO4 Recall fm 30
Intercom call placed on hold recalls the same extension	ICM Recall
Intercom call camped on to Ext. 30 recalls the original telephone	ICM Recall fm 30
Incoming call (CO call) ringing on outside line 1	CO Call 1
Incoming intercom call from Extension 28	EXT Call 28
Speed dial number registration	00 CO5 222333444
When the system is in the Night Mode	N25 MON 10:27 AM

Status	Indication
Dialing an outgoing call	
Receiving an intercom call from Extension 20	EXT CALL 20
Speaking with Extension 20 on an intercom call	EXT 20
Called extension is busy	EXT busy 23
Called extension is set in the Do Not Disturb mode	EXT busy/DND 23
Outside (CO) call is camped on by Extension 25	CO3 camp fm 25
Intercom (ICM) call is camped on by Extension 26	EXT25 camp fm 26
Outside (CO) call placed on hold recalls the same extension	CO4 Recall
Outside (CO) call camped on to Ext. 30 recalls the original telephone	CO4 Recall fm 30
Intercom call placed on hold recalls the same extension	ICM Recall
Intercom call camped on to Ext. 30 recalls the original telephone	ICM Recall fm 30
Incoming call (CO call) ringing on outside line 1	CO Call 1
Incoming intercom call from Extension 28	EXT Call 28
Speed dial number registration	00 COS 2223334444
When the system is in the Night Mode	NIS NOW 10:27 AM