

Installation and Maintenance Manual Commander NT1 32



Commander

**Flesteel**  
A Flaxey Telstra Alliance

# Installation and Maintenance Manual Commander® NT132

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**Manual:** **Commander NT132 Installation and Maintenance Manual  
Issue 02**

**Suggestions:** \_\_\_\_\_

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# Regulatory Information


- Markings.....2
- Port Definition.....2

This product uses Telecommunications Network Voltages. Take careful note of all safety instructions and do not deviate from the installation instructions in this manual.

	<b>WARNING!</b> <b>Only qualified service personnel should service or install this equipment.</b>
	The installation and service of this unit is to be performed only by service personnel having appropriate training and experience necessary to be aware of hazards to which they are exposed in performing a task and of measures to minimise the danger to themselves or others.

## Markings

	N441 REN=1.0
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	<b>WARNING!</b>
	<b>EMC</b> This is a Class A product intended for an industrial or commercial environment. In a domestic environment, this product may cause interference. The user may be required to take adequate measures.

## Port Definition

The Commander NT132 safety approval is based on the following information that the installer must ensure.

The following ports defined as Safety Extra Low Voltage (SELV) are safe for the user to access and are to be connected only to other SELV rated devices:

- NT132 ports for TCM extensions, Auxiliary ringer (AUX), paging system relay (PAGE Relay) and the Serial port.
- All ports on the CDR, RAD, DoorStation when connected to the door unlock unit and VMU/ACD flash.

The following ports are defined as Telecommunication Network Voltage (TNV) that must be protected from user access:

- NT132 ports for analogue lines (including the Power Fail Telephone connections), BRA, PRA.

- The analogue ports on the: CLI, SLTA, ASM and ASM with MW1.
- The TCM ports on a SM installed as TNV.

The following ports require the use of an ACA approved Line Isolation Unit (LIU):

- NT132 ports for Music on Hold input (MOH) and Paging output (PAGE)
- The analogue port on the SLTA when connected to the Network

All the keystations may connect to SELV or TNV TCM ports and provide the necessary user protection if installed as instructed in this manual and the TCM Isolator provides TNV to SELV isolation for TCM ports run external to the buildings.

**Note:** Electrical Rating information is located on the Main Equipment (ME), behind the door.





# What's new about the Commander NT132

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  - New features.....9
  - Enhanced features.....10
- Differences between AUS1.2 and AUS2.1.....10

## New equipment

### ASM with Message Waiting Indication

The new Analogue Station Module with Message Waiting Indication (742/133) provides a visual indicator to analogue telephones when there is a message from a Direct-Dial station or Voice Mail.

### Call Detail Recorder

The Call Detail Recorder (CDR) is a call collection device. The information collected by the CDR is printed on a serial printer that is attached to the CDR. The new CDR hardware for AU\$2.1 (742/171) provides enhanced logging capabilities for PRA, ISDN lines and supports the Hospitality Services option.

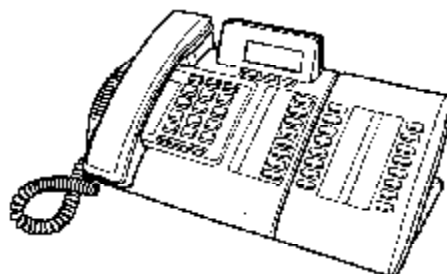
### ISDN PRA cartridge

Connection to the PRA service is now available with an ISDN PRA cartridge and a cable with an 8 pin Modular jack.

See "ISDN PRA cartridge" on page 40.

### M7324N Keystation

The M7324N Keystation has a two-line display, three display keys, 24 memory keys with indicators, and Handsfree capability.



### M7310N Keystation

The M7310N Keystation has a two-line display, three display keys, 10 memory keys with indicators, 12 dual-memory keys without indicators, and Handsfree capability.



### **M7208N Keystation**


The M7208N Keystation has a single-line display, eight memory keys with indicators, and Handsfree capability.



### **M7100N Keystation**

The M7100N Keystation has a single-line display and a single memory key with no indicator.



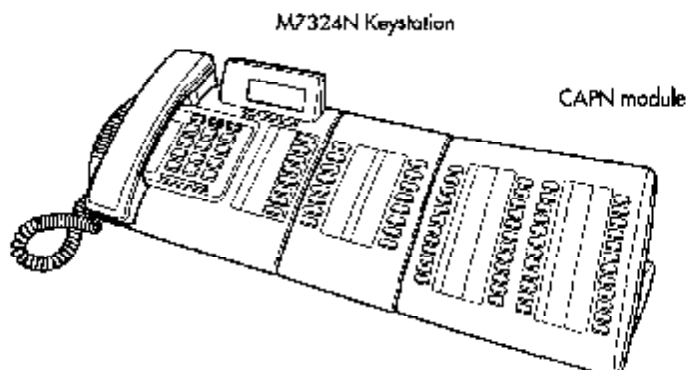
Because the M7100N does not have any line keys it sometimes works slightly differently from other keystations. Where other keystations may require you to select a line key to answer a call, the M7100N requires only that you pick up the handset. Where other keystations require you to select a line key to take a call off hold, you press  on the M7100N.

The M7100N cannot have a Handsfree/Mute key. You will find special instructions for the M7100N in some feature descriptions.

### **Central Answering Position (CAPN)**

The Central Answering Position telephone (CAPN) is an M7324N Keystation with at least one CAPN module attached. The CAPN module is an add-on device that provides 48 extra memory or line keys. You can connect one or two CAPN modules to an M7324N Keystation.



The CAPN is usually the Prime station and the Direct-Dial station for the lines and keystations it serves.



The CAPN module key mapping is the same for all templates. All keys are blank keys by default.

### M7000 Keystation






The M7000 Keystation does not have any line keys. To answer a call with the M7000 Keystation, lift the handset. To place a call on hold you press the  key and press  key again to connect the call. The M7000 Keystation does not have a Handsfree/Mute key.

The M7000 Keystation is commonly used with the Hospitality Services feature.

### Key mapping

Some of the keys on the new M7xxxN series Keystations are different than the keys on the original Commander NT Keystations. The following table highlights these differences.

Principal Advantage Standard Economy	M7324N M7310N M7208N M7100N
Hold	
Rls	
Feature	
Handsfree Mode	Hf/Mute

### Remote Access Device

The RAD allows support personnel to access the Norstar Commander NT system from a remote location for diagnostic purposes. The newest RAD provides a faster connection speed for AUS2.0 and later versions.

## New features

### System Profiles

There are three System Profiles that you can select when you install a Commander NT132. Each System Profile has system parameters for different country protocols.

You must select a System Profile after you do System Startup, in the first 15 minutes after the Norstar system is powered up. The System Profile default for Commander NT systems is PROF B.

See "Selecting a System Profile" on page 170.

### Hospitality Services option

Hospitality Services (HS) is a group of features that increases the value of the Commander NT system in small to medium sized hotels, motels or hospitals.

For more information about programming for the Hospitality Services option see "Programming Hospitality Services" on page 249.

### Hunt groups

Establish Hunt groups in your system to allow incoming calls to reach a group of stations. The Hunt groups feature allows you to call a group of stations with a single station number.

Hunt groups replaces the **Incoming Line Groups (ILG)** feature. See "Programming Hunt groups" on page 205.

#### **Answer keys**

Enhancements to **Answer keys** let you determine what types of calls will alert at the keystation. Choices are: Basic, Enhanced and Extended.

For more detailed information about the three options see "Answer key" on page 227.

## **Enhanced features**

### **DDI lines**

Direct Dial Inward (DDI) allows PRA and BRA lines to use internal lines to route incoming calls from the public exchange; the calls pass directly to a Commander NT station without operator intervention. The internal lines 255 to 382 between the Commander NT132 ME and the stations are called DDI lines.

The Commander NT system handles simultaneous calls on DDI lines. Commander NT now allows for multiple Direct Dial Inward (DDI) line appearances of the same DDI line on the same station.

The number of appearances of a DDI line on a station depends on the Line assignment setting for that station.

See "Programming for Direct Dial Inward (DDI) lines" on page 191.

### **Call Park**

Park Mode lets you suspend a call, and lets someone retrieve the call by entering a retrieval code at any Commander NT station in the system.

You can now choose two different ways for the system to assign Park retrieval codes, Lowest and Cycle. For more information see "Park Mode" on page 218.

## **Differences between AUS1.2 and AUS2.1**

AUS2.1 customer documentation is on CD ROM (742/172) and packed with the software cartridge. The Technical Documentation CD ROM (742/173) includes all customer documentation as well as Commander NT Installation and Maintenance Manuals (both NT132 and NT40).

The Economy/M7100N, Standard/M7208N, Advantage/M7310N and Principle/M7324N Keystations sold with AUS2.1 and higher reflect the PBX template defaults.

Line module numbering in AUS2.1 has changed to reserve 30 lines per line module. See "Numbering for ports, lines, and stations" on page 61 for more information.

The new Commander NT132 software AUS2.1 no longer supports:

- CT2 mobility
- Voice Messaging Application
- TS013 on BRA ISDN connections (T side)

## Preparing for the Installation

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## System description

### Main Equipment (ME)

The ME has 32 station ports and 2 line cartridge slots for either analogue or ISDN line cartridges.

The ME has slots for:

- one Software Cartridge (system software)
- one Services Cartridge (provides ISDN network synchronisation)
- one 2 port OR one 6 port Expansion Cartridge
- an ISDN Primary Rate Access (PRA) cartridge (ETSI only)
- a 4-port Basic Rate Access (BRA) cartridge
- 4 PSTN lines per analogue Line Cartridge

By fitting an Expansion Cartridge (2 port or 6 port) to the ME, the system can be increased in size of lines by adding Line Modules, or stations by adding Station Modules. The connection between the Expansion Cartridge and the expansion modules is by fibre cable.

The ISDN PRA cartridge provides connection of up to 30 PRA channels to the exchange network.

### Line Module 12X0 (LM)

A Line Module has 3 slots for connection of line cartridges (analogue or ISDN Basic Rate Access). Each PSTN Analogue Line Cartridge provides connection of up to 4 lines to the exchange network. Each BRA cartridge provides connection for up to 4 BRA loops (four 2B + D) channels to be configured as T or S; providing 8 channels/lines to the ISDN network. Do not install a PRA cartridge in a Line Module slot.

### Station Module 0X16 (SM)

A Station Module supports an additional 16 digital keystations. Station Modules may be installed as Safety Extra Low Voltage (SELV) or Telecommunication Network Voltage (TNV).

### Analogue Station Module (ASM)

The Analogue Station Module (ASM) supports an additional 8 SLT ports to connect analogue devices such as a single line telephone or answering machine, credit card verifier, or data communication device, such as a modem or facsimile machine (fax). The ASM uses a optical fibre link to connect ME expansion port to eight SLT ports. The ASM is rated TNV.

**Note:** The ASM cannot be used as an ODX (Outdoor Extension) to the network.

## Power-fail option

Up to 2 power-fail single line telephones can be connected to systems with analogue Line Cartridges installed in the ME.

Battery back-up can be provided by the use of a suitable Uninterruptable Power Supply (UPS) system providing 240 V a.c. output.

We recommend use of a UPS on ETSI (BRA and/or PRA) only systems.

The power-fail telephone uses line 001, when an analogue Line Cartridge is located in Slot 1 of ME.

If the ME has not been equipped with at least one analogue Line Cartridge, no power-fail telephone connections are possible. Connection of power fail-telephones is not available other than to the ME.

### A. Power-fail telephone

If you are installing a power-fail telephone using a Line Cartridge with Line Supervision (LC-NT-B):

1. Jumper pair 17 to pair 3.
2. Connect the power-fail telephone to pair 4.

### B. Power-fail telephone

If you are installing a power-fail telephone using a Line Cartridge (LC-NT-A), connect the power-fail telephone to pair 17.

## Equipment capacities


### Expanding the system with modules

The ME also has a slot for a 2-port or 6-port Expansion cartridge. Combinations of Station Modules (SM) and Line Modules (LM); which can be connected to the Expansion Cartridge to expand the system.

Each Station Module provides the capacity for 16 additional Commander NT132 keystations.

Each LM has three line cartridge slots for Analogue or BRA cartridges. The ME must be equipped with an ISDN PRA or BRA cartridge for the LM to support BRA cartridges.

- Use the charts below to determine the correct configuration of the ME, Line Modules, and Station Modules for the number of lines and stations.



**Do not install a PRA cartridge in a Line Module**  
 PRA cartridges installed in Line Modules will not function.

**Line capacities with different cartridges**

	<b>Slot 1</b>	<b>Slot 2</b>
<b>ME</b>	ISDN PRA cartridge = 30 channels maximum	ISDN PRA cartridge = 30 channels maximum
	4-port BRA cartridge = 4 BRA loops (S or T) (8 channels/line)	4-port BRA cartridge = 4 BRA loops (S or T) (8 channels/line)
	Analogue cartridge = 4 lines	Analogue cartridge = 4 lines

### Line cartridge default settings

Line card default settings are different for each size of system.

- The ME and no Expansion cartridge.
- The ME plus a 2-port Expansion cartridge.
- The ME plus a 6-port Expansion cartridge.

Module	Cart	ME only		ME plus 2-port cartridge		ME plus 6-port cartridge	
		Cart type	If BRA cart: Loop type	Cart type	If BRA cart: Loop type	Cart type	If BRA cart: Loop type
ME	1	<u>PRA, BRA-4, PSTN</u>	S, I	<u>PRA, BRA-4, PSTN</u>	S, I	<u>PRA, BRA-4, PSTN</u>	S, I
	2	<u>PRA, BRA-4, PSTN</u>	S, I	<u>PRA, BRA-4, PSTN</u>	S, I	<u>PRA, BRA-4, PSTN</u>	S, I
Mod 3	1			<u>PSTN, BRA-4,</u>	S, I	<u>PSTN, BRA-4,</u>	S, I
	2			<u>PSTN, BRA-4,</u>	S, I	<u>PSTN, BRA-4,</u>	S, I
	3			<u>PSTN, BRA-4,</u>	S, I	<u>PSTN, BRA-4,</u>	S, I
Mod 4	1			<u>PSTN, BRA-4,</u>	S, I	<u>PSTN, BRA-4,</u>	S, I
	2			<u>PSTN, BRA-4,</u>	S, I	<u>PSTN, BRA-4,</u>	S, I
	3			<u>PSTN, BRA-4,</u>	S, I	<u>PSTN, BRA-4,</u>	S, I
Mod 5	1					<u>PSTN, BRA-4,</u>	S, I
	2					<u>PSTN, BRA-4,</u>	S, I
	3					<u>PSTN, BRA-4,</u>	S, I
Mod 6	1					<u>PSTN, BRA-4,</u>	S, I
	2					<u>PSTN, BRA-4,</u>	S, I
	3					<u>PSTN, BRA-4,</u>	S, I
Mod 7	1					<u>PSTN, BRA-4,</u>	S, I
	2					<u>PSTN, BRA-4,</u>	S, I
	3					<u>PSTN, BRA-4,</u>	S, I
Mod 8	1					<u>PSTN, BRA-4,</u>	S, I
	2					<u>PSTN, BRA-4,</u>	S, I
	3					<u>PSTN, BRA-4,</u>	S, I

**Note:** The cartridge type "PSTN" refers to an Analogue line cartridge.

Underlined values indicate the default setting.

Shaded areas in the ME only and ME plus 2 columns indicate that the cartridge slot is not available to that size of system.

The ME must be equipped with an ISDN PRA cartridge or BRA cartridge for the LM to support BRA cartridges.

The Main Equipment (ME) provides 32 station ports, as indicated in the following tables.

The ME has 2 slots for installation of analogue or ISDN BRA or PRA cartridges. Each analogue Line Cartridge connects 4 PSTN lines, and each ISDN BRA Cartridge connects 4 OnRamp loops, (8 B-channels). The ME supports either 2 analogue Line Cartridges or 2 ISDN BRA Line Cartridges, 2 ISDN PRA Line Cartridges. You can also have a combination of cartridges, but only two in total.

System expansion beyond the basic ME is provided by equipping the ME with either a 2 or 6 port Expansion Cartridge. An Expansion Cartridge provides connection for additional Line Modules (LM), Station Modules (SM), or Analogue Station Modules (ASM) by fibre optic cable.

The tables below show the capacities available using either the 2 port or the 6 port Expansion Cartridges. Each LM, SM or ASM uses a port on the Expansion Cartridge, so the 2 port provides 2 connections for any combination of LMs or SMs. The 6 port provides 6 connections for any combination of LMs or SMs. If you have 2 ASMs, they take up one expansion port on the expansion cartridge.

For example, referring to the first chart below, if a 6 port Expansion Cartridge is fitted with 4 SMs, the total station capacity (including the ME) is 96. This leaves 2 expansion ports remaining for LMs. The shaded areas highlight this split.

**Commander NT capacity with 6 port Expansion Cartridge**

On core ME	SM 1	SM 2	SM 3	SM 4	SM 5	SM 6	
32	48	64	80	96	112	128	(Stations)
(PSTN/ISDN BRA Lines)	80/160	68/136	56/112	44/88	32/64	20/40	8/16
	LM 6	LM 5	LM 4	LM 3	LM 2	LM 1	On core ME

**Commander NT capacity with 2 port Expansion Cartridge**

On core ME	SM 1	SM 2	
32	48	64	(Stations)
(PSTN/ISDN BRA Lines)	32/64	20/40	8/16
	LM 2	LM 1	On core ME

The following tables give an overall picture of the range of configurations available for all analogue lines and all ISDN lines. Intermediate configurations are possible using combinations of analogue and ISDN lines.

Analogue only capacity table (lines x stations)

On ME 8 x 32	SM0	SM1	SM2	SM3	SM4	SM5	SM6
LM6	80 x 32						
LM5	66 x 32	68 x 48					
LM4	56 x 32	58 x 48	64 x 64				
LM3	44 x 32	44 x 48	44 x 64	44 x 80			
LM2	32 x 32	32 x 48	32 x 64	32 x 80	32 x 96		
LM1	20 x 32	20 x 48	20 x 64	20 x 80	20 x 96	20 x 112	
LM0							6 x 128

**Note:** You can replace any SM or LM in the table above with an ASM. Each ASM adds up to 8 analogue devices. With each expansion port, you can have a maximum of 2 ASMs with a total of 16 analogue devices per expansion port.

ISDN BRA only capacity table (lines x stations)

On ME 16 x 32	SM0	SM1	SM2	SM3	SM4	SM5	SM6
LM6	160 x 32						
LM5	136 x 32	136 x 48					
LM4	112 x 32	112 x 48	112 x 64				
LM3	88 x 32	88 x 48	88 x 64	88 x 80			
LM2	64 x 32	64 x 48	64 x 64	64 x 80	64 x 96		
LM1	40 x 32	40 x 48	40 x 64	40 x 80	40 x 96	40 x 112	
LM0							6 x 128

ISDN PRA only capacity table (lines x stations)

On ME	SM0	SM1	SM2	SM3	SM4	SM5	SM6
LM6	204 X 32						
LM5	180 X 32	180 X 48					
LM4	156 X 32	156 X 48	156 X 64				
LM3	132 X 32	132 X 48	132 X 64	132 X 80			
LM2	108 X 32	108 X 48	108 X 64	108 X 80	108 X 96		
LM1	84 X 32	84 X 48	84 X 64	84 X 80	84 X 96	84 X 96	
LM0							80 X 112

Commander NT132 system capacities

Facility	Capacity
Exchange lines (analogue)	80†
Power-fail lines - PSTN	1 per analogue Line Cartridge in ME with a maximum of 2 power fail lines with 2 analogue line cartridges in ME
OnRamp 2 (Basic Rate Access)	80 (160 B-Channels)†
OnRamp 10, 20, 30 (Primary Rate Access)	60 B-Channels
Intercom lines	Non-blocking
Digital keystations	127†
DSS Console (enhanced)	5††
Single Line Telephones (SLTs) or analogue devices such as fax machines, etc.	126†††
Speed Dialling Common Personal	70 24
Line Pools (Groups)	15
Station Groups	9
Calls Parked	25
Internal Paging Zones	6
External Paging Zones	1
Door Stations	4
CDR Output	126††††
Class of Service	100
Restriction Filters	100
Routing Tables	200

†. Total number of lines and stations is restricted to defined configurations. A maximum of 128 digital stations are available. The mandatory Remote Access Device uses one digital station port.

Stations' includes keystations, SLTs, Door Stations, CDR, VMU/ACD and any other peripherals.

††. Each Direct Station Selection Console/Central Answering Position (CAPN) Module is a Principal/M7324N Keystation with 1 or 2 DSS/CAPN Consoles. The DSS/CAPN Console must have a Station Power Supply for operation. (An SPS powers up to 2 co-located DSS/CAPN Consoles (enhanced).

Any number of Principal/M7324N Keystations can have DSS/CAPN Consoles connected to provide additional memory keys, but only 5 can provide additional line appearances on the console keys.

†††. Each Single Line Telephone (SLT) requires an SLT Adaptor or ASM with Message Waiting Indication (MWI) to convert a digital station port to analogue. The SLT only connects one analogue device to the SM. Each ASM supports up to 8 analogue devices. This arrangement is designed for a small number of analogue devices such as cordless telephones or fax machines.

The Economy/M7100N and M7000 Keystations are designed to provide a value added alternative to ordinary Single Line Telephones. A minimum of one keystation (Principal/M7324N or Advantage/M7310N) is required for programming purposes.

††††. A new CDR is required.

## Installation overview

- mount the Main Equipment (ME)
- mount the Line Modules and Station Modules, as required
- install the Software Cartridge and any Expansion or Line Cartridges
- install the Services Cartridge (if required)
- install the Power Bars
- mount the System Distribution Frame (SDF)
- connect the protective earth from the ME to the SDF earth
- connect the cables between the SDF and the ME
- connect the cables between the SDF and the expansion modules
- connect exchange lines to SDF
- complete the station wiring
- install the fibre cables
- install the power-fail telephones
- install the optional equipment
- install the Commander NT Keystations
- power up the system
- select a Profile with the System Profile feature (PROF B)
- select the default template using System Startup programming
- program the system to customer requirements
- record programming details in the *Programming Record*



- ensure that all keystation keys are properly labelled
- ensure that all stations are working
- check that the system is working properly
- ensure that all relevant documentation is left with the System Administrator



**Handle all components by plastic faceplate**

To avoid damage due to electrostatic discharge, all cartridges (including the Power Supply Unit) should be handled by the plastic faceplate to avoid contacting the printed circuit board.

## Location requirements

### Environmental requirements

- clean, dry, and well-ventilated
- temperature between 0°C and 50°C
- humidity between 5% and 95%, non-condensing

Some types of electrical equipment such as photocopiers or electrical motors, may emit unintended electromagnetic, radio frequency or electrostatic interference.

To be sure that Commander NT performance is not affected, it is recommended that the Main Equipment be located at least 2 to 4 meters from such equipment.

### Electrical requirements

The Commander NT and its peripherals should be connected to a dedicated 240 V a.c. mains General Purpose Outlet (GPO). This outlet must not be shared with other equipment, such as photocopiers, as these may have an adverse affect on the Commander NT. It is recommended that the GPO be separately fused at the mains distribution board.

Every ME is supplied with a 4 outlet mains distribution panel, called a Power Bar, PB-NT-A.

# Section I: Installing the hardware



# Preparing for the Installation

- System description.....16
- Equipment capacities.....17
- Installation overview.....23
- Location requirements.....24
- Required equipment and supplies.....27

## System description

### Main Equipment (ME)

The ME has 32 station ports and 2 line cartridge slots for either analogue or ISDN line cartridges.

The ME has slots for:

- one Software Cartridge (system software)
- one Services Cartridge (provides ISDN network synchronisation)
- one 2 port OR one 6 port Expansion Cartridge
- an ISDN Primary Rate Access (PRA) cartridge (ETS1 only)
- a 4-port Basic Rate Access (BRA) cartridge
- 4 PSTN lines per analogue Line Cartridge

By fitting an Expansion Cartridge (2 port or 6 port) to the ME, the system can be increased in size of lines by adding Line Modules, or stations by adding Station Modules. The connection between the Expansion Cartridge and the expansion modules is by fibre cable.

The ISDN PRA cartridge provides connection of up to 30 PRA channels to the exchange network.

### Line Module 12X0 (LM)

A Line Module has 3 slots for connection of line cartridges (analogue or ISDN Basic Rate Access). Each PSTN Analogue Line Cartridge provides connection of up to 4 lines to the exchange network. Each BRA cartridge provides connection for up to 4 BRA loops (four 2B + D) channels to be configured as T or S; providing 8 channels/lines to the ISDN network. Do not install a PRA cartridge in a Line Module slot.

### Station Module 0X16 (SM)

A Station Module supports an additional 16 digital keystations. Station Modules may be installed as Safety Extra Low Voltage (SELV) or Telecommunication Network Voltage (TNV).

### Analogue Station Module (ASM)

The Analogue Station Module (ASM) supports an additional 8 SLT ports to connect analogue devices such as a single line telephone or answering machine, credit card verifier, or data communication device, such as a modem or facsimile machine (fax). The ASM uses a optical fibre link to connect ME expansion port to eight SLT ports. The ASM is rated TNV.

**Note:** The ASM cannot be used as an ODX (Outdoor Extension) to the network.

## Power-fail option

Up to 2 power-fail single line telephones can be connected to systems with analogue Line Cartridges installed in the ME.

Battery back-up can be provided by the use of a suitable Uninterruptible Power Supply (UPS) system providing 240 V a.c. output.

We recommend use of a UPS on ETSI (BRA and/or PRA) only systems.

The power-fail telephone uses line 001, when an analogue Line Cartridge is located in Slot 1 of ME.

If the ME has not been equipped with at least one analogue Line Cartridge, no power-fail telephone connections are possible. Connection of power fail-telephones is not available other than to the ME.

### A. Power-fail telephone

If you are installing a power-fail telephone using a Line Cartridge with Line Supervision (LC-NT-B):

1. Jumper pair 17 to pair 3.
2. Connect the power-fail telephone to pair 4.

### B. Power-fail telephone

If you are installing a power-fail telephone using a Line Cartridge (LC-NT-A), connect the power-fail telephone to pair 17.

## Equipment capacities


### Expanding the system with modules

The ME also has a slot for a 2-port or 6-port Expansion cartridge. Combinations of Station Modules (SM) and Line Modules (LM); which can be connected to the Expansion Cartridge to expand the system.

Each Station Module provides the capacity for 16 additional Commander NT132 keystations.

Each LM has three line cartridge slots for Analogue or BRA cartridges. The ME must be equipped with an ISDN PRA or BRA cartridge for the LM to support BRA cartridges.

- Use the charts below to determine the correct configuration of the MF, Line Modules, and Station Modules for the number of lines and stations .

	<p><b>Do not install a PRA cartridge in a Line Module</b>                  PRA cartridges installed in Line Modules will not function.</p>
---	--

**Line capacities with different cartridges**

ME	Slot 1	Slot 2
	ISDN PRA cartridge = 30 channels maximum	ISDN PRA cartridge = 30 channels maximum
	4-port BRA cartridge = 4 BRA loops (S or T) (8 channels/line)	4-port BRA cartridge = 4 BRA loops (S or T) (8 channels/line)
	Analogue cartridge = 4 lines	Analogue cartridge = 4 lines

### Line cartridge default settings

Line card default settings are different for each size of system.

- The ME and no Expansion cartridge.
- The ME plus a 2-port Expansion cartridge.
- The ME plus a 6-port Expansion cartridge.

Module	Cart	ME only		ME plus 2-port cartridge		ME plus 6-port cartridge	
		Cart type	IF BRA cart: Loop type	Cart type	IF BRA cart: Loop type	Cart type	IF BRA cart: Loop type
ME	1	PRA, BRA-4, <u>PSTN</u>	S, I	PRA, BRA-4, <u>PSTN</u>	S, I	PRA, BRA-4, <u>PSTN</u>	S, I
	2	PRA, BRA-4, <u>PSTN</u>	S, I	PRA, BRA-4, <u>PSTN</u>	S, I	PRA, BRA-4, <u>PSTN</u>	S, I
Mod 3	1			<u>PSTN</u> , BRA-4,	S, I	<u>PSTN</u> , BRA-4,	S, I
	2			<u>PSTN</u> , BRA-4,	S, I	<u>PSTN</u> , BRA-4,	S, I
	3			<u>PSTN</u> , BRA-4,	S, I	<u>PSTN</u> , BRA-4,	S, I
Mod 4	1			<u>PSTN</u> , BRA-4,	S, I	<u>PSTN</u> , BRA-4,	S, I
	2			<u>PSTN</u> , BRA-4,	S, I	<u>PSTN</u> , BRA-4,	S, I
	3			<u>PSTN</u> , BRA-4,	S, I	<u>PSTN</u> , BRA-4,	S, I
Mod 5	1					<u>PSTN</u> , BRA-4,	S, I
	2					<u>PSTN</u> , BRA-4,	S, I
	3					<u>PSTN</u> , BRA-4,	S, I
Mod 6	1					<u>PSTN</u> , BRA-4,	S, I
	2					<u>PSTN</u> , BRA-4,	S, I
	3					<u>PSTN</u> , BRA-4,	S, I
Mod 7	1					<u>PSTN</u> , BRA-4,	S, I
	2					<u>PSTN</u> , BRA-4,	S, I
	3					<u>PSTN</u> , BRA-4,	S, I
Mod 8	1					<u>PSTN</u> , BRA-4,	S, I
	2					<u>PSTN</u> , BRA-4,	S, I
	3					<u>PSTN</u> , BRA-4,	S, I

**Note:** The cartridge type "PSTN" refers to an Analogue line cartridge.

Underlined values indicate the default setting.

Shaded areas in the ME only and ME plus 2 columns indicate that the cartridge slot is not available to that size of system.



The ME must be equipped with an ISDN PRA cartridge or BRA cartridge for the LM to support BRA cartridges.

The Main Equipment (ME) provides 32 station ports, as indicated in the following tables.

The ME has 2 slots for installation of analogue or ISDN BRA or PRA cartridges. Each analogue Line Cartridge connects 4 PSTN lines, and each ISDN BRA Cartridge connects 4 OnRamp loops, (8 B-channels). The ME supports either 2 analogue Line Cartridges or 2 ISDN BRA Line Cartridges, 2 ISDN PRA Line Cartridges. You can also have a combination of cartridges, but only two in total.

System expansion beyond the basic ME is provided by equipping the ME with either a 2 or 6 port Expansion Cartridge. An Expansion Cartridge provides connection for additional Line Modules (LM), Station Modules (SM), or Analogue Station Modules (ASM) by fibre optic cable.

The tables below show the capacities available using either the 2 port or the 6 port Expansion Cartridges. Each LM, SM or ASM uses a port on the Expansion Cartridge, so the 2 port provides 2 connections for any combination of LMs or SMs. The 6 port provides 6 connections for any combination of LMs or SMs. If you have 2 ASMs, they take up one expansion port on the expansion cartridge.

For example, referring to the first chart below, if a 6 port Expansion Cartridge is fitted with 4 SMs, the total station capacity (including the ME) is 96. This leaves 2 expansion ports remaining for LMs. The shaded areas highlight this split.

**Commander NT capacity with 6 port Expansion Cartridge**

On core ME	SM 1	SM 2	SM 3	SM 4	SM 5	SM 6	
32	48	64	80	96	112	128	(Stations)
(PSTN/ISDN BRA Lines)	80/160	68/136	56/112	44/88	32/64	20/40	8/16
	LM 6	LM 5	LM 4	LM 3	LM 2	LM 1	On core ME

**Commander NT capacity with 2 port Expansion Cartridge**

On core ME	SM 1	SM 2	
32	48	64	(Stations)
(PSTN/ISDN BRA Lines)	32/64	20/40	8/16
	LM 2	LM 1	On core ME

The following tables give an overall picture of the range of configurations available for all analogue lines and all ISDN lines. Intermediate configurations are possible using combinations of analogue and ISDN lines.

Analogue only capacity table (lines x stations)

On MP 8 x 32	SM0	SM1	SM2	SM3	SM4	SM5	SM6
LM6	80 x 32						
LM5	80 x 32	68 x 48					
LM4	56 x 32	56 x 48	56 x 64				
LM3	44 x 32	44 x 48	44 x 64	44 x 80			
LM2	32 x 32	32 x 48	32 x 64	32 x 80	32 x 96		
LM1	20 x 32	20 x 48	20 x 64	20 x 80	20 x 96	20 x 112	
LM0							8 x 128

**Note:** You can replace any SM or LM in the table above with an ASM. Each ASM adds up to 8 analogue devices. With each expansion port, you can have a maximum of 2 ASMs with a total of 16 analogue devices per expansion port.

ISDN BRA only capacity table (lines x stations)

On ME 16 x 32	SM0	SM1	SM2	SM3	SM4	SM5	SM6
LM6	160 x 32						
LM5	136 x 32	136 x 48					
LM4	112 x 32	112 x 48	112 x 64				
LM3	88 x 32	88 x 48	88 x 64	88 x 80			
LM2	64 x 32	64 x 48	64 x 64	64 x 80	64 x 96		
LM1	40 x 32	40 x 48	40 x 64	40 x 80	40 x 96	40 x 112	
LM0							16 x 128

ISDN PRA only capacity table (lines x stations)

On ME 50 x 32	SM0	SM1	SM2	SM3	SM4	SM5	SM6
LM6	204 x 32						
LM5	180 x 32	180 x 48					
LM4	156 x 32	156 x 48	156 x 64				
LM3	132 x 32	132 x 48	132 x 64	132 x 80			
LM2	108 x 32	108 x 48	108 x 64	108 x 80	108 x 96		
LM1	84 x 32	84 x 48	84 x 64	84 x 80	84 x 96	84 x 96	
LM0							60 x 112

Commander NT132 system capacities

Facility	Capacity
Exchange lines (analogue)	80†
Power-fail lines - PSTN	1 per analogue Line Cartridge in ME with a maximum of 2 power fail lines with 2 analogue line cartridges in ME
OnRamp 2 (Basic Rate Access)	80 (160 B-Channels)†
OnRamp 10, 20, 30 (Primary Rate Access)	60 B-Channels
Intercom lines	Non-blocking
Digital keystations	127†
DSS Console (enhanced)	5††
Single line Telephones (SITs) or analogue devices such as fax machines, etc.	126†††
Speed Dialling Common Personal	70 24
Line Pools (Groups)	15
Station Groups	9
Calls Parked	25
Internal Paging Zones	6
External Paging Zones	1
Door Stations	4
CDR Output	126††††
Class of Service	100
Restriction Filters	100
Routing Tables	200

†. Total number of lines and stations is restricted to defined configurations.

A maximum of 128 digital stations are available. The mandatory Remote Access Device uses one digital station port.

Stations' includes keystations, SLTs, Door Stations, CDR, VMU/ACD and any other peripherals.

††. Each Direct Station Selection Console/Central Answering Position (CAPN) Module is a Principal/M7324N Keystation with 1 or 2 DSS/CAPN Consoles. The DSS/CAPN Console must have a Station Power Supply for operation. (An SPS powers up to 2 co-located DSS/CAPN Consoles (enhanced).

Any number of Principal/M7324N Keystations can have DSS/CAPN Consoles connected to provide additional memory keys, but only 5 can provide additional line appearances on the console keys.

†††. Each Single Line Telephone (SLT) requires an SLT Adaptor or ASM with Message Waiting Indication (MWI) to convert a digital station port to analogue. The SLT only connects one analogue device to the SM. Each ASM supports up to 8 analogue devices. This arrangement is designed for a small number of analogue devices such as cordless telephones or fax machines.

The Economy/M7100N and M7000 Keystations are designed to provide a value added alternative to ordinary Single Line Telephones. A minimum of one keystation (Principal/M7324N or Advantage/M7310N) is required for programming purposes.

††††. A new CDR is required.

## Installation overview

- mount the Main Equipment (ME)
- mount the Line Modules and Station Modules, as required
- install the Software Cartridge and any Expansion or Line Cartridges
- install the Services Cartridge (if required)
- install the Power Bars
- mount the System Distribution Frame (SDF)
- connect the protective earth from the ME to the SDF earth
- connect the cables between the SDF and the ME
- connect the cables between the SDF and the expansion modules
- connect exchange lines to SDF
- complete the station wiring
- install the fibre cables
- install the power-fail telephones
- install the optional equipment
- install the Commander NT Keystations
- power up the system
- select a Profile with the System Profile feature (PROF B)
- select the default template using System Startup programming
- program the system to customer requirements
- record programming details in the *Programming Record*

- ensure that all keystation keys are properly labelled
- ensure that all stations are working
- check that the system is working properly
- ensure that all relevant documentation is left with the System Administrator



**Handle all components by plastic faceplate**

To avoid damage due to electrostatic discharge, all cartridges (including the Power Supply Unit) should be handled by the plastic faceplate to avoid contacting the printed circuit board.

## Location requirements

### Environmental requirements

- clean, dry, and well-ventilated
- temperature between 0°C and 50°C
- humidity between 5% and 95%, non-condensing

Some types of electrical equipment such as photocopiers or electrical motors, may emit unintended electromagnetic, radio frequency or electrostatic interference.

To be sure that Commander NT performance is not affected, it is recommended that the Main Equipment be located at least 2 to 4 meters from such equipment.

### Electrical requirements

The Commander NT and its peripherals should be connected to a dedicated 240 V a.c. mains General Purpose Outlet (GPO). This outlet must not be shared with other equipment, such as photocopiers, as these may have an adverse affect on the Commander NT. It is recommended that the GPO be separately fused at the mains distribution board.

Every ME is supplied with a 4 outlet mains distribution panel, called a Power Bar, PB-NT-A.

This item includes a mains surge filter and *MUST BE FITTED* at every installation, even when no expansion modules are required.



**The mains socket must be connected to a properly grounded Protective Earth**

This equipment incorporates a protective earth for high voltage surge protection via the general purpose outlet. The Main Equipment must be plugged into a standard A53112 mains socket.

The exchange and station lines must be disconnected from the equipment before the plug is removed from the general purpose outlet.

The mains socket must be connected to a properly grounded Protective Earth to prevent shock hazards. If the quality of the Protective Earth is in doubt an electrician should verify the connection.

The Power Bar must be connected to a 240 V a.c., 50 Hz electrical socket free from mains-borne interference. The actual distance from the ME to the mains socket should not exceed 2 m.

**Equipment location**

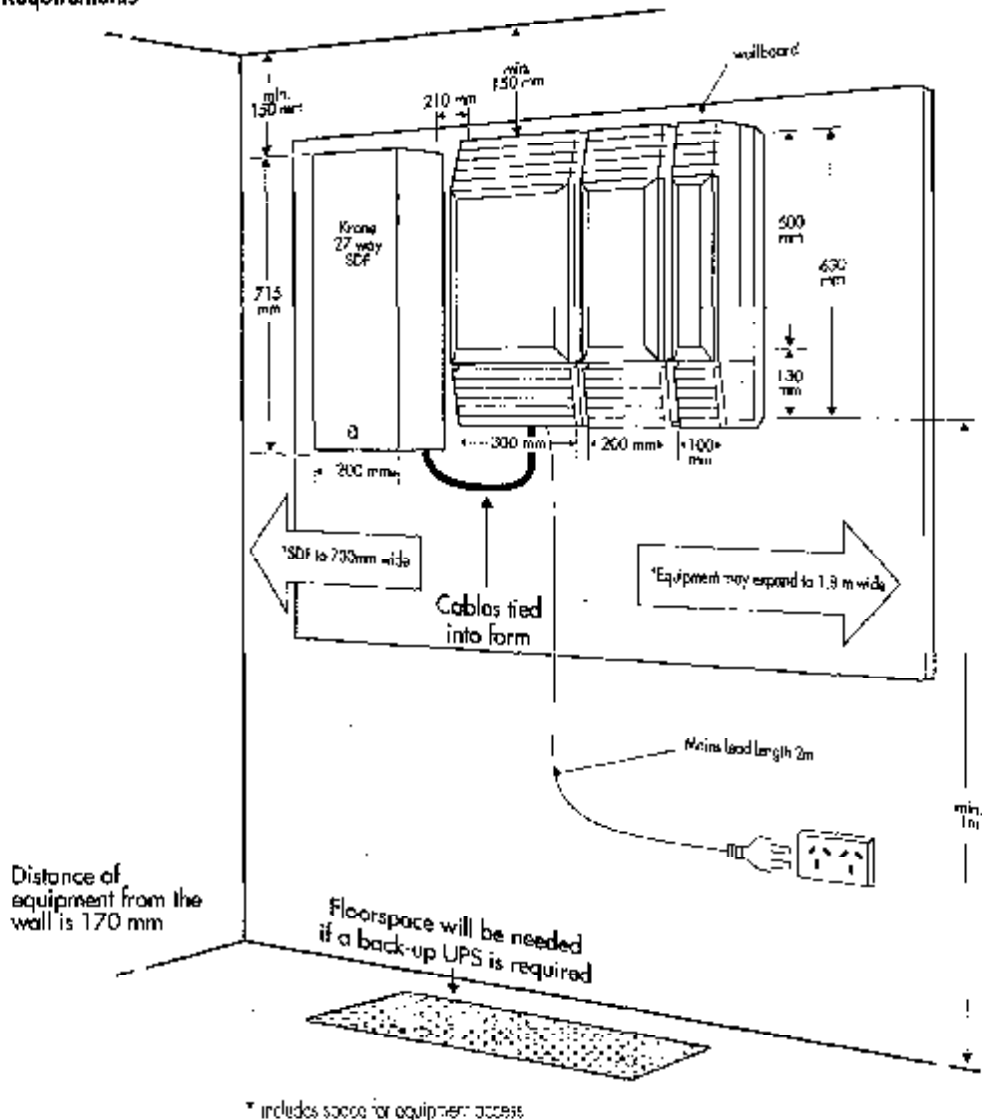
The Commander NT is an expandable system, growing by adding extra modules as required. When selecting a location to mount the equipment, allow space for possible growth. To avoid overheating, mount the modules vertically. When expanding, mount additional modules to the right of the ME.

Depending on system size, the System Distribution Frame (SDF) may also grow from one vertical frame to two. When expanding, mount the additional SDF to the left of the first SDF.

The following illustration "Location Requirements" indicates the areas that should be looked at when installing a new system, with a view to system expansion at a later date.

The weight of the equipment is also a factor when selecting an installation location. Refer to the next section for details.

**Location Requirements**



**Equipment weight**

The individual items of equipment that make up a system are not particularly heavy (see table below), but a total system may weigh as much as 36 kg, not including SDF or other ancillaries.

Item	Weight
Main Equipment (fully equipped)	7.4 kg
Station Module	2.2 kg
Line Module (fully equipped)	4.8 kg
Analogue Station Module	3 kg

This weight may well exceed the capacity of the wall cladding used in office partitioning, etc. and may require a backboard to be fitted to studs within the wall before installation commences. A backboard may also be necessary to correct an uneven mounting surface.

## Required equipment and supplies

The following materials represent typical installation requirements:

### Commander NT equipment

- Main Equipment (includes Power Supply and Power Bar): supports Analogue Line or ISDN BRA or PRA Cartridges plus 32 stations
- Software Cartridge
- Line Module 12X0 (LM) (includes fibre cable spool): supports analogue Line or ISDN BRA Cartridges
- Station Module 0X16 (SM) (includes fibre cable spool): supports 16 stations
- Expansion Cartridge (either a 2 port or 6 port)
- Line Cartridge(s)
- ISDN BRA Cartridge(s)
- ISDN PRA Cartridge(s) with PRA 1 m 8-pin cable (included in PRA cartridge carton)
- Services Cartridge
- System Distribution Frame
- Cable connection (to connect an LM to the System Distribution Frame)
- Cable connection (to connect an SM to the System Distribution Frame)
- Analogue Station Module and/or Analogue Station Module with message waiting indication
- Commander NT Keystations
- Remote Access Device (RAD) (includes Peripheral Power Supply)

### Equipment for mounting the ME

- four 19 mm fasteners for the ME and four fasteners each for the expansion modules
- 25 mm long fasteners for the cable troughs (minimum 2 fasteners each)
- wallboard (if necessary)

### Optional equipment

- Second Power Bar (for Commander NT systems with more than three expansion modules or a TNV station module)



- Power-fail telephone(s)
- Single Line Telephone (SLT) Adaptor (includes cords and Peripheral Power Supply)
- Call Detail Recorder (CDR) Unit
- Calling Line Identification (CLI) Unit
- external music source with Line Isolation Unit (LIU)
- TCM Isolator
- auxiliary ringer
- external paging equipment
- Uninterruptable Power Supply (battery back-up)
- Station Power Supply (SPS)
- Busy Lamp Field (BLF) Display (for the Advantage Keystation only)
- Direct Station Select (DSS) Console (for the Principal Keystation only)
- Central Answering Position (CAPN) Module (for the M7324N Keystation only)
- headset
- station based alarm
- Door Station
- VoiceMail  
(Voice Messaging Unit)

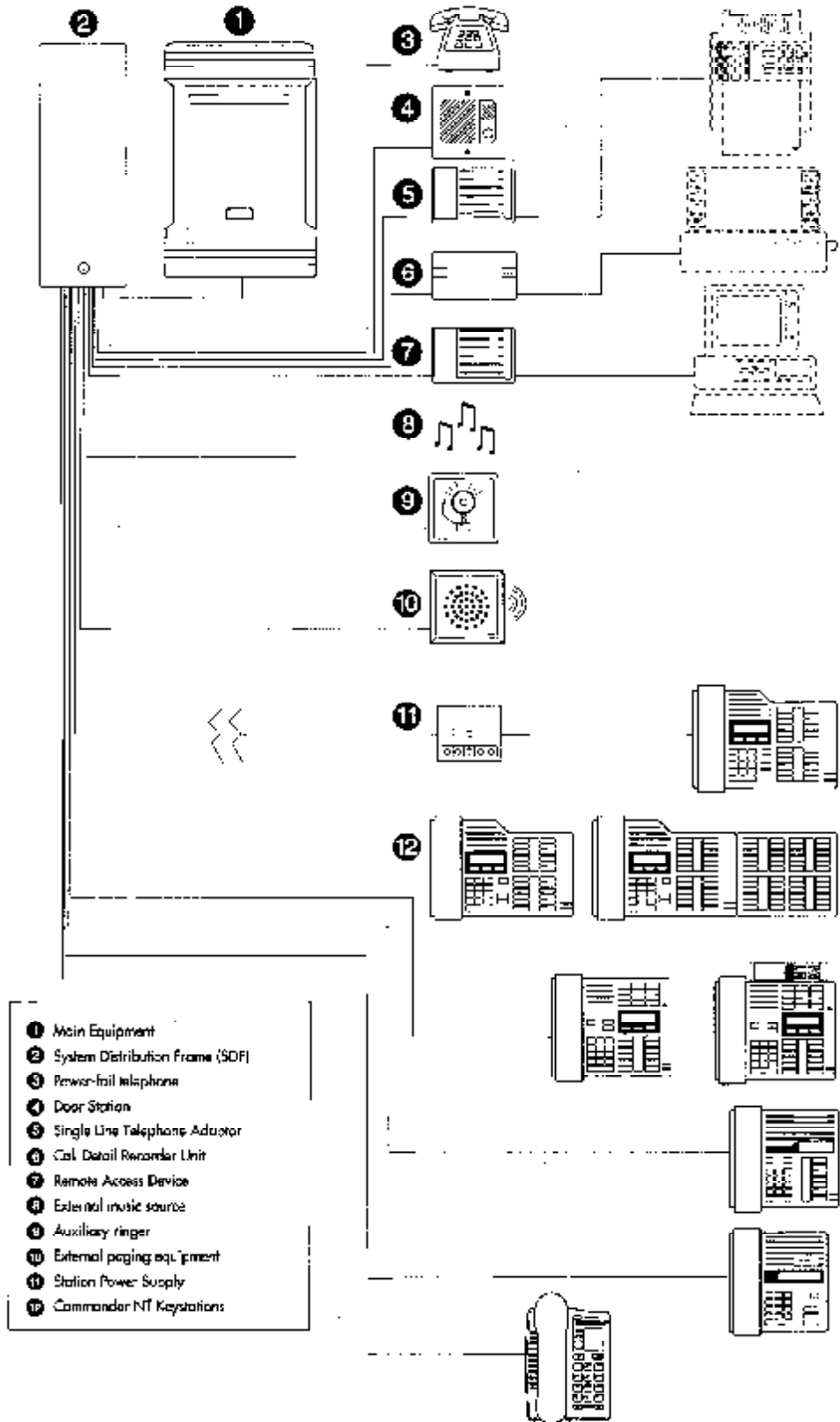
### Station wiring requirements

The ME to station set wiring through new or existing wiring must meet the following specifications:

- 0.5 mm copper twisted pair cable no longer than 300 m, or 0.4 mm copper twisted pair cable no longer than 185 m, with a d.c. loop resistance less than 51 ohms
- one twisted pair per station
- a Station Power Supply (SPS) to extend the loop up to 790 m for 0.5 mm cable, or 490 m for 0.4 mm cable, with a d.c. loop resistance less than 134 ohm. (The integrity of signals is not guaranteed beyond these lengths.)
- no parallel connections

**Note:** These station wiring requirements do not apply to stations connected to the ASM, SLT Adaptor and User side S bus.

Commander NT overview



- ① Main Equipment
- ② System Distribution Frame (SDF)
- ③ Power-fail telephone
- ④ Door Station
- ⑤ Single Line Telephone Adaptor
- ⑥ Cal. Detail Recorder Unit
- ⑦ Remote Access Device
- ⑧ External music source
- ⑨ Auxiliary ringer
- ⑩ External paging equipment
- ⑪ Station Power Supply
- ⑫ Commander NT Keystations



This item includes a mains surge filter and ***MUST BE FITTED*** at every installation, even when no expansion modules are required.



**The mains socket must be connected to a properly grounded Protective Earth**

This equipment incorporates a protective earth for high voltage surge protection via the general purpose outlet. The Main Equipment must be plugged into a standard AS3112 mains socket.

The exchange and station lines must be disconnected from the equipment before the plug is removed from the general purpose outlet.

The mains socket must be connected to a properly grounded Protective Earth to prevent shock hazards. If the quality of the Protective Earth is in doubt an electrician should verify the connection.

The Power Bar must be connected to a 240 V a.c., 50 Hz electrical socket free from mains-borne interference. The actual distance from the ME to the mains socket should not exceed 2 m.

### Equipment location

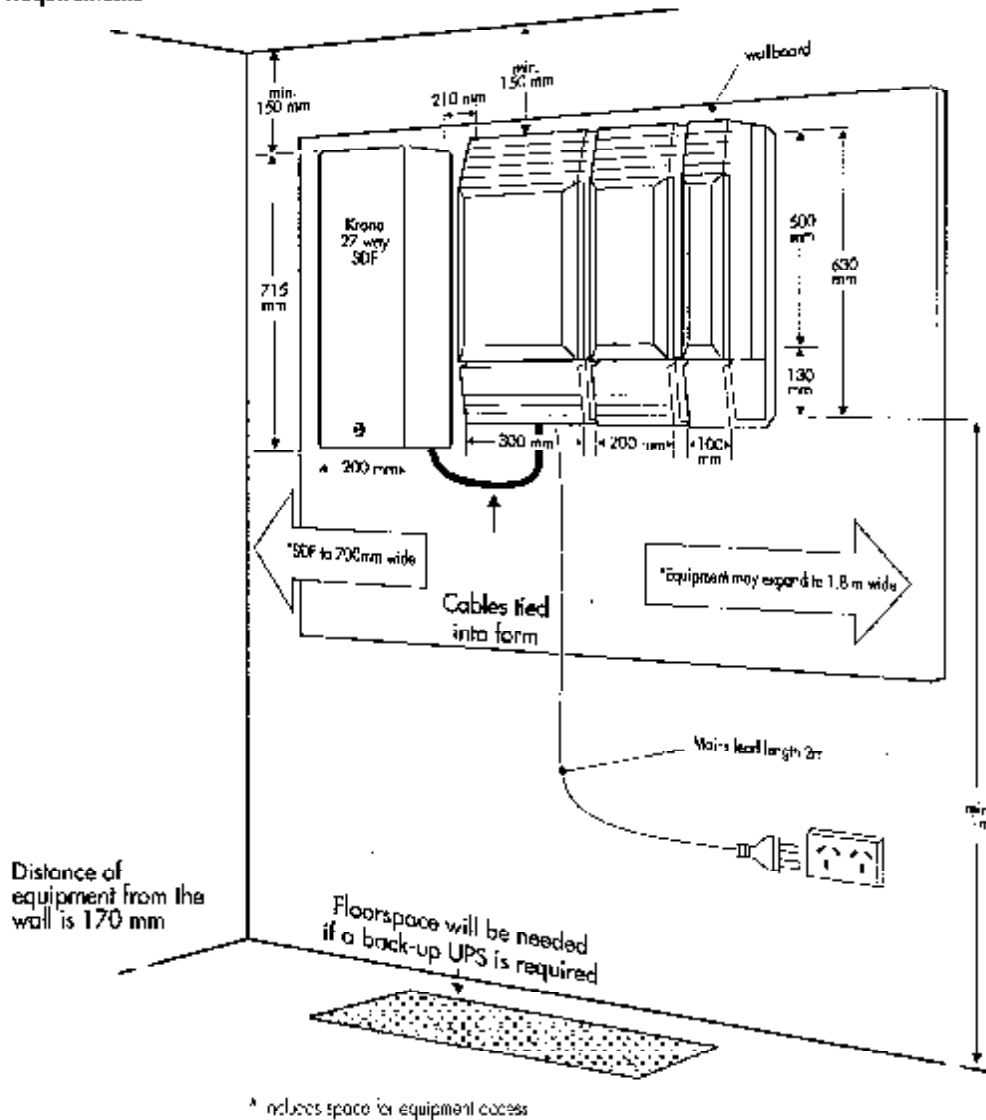
The Commander NT is an expandable system, growing by adding extra modules as required. When selecting a location to mount the equipment, allow space for possible growth. To avoid overheating, mount the modules vertically. When expanding, mount additional modules to the right of the ME.

Depending on system size, the System Distribution Frame (SDF) may also grow from one vertical frame to two. When expanding, mount the additional SDF to the left of the first SDF.

The following illustration "Location Requirements" indicates the areas that should be looked at when installing a new system, with a view to system expansion at a later date.

The weight of the equipment is also a factor when selecting an installation location. Refer to the next section for details.

**Location Requirements**



**Equipment weight**

The individual items of equipment that make up a system are not particularly heavy (see table below), but a total system may weigh as much as 36 kg, not including SDF or other ancillaries.

Item	Weight
Main Equipment (fully equipped)	7.4 kg
Station Module	2.2 kg
Line Module (fully equipped)	4.8 kg
Analogue Station Module	3 kg

This weight may well exceed the capacity of the wall cladding used in office partitioning, etc. and may require a backboard to be fitted to studs within the wall before installation commences. A backboard may also be necessary to correct an uneven mounting surface.

## Required equipment and supplies

The following materials represent typical installation requirements:

### Commander NT equipment

- **Main Equipment** (includes Power Supply and Power Bar); supports Analogue Line or ISDN BRA or PRA Cartridges plus 32 stations
- **Software Cartridge**
- **Line Module 12X0 (LM)** (includes fibre cable spool); supports analogue Line or ISDN BRA Cartridges
- **Station Module 0X16 (SM)** (includes fibre cable spool); supports 16 stations
- **Expansion Cartridge** (either a 2 port or 6 port)
- **Line Cartridge(s)**
- **ISDN BRA Cartridge(s)**
- **ISDN PRA Cartridge(s)** with PRA 1 m 8-pin cable (included in PRA cartridge carton)
- **Services Cartridge**
- **System Distribution Frame**
- **Cable connection** (to connect an LM to the System Distribution Frame)
- **Cable connection** (to connect an SM to the System Distribution Frame)
- **Analogue Station Module and/or Analogue Station Module with message waiting indication**
- **Commander NT Keystations**
- **Remote Access Device (RAD)** (includes Peripheral Power Supply)

### Equipment for mounting the ME

- **four 19 mm fasteners** for the ME, and four fasteners each for the expansion modules
- **25 mm long fasteners** for the cable troughs (minimum 2 fasteners each)
- **wallboard** (if necessary)

### Optional equipment

- **Second Power Bar** (for Commander NT systems with more than three expansion modules or a TNV station module)

- Power-fail telephone(s)
- Single Line Telephone (SLT) Adaptor (includes cords and Peripheral Power Supply)
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- headset
- station based alarm
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- VoiceMail  
(Voice Messaging Unit)

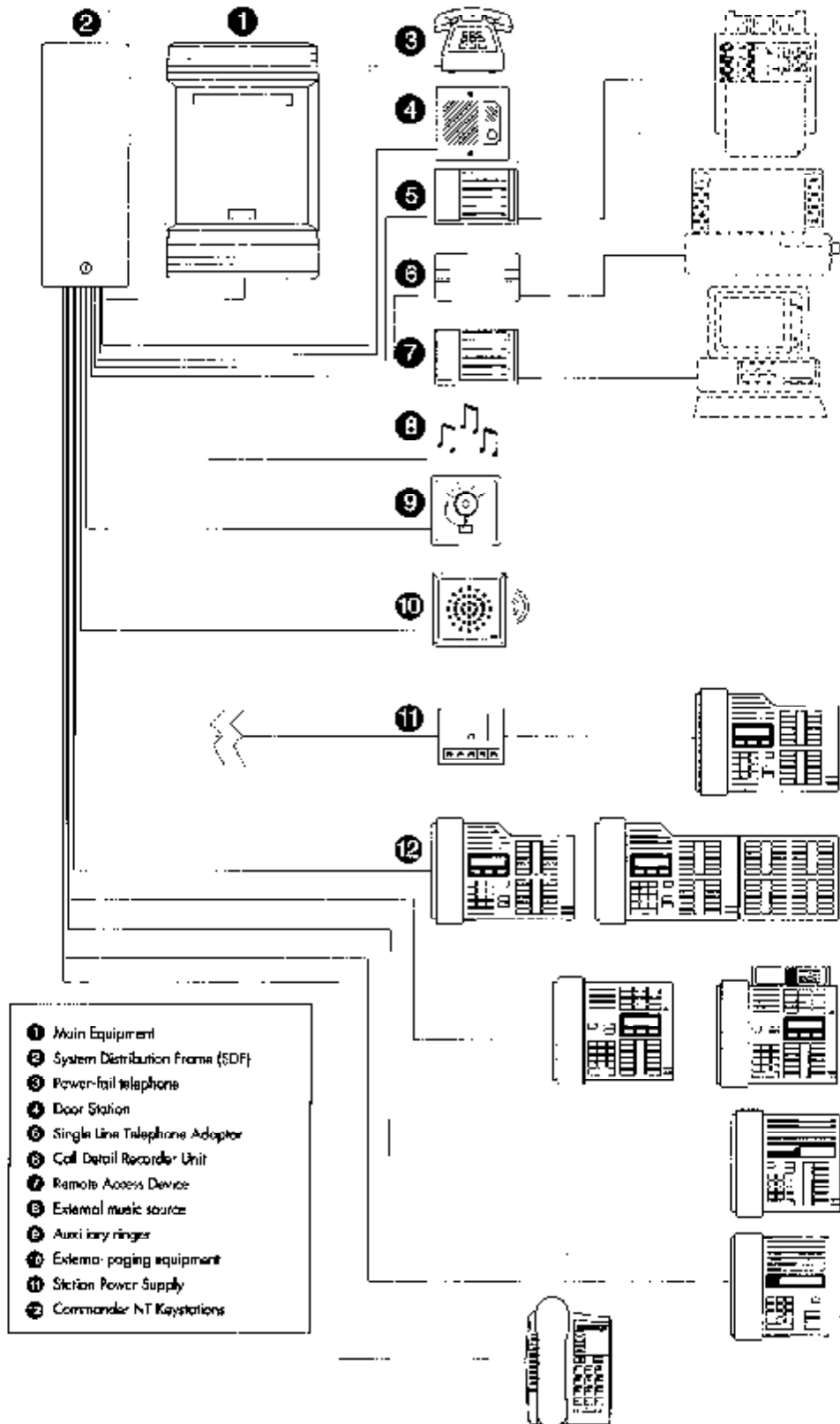
### Station wiring requirements

The ME to station set wiring through new or existing wiring must meet the following specifications:

- 0.5 mm copper twisted pair cable no longer than 300 m, or 0.4 mm copper twisted pair cable no longer than 185 m, with a d.c. loop resistance less than 51 ohms
- one twisted pair per station
- a Station Power Supply (SPS) to extend the loop up to 790 m for 0.5 mm cable, or 490 m for 0.4 mm cable, with a d.c. loop resistance less than 134 ohm. (The integrity of signals is not guaranteed beyond these lengths.)
- no parallel connections

**Note:** These station wiring requirements do not apply to stations connected to the ASM, SLT Adaptor and User side S bus.

Commander NT overview



- ① Main Equipment
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- ⑦ Remote Access Device
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- ⑨ Auxiliary ringer
- ⑩ External paging equipment
- ⑪ Station Power Supply
- ⑫ Commander NT Keystations

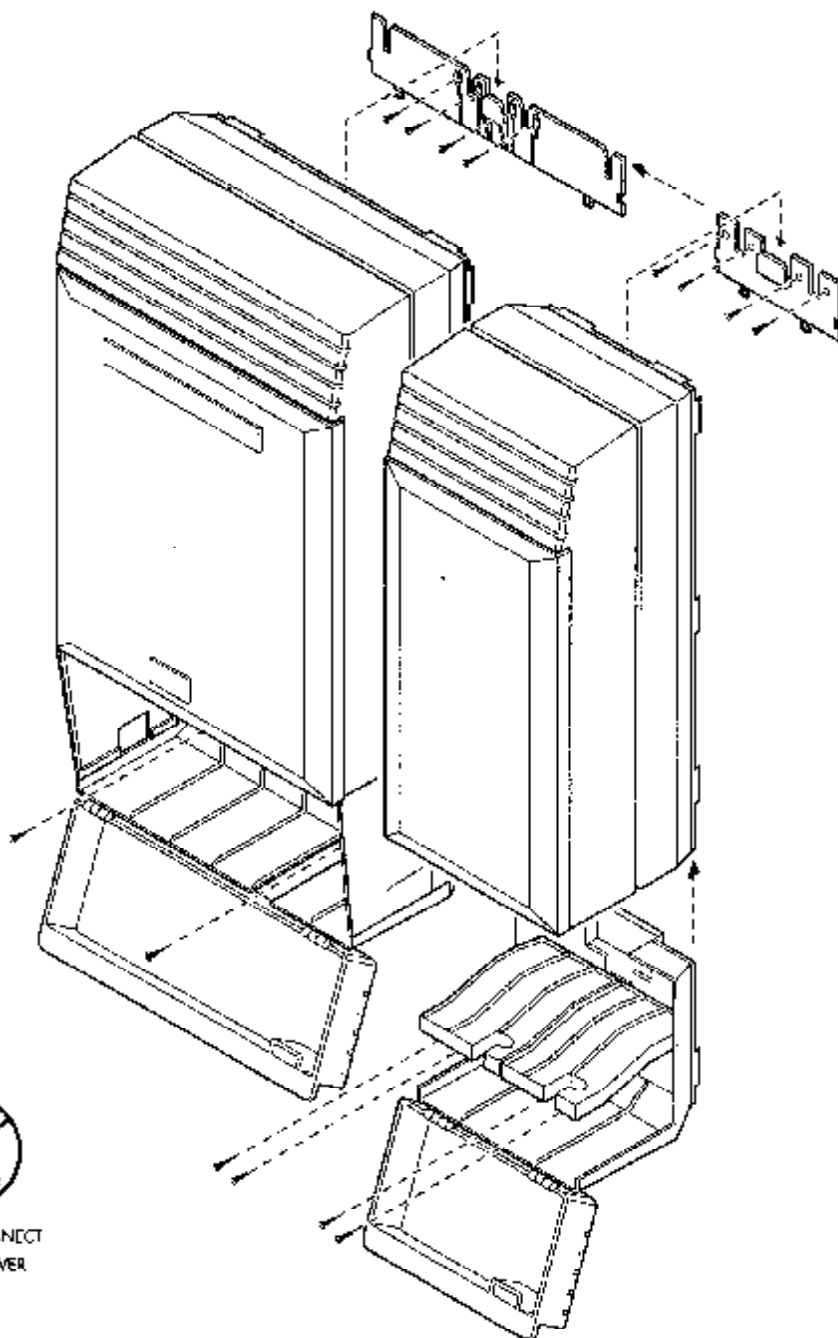


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## Installing the central equipment

- Mounting the components.....32
  - Installing the cartridges.....33
    - ISDN PRA cartridge.....40
  - Connecting fibre cables.....42
- Installing the Power Bar (system with ME only).....44
- Installing the Power Bar (system with one to three expansion modules).....45
  - Installing a second Power Bar.....46
- Installing the System Distribution Frame.....48
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    - ME wiring charts.....52
  - Expanding the system.....63

## Mounting the components



**WARNING!**



Do not connect Mains power until all of the Commander NT system and its various components are fully installed. See "Powering up the system" on page 141 for more information.

## Installing the cartridges

If you are installing an ISDN PRA cartridge in your system, it must be the primary clock source. For example, if your system is equipped with BRA cartridges and an ISDN PRA cartridge, program the ISDN PRA cartridge as the primary clock source. If the system is equipped with more than one ISDN PRA cartridge, either ISDN PRA cartridge can be set as the primary clock source. See "Programming the Clock Source" on page 180.

Analogue Line Cartridges are not compatible with Message Waiting Lamp driver circuits that may be found on local analogue exchanges. Ensure that Message Waiting Lamp services are disabled at the local exchange before connecting to the Analogue exchange.

Use the following table and illustration to determine the proper cartridge slot arrangement.

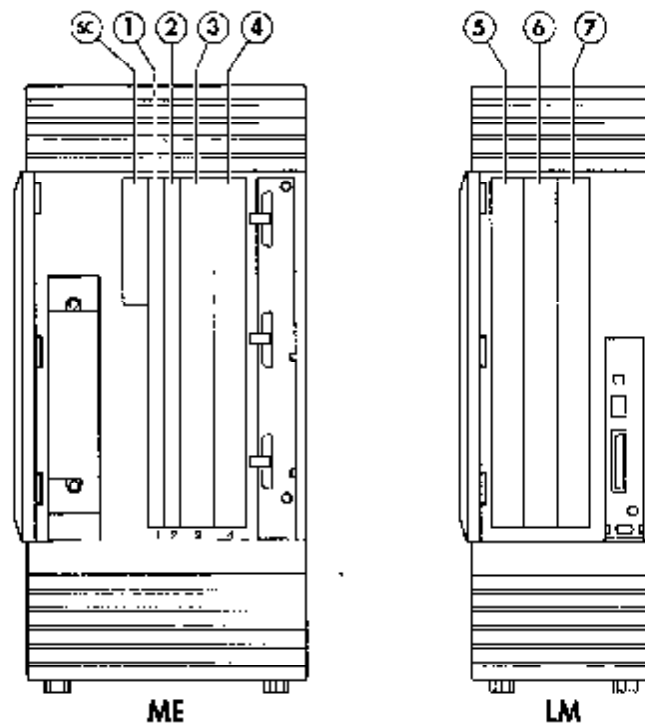
ME slot #	Allowable cartridge
SC	Software Cartridge
1	Services Cartridge
2	2-port or 6-port Expansion Cartridge
3 & 4	Analogue line cartridge or ISDN PRA cartridge or 4-port BRA line cartridge

Line Module	Allowable cartridge
5	Analogue line cartridge or 4-port BRA line cartridge
6	Analogue line cartridge or 4-port BRA line cartridge
7	Analogue line cartridge or 4-port BRA line cartridge

*Note:* The ME must be equipped with an ISDN PRA cartridge or BRA cartridge for the LM to support BRA cartridges.

**Cartridge placement**



**Observe lightning protection requirements**

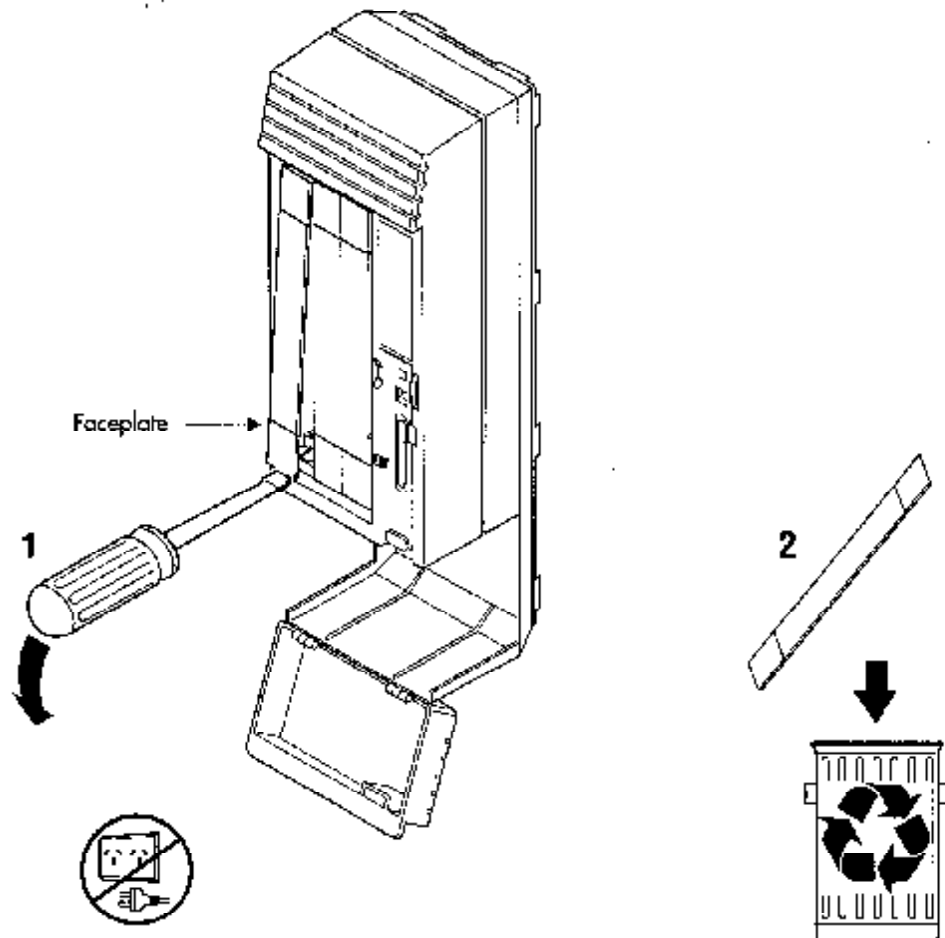
Lightning Surge Arrestors compliant to ACA Standard TS001, section 5.2, are necessary on all ISDN BRA lines installed in the ME.

Lightning Surge Arrestors are not required for ISDN lines installed in a Line Module.

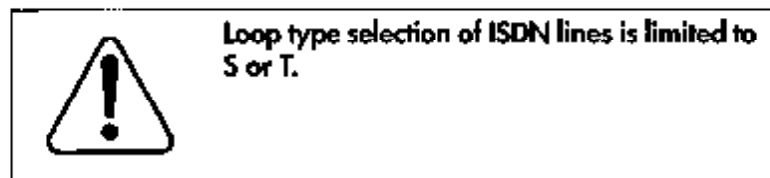
The preferred location is at the Network Terminating Point or Main Distribution Frame (MDF). For ISDN BRA lines, this corresponds to the U-Interface of the NT1. If the MDF is not suitable (no earthing point available), the Lightning Surge Arrestors must be provided at the System Distribution Frame. See "Lightning Surge Arrestors (Gas arrestors)" on page 60.

ISDN PRA lines do not require Lightning Surge Arrestors.

## Removing the slot faceplate



## Before you install an ISDN BRA cartridge



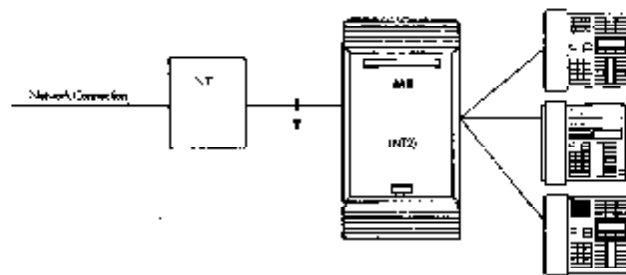
The European Telecommunications Standards Institute (ETSI) Specification for ISDN Basic Rate Access (BRA) service has replaced the ACA TS013 standard. The ACA TS013 standard is not supported by the Commander NT system. ISDN BRA provides two bearer B-channels that operate at 64 kbit/s, and a data D-channel that operates at 16 kbit/s and is used to carry call information.

OnRamp 2 ISDN connectivity on the T interface to the network side of the Commander NT132 is supported.

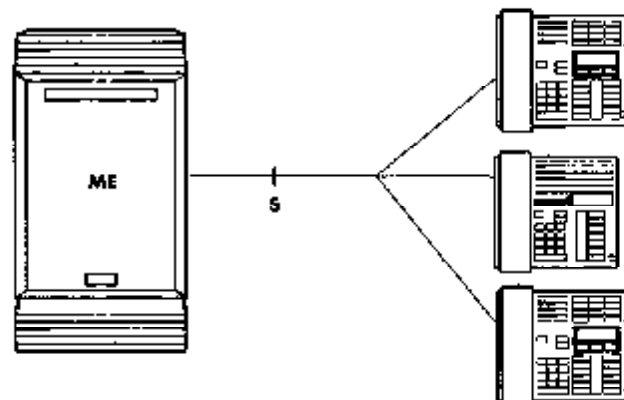
An ISDN BRA cartridge supports four individual accesses. Each of the four accesses can be used at either the T or S reference points:

- the T reference point provides point to point digital connection between the network and the Commander NT.

#### T reference point



#### S reference point



- the S reference point provides point to point or point to multipoint digital connection between the Commander NT and ETSI or TS013 terminal emulators (TEs).

**Note:** The Commander NT line pool algorithm will select the highest available line number in a pool.

Because Commander NT cannot detect the status of external ISDN devices in a multipoint configuration, it has no indication that a line is in use by a device. Thus, Commander NT will assume that a line being used by a device is idle and it will not check the status of any lower numbered lines in the pool. For example, 4 ISDN BRA accesses are configured for multipoint operation (S loops) and the B-channels are grouped in line pool A. The highest line number, 4 for instance, is in use by multipoint ISDN devices. If any other station attempts an outgoing call on

line pool A, their keystation display will show **no channels available** and the call attempt will be unsuccessful even though lines 3, 2 and 1 are idle.

To prevent this, place multipoint ISDN lines in a line pool that is not available to other keystations.

Commander NT does not support an NT1 STAR configuration.

NT1 is provided by your network provider.

### **Terminating resistors**

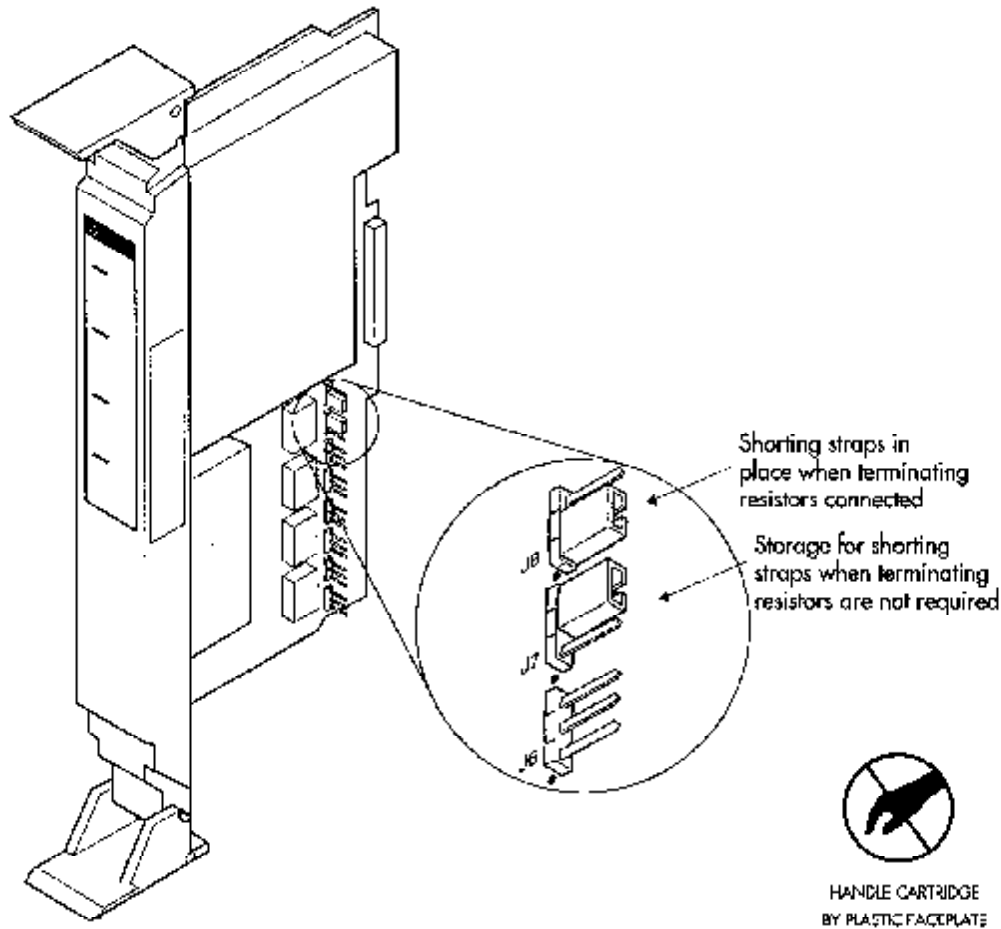
The standard ISDN user-network interface wiring configuration requires terminating resistors at each end of the loop, one at the NT1 and one at the TE (or NT2).

The Commander NT ISDN BRA cartridge provides termination for each access. There are separate terminations for the transmit and receive pairs. The ISDN BRA cartridge is shipped with shorting straps in place to provide terminating resistors.

The terminations for each access can be individually removed if they are not required, by moving the appropriate shorting straps (the shorting straps can be stored on the cartridge by inserting it over the spare pins).

If the terminating resistors are removed, ensure that both the transmit and receive shorting straps are moved together.

### Shorting straps on an ISDN BRA cartridge



#### Allow time for ISDN BRA cartridges to initialise

When ISDN BRA cartridges initialise, the Commander NT132 system performance may appear slow until initialising is completed. The initialisation will take between 5 to 10 minutes. ISDN initialisation is performed when installing ISDN BRA cartridges for the first time and also occurs when changing between different software loads.



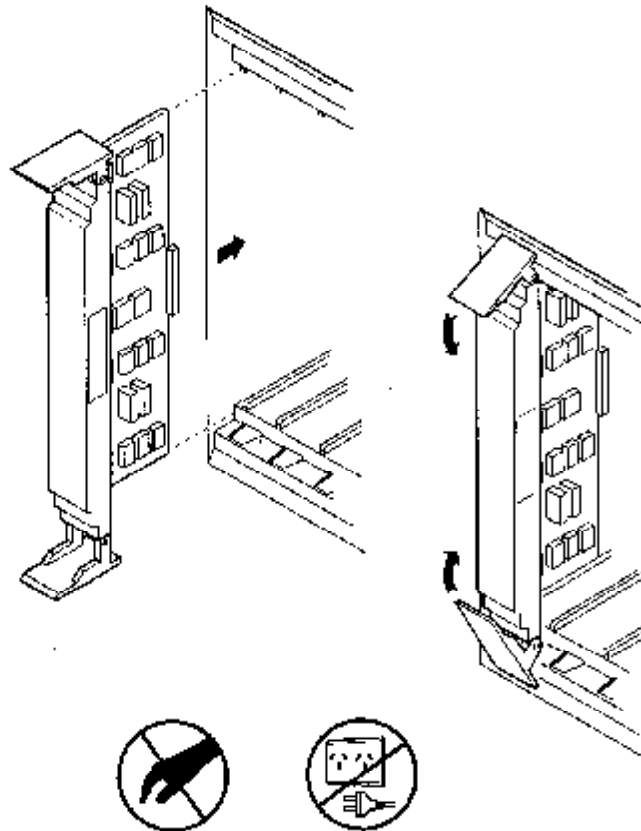
#### Allow time for clock synchronisation

When bringing ISDN BRA cartridges into service, it may take up to 5 minutes for the ME to synchronise the system clock to the network.



### Inserting a cartridge

To insert a cartridge, hold the latches open and slide the cartridge into the track. Simultaneously, close the latches to secure the cartridge. Take care not to touch the printed circuit board.



### Removing or replacing an Expansion Cartridge

Installing an Expansion Cartridge in the ME, or growing from a 2 port to a 6 port Expansion Cartridge does not cause the system to cold start.



#### **Downsizing causes a system cold start**

Removing an Expansion Cartridge from the ME, or replacing a 6 port Expansion Cartridge with a 2 port Expansion Cartridge, causes the system to cold start. System programming must be re-entered after a cold start.

## ISDN PRA cartridge

### Connecting to PRA service

Connection to the PRA service is made from the ISDN PRA cartridge with a cable with an 8 pin Modular jack with the following pinout:

pin 1 Receive A lead	pin 5 Transmit B lead
pin 2 Receive B lead	pin 6 Shield termination (not required)
pin 3 Shield termination (not required)	pin 7 N/C
pin 4 Transmit A lead	pin 8 N/C

Take the cable from the ISDN PRA Cartridge carton and connect one end to the ME ISDN PRA cartridge front panel connector at the far end and connect it to the PRA Network termination point.

### Disabling connected cartridges

Under certain circumstances you will need to disable connected line cartridges before beginning any provisioning. You can **Disable line cartridges** in **State** under **Module Status** (select the applicable slot) in **Maintenance**.

**Note:** Deprovisioning all of the PRA lines on an ISDN PRA cartridge does not disable the cartridge because the D-channels are still active.

### Provisioning lines or loops

Provisioning adds or removes individual PRA lines, BRA lines, and BRA loops from network service and the charges associated with that service. You can pre-provision the lines or loops even though the system is not equipped with an ISDN PRA cartridge or BRA cartridge. The pre-provisioning will not apply until the Analogue cartridge or unequipped space is replaced by an ISDN PRA cartridge or BRA cartridge. The quantity of PRA line credits available for provisioning is determined by the **Software Keys** setting and can be set under **Provisioning** in **Maintenance**. On System Startup, no PRA lines are provisioned, and ten credits are available.

### Provisioning a PRA line

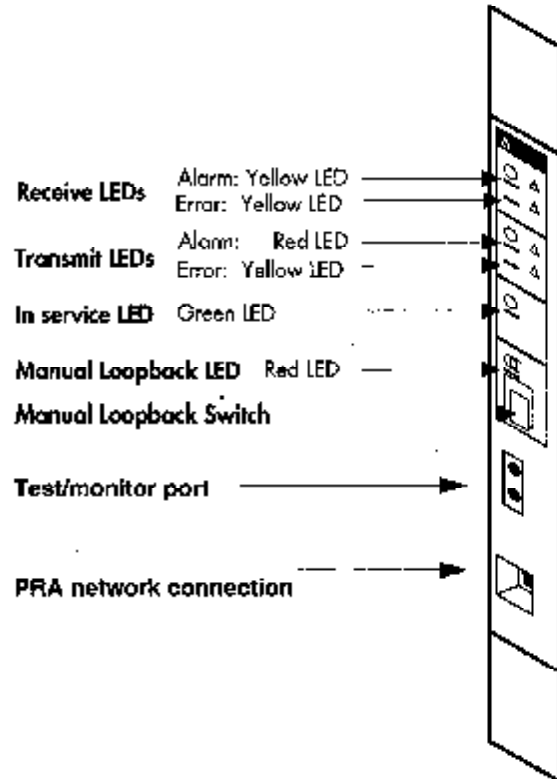
From **Show module:** under **Provisioning**, press **LIST** to view the modules, or press **Show** . The display shows **Carts on ME**. After you have selected the applicable slot, you will be able to enter the line number and **ADD** provisioning; provided sufficient **CREDITS** are available.

### De-provisioning a PRA line

De-provisioning all of the PRA lines on an ISDN PRA cartridge does not disable the cartridge because the D-channels are still active.

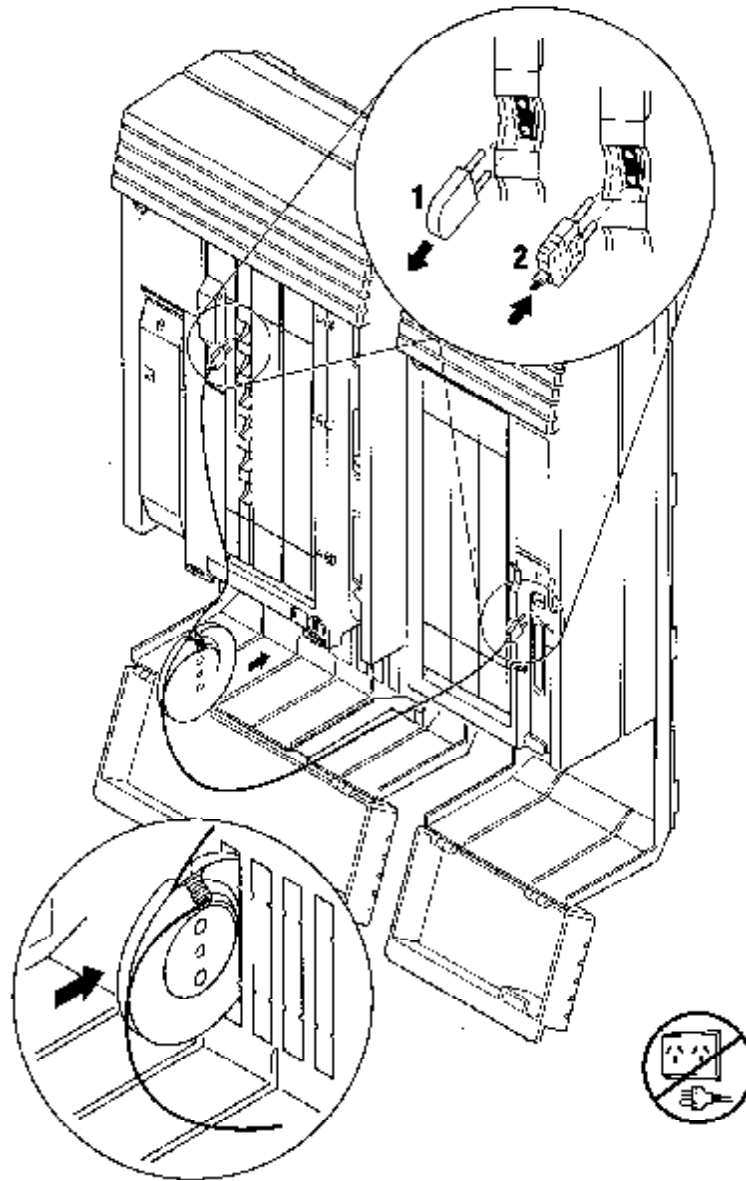
From **Show line:** under **Maintenance**, select the **XXXX: Provisioned** and press **REMOVE** to de-provision the line.

**Note:** If the line is in use, the display will read **Busy: Remove now?** Press **YES** to de-provision the line in 60 seconds, or **CANCEL** to leave the line provisioned.



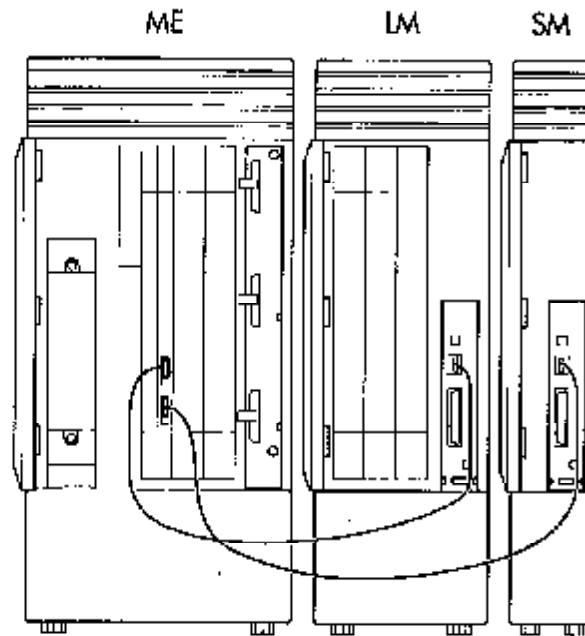
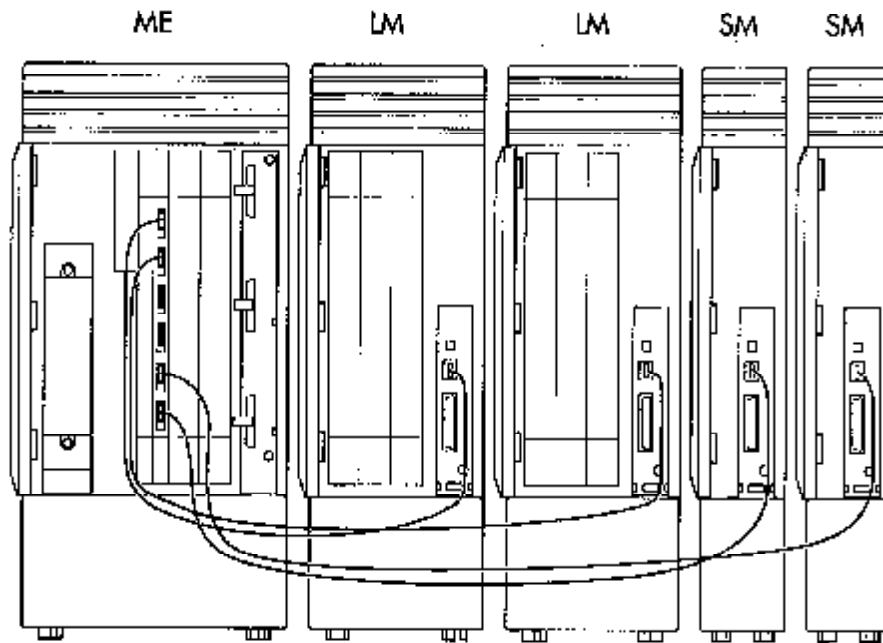
- **Receive Alarm:** A steady yellow LED indicates a problem with receiving digital transmission. Check that the cable is connected as shown on page 42 and page 43.
- **Receive Error:** A steady or flickering yellow LED indicates a minor error as a result of degraded digital transmission. Check that the cable is connected as shown on page 42 and page 43.
- **Transmit Alarm:** A steady red LED indicates an inability to transmit. This LED will be steady read upon a ME check. Check that the cable is connected as shown on page 42 and page 43.
- **Transmit Error:** A steady yellow LED indicates a Remote Alarm as a result of a cable problem or loss of transmission at the far end node. Check that the cable is connected as shown on page 42 and page 43.
- **In-service:** A steady green LED indicates that the card is functioning. The LED flashes during initialisation or when loopback is activated.
- **Manual Loopback:** A steady red LED indicates that a continuity loopback test is running.

## Connecting fibre cables



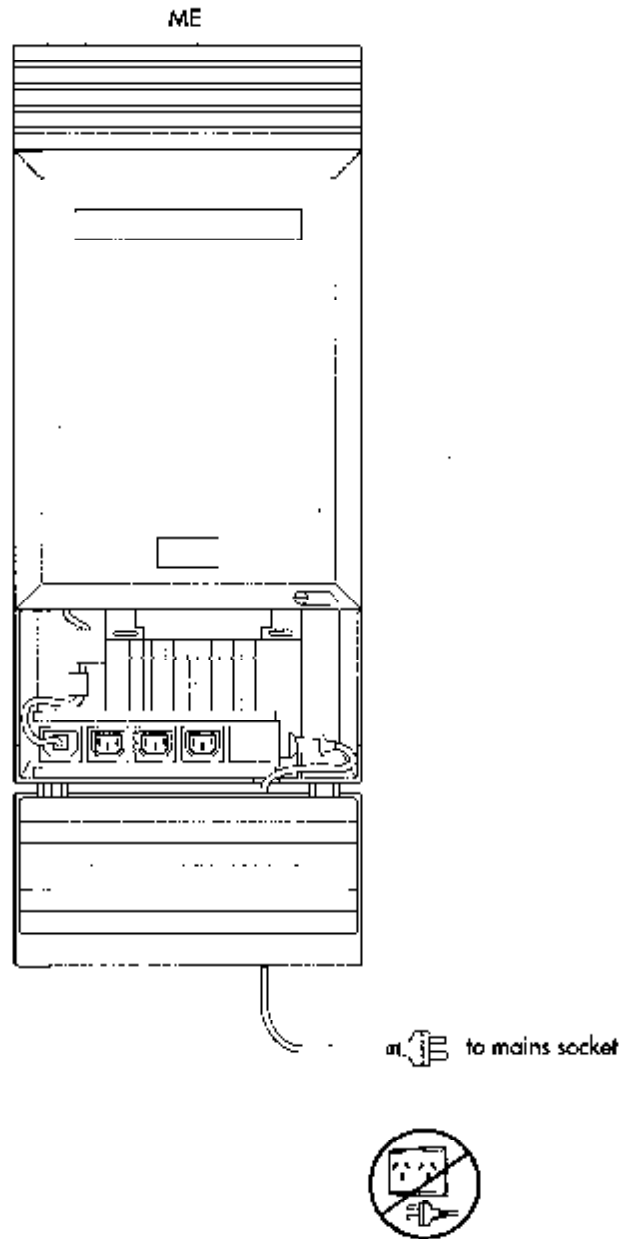
### **Coil excess fibre carefully**

Coil excess fibre cable carefully around the spool provided. Do not bend the cable around any tight corners. Bends in fibre cable should be not less than 100 mm in diameter. Place fibre cable spool into a slot at the back of the cable trough.

**2 port Expansion Cartridge****6 port Expansion Cartridge****Order of connection**

In order to retain the default port and station numbering, connect Line Modules to the Expansion Cartridge beginning at the top fibre port and working down; connect Station Modules to the Expansion Cartridge beginning at the bottom fibre port and working up.

## Installing the Power Bar (system with ME only)

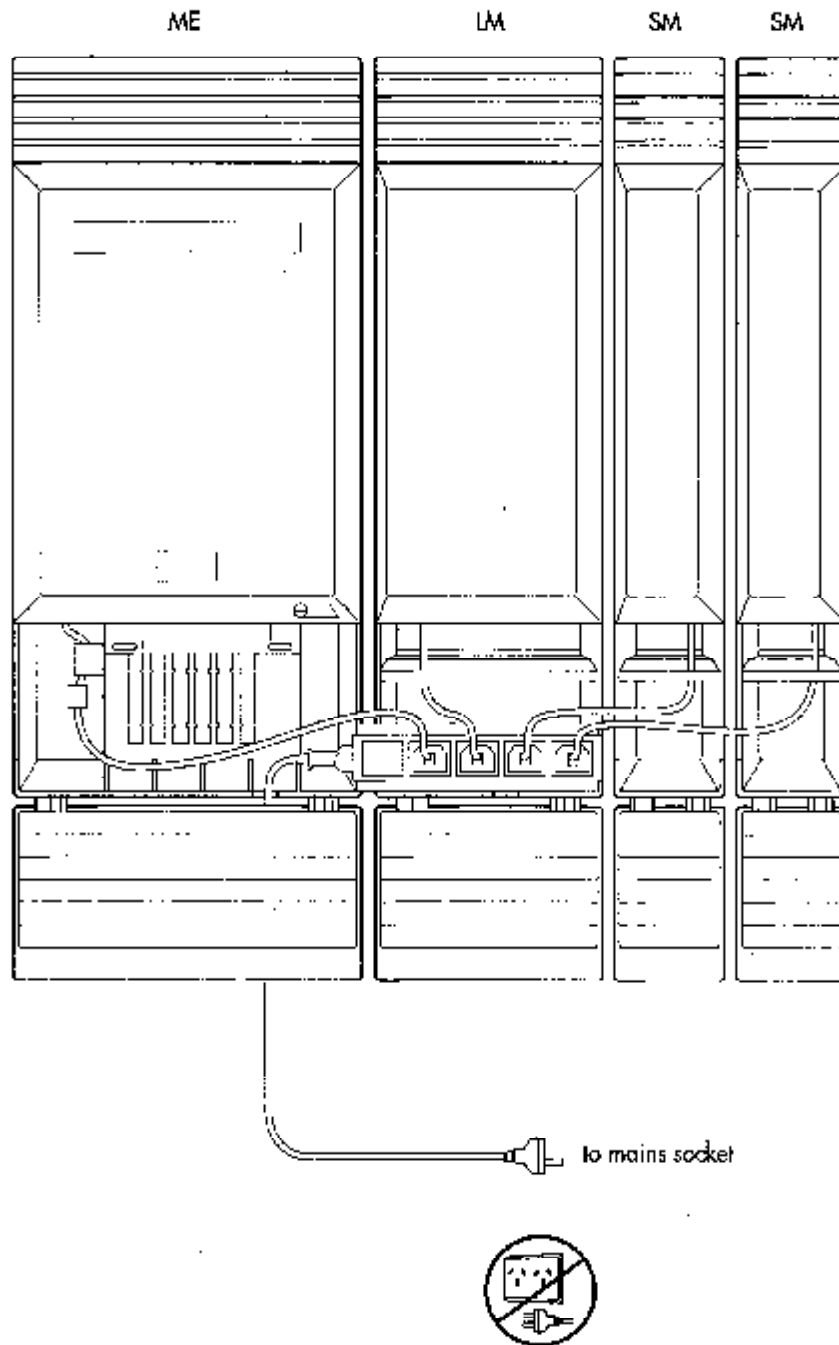


### Always use a Power Bar

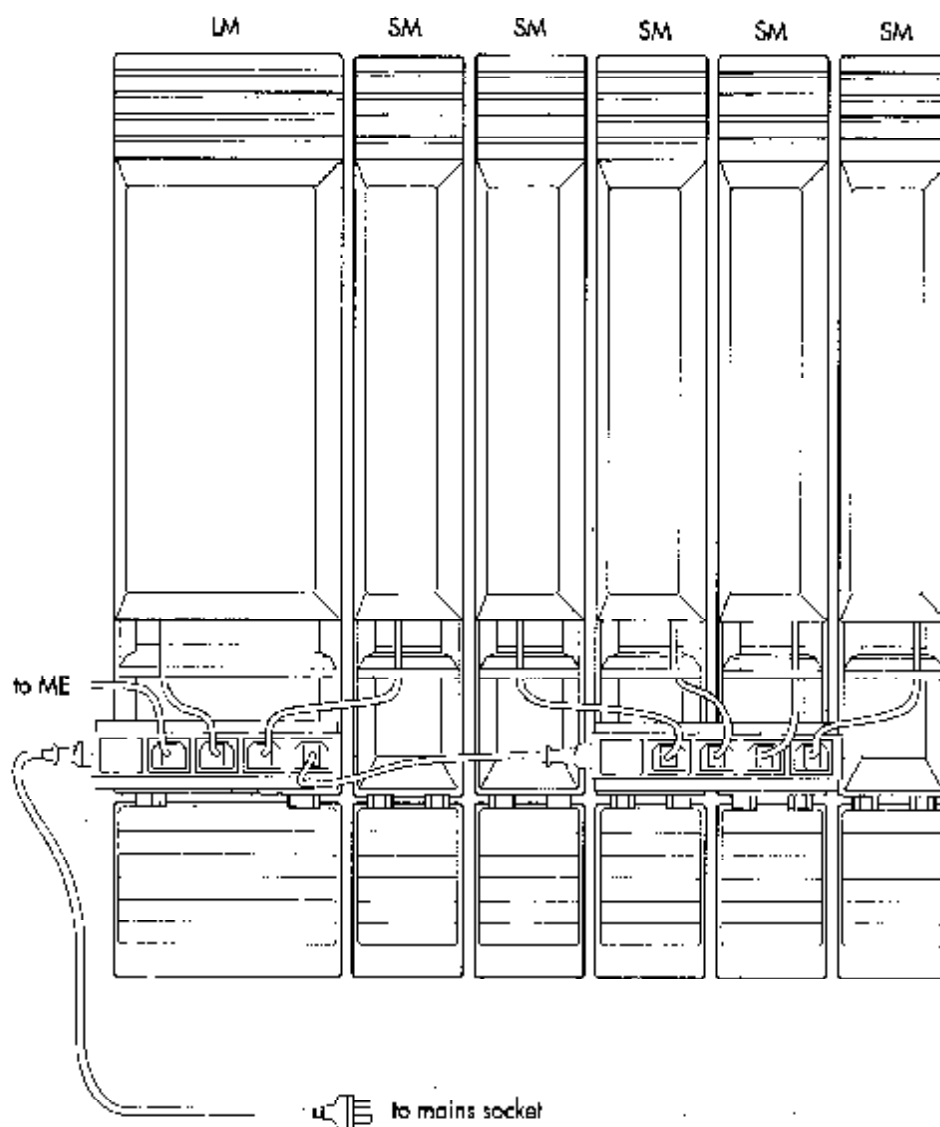
The Power Bar includes a mains surge filter and must be fitted at every installation, even when no expansion modules are required.

The Power Bar contains a replaceable 10 A, 250 V a.c., slow-blow 2AG size fuse.

### Installing the Power Bar (system with one to three expansion modules)



## Installing a second Power Bar



For TNY Station module, refer to "Installing remote stations" on page 92.

Only two ASM's can be daisy-chained. Subsequent ASMs require a second mains cord and connection to wall socket. It is not recommended to connect more than four ASMs to an expansion module. Every four ASMs shall have a dedicated connection to the wall mains socket.





**WARNING!**

Do not chain more than two power bars together.

More than two power bars chained together creates a potential fire hazard.



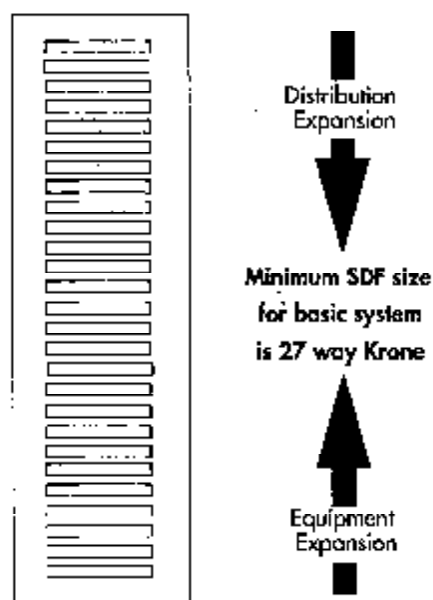
**WARNING!**

For continued protection from electrical shock hazards, do not connect more than four ASMs by the power bar to mains wall socket. Using a single cord to connect more than four ASMs to the mains wall socket may cause leakage current limits to be exceeded.

## Installing the System Distribution Frame

A 27 way Krone SDF should be mounted to the left of the ME. If it is necessary to expand the SDF as the system size increases, mount another 27 way frame to the left of the original SDF. Configure it to allow jumpering between them according to existing Krone practice.

The equipment cables start at the bottom of the SDF, with distribution, MDF ties, etc. at the top. When an SDF is expanded, the equipment cables should again appear at the bottom.



### SDF components

The following components are required to assemble the SDF:

Component	S/I	notes
Frame 27 way Profil	537/103	includes earth strap
Frame cover - jumperable	537/19	
Module Profil	537/95	quantity to suit installation
Jumper ring assembly	537/45	2 required when adding an SDF expansion

### SDF earthing

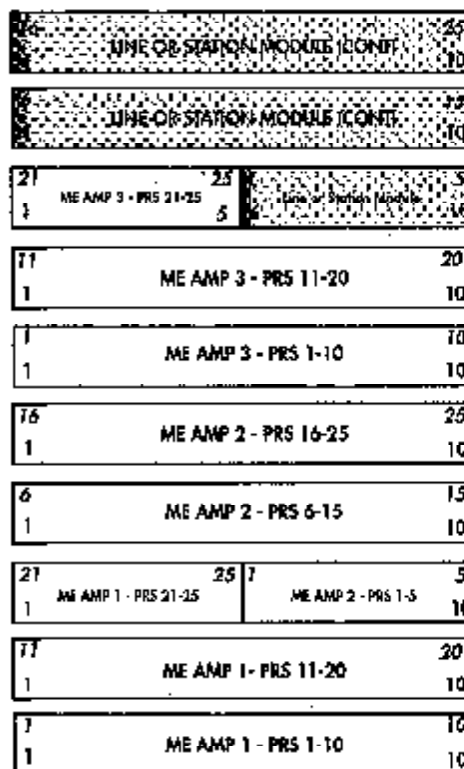
Connect the SDF earth strap to the earthing flying lead from the MF. Attach a crimp lug to the flying lead and bolt the lead to the SDF earth strap. This earths the SDF backmount bars in preparation for the possible fitting of gas arrestor modules.

## SDF layout

As the SDF can become quite large as system size increases, to conserve frame space no allowance is made for separation of cables from different modules. The cables from the ME, and all following cables, are terminated up the frame from the bottom.

As Line Modules and Station Modules may be installed and connected to the SDF in any order, and there is no separation between cables, it is important to label the frame and keep SDF records for maintenance activities.

The illustration below shows the first 10 SDF blocks, and illustrates the cabling scheme. As LMs or SMs are added, the SDF fills from the bottom up.



## ME, SM and LM SDF cabling

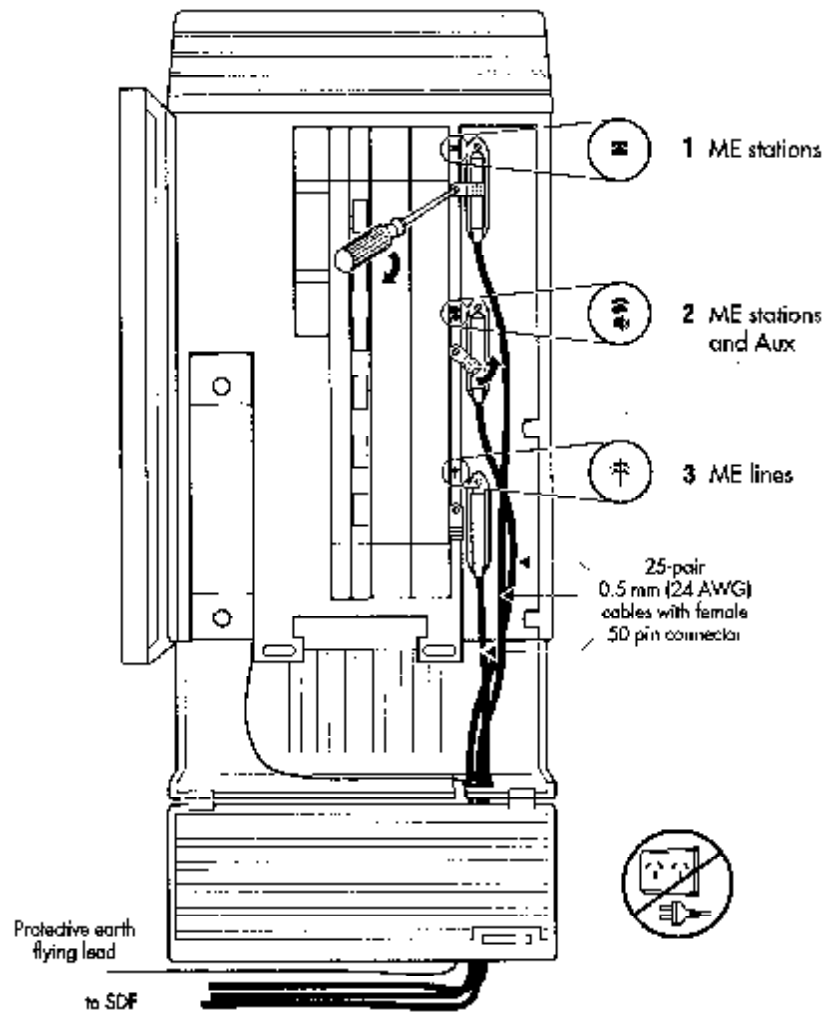
The following cable tails can be used:

Component	S/I	notes
Commander NT SDF Cable Assembly	742/65	PREFERRED TYPE: 8 m grey cable with AMP connector at both ends

The cable should be cut to size, using both connectorised ends where possible.

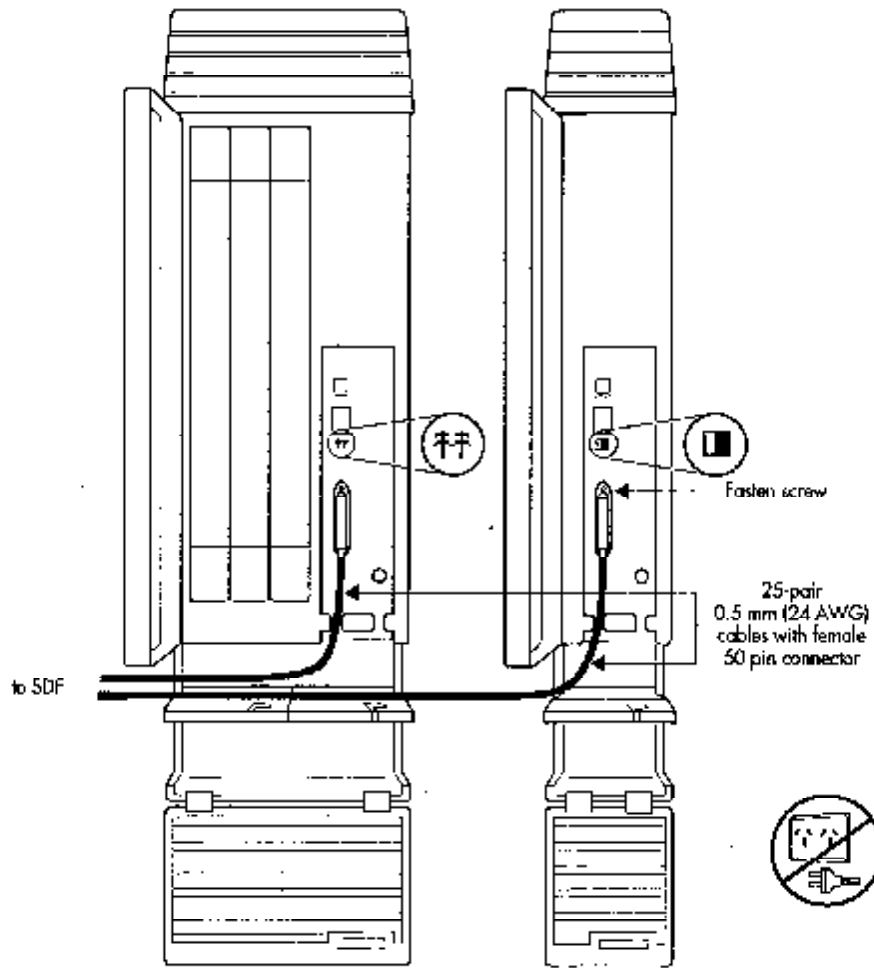
## Wiring

### Connecting the ME cables to the System Distribution Frame



**Connectors must be secure**  
Cable connectors must be fastened securely.

Connecting the LM and SM cables to the System Distribution Frame



<b>Upper shelf</b>	Place the connection cables in the upper shelf.
<b>Lower shelf</b>	Install all mains leads and the Power Bar before installing the fibre cables. Coil any excess fibre cables carefully around the spool and place them in the slot of the ME cable trough.

## ME wiring charts

The following tables detail the wire allocation for the ME, SM and LM AMP connectors, and their appearance on the SDF. Secondary functions (if any) are indicated. Notes indicate any special conditions that apply.

### CONNECTOR 1 - ME SDF & Connector wire allocation

ME Sm	AMP 1 Pin	Colour	AMP 1 Pin	Colour	SDF Pair No	Port	Description
							Primary function
	1	BL	26	W	1	101	Station Port A&B
	2	O	27	W	2	102	Station Port A&B
	3	G	28	W	3	103	Station Port A&B
	4	BN	29	W	4	104	Station Port A&B
	5	S	30	W	5	105	Station Port A&B
	6	BL/W	31	W	6	106	Station Port A&B
	7	BL/O	32	W	7	107	Station Port A&B
	8	BL/G	33	W	8	108	Station Port A&B
	9	BL/BN	34	W	9	109	Station Port A&B
	10	BL/S	35	W	10	110	Station Port A&B
	11	O/W	36	W	11	111	Station Port A&B
	12	O/G	37	W	12	112	Station Port A&B
	13	O/BN	38	W	13	113	Station Port A&B
	14	O/S	39	W	14	114	Station Port A&B
	15	G/W	40	W	15	115	Station Port A&B
	16	G/BN	41	W	16	116	Station Port A&B
	17	G/S	42	W	17	117	Station Port A&B
	18	BN/W	43	W	18	118	Station Port A&B
	19	BN/S	44	W	19	119	Station Port A&B
	20	S/W	45	W	20	120	Station Port A&B
	21	B	46	Y	21	121	Station Port A&B
	22	O	47	Y	22	122	Station Port A&B
	23	G	48	Y	23	123	Station Port A&B
	24	BN	49	Y	24	124	Station Port A&B
	25	S	50	Y	25	-	No connection

ME Str & Aux	AMP 2 Pin	Colour	AMP 2 Pin	Colour	SDF Pair No	Port	Description
	1	BL	26	W	26	125	Station Port A&B
	2	O	27	W	27	126	Station Port A&B
	3	G	28	W	28	127	Station Port A&B
	4	BN	29	W	29	128	Station Port A&B
	5	S	30	W	30	129	Station Port A&B
	6	BL/W	31	W	31	130	Station Port A&B
	7	BL/O	32	W	32	131	Station Port A&B
	8	BL/G	33	W	33	132	Station Port A&B
	9	BL/BN	34	W	34	-	No connection
	10	BL/S	35	W	35	-	No connection
	11	O/W	36	W	36	-	No connection
	12	O/G	37	W	37	-	No connection
	13	O/BN	38	W	38	-	No connection
	14	O/S	39	W	39	-	No connection
	15	G/W	40	W	40	-	Page A&B (audio output)
	16	G/BN	41	W	41	-	Page A&B (contact closure on page)
	17	G/S	42	W	42	-	Music A&B (MOH & BGM audio input)
	18	BN/W	43	W	43	-	No connection
	19	BN/S	44	W	44	-	ARGC 1 A&B (Aux ring generator 1 control output)
	20	S/W	45	W	45	-	ARGC 2 A&B (Aux ring generator 2 control output)
	21	B	46	Y	46	-	No connection
	22	O	47	Y	47	-	Serial Port GND - RXRDY (output)
	23	G	48	Y	48	-	Serial Port GND - RXD (input)
	24	BN	49	Y	49	-	Serial Port GND - TXEN (input)
	25	S	50	Y	50	-	Serial Port GND - TXD (output)

- Note:**
1. Page A&B (audio) must only be connected to external equipment via a PlesTel permitted LIU. This is the actual paging output.
  2. Page A&B (contact closure) closes whenever an external page is made. This contact closure must only be connected to external equipment via the LIU.
  3. Music A&B is the input for BGM and MOH. Connections to this port must be made via the LIU.
  4. ARGC 1 A&B and ARGC 2 A&B are auxiliary ringer control contact closures (night bell contacts). These are low voltage low current contacts and must not be used to switch ring directly.
  5. There is no support for the serial port at this time.

**CONNECTOR 3 - ME SDF & Connector wire allocation**

Cart	AMP 3 Pin	Colour	AMP 3 Pin	Colour	SDF Pair No	Description			
						Port	Analogue	Port	ISDN access
ME Cart1 (right slot in ME)	1	BL	26	W	51	202	EXCH (Note 1)	201	Tx -ve +ve (1)
	2	O	27	W	52	201	EXCH (Note 1)	201	Rx -ve +ve (1)
	3	G	28	W	53	-	No connection, or PWR Fail Tel - Port 202 (Note 3)	202	Tx -ve +ve (2)
	4	BN	29	W	54	-	No connection, or PWR Fail Tel - Port 201 (Note 3)	202	Rx -ve +ve (2)
	5	S	30	W	55	-	No connection	203	Tx -ve +ve (3)
	6	BL/W	31	W	56	203	EXCH -ve +ve	203	Rx -ve +ve (3)
	7	BL/G	32	W	57	204	EXCH -ve +ve	204	Tx -ve +ve (4)
	8	BL/G	33	W	58	-	No connection	204	Rx -ve +ve (4)
ME Cart 2 (left slot in ME)	9	BL/BN	34	W	59	232	EXCH -ve +ve (Note 1)	231	Tx -ve +ve (1)
	10	BL/S	35	W	60	231	EXCH -ve +ve (Note 1)	231	Rx -ve +ve (1)
	11	O/W	36	W	61	-	No connection, or PWR Fail Tel - Port 231 (Note 3)	232	Tx -ve +ve (2)
	12	O/G	37	W	62	-	No connection, or PWR Fail Tel - Port 231 (Note 3)	232	Rx -ve +ve (2)
	13	O/BN	38	W	63	-	No connection	233	Tx -ve +ve (3)
	14	O/S	39	W	64	233	EXCH -ve +ve	233	Rx -ve +ve (3)
	15	G/W	40	W	65	234	EXCH -ve +ve	234	Tx -ve +ve (4)
	16	G/BN	41	W	66	-	No connection	234	Rx -ve +ve (4)
ME chassis	17	G/S	42	W	67	-	No connection	-	No connection
	18	BN/W	43	W	68	-	PWR Fail Tel - Port 201 (Note 2 & 3)	-	No connection
	19	BN/S	44	W	69	-	PWR Fail Tel - Port 231 (Note 2 & 3)	-	No connection
	20	S/W	45	W	70	-	No connection	-	No connection
	21	B	46	Y	71	-	No connection	-	No connection
	22	O	47	Y	72	-	No connection	-	No connection
	23	G	48	Y	73	-	No connection	-	No connection
	24	BN	49	Y	74	-	No connection	-	No connection
	25	S	50	Y	75	-	PSU-TRC	-	PSU-TRC

- Note:**
- The first two ports in analogue cartridges are reversed, that is port 202 appears on pair 51, and port 201 appears on pair 52. Port 232 appears on pair 59, and port 231 appears on pair 60.
  - If using Line Cartridge LC-NT-B (742/119), the power-fail circuits switch the first port of each cartridge, that is ports 201 and 231. For port 201, SDF pair 68 is jumpered to pair 53, and the power-fail telephone is connected to pair 54. For port 231, SDF pair 69 is jumpered to pair 61, and the power fail telephone is connected to pair 62.
  - If using Line Cartridge LC-NT-A (742/10), the power-fail circuits switch the first port of each cartridge, that is ports 201 and 231. Connect the power-fail telephone to pair 68 and 69. See "Wiring a power-fail telephone" on page 67.



### LINE MODULE SDF & Connector wire allocation - Analogue Cartridges

Cort	AMP 1 Pin	Colour	AMP 1 Pin	Colour	SDF Pair No [Note 3]	Description						Analogue lines
						Port LM 3	Port LM 4	Port LM 5	Port LM 6	Port LM 7	Port LM 8	
LM Cart 1 (left slot in LM)	1	BL	26	W	76	302	402	502	602	702	802	EXCH -ve +ve
	2	O	27	W	77	301	401	501	601	701	801	EXCH -ve +ve
	3	G	28	W	78	-	-	-	-	-	-	No connection
	4	BN	29	W	79	-	-	-	-	-	-	No connection
	5	S	30	W	80	-	-	-	-	-	-	No connection
	6	BL/W	31	W	81	303	403	503	603	703	803	EXCH -ve +ve
	7	BL/O	32	W	82	304	404	504	604	704	804	EXCH -ve +ve
	8	BL/G	33	W	83	-	-	-	-	-	-	No connection
LM Cart 2 (middle slot in LM)	9	BL/BN	34	W	84	306	405	506	606	706	806	EXCH -ve +ve
	10	BL/S	35	W	85	305	405	505	605	705	805	EXCH -ve +ve
	11	O/W	36	W	86	-	-	-	-	-	-	No connection
	12	O/G	37	W	87	-	-	-	-	-	-	No connection
	13	O/BN	38	W	88	-	-	-	-	-	-	No connection
	14	O/S	39	W	89	307	407	507	607	707	807	EXCH -ve +ve
	15	G/W	40	W	90	308	408	508	608	708	808	EXCH -ve +ve
	16	G/BN	41	W	91	-	-	-	-	-	-	No connection
LM Cart 3 (right slot in LM)	17	G/S	42	W	92	310	410	510	610	710	810	EXCH -ve +ve
	18	BN/W	43	W	93	309	409	509	609	709	809	EXCH -ve +ve
	19	BN/S	44	W	94	-	-	-	-	-	-	No connection
	20	S/W	45	W	95	-	-	-	-	-	-	No connection
	21	B	46	Y	96	-	-	-	-	-	-	No connection
	22	O	47	Y	97	311	411	511	611	711	811	EXCH -ve +ve
	23	G	48	Y	98	312	412	512	612	712	812	EXCH -ve +ve
	24	BN	49	Y	99	-	-	-	-	-	-	No connection
Common	S	30	Y	100	-	-	-	-	-	-	PSL-TRC	

- Note:**
1. The cartridge slot numbers in Line Modules are reversed to those in the ME.
  2. The first two ports in analogue cartridges are reversed, that is port 302 appears on pair 76, and port 301 appears on pair 77.
  3. Power-fail is not available on exchange lines located in Line Modules. Power-fail is only available from the ME.
  4. SDF pair numbers vary from those indicated, depending on module number and location on the SDF.

**LINE MODULE SDF & Connector wire allocation - ISDN BRA cartridges**

Cart	AMP 1 Pin	Colour	AMP 1 Pin	Colour	SDF Pair No (Note 2)	Description						ISDN access
						Port LM 3	Port LM 4	Port LM 5	Port LM 6	Port LM 7	Port LM 8	
LM Cart 1 (left slot in LM)	1	BL	26	W	76	301	401	501	601	701	801	Tx -ve +ve (1)
	2	O	27	W	77							Rx -ve +ve (1)
	3	G	28	W	78	302	402	502	602	702	802	Tx -ve +ve (2)
	4	BN	29	W	79							Rx -ve +ve (2)
	5	S	30	W	80	303	403	503	603	703	803	Tx -ve +ve (3)
	6	BL/W	31	W	81							Rx -ve +ve (3)
	7	BL/O	32	W	82	304	404	504	604	704	804	Tx -ve +ve (4)
	8	BL/G	33	W	83							Rx -ve +ve (4)
LM Cart 2 (middle slot in LM)	9	BL/BN	34	W	84	305	405	505	605	705	805	Tx -ve +ve (1)
	10	BL/S	35	W	85							Rx -ve +ve (1)
	11	O/W	36	W	86	306	406	506	606	706	806	Tx -ve +ve (2)
	12	O/G	37	W	87							Rx -ve +ve (2)
	13	O/BN	38	W	88	307	407	507	607	707	807	Tx -ve -ve (3)
	14	O/S	39	W	89							Rx -ve +ve (3)
	15	G/W	40	W	90	308	408	508	608	708	808	Tx -ve -ve (4)
	16	G/BN	41	W	91							Rx -ve +ve (4)
LM Cart 3 (right slot in LM)	17	G/S	42	W	92	309	409	509	609	709	809	Tx -ve -ve (1)
	18	BN/W	43	W	93							Rx -ve +ve (1)
	19	BN/S	44	W	94	310	410	510	610	710	810	Tx -ve +ve (2)
	20	S/W	45	W	95							Rx -ve +ve (2)
	21	B	46	Y	96	311	411	511	611	711	811	Tx -ve +ve (3)
	22	O	47	Y	97							Rx -ve +ve (3)
	23	G	48	Y	98	312	412	512	612	712	812	Tx -ve +ve (4)
	24	BN	49	Y	99							Rx -ve +ve (4)
Common	25	S	50	Y	100	-	-	-	-	-	-	PSU-TRC

- Notes:**
1. The cartridge slot numbers in Line Modules are reversed to those in the ME.
  2. SDF pair numbers vary from those indicated, depending on module number and location on the SDF.

## STATION MODULE SDF &amp; Connector wire allocation

SM Sm	AMP 1 Pin	Colour	AMP 1 Pin	Colour	SDF Pair No	Port SM 3	Port SM 4	Port SM 5	Port SM 6	Port SM 7	Port SM 8	Description
	1	BL	26	W	1	301	401	501	601	701	801	Station Port A&B
	2	O	27	W	2	302	402	502	602	702	802	Station Port A&B
	3	G	28	W	3	303	403	503	603	703	803	Station Port A&B
	4	BN	29	W	4	304	404	504	604	704	804	Station Port A&B
	5	S	30	W	5	305	405	505	605	705	805	Station Port A&B
	6	BL/W	31	W	6	306	406	506	606	706	806	Station Port A&B
	7	BL/O	32	W	7	307	407	507	607	707	807	Station Port A&B
	8	BL/G	33	W	8	308	408	508	608	708	808	Station Port A&B
	9	BL/BN	34	W	9	309	409	509	609	709	809	Station Port A&B
	10	BL/S	35	W	10	310	410	510	610	710	810	Station Port A&B
	11	O/W	36	W	11	311	411	511	611	711	811	Station Port A&B
	12	O/G	37	W	12	312	412	512	612	712	812	Station Port A&B
	13	O/BN	38	W	13	313	413	513	613	713	813	Station Port A&B
	14	O/S	39	W	14	314	414	514	614	714	814	Station Port A&B
	15	G/W	40	W	15	315	415	515	615	715	815	Station Port A&B
	16	G/BN	41	W	16	316	416	516	616	716	816	Station Port A&B
	17	G/S	42	W	17	-	-	-	-	-	-	No connection
	18	BN/W	43	W	18	-	-	-	-	-	-	No connection
	19	BN/S	44	W	19	-	-	-	-	-	-	No connection
	20	S/W	45	W	20	-	-	-	-	-	-	No connection

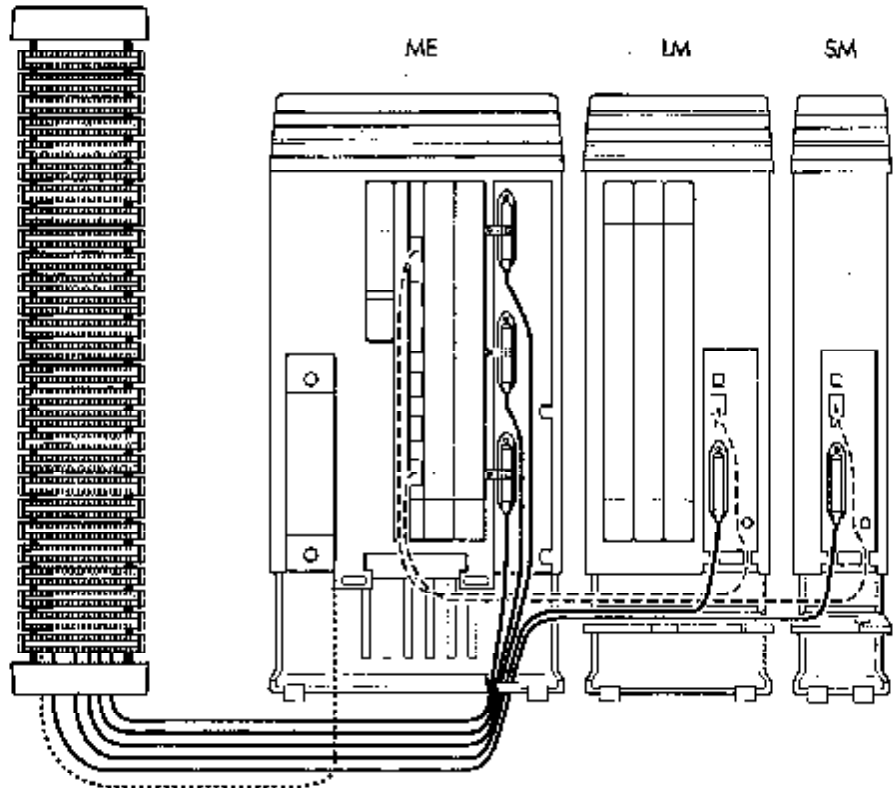
**STATION MODULE SDF & Connector wire allocation**

	21	B	46	Y	21	.	.	.	.	.	.	No connection
	22	O	47	Y	22	-	-	-	-	-	-	No connection
	23	G	48	Y	23	-	-	-	-	-	-	No connection
	24	BN	49	Y	24	-	-	-	-	-	-	No connection
	25	S	50	Y	25	-	-	-	-	-	-	No connection

*Note:* 1. SDF pair numbers will vary from those indicated, depending on module number and location on the SDF.

## System wiring

System Distribution Frame



- Fibre cable between ME and Station Module -----
- Fibre cable between ME and Line Module -----
- System Distribution Frame cables to ME and modules ———
- Protective earth lead .....

## Protective earth lead

The Main Equipment has a flying lead for connecting lightning surge arrestors, at the System Distribution Frame, to the protective earth lead of the power cord.



### The mains socket must be connected to a properly grounded Protective Earth

This equipment incorporates a protective earth for high voltage surge protection via the general purpose outlet. The Main Equipment must be plugged into a standard AS3112 mains socket.

Disconnect the exchange and station lines from the equipment before you remove the plug from the general purpose outlet.

## Lightning Surge Arrestors (Gas arrestors)



### Observe lightning protection requirements

Lightning Surge Arrestors compliant to ACA Standard TS001, section 5.2, are necessary on ISDN BRA lines installed in the ME.

Lightning Surge Arrestors are not required for ISDN BRA lines installed in a Line Module.

The preferred location is at the Network Terminating Point or Main Distribution Frame (MDF). For ISDN BRA lines, this corresponds to the U-Interface of the NT1. If the MDF is not suitable (no earthing point available), the Lightning Surge Arrestors must be provided at the System Distribution Frame.

Gas arrestors **must** be fitted on ISDN lines connected to ISDN BRA cartridges installed in the ME. Gas arrestors are not required for ISDN BRA cartridges installed in Line Modules or ISDN PRA cartridges.

Gas arrestors **must** also be fitted to analogue lines which are connected to a Calling Line Identification (CLI) Unit. Fitting of gas arrestors as above is an ACA requirement.

Gas arrestors can either be fitted at the MDF or the SDF. If fitted at the MDF then the MDF **must** have a protective earth installed in accordance with ACA Technical Standard 009. For ISDN lines the arrestors should be fitted on the network side of the NT1 at the MDF.

Different types of gas arrestor are required for the MDF and SDF in order to comply with ACA requirements:

Location	Gas arrestor type	Serial/Item no.
MDF	10 circuit Krone magazine (350V)	537/101
SDF	10 circuit Krone magazine (500V)	537/136

## Numbering for ports, lines, and stations

In the charts that follow, notice that the first two modules are internal to the ME. Module #1 handles only stations. Module #2 handles only exchange lines (analogue or ISDN).

Module #3 is the bottom fibre cable port on either a 2 port or a 6 port Expansion Cartridge.

The terms B1 and B2 correspond to channels on the Commander NT for transmitting voice and data. Each station port number has a B1 stn and a B2 stn. Devices such as Commander NT Keystations use only the B1 channel.

Note that the defaults shown here apply to systems that are installed at a particular size. Systems that are installed at a smaller size and later expanded will have a different numbering scheme

### Non-expanded system (ME alone) numbering

Module	ISDN BRA lines	ISDN PRA lines	Analogue lines	Exchange line ports	B1 stn	B2 stn	Station ports
#2	001-008 031-038	001-030 031-060	001-004 031-034	201-260	—	—	—
#1 ME stns	—	—	—	—	221-252	253-284	101-132

### 2 port Expansion Cartridge numbering

Module	ISDN lines	Analogue lines	Exchange line ports	B1 stn	B2 stn	Station ports
#4	061-084	061-064 069-072 077-080	401-412	269-284	333-348	401-416
#3	091-114	091-094 099-102 107-110	301-312	253-268	317-332	301-316
#1 ME stns	—	—	—	221-252	285-316	101-132

**Note:** Line module numbering has changed to reserve 30 lines per line module.

## 6 port Expansion Cartridge numbering

Module	ISDN lines	Analogue lines	Exchange line ports	B1 stn	B2 stn	Station ports
#8	061-084	061-064 069-072 077-080	801-812	333 - 348	461-476	801-816
#7	091-114	091-094 099-102 107-110	701-712	317 - 332	445-460	701-716
#6	121-144	121-124 129-132 137-140	601-612	301 - 316	429-444	601-616
#5	151-174	151-154 158-162 167-170	501-512	285 - 300	413-428	501-516
#4	181-204	181-184 189-192 197-200	401-412	269 - 284	397-412	401-416
#3	211-237	211-214 219-222 227-230	301-312	253 - 268	381-396	301-316
#1 ME stns	—	—	—	221-252	349-380	101-132

B1 and B2 station numbers reflect the default numbering scheme.

ME station ports (on Module #1) number from 101 to 132.

Direct Dial Inward (DDI) line numbers range from line 255 to 382.

*Note:* Line module numbering has changed to reserve 30 lines per line module.



## Expanding the system

### Expanding with a 2-port Expansion cartridge

When expanding an installed system to add a 2-port Expansion cartridge, power down the system and install the new hardware.

Programming for the existing ME stations and lines will be retained. After powering up the system, perform the programming for any new lines or stations.

### Expanding with a 6-port Expansion cartridge

When expanding an installed system to add a 6-port Expansion cartridge, power down the system and install the new hardware.

Programming for the existing ME stations and lines will be retained.

If the system is being expanded from a 2-port Expansion cartridge to a 6-port Expansion cartridge, the fibre cables must be inserted as follows to retain the line numbering:

- move the uppermost Line Module cable in the 2-port Expansion cartridge to the uppermost position (Module 8) of the new 6-port Expansion cartridge
- move the lowest Extension Module cable in the 2-port Expansion cartridge to the lowest position (Module 3) of the new 6-port Expansion cartridge

ASM wiring chart for first module

ASM #	AMP Champ Pin	Colour	AMP Champ Pin	Colour	SDF Pair #	Description					
						Port 3	Port 4	Port 5	Port 6	Port 7	Port 8
1	1	BL	26	W	1	301	401	501	601	701	801
	2	O	27	W	2	302	402	502	602	702	802
	3	G	28	W	3	303	403	503	603	703	803
	4	BN	29	W	4	304	404	504	604	704	804
	5	B	30	W	5	305	405	505	605	705	805
	6	BL/W	31	W	6	306	406	506	606	706	806
	7	RL/O	32	W	7	307	407	507	607	707	807
	8	BL/G	33	W	8	308	408	508	608	708	808
9	BL/BN	34	W	9	no connector	no connection	no connection	no connection	no connection	no connection	no connection
10	BL/S	35	W	10	no connector	no connection	no connection	no connection	no connection	no connection	no connection
11	O/W	36	W	11	no connector	no connection	no connection	no connection	no connection	no connection	no connection
12	O/G	37	W	12	no connector	no connection	no connection	no connection	no connection	no connection	no connection
13	O/BN	38	W	13	no connector	no connection	no connection	no connection	no connection	no connection	no connection
14	O/S	39	W	14	no connector	no connection	no connection	no connection	no connection	no connection	no connection
15	G/W	40	W	15	no connector	no connection	no connection	no connection	no connection	no connection	no connection
16	G/BN	41	W	16	no connector	no connection	no connection	no connection	no connection	no connection	no connection
17	G/S	42	W	17	no connector	no connection	no connection	no connection	no connection	no connection	no connection
18	BN/W	43	W	18	no connector	no connection	no connection	no connection	no connection	no connection	no connection
19	BN/S	44	W	19	no connector	no connection	no connection	no connection	no connection	no connection	no connection
20	S/W	45	W	20	no connector	no connection	no connection	no connection	no connection	no connection	no connection
21	B	46	Y	21	no connector	no connection	no connection	no connection	no connection	no connection	no connection
22	O	47	Y	22	no connector	no connection	no connection	no connection	no connection	no connection	no connection
23	G	48	Y	23	no connector	no connection	no connection	no connection	no connection	no connection	no connection
24	BN	49	Y	24	no connector	no connection	no connection	no connection	no connection	no connection	no connection
25	S	50	Y	25	no connector	no connection	no connection	no connection	no connection	no connection	no connection

## ASM wiring chart for second module

ASM #	AMP Champ Pin	Colour	AMP Champ Pin	Colour	SDF Pair #	Description					
						Port 3	Port 4	Port 5	Port 6	Port 7	Port 8
2	1	BL	26	W	1	309	409	509	609	709	809
	2	O	27	W	2	310	410	510	610	710	810
	3	G	28	W	3	311	411	511	611	711	811
	4	BN	29	W	4	312	412	512	612	712	812
	5	S	30	W	5	313	413	513	613	713	813
	6	BL/W	31	W	6	314	414	514	614	714	814
	7	BL/O	32	W	7	315	415	515	615	715	815
	8	BL/G	33	W	8	316	416	516	616	716	816
9	BL/BN	34	W	9	no connection	no connection	no connection	no connection	no connection	no connection	
10	BL/S	35	W	10	no connection	no connection	no connection	no connection	no connection	no connection	
11	O/W	36	W	11	no connection	no connection	no connection	no connection	no connection	no connection	
12	O/G	37	W	12	no connection	no connection	no connection	no connection	no connection	no connection	
13	O/BN	38	W	13	no connection	no connection	no connection	no connection	no connection	no connection	
14	O/S	39	W	14	no connection	no connection	no connection	no connection	no connection	no connection	
15	O/W	40	W	15	no connection	no connection	no connection	no connection	no connection	no connection	
16	O/BN	41	W	16	no connection	no connection	no connection	no connection	no connection	no connection	
17	O/S	42	W	17	no connection	no connection	no connection	no connection	no connection	no connection	
18	BN/W	43	W	18	no connection	no connection	no connection	no connection	no connection	no connection	
19	BN/S	44	W	19	no connection	no connection	no connection	no connection	no connection	no connection	
20	S/W	45	W	20	no connection	no connection	no connection	no connection	no connection	no connection	
21	B	46	Y	21	no connection	no connection	no connection	no connection	no connection	no connection	
22	O	47	Y	22	no connection	no connection	no connection	no connection	no connection	no connection	
23	G	48	Y	23	no connection	no connection	no connection	no connection	no connection	no connection	
24	BN	49	Y	24	no connection	no connection	no connection	no connection	no connection	no connection	
25	S	50	Y	25	no connection	no connection	no connection	no connection	no connection	no connection	

## Connecting an additional ASM

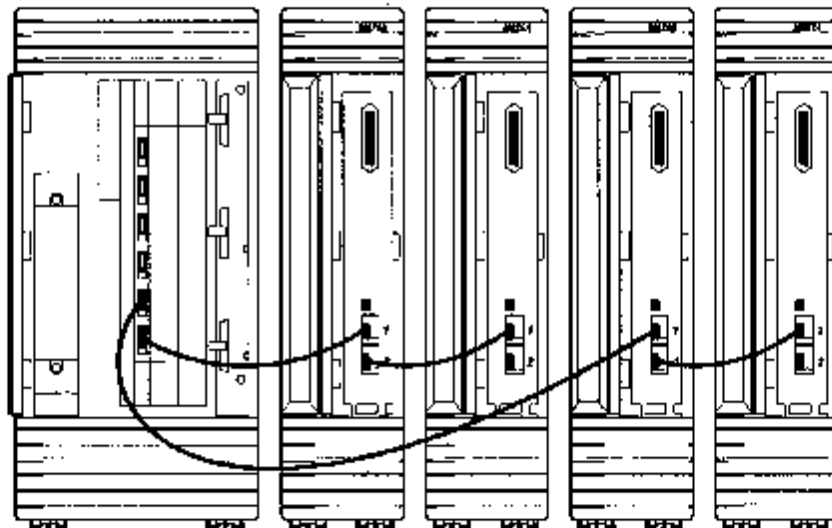


### ASM is TNV designated

The ASM is TNV designated only and must be connected using the same installation instructions as a TNV designated Station Module. See "Power cables for ME and multiple TNV designated SMs" on page 100 for more information.

You can connect additional ASMs to your ME. Connect socket 1 on the second ASM to socket 2 on the first ASM. Connect socket 1 on the third ASM to the next available Expansion Port on the ME. The fourth module is connected to the third ASM and so on. Each Expansion Port on the ME Expansion Cartridge can support two ASMs. One ASM is connected to another providing a maximum of 16 SLTs off of one fibre port. Refer to the illustration below.

### Additional ASM connections




**Note:** After the modules are mounted and connected, it is important to feed the cables through the cable trough.

## Programming the ASM

### Reply to Callback Signal

**Note:** If the SLT Tones are set to OFF, then there will be no indication of a Callback Request while in the off-hook mode. Callback will still work when you hang up and lift the receiver again or when you press Recall 2.

You can program each ASM SLT port connected to the MF.

	<p><b>DTMF required for Commander NT features on an ASM SLT port</b></p> <p>Commander NT features on an ASM SLT port work properly only on dual tone multi-frequency (DTMF) telephones that have a Recall key. Pulse telephones cannot use features that require the Recall key.</p>
---	--

### Determining the ASM station number

You must determine the SLT number for each ASM SLT port before you can start programming.

1. Connect a single line telephone to the ASM SLT port.
2. Lift the handset.
3. Listen for dial tone.
4. Dial the station number of a Commander NT Keystation equipped with a display. If you hear a busy signal, repeat steps 3 and 4 using a different station number.
5. When the called keystation rings, the display reads: **Str <nnn> calling.**
6. The number that appears on the display is the SLT number of the ASM SLT port. Record the SLT number. You must do this for each of the SLTs connected to the ASM.

### Status Inquiry

To verify the status of an ASM

1. Press **Feature**  \* \*          . The display reads **Password:**.
2. Enter the Installer password. The display reads **StnsPeripheral.**
3. Press **Next**  until the display reads **Maintenance.**
4. Press **Show**  . The display reads **System Version.**
5. Press **Next**  until the display reads **Module Status.**
6. Press **Show**  . The display reads: **Show module:**.
7. Enter the ASM module number you want to verify. The display reads: **8 SLTs on ASM, (16 SLTs on ASM if 2 ASMs are connected to one Expansion port).**
8. Press **STATE**. The display reads: **"X" SLTs busy.**

You can also verify the status of each channel.

1. Press **Feature**  \* \*          . The display reads **Password:**.

2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next** until the display reads **Port/Sltn Stat.**
6. Press **Show**. The display reads **Show Port:..**
7. Enter the SLT port number you want to verify. The display shows the SLT.

**Note:** The ASM SLT will always present Intercom dial tone when going off-hook. To access the Prime Line programmed for the SLT, the user must dial the Exchange code programmed for the system.

A line pool access code can be the same as an Exchange line access code. In this case the Line pool access code takes priority over the Exchange line access code, and a line from the line pool is selected.

**Hint:** Even though an exchange code is required to engage the Prime Line, direct access to an Exchange line (for modems, fax machines, credit card verification machines, etc.) is still possible by invoking the Hotline feature. To do this, program an external telephone Hotline. Replace the station number that is normally entered for the external Hotline with a pause ( **Feature** **7** **8** ).

## ASM data communications

The ASM SLT port can be used to connect a standard analogue data device, such as a fax or modem, to the Commander NT132. This section shows the additional steps required to install an ASM SLT port for data communication.

### FAX and Modem Transmission Compatibility

The ASM is compatible with all commercial fax and modem protocols. When used with the ASM, the Commander NT132 supports data transmission rates of up to and including 28.8 kbit/s.

**Note:** The maximum data transmission rate is subject to the quality of the end-to-end connection and cannot be guaranteed.

### Installing a Data Communication Device

To install a data communication device such as a credit card verifier, Fax or modem:

1. Connect a single line telephone to the ASM SLT port.

2. Disable SLTA tones under the **Capabilities, SLTA settings**.
3. Ensure that the terminal loop resistance is less than or equal to 200 ohm.
4. Unplug the single line telephone from the ASM SLT port.
5. Plug the data communication device into the ASM SLT port.

## Call Detail Recorder

The Call Detail Recorder (CDR) is a call collection device. The information collected by the CDR is printed on a serial printer that is attached to the CDR. Installing the CDR unit involves several steps:

1. Mounting the CDR unit on the wall.
2. Connecting the unit to an available station port on the Main Equipment (ME).
3. Connecting the CDR unit to the printer.
4. Connecting the peripheral power supply (PPS) with barrel connector to the CDR and 240 V ac mains plug.
5. Testing the CDR unit.
6. Attach keystation if required.
7. Test keystation.

Before installing CDR, make sure that both the environmental and electrical requirements are met. Make sure you have all the equipment necessary to complete the installation.

**Note:** New Commander NT132 software AUS2.1 requires CDR (742/171 PER-NT-CDR-A). This new CDR provides enhanced logging for PRA ISDN lines.

### Environmental requirements

The environment for the CDR unit should be:

- Temperature ranging from 0–50 degrees C
- Relative humidity ranging from 5%–95% non-condensing
- Station loop length not exceeding 790 m of 0.5 mm wire
- Bridge taps: Not allowed
- Loading coils: Not allowed

**Note:** More than one CDR unit can be installed per ME. A new CDR is only permitted to be connected to the ME.

## Electrical requirements

Mains for the CDR unit is provided by the 9 V dc mains adaptor connected to an external mains source.



Intended for use in a protected environment. Use only a recommended mains power adaptor.

## Parts checklist

To install the CDR unit, make sure you have:

- the DB25 serial connector (provided)
- the Main Equipment (ME)
- a serial printer
- a DB25 serial cable (max. 8 m)  
*Note:* We recommend a shielded RS-232 cable.
- the 9 V PPS with barrel connector
- two suitable fasteners (for wall mounting)
- a screwdriver
- the paper wallmount template (provided)



The CDR is not to be installed on exposed TCM loops without the use of TCM isolator. See "Time Compression Multiplex (TCM) loops" on page 66.

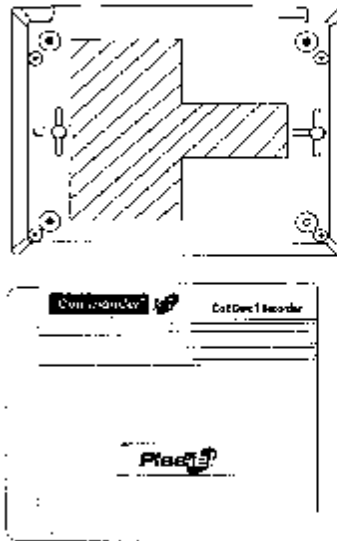
## Mounting the unit

The CDR unit must be installed within 790 meters of the ME. To install the unit:

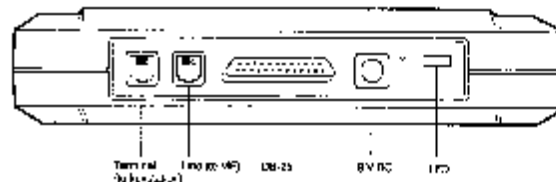
1. When using 0.5 mm wire, select a location within 790 m of the ME.
2. Allow 12.5 cm clearance for the line socket, RS-232 port socket and the mains supply connector.
3. Tape the paper wallmount template to the wall and make sure the template is plumb.
4. The marks on the template show where each of the two screws are placed. Attach the two fasteners into the wall, leaving 6 mm of each fastener exposed. Remove the paper template.
5. Align the keyhole slots at the back of the CDR unit over the fasteners. Push the CDR unit against the wall. Ensure that the line socket, RS-232 port socket and the mains supply connector are at the top of the CDR unit.



6. Attach the DB25 serial cable to the RS-232 port of the CDR unit by tightening the fasteners.



7. Connect the CDR unit's line socket (next to the DB25 connector) using a line cord to any unused station port on the ME.



8. Plug the mains supply into the CDR unit.
9. Plug the mains supply adaptor into a standard 240 V ac mains plug.

### Setting the printer

Before you connect the printer, make sure the printer is set at:

- a speed of 1,200 to 115,200 bits per second
- 8 bits per character
- no parity
- no XON, XOFF
- 1 start bit
- 1 stop bit

**Note:** The printer used can be any RS-232 serial compatible device such as a serial printer, PC with communication

software or call accounting package with the capability to collect data from the serial port.

9-Pin Connector	25-Pin Connector	Signal Name	Direction
1		Not used	
2	3	RX /data	From CDR
3	2	TX data	To CDR
4	20	DTR	To CDR
5	7	Signal Earth	
6	6	DSR	From CDR
7		Not used	
8	5	CTS	From CDR
9		Not used	

### Connecting the printer

To connect the printer:

1. Connect the cable to the RS-232 serial port of the printer.
2. Make sure that the ME mains lead and printer are connected to a mains source.

**Note:** Make sure no stress is placed on any of the port connections.

### AT commands

To facilitate CDR Administration and to support multiple CDRs connected to the ME, a set of ATtention (AT) commands is created to change the CDR programmable parameters using a personal computer (PC).

To use the AT commands, the CDR must be connected to a PC through the RS-232 interface. The PC must have a terminal program running to communicate with the CDR. The default communication parameters of CDR are:

- 1200 baud
- None parity
- 8 data bit
- 1 stop bit
- hardware flow control (CTS/RTS)

### System registers

System parameters are represented using registers. There are four different kinds of registers.

Registers with prefix "R" are general registers representing system and market-specific parameters. The following registers are defined in CDR (the default settings are shown in bold):

AT command	Description	Values
R00	Default template	<b>1 = N.A. Template</b> 2 = U.K. Template (Australia) <b>3 = International A</b> 4 = International B
R01	Printer speed	<b>2 = 1200</b> 8 = 2400 4 = 4800 5 = 9600 6 = 18000 7 = 38400 8 = 57600 9 = 115200
R02	Report format	<b>0 = M-1</b> 1 = Norstar
R03	Report type	<b>0 = Standard</b> 1 = CLID 2 = Rent Time 3 = All
R04	Report filter	<b>0 = All</b> 1 = Outgoing 2 = A/C code 3 = Long dist.
R05	Report language	<b>0 = English</b> 1 = French
R06	Master/slave mode	<b>0 = Master</b> 1 = Slave
R07	Reserved	
R08	Date format	<b>0 = MM/DD/YY</b> 1 = DD/MM/YY 2 = YY/MM/DD
R09	Header format	<b>0 = Line/Keystation</b> 1 = Originator/Terminator
R10	Answer supervision	<b>0 = Not supported</b> 1 = Support
R11	CLID name	<b>0 = Not supported</b> 1 = Supported
R12	Long CLID	<b>0 = Not Supported</b> 1 = Supported
R13	Call type	<b>0 = Not supported</b> 1 = Supported
R14	Call charge	<b>0 = Not Supported</b> 1 = Supported
R15	Access code	<b>0 = Not supported</b> 1 = Supported
R16	Call duration filter	Outgoing call filter duration in seconds (not used)
R17	DNIS	<b>0 = Not Supported</b> 1 = Supported
R18	Connected Character	<b>0 = Not Supported</b> 1 = Supported
R19	Hospitality	<b>0 = Not Supported</b> 1 = Supported

\*. Hospitality Services option must be activated with Software Keys.

Register R0 is defaulted to use the International A template (Australia) with Australia market-specific parameters.

Register R1 to R5 are system parameters accessible also from the CDR Main menu using a Commander NT Keystation.

Register R8 to R18 are market-specific parameters. The default values of market-specific parameters are determined by the value of the default template register (R0).

Register R6 is used to change the operating mode (master/slave) of CDR to support multiple CDRs per ME.

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## Installing keystations and optional equipment

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#### **Commander NT line cords and plugs**

Commander NT Keystations are supplied with line cords terminated with modular 6-position plugs at both ends.

To connect to 600 series sockets use Modular 605 Adaptor, Serial/Item 268/128.

To connect to 8 pin Modular sockets use an 8 pin teledapt socket to 6 pin teledapt socket adaptor sleeve.

## **Time Compression Multiplex (TCM) loops**

Commander NT Keystations and peripherals are digital devices which connect to the Commander NT ME via Time Compression Multiplex (TCM) loops. Each digital TCM loop connection operates on a single twisted-pair cable at a clocking frequency of 512 kHz, to provide a communications link between the Commander NT and keystations and peripherals.

A Single Line Telephone (SLT) Adaptor is required to connect analogue station sets or devices (such as modems or fax machines) to the Commander NT ME.

## **Uninterruptible power supply**



#### **Improper installation and use of a UPS can result in shock hazard**

Installation and use of an Uninterruptible Power Supply without proper precautions can result in danger of electrical shock.

For instructions on the installation and use of a UPS, contact Commander Care Online at 1800 809 881.

## **Power-fail telephones**

Power-fail telephones are analogue single line telephones that provide emergency service in case of power failure or when the Commander NT is disconnected from the mains.

Each analogue Line Cartridge installed in the ME has one power-fail telephone connection.

If the ME has not been equipped with at least one analogue Line Cartridge, no power-fail telephone connections are possible. Connection of power fail-telephones is not available other than to the ME.

## Wiring a power-fail telephone

### A. Power-fail telephone with Line Cartridge with Line Supervision LC-NT-B (742/119)

If you are installing a power-fail telephone using a Line Cartridge with Line Supervision LC-NT-B in ME slot 4 (right slot):

1. Jumper SDF pair number 68 (18/43 on AMP 3) to pair number 53 (3/28 on AMP 3).
2. Connect the power-fail telephone to SDF pair number 54 (4/29 on AMP 3).

If you are installing a power-fail telephone using a Line Cartridge with Line Supervision LC-NT-B in ME slot 3 (left slot):

1. Jumper SDF pair number 69 (19/44 on AMP 3) to pair number 61 (11/36 on AMP 3).
2. Connect the power-fail telephone to SDF pair number 62 (19/44 on AMP 3).

### B. Power-fail telephone with Line Cartridge LC-NT-A (742/10)

If you are installing a power-fail telephone using a Line Cartridge LC-NT-A in ME slot 4 (right slot):

- Connect the power-fail telephone to SDF pair number 68 (18/43 on AMP 3).

If you are installing a power-fail telephone using a Line Cartridge LC-NT-A in ME slot 3 (left slot):

- Connect the power-fail telephone to SDF pair number 69 (19/44 on AMP 3).

## Connecting power-fail telephones to the System Distribution Frame

1. Route and connect telephone cables to the appropriate pair on the MF lines connecting strip in the System Distribution Frame.
  - SDF pair number 68 (18/43 on AMP 3) is the power-fail telephone connection (Port 201) when Line Cartridge LC-NT-A is installed in slot 4 (right slot) of the ME
  - SDF pair number 69 (19/44 on AMP 3) is the power-fail telephone connection (port 231) when Line Cartridge LC-NT-A is installed in slot 3 (left slot) of the ME
  - SDF pair number 54 (4/29 on AMP 3) is the power-fail telephone connection (port 201) when Line Cartridge LC-NT-B is installed in slot 4 (right slot) of the ME
  - SDF pair number 62 (12/37 on AMP 3) is the power-fail telephone connection (port 231) when Line Cartridge LC-NT-B is installed in slot 3 (left slot) of the ME.
2. Terminate the far end of the cable on lead A and lead B of a line socket.

## Single Line Telephone Adaptor

The Single Line Telephone Adaptor (SLT Adaptor) connects a Commander NT digital station port to a standard analogue voice device, or data communication device (such as a modem or fax machine). The analogue station port is designated TNV (Telecommunications Network Voltage).

Note that unlike Commander NT Keystations that retain an active call for a minute if unplugged from the socket, a device connected to the SLT Adaptor will immediately drop an active call if the SLT Adaptor is disconnected.

Each SLT Adaptor requires an a.c. mains socket for providing power via a plug-pack power supply (Peripheral Power Supply).

Only ACA permitted devices, such as telephones, modems and fax machines should be connected to a Commander NT SLT Adaptor.

For Commander NT programming information on SLT settings, see "Settings for analogue equipment" on page 309.

### Location

You can install the SLT Adaptor beside the ME, or near the device it is used for if they are on the same site. The equipment may be in the office or connected remotely via the public network.



#### **DTMF required for Commander NT features on SLT Adaptor**

Commander NT features on an SLT Adaptor work properly only on dual tone multi-frequency (DTMF) telephones that have a Recall key. Pulse telephones cannot use features that require the Recall key.

The Single Line Telephone Adaptor SLTA-NT-B 742/57 supersedes SLTA-NT-A 742/21 and does not require the use of a loop extender up to 1200 ohm.

### Installing the SLT Adaptor 742/57

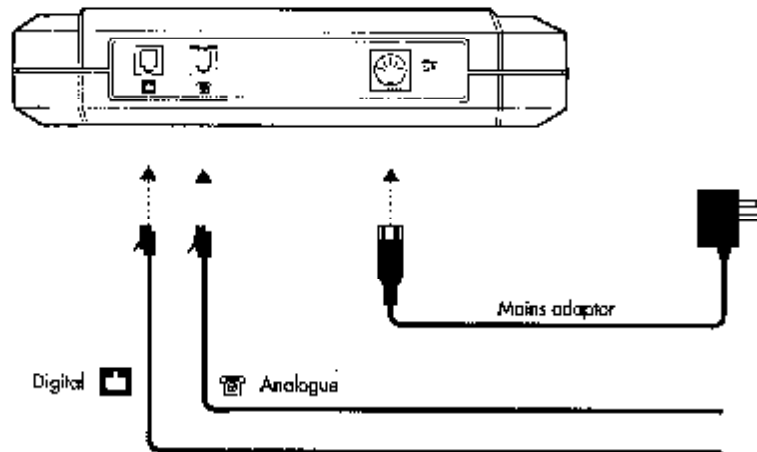
1. Tape the paper template included in the documentation kit to the mounting surface. Make sure the template is plumb.

**Note:** The holes for the SLTA-NT-A 742/21 are 21.5 cm apart.

2. The marks on the template show where the two fasteners are placed. Attach two fasteners to the mounting surface. The fasteners should be horizontally aligned and 130 mm apart. Ensure that the fastener heads protrude 10 mm from the surface. Remove the template.
3. Hang the SLT Adaptor on the fasteners. The connectors should be facing up.

4. Pull down on the unit to lock the fasteners into the locking grooves.
5. Make the connections to the SLT Adaptor as shown in the following diagram.

#### SLT Adaptor 742/57 connections



### Connecting the SLT Adaptor to the Main Equipment

#### SLT Adaptor co-located with ME

1. Plug the line cord into the modular socket identified by the following label on the SLT Adaptor's top panel.



2. Terminate the other end of the line cord on the station port to be used in the System Distribution Frame.

3. Plug the other line cord into the modular socket identified by the following label.



4. Terminate the other end of this line cord on the SLT pair on the SDF.

#### SLT Adaptor co-located with terminal equipment

1. Source a suitable line cord terminated at both ends.
2. Plug the line cord into the modular socket identified by the following label on the top panel of the SLT Adaptor.



3. Plug the other end of the line cord into the station wall socket.



4. Plug the SLT into the modular socket identified by the following label.



#### For ODX installation

1. Locate the SLT Adaptor with the MF.
2. Plug one line cord into the modular socket identified by the following label on the SLT Adaptor.



3. Plug the other end of the line cord on the station port to be used in the SDF.
4. Plug the line cord into the modular socket identified by the following label on the top panel of the SLT Adaptor.



5. Plug the other end of the line cord on the network termination within the System Distribution Frame (for example, Voicelink C).



#### **A loop extender may be required.**

If the ODX loop resistance exceeds 1000 ohm (corresponding to 5.9 km of 0.5 mm twisted-pair cable), then an ACA permitted loop extender, for example, PASCOM 2006A, must be used with SLT Adaptor 742/21.

Note that SLT Adaptor(B) 742/57 will supersede 742/21 and will not require the use of a loop extender up to 1200 ohm.

## Analogue Station Module (ASM)


The Analogue Station Module (ASM) supports an additional 8 SLT ports to connect analogue devices such as a single line telephone or answering machine, credit card verifier, or data communication device, such as a modem or facsimile machine (fax). The ASM uses a optical fibre link to connect ME expansion port to eight SLT ports. The ASM is a Telecommunications Network Voltage (TNV) designated device. The ASM is compatible with Commander NT132 software (WI8.2 or greater). The ASM with message wait indication is compatible with Commander NT 132 software release 2.1 or greater. The ASM SLT ports cannot be used as an outdoor station (ODX) which is connected through network cabling such as Voicelink C.


You can connect additional ASMs to your MF by connecting socket 1 on the second ASM to socket 2 on the first ASM and connecting socket 1 on the third ASM to the next available Expansion Port on the ME. The fourth module is connected to the third ASM and so on.

Each Expansion Port on the ME Expansion Cartridge can support two ASMs. One ASM is connected to another providing a maximum of 16 SLTs off of one fibre port. For more detail, see the diagram "Additional ASM connections" on page 77.

**Note:** M0X8A or M0X8AM, appears on the front of the ASM unit.

Only two ASM's can be daisy-chained. Subsequent ASMs require a second mains cord and connection to wall socket. It is not recommended to connect more than four ASMs to an expansion module. Every four ASMs shall have a dedicated connection to the wall mains socket.

	<b>WARNING!</b>
	<p>Do not chain more than two power bars together.</p> <p>More than two power bars chained together creates a potential fire hazard.</p>

	<b>WARNING!</b>
	<p>For continued protection from electrical shock hazards, do not connect more than four ASMs by the power bar to mains wall socket. Using a single cord to connect more than four ASMs to the mains wall socket may cause leakage current limits to be exceeded.</p>

## Before Installation

Check the following requirements:

Line voltage (220 V)	180 - 264 V a.c.
Line frequency (220 V)	50/60 Hz
Temperature	0 - 50°C
Relative humidity	5% - 95% non-condensing

Make sure the package contains:

- the ASM unit
- a wall mount bracket
- a Fibre Cable Kit
- a shrink wrapped package of documentation

## ASM Transmission Parameters

For Analogue or Data Communication Devices	
Ring frequency	20 Hz $\pm$ 1 Hz
Ring voltage	65 V rms $\pm$ 10%
Ringer equivalence	2
Battery feed voltage	- 32 V d.c. $\pm$ 10%
Analogue loop resistance on terminal side (cable only)	200 ohm maximum (for example: 1,231 m of 0.5 mm of twisted pair cable)

For Message Waiting Lamp for SLT	
Output strike voltage	80 to 110 V a.c.
Voltage across tip & ring	60 to 85 V a.c.
Loop current	1 mA nominal

**Note:** The message waiting lamp is turned on if the lamp option has been selected in SLT settings. For more information see "Selecting the type of Message Indicator" on page 312.

## Installing the ASM



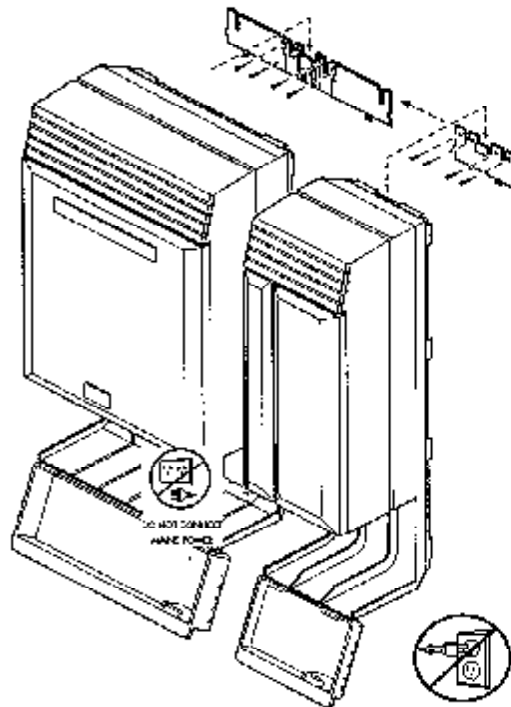
### Analogue Station Module is TNY designated

The ASM is TNY designated only and must be connected using the same installation instructions as a TNY designated Station Module. See "Installation of TNY designated Station Modules" on page 95 for more information.

The ASM must be mounted on the wall next to the ME or to other modules. To mount the ASM:

1. Position the ASM mounting bracket on the wall. Place the smooth side flush against the wall, with the holes at the top. Ensure the bracket is level.
2. Fasten the bracket to the wall securely through the inner pair of holes. The other two holes are optional.
3. Slide the ASM down onto the center bracket flange. Line up the notches on the far side of the bracket to the flanges on the ASM.
4. Open the front cable trough door. Fasten the bottom of the ASM to the wall securely through the holes on each side of the cable trough.

### Installing the ASM



### Connecting the ASM

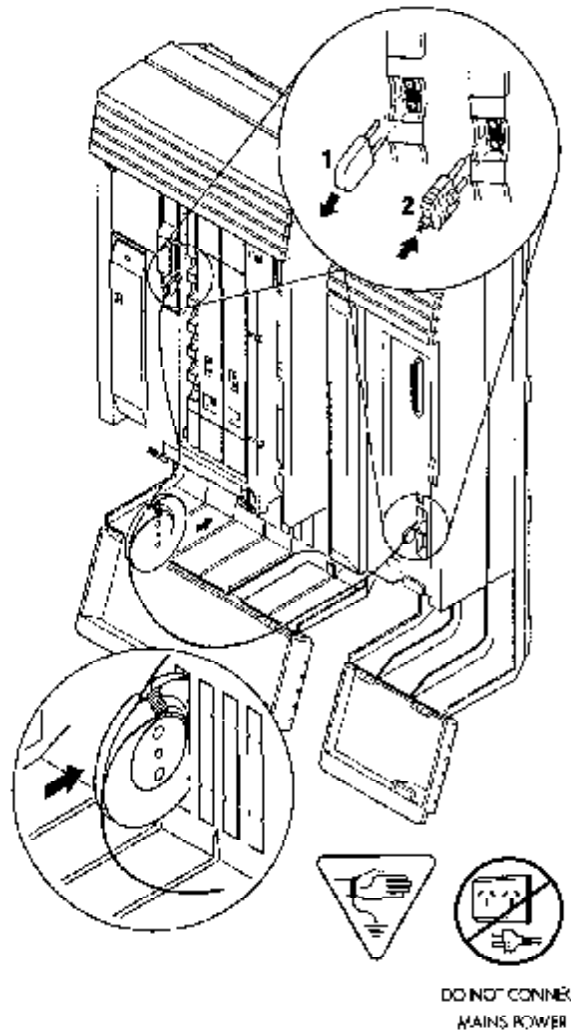


#### **Analogue Station Module is TNY designated**

The ASM is TNY designated only and must be connected using the same installation instructions as a TNY designated Station Module. See the "Installation of TNY designated Station Modules" on page 95 for more information.

After the module is mounted on the wall, it is ready to be connected to the ME. Connect socket 1 on the ASM to the first available Expansion Port on the ME. (As with Station Modules connect the ASM to the next available Expansion Port from the bottom of the Expansion Cartridge.) Refer to the following illustration.

### Connecting the ASM



The cable trough can accommodate two fibre cable spools. Either slot may be used.

The ASM has three connectors, two optical fibre links and a 50-pair Amp Champ connector.

The ASM is TNV designated and therefore must be directly plugged into a dedicated General Purpose Outlet (GPO) on the wall using a separate mains power cord 742/82. The ASM must use a different GPO than the ME and any other SELV devices.

See page 95 for information on how to use the power bar.

ASM wiring chart for first module

ASM #	AMP Champ Pin	Colour	AMP Champ Pin	Colour	SDF Pair #	Description					
						Port 3	Port 4	Port 5	Port 6	Port 7	Port 8
1	1	BL	26	W	1	301	401	501	601	701	801
	2	O	27	W	2	302	402	502	602	702	802
	3	G	28	W	3	303	403	503	603	703	803
	4	BN	29	W	4	304	404	504	604	704	804
	5	B	30	W	5	305	405	505	605	705	805
	6	BLW	31	W	6	306	406	506	606	706	806
	7	BLG	32	W	7	307	407	507	607	707	807
	8	BLG	33	W	8	308	408	508	608	708	808
1	9	BL/BN	34	W	9	no connection	no connection	no connection	no connection	no connection	no connection
	10	BL/S	35	W	10	no connection	no connection	no connection	no connection	no connection	no connection
	11	O/W	36	W	11	no connection	no connection	no connection	no connection	no connection	no connection
	12	O/G	37	W	12	no connection	no connection	no connection	no connection	no connection	no connection
	13	O/BN	38	W	13	no connection	no connection	no connection	no connection	no connection	no connection
	14	O/S	39	W	14	no connection	no connection	no connection	no connection	no connection	no connection
	15	G/W	40	W	15	no connection	no connection	no connection	no connection	no connection	no connection
	16	G/BN	41	W	16	no connection	no connection	no connection	no connection	no connection	no connection
	17	G/S	42	W	17	no connection	no connection	no connection	no connection	no connection	no connection
	18	BN/W	43	W	18	no connection	no connection	no connection	no connection	no connection	no connection
	19	BN/S	44	W	19	no connection	no connection	no connection	no connection	no connection	no connection
	20	S/W	45	W	20	no connection	no connection	no connection	no connection	no connection	no connection
	21	B	46	Y	21	no connection	no connection	no connection	no connection	no connection	no connection
	22	O	47	Y	22	no connection	no connection	no connection	no connection	no connection	no connection
	23	G	48	Y	23	no connection	no connection	no connection	no connection	no connection	no connection
	24	BN	49	Y	24	no connection	no connection	no connection	no connection	no connection	no connection
	25	S	50	Y	25	no connection	no connection	no connection	no connection	no connection	no connection

## ASM wiring chart for second module

ASM #	AMP Champ Pin	Colour	AMP Champ Pin	Colour	SDF Pair #	Description					
						Port 3	Port 4	Port 5	Port 6	Port 7	Port 8
2	1	BL	26	W	1	309	409	509	609	709	809
	2	O	27	W	2	310	410	510	610	710	810
	3	G	28	W	3	311	411	511	611	711	811
	4	BN	29	W	4	312	412	512	612	712	812
	5	S	30	W	5	313	413	513	613	713	813
	6	BL/W	31	W	6	314	414	514	614	714	814
	7	BL/O	32	W	7	315	415	515	615	715	815
	8	BL/G	33	W	8	316	416	516	616	716	816
	9	BL/BN	34	W	9	no connection	no connection	no connection	no connection	no connection	no connection
	10	BL/S	35	W	10	no connection	no connection	no connection	no connection	no connection	no connection
	11	O/W	36	W	11	no connection	no connection	no connection	no connection	no connection	no connection
	12	O/G	37	W	12	no connection	no connection	no connection	no connection	no connection	no connection
	13	O/BN	38	W	13	no connection	no connection	no connection	no connection	no connection	no connection
	14	O/S	39	W	14	no connection	no connection	no connection	no connection	no connection	no connection
	16	G/W	40	W	15	no connection	no connection	no connection	no connection	no connection	no connection
	18	G/BN	41	W	16	no connection	no connection	no connection	no connection	no connection	no connection
	17	G/S	42	W	17	no connection	no connection	no connection	no connection	no connection	no connection
	19	BN/W	43	W	18	no connection	no connection	no connection	no connection	no connection	no connection
	19	BN/S	44	W	19	no connection	no connection	no connection	no connection	no connection	no connection
	20	S/W	45	W	20	no connection	no connection	no connection	no connection	no connection	no connection
	21	B	46	W	21	no connection	no connection	no connection	no connection	no connection	no connection
	22	O	47	Y	22	no connection	no connection	no connection	no connection	no connection	no connection
	23	G	48	Y	23	no connection	no connection	no connection	no connection	no connection	no connection
	24	BN	49	Y	24	no connection	no connection	no connection	no connection	no connection	no connection
	25	B	50	Y	25	no connection	no connection	no connection	no connection	no connection	no connection

## Connecting an additional ASM

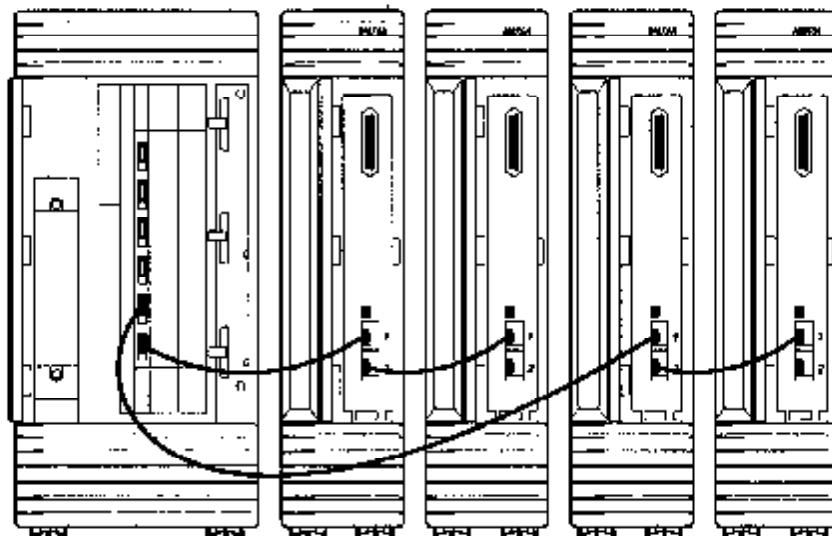


### ASM is TNV designated

The ASM is TNV designated only and must be connected using the same installation instructions as a TNV designated Station Module. See "Power cables for ME and multiple TNV designated SMTs" on page 100 for more information.

You can connect additional ASMs to your ME. Connect socket 1 on the second ASM to socket 2 on the first ASM. Connect socket 1 on the third ASM to the next available Expansion Port on the ME. The fourth module is connected to the third ASM and so on. Each Expansion Port on the ME Expansion Cartridge can support two ASMs. One ASM is connected to another providing a maximum of 16 SLTs off of one fibre port. Refer to the illustration below.

### Additional ASM connections



**Note:** After the modules are mounted and connected, it is important to feed the cables through the cable trough.

## Programming the ASM

### Reply to Callback Signal

**Note:** If the SLT Tones are set to OFF, then there will be no indication of a Callback Request while in the off-hook mode. Callback will still work when you hang up and lift the receiver again or when you press Recall 2.



You can program each ASM SLT port connected to the ME.



#### **DTMF required for Commander NT features on an ASM SLT port**

Commander NT features on an ASM SLT port work properly only on dual tone multi-frequency (DTMF) telephones that have a Recall key. Pulse telephones cannot use features that require the Recall key.

### **Determining the ASM station number**

You must determine the SLT number for each ASM SLT port before you can start programming.

1. Connect a single line telephone to the ASM SLT port.
2. Lift the handset.
3. Listen for dial tone.
4. Dial the station number of a Commander NT Keystation equipped with a display. If you hear a busy signal, repeat steps 3 and 4 using a different station number.
5. When the called keystation rings, the display reads:  
**Stn <nnn> calling.**
6. The number that appears on the display is the SLT number of the ASM SLT port. Record the SLT number. You must do this for each of the SLTs connected to the ASM.

### **Status Inquiry**

To verify the status of an ASM

1. Press **Feature**  \* \*         . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral.**
3. Press **Next**  until the display reads **Maintenance.**
4. Press **Show**  . The display reads **System Version.**
5. Press **Next**  until the display reads **Module Status.**
6. Press **Show**  . The display reads: **Show module:.**
7. Enter the ASM module number you want to verify. The display reads: **8 SLTs on ASM, (16 SLTs on ASM if 2 ASMs are connected to one Expansion port).**
8. Press **STATE**. The display reads: **"x" SLTs busy.**

You can also verify the status of each channel.

1. Press **Feature**  \* \*         . The display reads **Password:**.

2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Next]** until the display reads **Maintenance**.
4. Press **[Show]**. The display reads **System Version**.
5. Press **[Next]** until the display reads **Port/Stn Stat**.
6. Press **[Show]**. The display reads **Show Port**.
7. Enter the SLT port number you want to verify. The display shows the SLT.

**Note:** The ASM SLT will always present Intercom dial tone when going off-hook. To access the Prime Line programmed for the SLT, the user must dial the Exchange code programmed for the system.

A line pool access code can be the same as an Exchange line access code. In this case the Line pool access code takes priority over the Exchange line access code, and a line from the line pool is selected.

**Hint:** Even though an exchange code is required to engage the Prime Line; direct access to an Exchange line (for modems, fax machines, credit card verification machines, etc.) is still possible by invoking the Hotline feature. To do this, program an external telephone Hotline. Replace the station number that is normally entered for the external Hotline with a pause (**[Feature]** **[7]** **[8]**).

## ASM data communications

The ASM SLT port can be used to connect a standard analogue data device, such as a fax or modem, to the Commander NT132. This section shows the additional steps required to install an ASM SLT port for data communication.

### FAX and Modem Transmission Compatibility

The ASM is compatible with all commercial fax and modem protocols. When used with the ASM, the Commander NT132 supports data transmission rates of up to and including 28.8 kbit/s.

**Note:** The maximum data transmission rate is subject to the quality of the end-to-end connection and cannot be guaranteed.

### Installing a Data Communication Device

To install a data communication device such as a credit card verifier, Fax or modem:

1. Connect a single line telephone to the ASM SLT port.

2. Disable **SLTA tones** under the **Capabilities, SLTA settings**.
3. Ensure that the terminal loop resistance is less than or equal to 200 ohm.
4. Unplug the single line telephone from the ASM SLT port.
5. Plug the data communication device into the ASM SLT port.

## Call Detail Recorder

The Call Detail Recorder (CDR) is a call collection device. The information collected by the CDR is printed on a serial printer that is attached to the CDR. Installing the CDR unit involves several steps:

1. Mounting the CDR unit on the wall.
2. Connecting the unit to an available station port on the Main Equipment (ME).
3. Connecting the CDR unit to the printer.
4. Connecting the peripheral power supply (PPS) with barrel connector to the CDR and 240 V ac mains plug.
5. Testing the CDR unit.
6. Attach keystation if required.
7. Test keystation.

Before installing CDR, make sure that both the environmental and electrical requirements are met. Make sure you have all the equipment necessary to complete the installation.

**Note:** New Commander NT132 software AUS2.1 requires CDR (742/171 PER-NT-CDR-A). This new CDR provides enhanced logging for PRA ISDN lines.

### Environmental requirements

The environment for the CDR unit should be:

- Temperature ranging from 0–50 degrees C
- Relative humidity ranging from 5%–95% non-condensing
- Station loop length not exceeding 790 m of 0.5 mm wire
- Bridge taps: Not allowed
- Loading coils: Not allowed

**Note:** More than one CDR unit can be installed per ME. A new CDR is only permitted to be connected to the ME.

## Electrical requirements

Mains for the CDR unit is provided by the 9 V dc mains adaptor connected to an external mains source.



Intended for use in a protected environment. Use only a recommended mains power adaptor.

## Parts checklist

To install the CDR unit, make sure you have:

- the DB25 serial connector (provided)
- the Main Equipment (ME)
- a serial printer
- a DB25 serial cable (max, 8 m)  
*Note:* We recommend a shielded RS-232 cable.
- the 9 V PPS with barrel connector
- two suitable fasteners (for wall mounting)
- a screwdriver
- the paper wallmount template (provided)



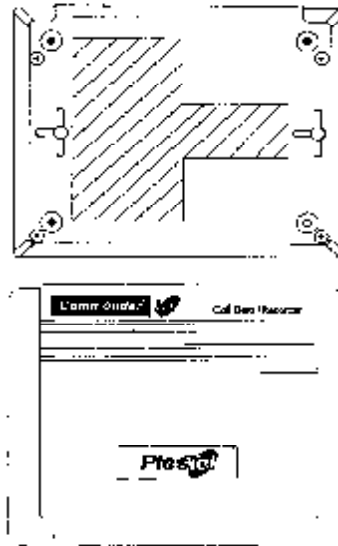
The CDR is not to be installed on exposed TCM loops without the use of TCM isolator. See "Time Compression Multiplex (TCM) loops" on page 66.

## Mounting the unit

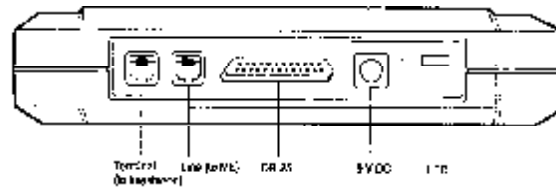
The CDR unit must be installed within 790 meters of the ME. To install the unit:

1. When using 0.5 mm wire, select a location within 790 m of the ME.
2. Allow 12.5 cm clearance for the line socket, RS-232 port socket and the mains supply connector.
3. Tape the paper wallmount template to the wall and make sure the template is plumb.
4. The marks on the template show where each of the two screws are placed. Attach the two fasteners into the wall, leaving 6 mm of each fastener exposed. Remove the paper template.
5. Align the keyhole slots at the back of the CDR unit over the fasteners. Push the CDR unit against the wall. Ensure that the line socket, RS-232 port socket and the mains supply connector are at the top of the CDR unit.

6. Attach the DB25 serial cable to the RS-232 port of the CDR unit by tightening the fasteners.



7. Connect the CDR unit's line socket (next to the DB25 connector) using a line cord to any unused station port on the ME.



8. Plug the mains supply into the CDR unit.
9. Plug the mains supply adaptor into a standard 240 V ac mains plug.

### Setting the printer

Before you connect the printer, make sure the printer is set at:

- a speed of 1,200 to 115,200 bits per second
- 8 bits per character
- no parity
- no XON, XOFF
- 1 start bit
- 1 stop bit

**Note:** The printer used can be any RS-232 serial compatible device such as a serial printer, PC with communication

software or call accounting package with the capability to collect data from the serial port.

9-Pin Connector	25-Pin Connector	Signal Name	Direction
1		Not used	
2	3	RX /data	From CDR
3	2	TX data	To CDR
4	20	DTR	To CDR
5	7	Signal Earth	
6	6	DSR	From CDR
7		Not used	
8	5	CTS	From CDR
9		Not used	

### Connecting the printer

To connect the printer:

1. Connect the cable to the RS-232 serial port of the printer.
2. Make sure that the ME mains lead and printer are connected to a mains source.

**Note:** Make sure no stress is placed on any of the port connections.

### AT commands

To facilitate CDR Administration and to support multiple CDRs connected to the ME, a set of ATtention (AT) commands is created to change the CDR programmable parameters using a personal computer (PC).

To use the AT commands, the CDR must be connected to a PC through the RS-232 interface. The PC must have a terminal program running to communicate with the CDR. The default communication parameters of CDR are:

- 1200 baud
- None parity
- 8 data bit
- 1 stop bit
- hardware flow control (CTS/RTS)

### System registers

System parameters are represented using registers. There are four different kinds of registers.

Registers with prefix "R" are general registers representing system and market-specific parameters. The following registers are defined in CDR (the default settings are shown in bold):

AT command	Description	Values
R00	Default template	1 = N.A. Template 2 = U.K. Template (Australia) 3 = International A 4 = International B
R01	Printer speed	2 = 1200 8 = 2400 4 = 4800 5 = 9600 6 = 19200 7 = 38400 8 = 57600 9 = 115200
R02	Report format	0 = M-1 1 = Norstar
R03	Report type	0 = Standard 1 = CLID 2 = Real Time 3 = All
R04	Report filter	0 = All 1 = Outgoing 2 = A/C code 3 = Incoming list
R05	Report language	0 = English 1 = French
R06	Master/slave mode	0 = Master 1 = Slave
R07	Reserved	
R08	Date format	0 = MM/DD/YY 1 = DD/MM/YY 2 = YY/MM/DD
R09	Header format	0 = Line/Keystation 1 = Originator/Terminator
R10	Answer supervision	0 = Not supported 1 = Support
R11	CLID name	0 = Not supported 1 = Supported
R12	Long CLID	0 = Not Supported 1 = Supported
R13	Call type	0 = Not supported 1 = Supported
R14	Call charge	0 = Not Supported 1 = Supported
R15	Access code	0 = Not supported 1 = Supported
R16	Call duration filter	Outgoing call filter duration in seconds (not used)
R17	DNIS	0 = Not Supported 1 = Supported
R18	Connected Character	0 = Not Supported 1 = Supported
R19	Hospitality	0 = Not Supported 1 = Supported

\*. Hospitality Services option must be activated with Software Keys.

Register R0 is defaulted to use the International A template (Australia) with Australia market-specific parameters.

Register R1 to R5 are system parameters accessible also from the CDR Main menu using a Commander NT Keystation.

Register R8 to R18 are market-specific parameters. The default values of market-specific parameters are determined by the value of the default template register (R0).

Register R6 is used to change the operating mode (master/slave) of CDR to support multiple CDRs per ME.

Registers for Long distance prefix strings are represented using the prefix "P". Eight Long distance prefix registers (P0 to P7) are allocated.

Registers for Access codes and Suppress digits are represented using the prefix "A" and "S" respectively. Five Access code registers (A0 to A4) and five Suppress digit registers (S0 to S4) are allocated.

### Basic AT command set

The Basic AT command set contains commands to facilitate serial communication between the CDR and the connected PC. It also provides information on the CDR hardware and firmware. The following basic AT commands are available:

AT command	Description
AT	Query system sanity. Return with OK.
ATI	Query firmware version. Return boot code firmware ID, download code firmware ID and hardware ID.
AT&P2=<baud>	Set serial baud to <baud>.
ATY=<password>	Command to start firmware upgrade.
AT&V	Display system and market profile parameters.
AT&V0	Display system parameter values.
AT&V1	Display market profile values.
AT&V2	Display long distance prefix bin content.
AT&V3	Display access bin content.
AT&V4	Display language set up.

### Extended AT command set

The Extended AT command set contains commands to modify CDR system parameters and market-specific parameters. To use the extended AT command set, you must enter the command 'AT\*\*admin' in the PC terminal (note that **admin** must be in lowercase). This command toggles the ON/OFF of the extended AT command set. The default for Extended AT command set is OFF.

To change the system parameters or the market-specific parameters, enter 'AT\*\*admin' in the PC terminal. The CDR responds with 'OK' to the PC terminal.

To read a particular register value, enter 'AT\$<reg number>?'. The CDR responds with the value of the register.

To change a particular register value, enter 'AT\$<reg num>=<val>'. The CDR changes the register value to <val>.

**Note:** The effect of changing the register value is temporary. It is not saved unless the command 'AT\$W' is entered to save the register values to permanent memory.

Remember to enter 'AT\*\*admin' again to turn off the Extended AT command set after you complete the CDR Administration function.



The following summarizes the extended AT commands available:

AT command	Description
AT*admin	Toggle extended admin mode (turn on/off AT\$commands).
AT\$Pnn?	Read register nn.
AT\$Pnn=x	Write register nn with x.
AT\$Pn?	Read long distance prefix n.
AT\$Pn=xxxx	Write long distance prefix n=xxxx.
AT\$An?	Read access bin n.
AT\$An=xxx	Write access bin n=xxx.
AT\$Sn?	Read suppression bin n.
AT\$Sn=xx	Write suppression bin n=xx.
AT\$Ln?	Read language n setting.
AT\$Ln=x	Write language n=x.
AT\$W	Save profile to permanent memory.
AT\$Yn	Change market profile template (with save).
AT\$Z	Reset profile to default using market template.

### Configure Master/Slave CDR

To support multiple CDRs per ME, one and only one of the CDRs can be configured as the master. The remaining CDRs must be configured as slaves.

The mode register (R06; Master or slave mode) controls whether the CDR is a master or slave. A value of 0 implies the CDR is the master. A value of 1 implies the CDR is the slave. The default value of the mode register is 0 for master. To change the CDR to slave, use the Extended AT command to change the register (R06) value to 1. The following illustrates a sample session to configure the CDR in slave mode:

AT	Query sanity
OK	
AT*admin	Toggle Extended AT commands ON
OK	
AT\$R06=1	Change CDR to slave mode
OK	
AT\$W	Write to permanent memory
OK	
AT*admin	Toggle Extended AT commands OFF
OK	

When in slave mode, the CDR is not accessible using the CDR Main menu. The AT command set must be used to configure slave CDRs. Similar procedures should be used to change the system parameter values of slave CDRs.

**Note:** Remember to clearly mark each CDR as master or slave and label the configured serial baud of all slave CDR units. The system parameters of slave CDR can be modified only using the PC to which that particular CDR is connected. It is important for the slave

CDR to use the correct serial baud to communicate properly with the PC.

### CDR Extended main menu

To allow more flexibility in CDR reports, the CDR Main menu is extended to include administering the market-specific parameters. To access the Master CDR Extended main menu:

1. Press    . The display shows:

```

Call logging
NEXT      QUIT
  
```

2. Enter the password:     .

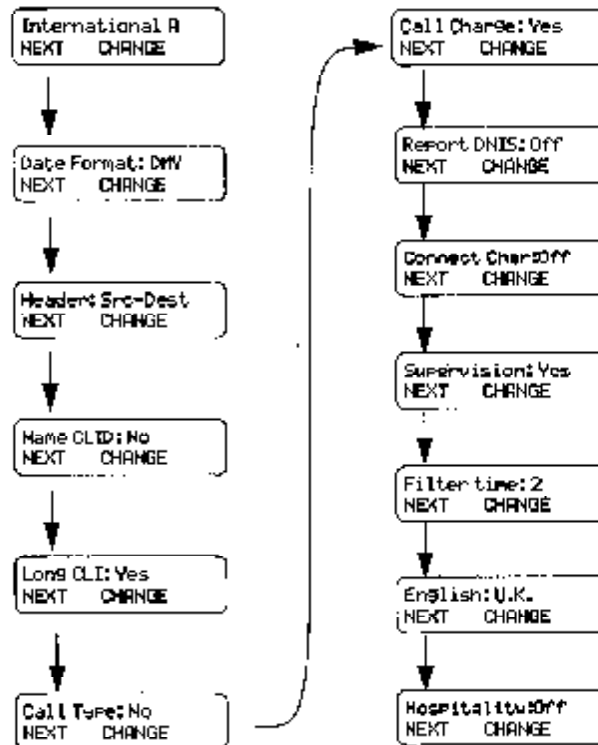
This procedure enables the Extended main menu which appears after the original Main menu.

The Extended main menu allows you to configure the following parameters:

- **International A (Australia) / International B / N.A. Template / U.K. Template:** To select the appropriate default market profile parameter values. Changing the template automatically resets parameters below to their default value.
- **Date format:** To select printing the date format in MM/DD/YY, DD/MM/YY or YY/MM/DD
- **Header format:** To select printing the header line in LINE followed by the EXT or originator followed by terminator.
- **CLName:** To select the CLI name information if available from the trunk.
- **Long CLI:** To select the CLI number from the trunk as 11 or 15 digits.
- **Call Type:** To select Call Type information if available from the trunk.
- **Call Charge:** To select call charge information if available from the trunk.
- **Connect Char:** To enable or disable the Call connected digit separator feature.
- **Supervision:** To select if the trunk supports answer supervision.
- **Filter time:** If the trunks do not support answer supervision, select the desired time interval to filter unanswered outgoing calls.
- **Access code:** To enable or disable the Access code feature.
- **Report DNIS:** Not supported.
- **Hospitality:** To enable or disable the room occupancy status feature.

**Note:** Some of these parameters are market-specific. If the parameter value does not match the trunk property, CDR can produce incorrect reports. If you are using a Call Accounting package to process the CDR reports, consult your software vendor before you make any changes.

The Extended main menu structure is shown below.



## Calling Line Identification Unit

The Calling Line Identification (CLI) Unit provides a Custom Local Access Signalling Services (CLASS) messaging channel from a local exchange to Commander NT Main Equipment. When the CLI Unit is used, it provides calling line identification to designated keystations in the system.

The CLI Unit provides calling line identification features only for analogue lines connected to the ME or a Line Module 12X0.

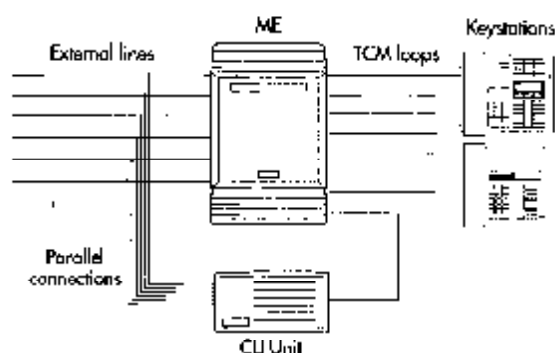


### CLASS services required

The CLI Unit works only if the customer subscribes to CLASS services (if available) from their network provider.

The CLI Unit connects to the system using parallel connections on incoming external lines. CLASS information is delivered to the ME through a single TCM station port. The CLI Unit has the same location requirements as the Commander NT ME.

### Calling Line Identification Unit connections

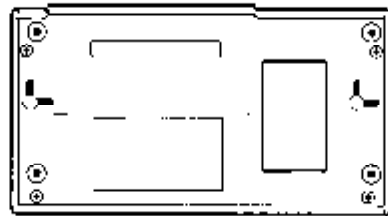


## Mounting the CLI Unit

Mount the CLI Unit on a wall within 25 m of the ME. Allow 125 mm of clearance for the CLI Unit connectors.

1. Attach two 4 mm fasteners to the mounting surface, leaving 6 mm of each fastener exposed. Make sure they are vertically aligned and 215 mm apart. Refer to the mounting template included in the box with the CLI Unit.
2. Align the mounting guides at the back of the CLI Unit over the fasteners. The connectors should be on the top edge of the unit.
3. Pull down on the CLI Unit, locking the fasteners in the mounting guides.

**Mounting guides**



Mounting guides

**Connecting the external lines**


1. Using parallel connections, connect the flying leads of a 25-pair cable to the external lines you wish to receive call information from  
 Connect the line circuits to the appropriate pins in a 25-pair connector using a 25-pair cable of the appropriate length.

CU unit	ME line #	SDF pair #
1	001	52
1	002	51
1	003	56
1	004	57
1	031	60
1	032	59
1	033	64
1	034	65

2. Plug the 25-pair connector into the CLI.

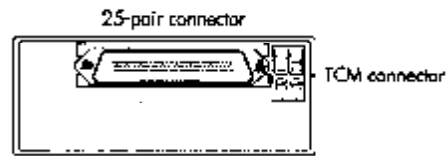
**Connecting the TCM loop**

1. Strip a twisted-pair cable (minimum 0.4 mm) and insert one conductor into each of the holes on the TCM connector. (The connector is polarity insensitive: it does not matter which wire goes in which hole.)
2. Tighten the fasteners on the TCM connector to hold the wire.
3. Connect the other end of the twisted-pair cable to the connector block and terminal in the station port for the analogue line that will receive CLASS information (see the Line mapping chart that follows). This cable must not be more than 25 m long.



**One less keystation**  
 When you install a CU Unit, the maximum number of keystations in your system is reduced by one.

## TCM and 25-pair connectors



## Line mapping for station ports

Up to ten CLI Units can be plugged into station ports, beginning from port 132 down to 123. Each station port is associated with a range of eight line numbers, as specified in the following chart.

CLI Unit	Stn port	Line number
1	132	001 - 004 031 - 034
2	131	061 - 064 069 - 072
3	130	077 - 080 091 - 094
4	129	099 - 102 107 - 110
5	128	121 - 124 129 - 132
6	127	137 - 140 151 - 154
7	126	158 - 162 167 - 170
8	125	181 - 184 189 - 192
9	124	197 - 202 211 - 214
10	123	219 - 222 227 - 230

## Installing remote stations

Metallic circuits that run on overhead wiring or buried cable are defined as Telecommunications Network Voltage (TNV) type. The Commander NT132 digital TCM station ports are defined as SELV (Safe Extra Low Voltage) circuits, and as such cannot support remote stations unless special installation procedures are adopted.

Remote stations are stations and peripherals which are not located in the same building as the Main Equipment but are on the one customer site. Remote stations are different from Outdoor Stations (ODX) which are generally located at a different site and are connected via network cabling such as Voicelink C.

Two different installation procedures can be followed to provide remote station on the Commander NT132. The first procedure is to fit one or more TCM Isolator units. The second procedure is to use a TNV-designated Station Module. Both procedures are detailed on the following pages.

If a large number of remote stations are to be installed, then it may be more effective to install dedicated TNV-designated Station Modules instead of using TCM Isolators.

Only stations and peripherals that meet TNV isolation requirements can be connected to a TNV designated Station Module.



**TCM Isolators or TNV designated Station Modules must be used to prevent shock hazards**

Installation of remote stations without the use of TCM Isolators or a TNV designated Station Module may result in a shock hazard to users.

When installing an TCM Isolator, always locate it near its SELV-rated device, so that it will be obvious to service personnel that they belong together.

When connecting a SELV-rated remote station to its junction box, use diagonal cutters to remove the release tab from each end of the modular cord. Removing the release tabs ensures that the TCM Isolator and the SELV-rated device cannot easily be separated.



**Use the TCM Isolator with Commander NT digital TCM loops only.**

The TCM Isolator is not a general-purpose Line Isolation Unit (LIU). It is designed to be used only on Commander NT digital TCM loops.

## Installation of Remote stations using TCM Isolators



### Install the proper number of TCM Isolators on each station device loop

Depending on the station device type, up to two TCM Isolators may be required on each TCM loop (one at the ME, and one at the remote station device end). When only one TCM Isolator is specified, it should be installed near the ME.

The following table shows the situations when TCM Isolators (TCMI) are required and how many. It also indicates when a Station Power Supply (SPS) is needed.

STATION TYPE		SELV-Designated Main Equipment	
		Same Bldg.	Remote Bldg.
TNV-Isolated Stations	Economy/M7100N Keystation		1 TCMI + 1 SPS
	Standard/M7208N Keystation		1 TCMI + 1 SPS
	Advantage/M7310N Keystation (with fastened-down base)		1 TCMI + 1 SPS
	Advantage Keystation with RLF (Busy Lamp Field Display, with fastened-down base)		1 TCMI + 1 SPS
	Principal/M7324N Keystation		1 TCMI + 1 SPS
	Principal Keystation with DSS (Direct Station Select) Consoles, and SPS		1 TCMI
	M7324N Keystation with CAPN (Central Answering Position) Consoles, and SPS		1 TCMI
	SLT (Single Line Telephone) Adaptor, with PPS		N/A*
	CLI (Calling Line Identification) Unit		N/A
Door Station		1 TCMI + 1 SPS	
SELV-rated Stations	RAD (Remote Access Device), with PPS		N/A*
	ODR (Call Detail Recorder)		N/A*
	Door Station with DUU (Door Unlock Unit)®		2 TCMI + 1 SPS
	VMU (VoiceMail Unit, 1 or 2 Ports)		N/A*
	VMA (2 to 8 Ports)		N/A*

\* Remote location of some types of stations is not logical, and hence have been designated as 'N/A'

® A Door Station with External Relay Unit (ERU) can never be used in a remote location since it is an exposed, user-accessible unit

When only one TCM Isolator is specified, it must be located in the same building as the ME in order to protect the ME from TNV hazards.



When two TCM Isolators are specified, one must be located in the same building as the ME, and the other located in the same remote building as the off premises station or peripheral. This ensures that both the ME and the off premises station or peripheral are protected from TNV hazards.



**Advantage Keystation must be modified**

The Advantage Keystation requires modification to prevent shock hazard when used as a remote station. See additional instructions on "Modifying an Advantage Keystation" on page 118.



**Advantage Keystation with BLF (Busy Lamp Field) Display must be modified.**

The Advantage Keystation with BLF Display requires modification to prevent shock hazard. For instructions, see "Connecting a Busy Lamp Field Display" on page 118.

### Installing the TCM Isolator

1. Use a screwdriver to prise off the cover from the TCM Isolator.
2. Use the supplied fasteners to mount the main body of the TCM Isolator on a non-conductive wall.
3. Use a Krone installation tool to wire the TCM Isolator in series with the TCM loop. Ensure that the tool trims off the wire ends properly. Maintain cable sheath integrity outside the NT TCM Isolator by keeping the flying leads as short as possible.



**Use caution when connecting TCM cables**

TCM cabling that is considered to be Telecommunications Network Voltage (TNV) may contain hazardous voltages due to external fault conditions.

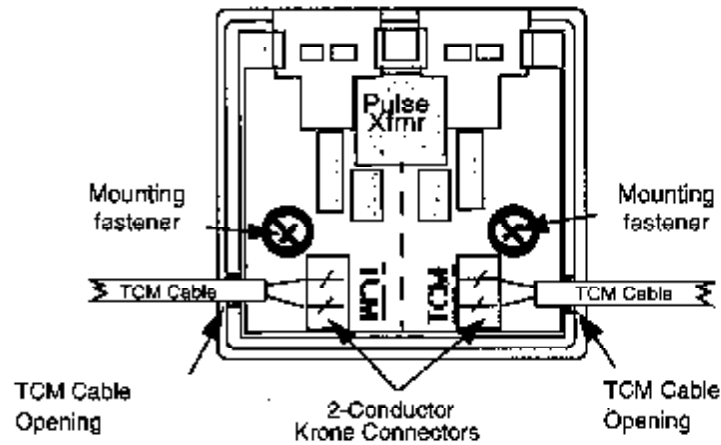


**Feed each TCM cable from opposite sides of the TCM Isolator only**

For safety, keep TNV (Telecommunications Network Voltage) TCM cabling separate from SELV (Safe Extra Low Voltage) TCM cabling.

4. Outside the TCM Isolator, secure the TCM cables with standard cable tacks to ensure that the cable is not easily pulled from the unit.
5. Before installing the cover, use a hand cutter to cut out the two openings in the cover for the TCM cables. The inside surface has guidelines. Two cuts along the cable opening outlines allow the plastic piece covering each opening to be easily snapped off.

6. Re-install cover by snapping in place.



### Powering with the TCM Isolator

The TCM Isolator does not allow d.c. loop powering from the ME to pass through to the station device. If the station device normally depends on the ME to provide power, use a Station Power Supply (SPS) with a Krone 6x6 modular socket such as 268/125. Do not use 600 series sockets.

### Installation of TNV designated Station Modules

The instructions in this section outline the installation of a dedicated Station Module (SM) to provide a Telecommunications Network Voltage (TNV) circuit type for connection to large numbers of remote stations.

Remote stations can be connected to a TNV designated SM meeting the following installation instructions:

1. The TNV designated Station Module must be directly plugged into a dedicated General Purpose Outlet (GPO) on the wall that has a third pin for Protective Earth.
2. This requires the installation of a second mains power cord 742/82 complete with Safety warning label.

**Note:** The safety warning label on the mains power cord states:  
 "WARNING: THE SAFETY OF THIS UNIT REQUIRES CONNECTION TO AN EARTHED OUTLET. TO PREVENT POSSIBLE INJURY FROM VOLTAGES ON TELECOMMUNICATIONS NETWORK, DISCONNECT ALL EXCHANGE AND STATION LINES BEFORE REMOVING PLUG FROM OUTLET."

3. A separate Power Bar is required when more than one TNV designated SM is installed. For safety, this Power Bar must be powered through a mains power cord that is separate from the regular Main Equipment power cord. TNV designated SMs

should be located side-by-side in order to provide a suitable length of cable trough for placing the Power Bar.



**Dedicated 240 V a.c. mains GPO required**

The TNV designated Station Module requires a dedicated 240 V a.c. mains General Purpose Outlet (GPO) that has a third pin for protective earth to prevent shock hazards.

Do NOT connect the TNV designated Station Module power cord to the Main Equipment power bar as this may result in a shock hazard to users if the power bar is disconnected.



**Use caution when connecting or disconnecting the power bar**

To prevent shock hazards, disconnect the TNV designated SM station wires from all SMs connected to the power bar before removing the power bar mains plug from the dedicated 240 V a.c. mains GPO.

Do NOT connect any equipment to the TNV designated SM power bar other than additional TNV designated SMs. Connecting any other equipment may result in a shock hazard to users if the power bar is disconnected.

Only two ASM's can be daisy-chained. Subsequent ASMs require a second mains cord and connection to wall socket. It is not recommended to connect more than four ASMs to an expansion module. Every four ASMs shall have a dedicated connection to the wall mains socket.



**WARNING!**

Do not chain more than two power bars together.

More than two power bars chained together creates a potential fire hazard.



**WARNING!**

Do not connect more than four ASMs (by the power bar) to mains wall socket. If you need to connect other ASMs, use a separate mains wall socket.

For continued protection from electrical shock hazards, do not connect more than four ASMs by the power bar to mains wall socket. Using a single cord to connect more than four ASMs to the mains wall socket may cause leakage current limits to be exceeded.

All TNV designated Station Module digital TCM station wiring must be treated as TNV circuits and segregated from remaining Commander TCM wiring. The wiring from a TNV designated Station Module must be terminated on separate Krone modules at the SDF.



**Mark the SDF Record Book**

The *SDF Record Book* must be clearly marked to show which circuits are connected to TNV-designated Station Modules.

SDF circuits connected to a TNV designated Station Module should be recorded accurately in the *SDF Record Book*.



**Connect only allowed devices**

Connection of stations not indicated as "remote compatible" without use of an approved TNV designated Station Module may result in a shock hazard to users (for example, Voice Mail, CDR Unit, basestations, etc.).

## Devices allowed as remote stations with TNV designated Station Module

When a TNV designated Station Module is installed, Commander NT can support the following devices as remote stations:

- Economy/M7100N Keystation
- M7000 Keystation
- Standard/M7208N Keystation
- Advantage/M7310N Keystation
- Advantage Keystation with BLF Display



### **Advantage Keystation must be modified**

The Advantage Keystation requires modification to prevent shock hazard when used as a remote station. See additional instructions on "Modifying an Advantage Keystation" on page 118.



### **Advantage Keystation with BLF (Busy Lamp Field) Display must be modified.**

The Advantage Keystation with BLF Display requires modification to prevent shock hazard. For instructions, see "Connecting a Busy Lamp Field Display" on page 118.

- Principal/M7324N Keystation
- Principal Keystation with DSS (Direct Station Select) Consoles
- M7324N Keystation with CAPN (Central Answering Position) Module
- SLT (Single Line Telephone) Adaptor with Peripheral Power Supply pack
- Door Station



### **DUU and ERU options are prohibited**

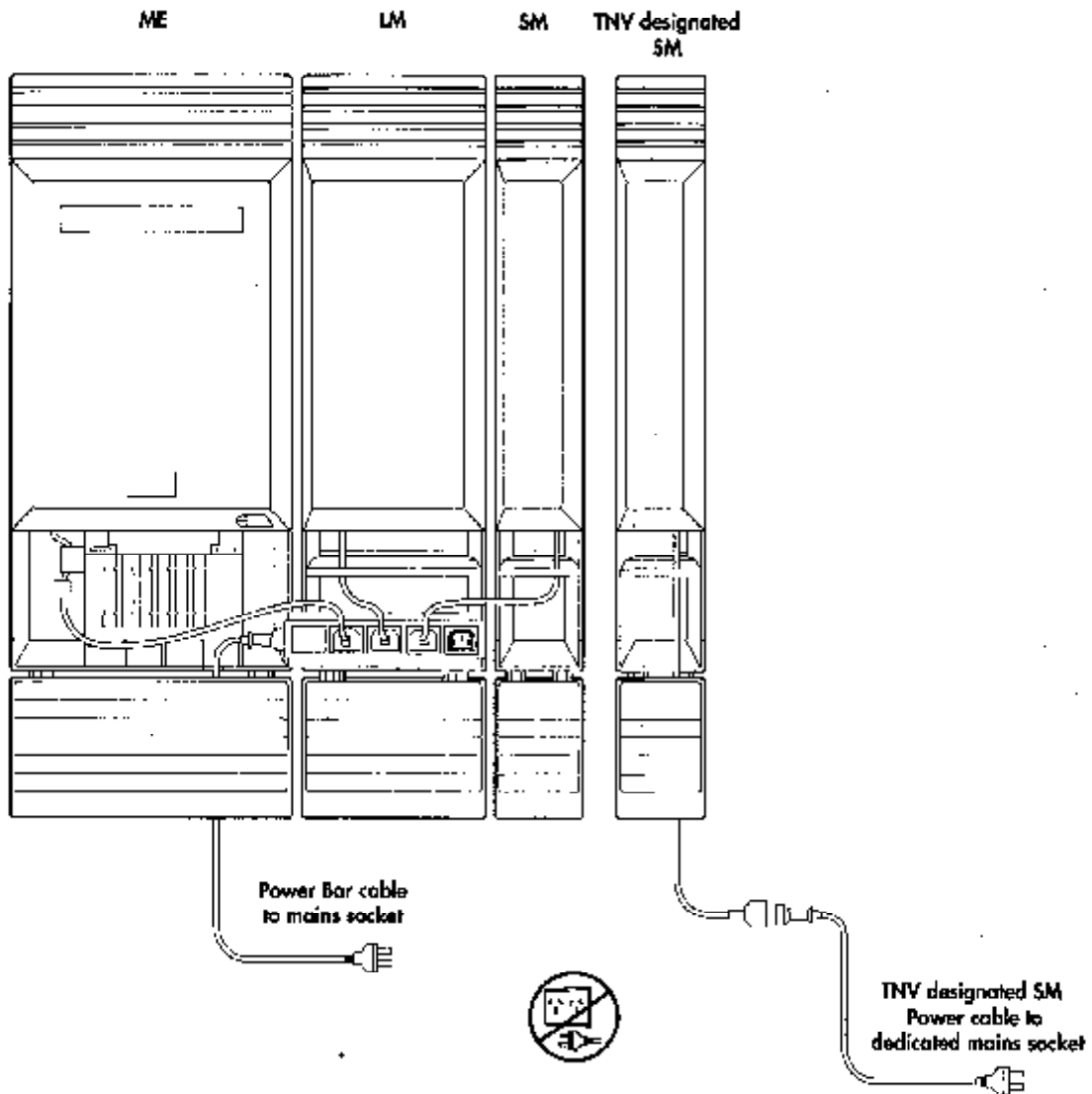
Installation of DUU (Door Unlock Unit) or ERU (External Relay Unit) options are prohibited since they may present a shock hazard to users.

## Devices NOT allowed as remote stations with TNV designated Station Module

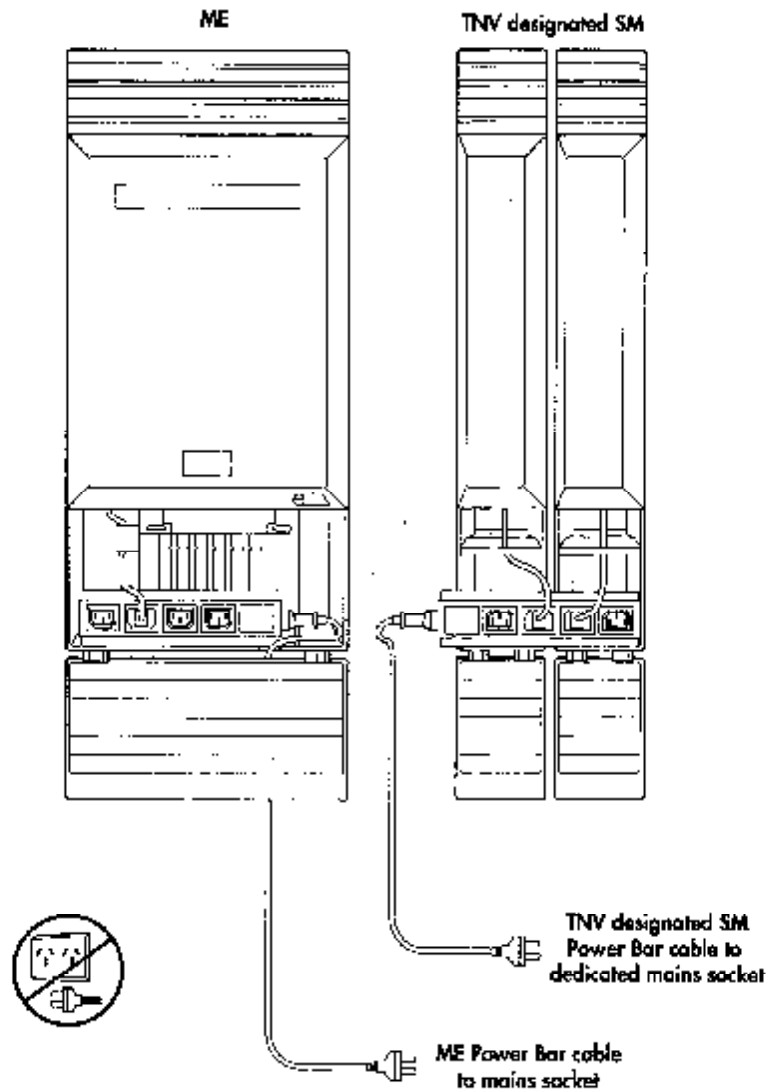
Even though a TNV designated Station Module is installed, the following devices cannot be installed as remote stations:

- CDR (Call Detail Recorder) Unit
- RAD (Remote Access Device)
- Door Station with DUU or ERU option
- Voice Mail (including VMA and VMU)

**Power cables for ME and a TNY designated SM**



**Power cables for ME and multiple TNV designated SMs**



## Remote Access Device

The Commander NT Remote Access Device (RAD) allows a personal computer (PC) running Commander NT Remote Utilities (RU) to communicate with a Main Equipment (ME).

The RAD:

- is located on site near either the ME or the PC
- receives calls from a PC via modem or PC direct connection
- authorizes a PC to access a ME
- connects a PC with the ME
- reports ME alarms to an off-site alarm center

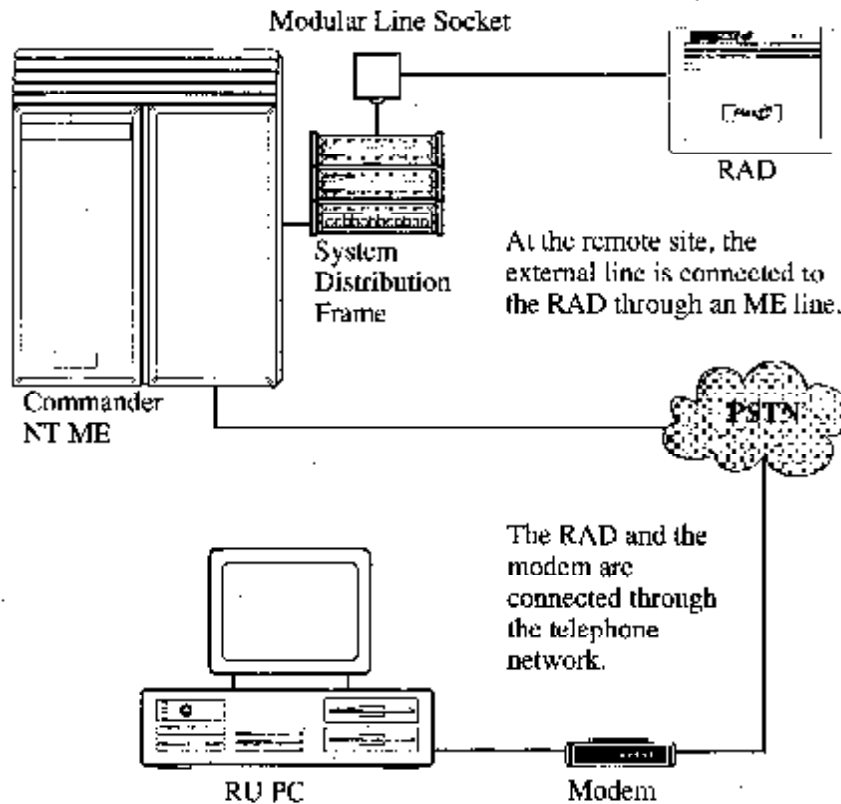


### One less keystation

When you install a RAD, the maximum number of keystations in your system is reduced by one.

Only one RAD can be connected to an ME.

System overview of remote connection





### Environment check list

The RAD installation area should be:

- clean, free of dust, dry and well ventilated
- between 0° and 50° Celsius
- non-condensing relative humidity between 5% and 95%
- within 800 m of the Commander NT ME
- free of Bridge taps on the RAD ME TCM loop
- free of Loading coils on the RAD ME TCM loop

### Package check list

Make sure the package contains:

- the Commander NT RAD
- an RJ-11 modular line cord
- a peripheral power supply with a barrel connector
- a paper template (for mounting)

### Special check list

To begin an installation you need:

- an operating Advantage/M7310N or Principal/M7324N two-line display keystation for programming the RAD
- a screwdriver
- suitable fasteners, 1 inch long
- a roll of tape (or four tacks) for mounting the template
- a list of programming parameters for the RAD
- a unique System identification (ID) number
- a unique password
- the Commander NT Remote Utilities (RU) software and documentation package. If you are using a PC at the site to test the RAD installation, this package is required.

### Electrical requirements

Make sure the following electrical requirements are met:

- line voltage (240 V)

### Requirements for PC communication

A PC communicates with a RAD either through a modem or through an RS-232 cable. A modem is used when the PC is situated at a remote location. An RS-232 cable is used when the PC is situated near the RAD at the customer site.

When you use a PC at the customer site, you must use a 9-pin cable to connect the PC to the RS-232 port on the RAD. This connector is

not supplied with the RAD. The following table shows which pins are used to make a connection with the RAD.

**Note:** The RAD modem supports V.32/V.32bis protocols only. We recommend a baud (refers to the PC-Modem DTE speed) of 9600 or greater be selected when connecting Commander NT PC applications to the RAD remotely using a modem.

#### RS-232 Pin configuration

Pin	Name	Function	Direction
1	DCD	Data Carrier Detect	from RAD
2	RXD	Received Data	from RAD
3	TXD	Transmitted Data	to RAD
4	DTR	Data Terminal Ready	to RAD
5	GND	Earth	-
6	DSR	Data Set Ready	from RAD
7	RTS	Request to Send	to RAD
8	CTS	Clear to Send	from RAD
9	RI	Ring Indicator	from RAD

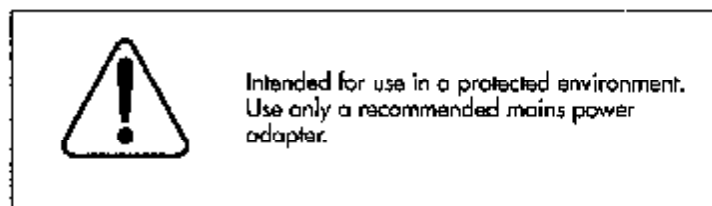
## Connecting the RAD

When equipment and environment conditions have been verified, you can begin connecting the RAD to the system distribution frame.

Before you connect the RAD, make sure the port works. Attach a working Commander NT two-line display keystation to the port. If the keystation operates, the port is working.

To connect the RAD:

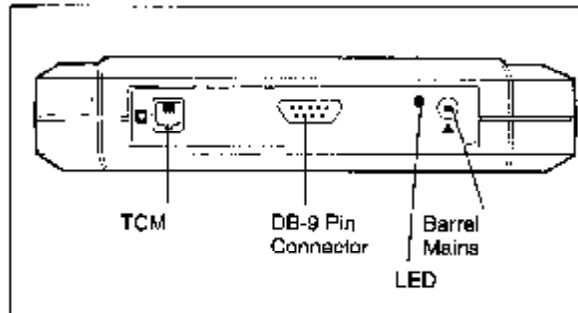
1. Plug the barrel connector of the peripheral power supply into the mains connector of the RAD and the other end into the wall socket. See the diagram, "ME connection" on page 104.



2. Check that the LED on the RAD unit is lit to confirm the mains connection.
3. Locate the system distribution frame.
4. Mount the RJ-11 modular line socket next to the system distribution frame.
5. Using twisted pair station wire, connect the modular line socket to a free station port at the system distribution frame.

**Note:** Do not connect the RAD to port 101. This port is reserved for the prime station. The RAD should be connected to one of the on-core station ports.

**ME connection**



6. Connect one end of the RJ-11 modular line cord to the TCM port on the side panel of the RAD.
7. Connect the other end to the RJ-11 modular line socket to the ME. Make sure the cord is less than 800 m long.

**Note:** A connection to the RAD's DB-9 pin serial port is only required for a direct connection to a PC at the site.

**Mounting the RAD**

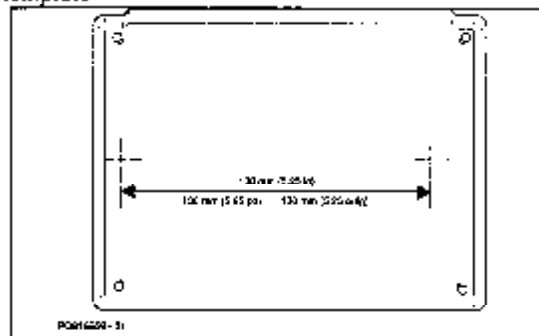
Before you mount the RAD, select a location within 800 m of the system distribution frame that is free of traffic, dust and dampness.

**Note:** You do not need to mount the RAD on the wall if it is only being used temporarily to program the ME.

The RAD can be mounted either horizontally or vertically. To mount the RAD on the wall:

1. Attach the paper mounting template (included with the product) to the wall. Make sure the template is even with the wall.

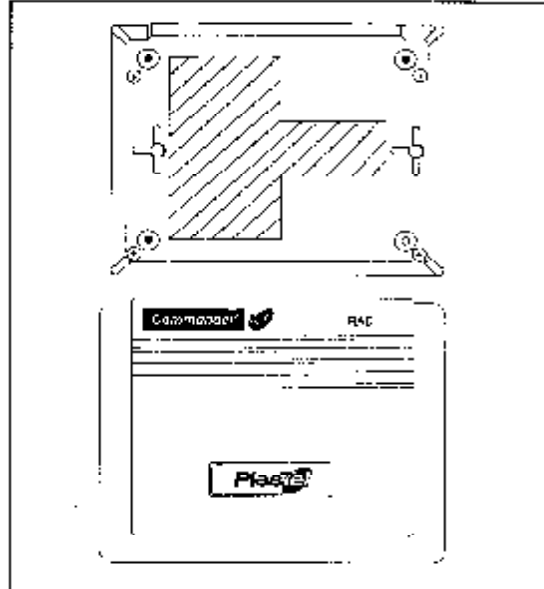
**Paper wall mounting template**



2. Put the two suitable fasteners in the wall leaving 10 mm of each exposed. The marks on the template show where the two

fasteners are placed. After the fasteners are in place, remove the paper template.

**Mounting the RAD**



3. Place the two keyhole slots at the back of the RAD over the fasteners and slide the RAD onto the fasteners. When the RAD is securely mounted, you are ready to start programming.

**Programming the RAD**

Before you start, make sure you have completed the **RAD Programming Record** found at the end of this section. This record must include the System ID, Auto-answer line number and Alarm reporting line number.

The following table shows the different programming parameters and their default values. If your programming information does not specify a value for one of the fields, assign it the default value.

**Note:** You must program the Required fields for the RAD to operate. Also program any Optional fields that apply to your system. Auto-answer should be set to ON if unassisted remote access to the RAD is desired.

**Programming parameters and default values**

Programming field	Range	Required / Optional	Default
Password	6 to 10 digits	Required	467925
System ID	Up to 10 digits	Optional	blank
Auto-answer line number	1 - 999	Required for auto-answering	line 001
Alarm reporting line number	1 - 999	Required for alarm reporting	line 001
Local baud	300/1200/2400/4800 /9600/19200	Optional	9600
Auto report alarms	ON, OFF	Optional	OFF

Alarm number 1	up to 16 digits	Optional	blank
Alarm number 2	up to 16 digits	Optional	blank
Retry delay	1 - 99 minutes	Optional	15 minutes
Number of retries	0 - 9	Optional	5
Alarm reporting baud	Low/Medium/High	Optional	High
Alarm reporting parity	None/Odd/Even	Optional	None
Auto-answer	ON, OFF	Optional	OFF
Answer delay	6 to 60 seconds	Optional	18 seconds

### Starting a programming session

No programming is required on site for the RAD. However, if you wish to program the RAD remotely, your first connection to the RAD must be through an operator on-site. In order to call in directly you must first enable Auto-answer and program an Auto-answer line.

You can program the RAD from a Commander NT two-line display keystation that is connected to the ME. Programming information is entered into the RAD using the dial pad on the keystation. Follow the prompts that appear on the display.

You can also program the RAD remotely using the NRU Remote Set Tool which creates a virtual connection between a two-line keystation and the RAD.

**Note:** You cannot start a programming session while you are on a call. When a programming session is in progress, press only the keys indicated. The programming session is terminated when you press incorrect keys or when you make or answer a call.

If you need to go back a step while you are programming, press **BACK** or press **[Esc]** and start again. If you stop programming for more than three minutes, the display returns to the date and time, and you must restart programming from the beginning.

**IMPORTANT:** You must wait 60 seconds before you attempt to program the RAD when: the RAD is connected or reconnected to the ME; the peripheral power supply is disconnected or the ME is restarted.

To start a programming session:

1. Press **[Feature] [9] [\*] [\*]**. The display reads: **Enter Password**. The default password is **INSTAL (467825)**. Press **OK**.

**Note:** Check the RAD installation wiring and start again if the display shows **Inactive feature**.

2. Press **NEXT**. The display reads: **RAD Admin**. The softkeys **GEN**, **ALARM** and **DATA** also appear on the display.

The **RAD Admin** display is the main programming display. This display must appear on the keystation before you can begin to program the RAD.

## General Programming

General programming allows you to define the System ID number.

Before you begin entering general programming information, make sure the display reads **RAD Admin**. If you do not have this display on the Commander NT Keystation, follow the steps in **Starting a Programming Session**.

To enter general RAD programming information:

1. Press **GEN**. The display reads: **System ID number:**.
2. Press **SHOW**. The display reads: **.**
3. Press **CHNG**. The display reads: **.**
4. Using the dial pad, enter the System ID number.

**Note:** If you enter a wrong number, press **BACKSP** to delete the last number entered, or **CLEAR** to erase all numbers entered.

5. Press **OK** to accept the System ID number.

## Programming Alarm Reporting

The alarm programming session allows you to program the RAD to report alarms to the station number of a dedicated alarm center, such as a printer or terminal. Before you begin an alarm programming session, make sure the display reads **RAD Admin**.

To program the RAD Alarm Reports:

1. Press **ALARM**. The display reads: **Auto-report:OFF**.
2. Press **CHNG** to turn automatic alarm reporting on. The display reads: **Auto-report:ON**.
3. Press **NEXT**. The display reads: **Report line:001**.
4. Press **CHNG**. The display reads: **Report line:**. Enter the ME line number the RAD uses for remote connections. Refer to the *Programming Record* for the correct line number.
5. Press **NEXT**. The display reads: **Alarm number 1**.
6. Press **SHOW** to see where the RAD reports its alarms. The display reads: **<Alarm number>**.
7. Press **CHNG** to enter the first alarm report station number. The display reads: **.**
8. Enter the station number for Alarm 1. The display reads: **<Alarm number>**.
9. Press **OK**. The display reads: **Alarm number 2**.

10. Press **SHOW**. The display reads: <Alarm number>.
11. If you do not want to enter a second alarm number, press **NEXT** and go to step 14.
12. Press **CHNG**. The display reads:..
13. Enter the station number for Alarm 2.
14. Press **OK**. The display reads: Num retries:5. Note: If you are using the default setting(s), press **NEXT** and go to step 18.
15. Press **CHNG**. The display reads: Num retries:..
16. Enter the number of retries. This must be a number between 0 and 9.
17. Press **OK**. The display reads: Retry delay:5.
18. Press **CHNG**. The display reads: Retry delay:..
19. Enter the number of minutes between retries. This must be a number between 1 and 99.
20. Press **OK**. The display reads: Alarm baud:High.
21. To change the baud, press **CHNG** until the desired baud appears. The baud should match that of the alarm device's modem. You have three choices: Low, Medium and High. The default is High.  
  
**IMPORTANT:** Changing the baud is not required unless the alarm centre modem is connected to a slow device, such as an old printer. Selecting the Low setting, limits the baud to less than 300. Selecting the Medium setting, limits the baud to less than 1200. Selecting the High setting, the baud is determined entirely by the RAD and the alarm centre modems.
22. Press **NEXT**. The display reads: Parity:None.
23. To change the parity setting, press **CHNG** until the desired setting appears. The parity should match that of the alarm device's modem. You have three choices: None, Odd and Even. The default is None.
24. Press **NEXT**. The display reads: Rad admin.

### Programming Data

Data programming allows you to determine how many seconds the RAD waits before answering a call on an incoming ME line. This allows a line to be used normally during business hours and provides Auto-answer capabilities after hours. Auto-answer must be set to ON to allow unassisted access to the RAD.

Before you begin programming, make sure the display reads **RAD Admin**.

To program RAD Data:

1. Press **DATA**. The display reads: Auto-answer:OFF.

2. Press **CHNG** to turn automatic answer ON. The display reads: **Auto-answer:ON**.
3. Press **NEXT**. The display reads: **Answer line:001**.
4. Press **CHNG**. The display reads: **Answer line:**.
5. Enter the ME line number the RAD uses for remote connections. Refer to the *Programming Record* for the correct line number.

**Note:** In general, the following points should be considered while choosing the RAD Auto-answer line:

- If possible, use an on-core line for auto-answering. This allows remote access to the ME even in the event of an expansion unit failure.
  - Use a line that is not often used for other purposes, since the RAD will auto-answer after a preprogrammed delay.
  - Choose only lines that are enabled.
6. Press **OK**. The display reads: **Answer delay:18**.
  7. Press **CHNG** to change the number of seconds the RAD waits before answering an incoming data call. The display reads: **Answer delay:**.
  8. Enter the number of seconds you want the RAD to wait prior to answering an incoming data call. This number must be between 6 and 60.

**Note:** The modem "wait for carrier delay" (S Register 7) must be longer than the time it takes for the modem to dial the RAD's Auto-answer line plus the Answer delay time. For example, if it takes 10 seconds for the modem to dial in to the RAD and Answer delay is set to 50 seconds, then the modem's "wait for carrier delay" must be greater than 60 seconds.

9. Press **OK**. The display reads: **Local baud: 9600**.
10. Press **CHNG** until the display reads the desired local serial port baud (300, 1200, 2400, 4800, 9600 or 19200).
11. Press **NEXT**. The display reads: **Rad admin**.
12. Press **File** to end programming.

### Rerouting a Call to the RAD

If the RAD is not set up to Auto-answer a local exchange line, ask the RU user to set up an operator assisted call to your site. If the operator assisted call is not accepted by the RAD, ensure the RAD is not involved in a programming session. Then ask the RU user to attempt another operator assisted call.



## Programming Record

Complete the RAD Programming Record before you start programming. (Photocopy this page before entering information.)

RAD Programming Record		
Work Site:		
Address: _____ Station Number: _____ _____ Installation Date: _____ _____ Technician: _____		
Notes:		
GENERAL		
System ID Number	_____	Enter the System ID number. (Disable Admin if required.)
ALARM		
Auto-report	Off On	Choose if you want the RAD to report alarms. The default is Off.
Report Line	_____	Enter the line number. Enter a number between 001 and 999. The default is 001.
Alarm Number 1	_____	Enter the station number of the device where the RAD reports alarms.
Alarm Number 2	_____	Enter the station number of a second device where the RAD reports alarms.
Retry Delay	_____	Enter the number of minutes the RAD waits before it retries to report an alarm. Enter a number between 1 and 99.
Number of Retries	_____	Enter how many times a RAD tries to send an alarm after a failed connection attempt. Enter a number between 0 and 9.
Alarm Baud	Low Medium High	Choose the alarm baud number. The default is High.
Parity	None Odd Even	Choose which parity setting the RAD uses. The default is None.
DATA		
Auto-answer	Off On	Choose if you want the RAD to answer incoming calls (must be ON to allow remote, unassisted access). The default is Off.
Answer Line	_____	Enter the line number. An on-core ME line is recommended. Enter a number between 001 and 999. The default is 001.
Answer Delay	_____	Enter the number of seconds the RAD waits before answering a call. Enter a number between 6 to 60. The default is 18.
Local Baud	300 1200 2400 4800 9600 19200	Choose the baud the RAD uses for the RS-232 port. The default is 9600.

## External music source

This equipment provides music for the Music on Hold and Background Music features. These features can be enabled in System programming. The music source can be any low power output device. The recommended ME input level is 0.25 V rms across an input impedance of 3300 ohm. However, up to 1.0 V rms may be input.

Connect the music source to an ACA permitted Line Interface Unit (LIU) which then connects to SDF pair number 42 (17/42 on AMP 2).



### Connect the music source to a Line Interface Unit (LIU)

To prevent possibility of shock hazard on ACA permitted LIU must be used to connect the external music to the ME.

## Auxiliary ringer port

The Auxiliary ringer port provides the ability to connect a supplementary ringer to the Commander NT. For example, a loud ringer can be installed in a warehouse or machine shop where the noise volume or size of the area make it difficult to hear an alerting keystation.

Auxiliary ringer port connections are terminated in the ME with a set of relay contacts. **These contacts are for low current, low voltage use only. They must not be used to switch ringing voltages directly.**

1. Follow the manufacturer's installation instructions.
2. Connect the auxiliary ringer control circuit to SDF pair number 44 or 45 (pin numbers 19/44 or 20/45 respectively, on AMP 2).

The Auxiliary ringer port is programmed in (Strns&Peripheral, Capabilities, Aux. ringer) to provide a ring generator for incoming calls. The Auxiliary ringer port can also be programmed to provide a ring generator for a line placed in a Service Mode.

## External paging equipment

The paging system uses the speakers on Commander NT Keystations and can also be used with external loudspeakers. The external paging system should be compatible with a level of 775 mV rms sourced from the ME 600 ohm page output.

An isolated relay contact pair is provided as an optional means of activating an external paging amplifier (customer supplied).

1. Follow the manufacturer's installation instructions.

2. Connect the external paging output to an ACA permitted LIU which then connects to SDF pair number 40 (15/40 on AMP 2) for audio output, and SDF pair number 41 (16/41 on AMP 2) for relay contact, if required.

To test the contact closure, place an ohmmeter across the relay contact AMP connector pins. The measured resistance should be less than 1 ohm when the contact is closed.



**Connect the external paging equipment to a Line Interface Unit (LIU)**

To prevent possibility of shock hazard an ACA permitted LIU must be used to connect the external paging equipment to the ME.

## Station Power Supply

The Station Power Supply (SPS) is a plug top power supply that uses a standard 240 V a.c., 50 Hz mains socket. It provides a 24 V d.c. supply for DSS Consoles and enables other devices to operate on longer station loops.

A SPS can provide power for up to three devices. All station types are considered one device, except for the DSS module which is considered to be one and a half devices. Thus, a SPS can power up to two DSS modules co-located on the same keystation.

The SPS is internally fused for short circuit or overload protection. (Once the fuse has been tripped, the SPS must be replaced.)

A Station Power Supply is required when the loop length between the ME and the device exceeds 300 m for 0.5 mm cable, or 185 m for 0.4mm cable, which is equivalent to a loop resistance of 51 ohm.

The SPS housing requires approximately 55 mm of clearance beneath the mains socket.



**Incorrect wiring can damage ME**

Take care in wiring the SPS. Incorrect wiring can damage the ME.


Use a 268/125 Krone 6x6 modular socket only. Do not use 600 series sockets.

### For Commander NT Keystations and Door Stations

For connection of a Commander NT Keystation or Door Station, the cabling is polarity-insensitive.

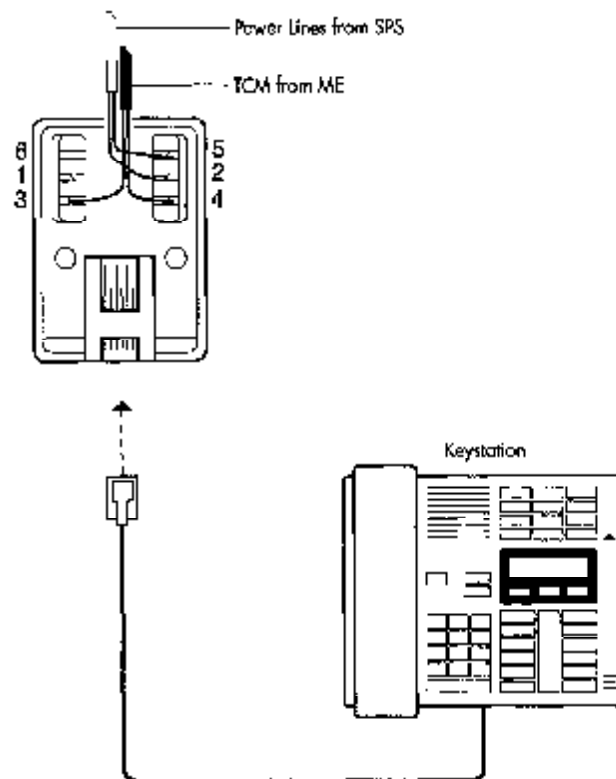
1. For keystations, replace the normal 2 conductor line cord with a 4 conductor line cord Serial/Item 742/70.
2. Connect the d.c. output pair to pins 2 and 5 of the station line socket.

3. Plug the SPS into a working mains socket and test the station.
4. For instructions, see "Testing" on page 325.



**Incorrect wiring can damage ME**  
Take care in wiring the SPS. Incorrect wiring can damage the ME.  
Use a 268/125 Krone 6x6 modular socket only. Do not use 600 series sockets.

**Station Power Supply connections to a keystation**



## Commander NT Keystations and related equipment

Only Commander NT Keystations and ISDN terminals are usable with Commander NT equipment. Connecting a Commander NT Keystation directly to an exchange line may damage the keystation.



### Commander NT line cords and plugs

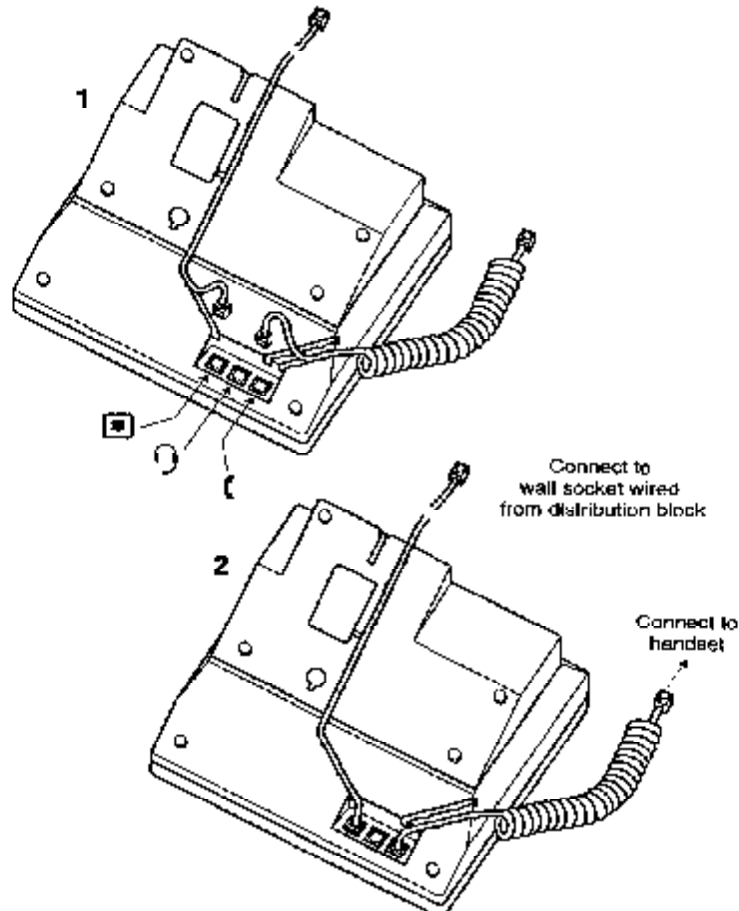
Commander NT Keystations are supplied with line cords terminated with modular 6-position plugs at both ends.

To connect to 600 series sockets use Modular to 605 Adaptor, Serial/Item 268/128.

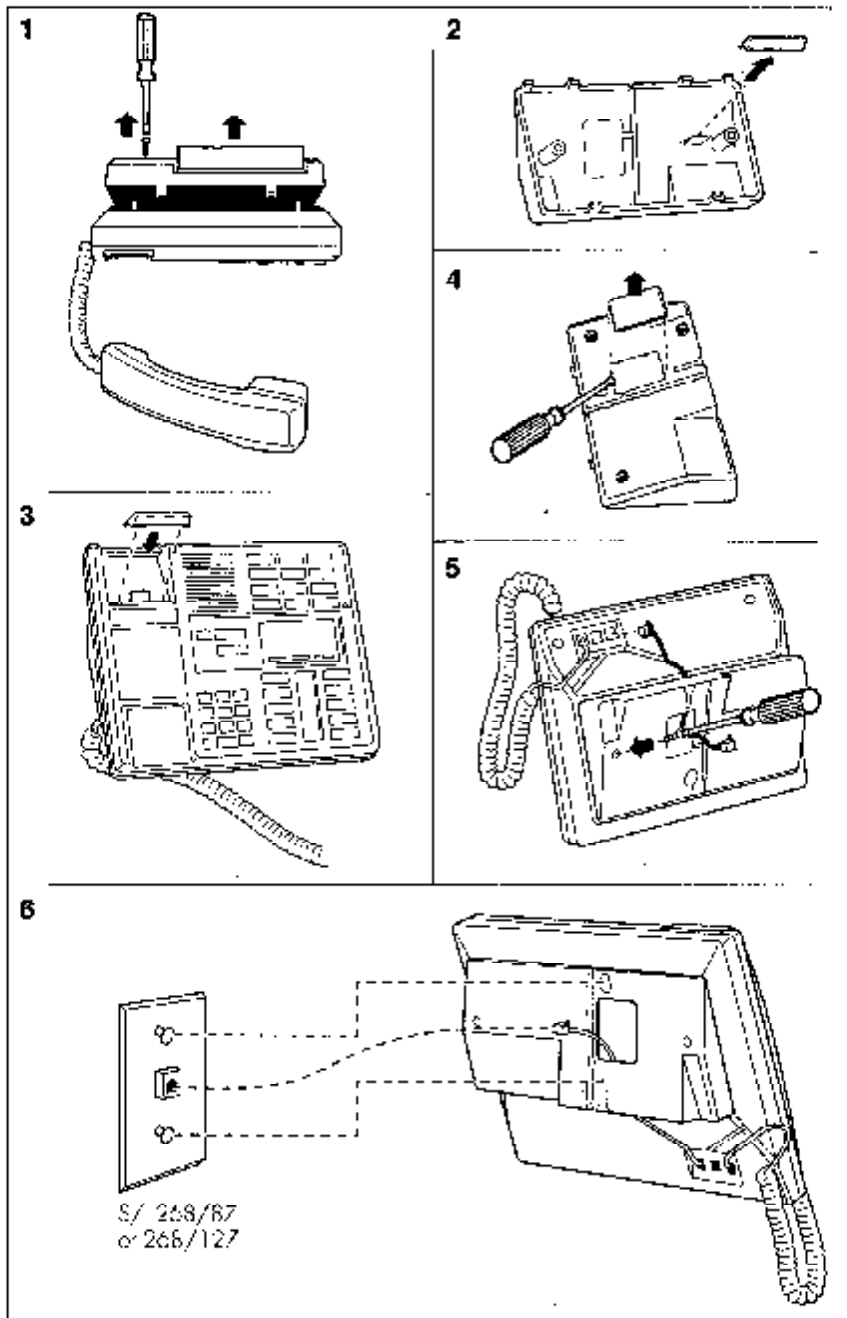
To connect to 8 pin Modular sockets use an 8 pin teledapt socket to 6 pin teledapt sleeves.

For instructions on connecting and mounting the M7xxxN series Keystations refer to page 116 and page 117.

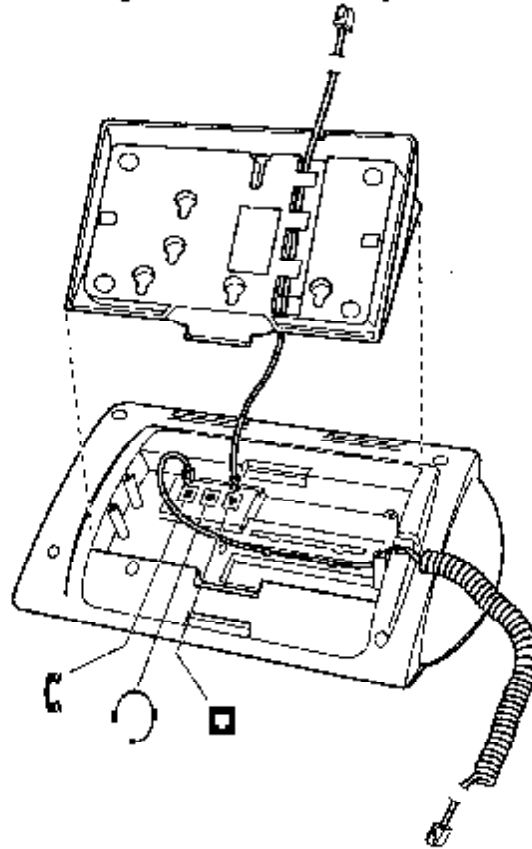
### Connecting Commander NT Keystations



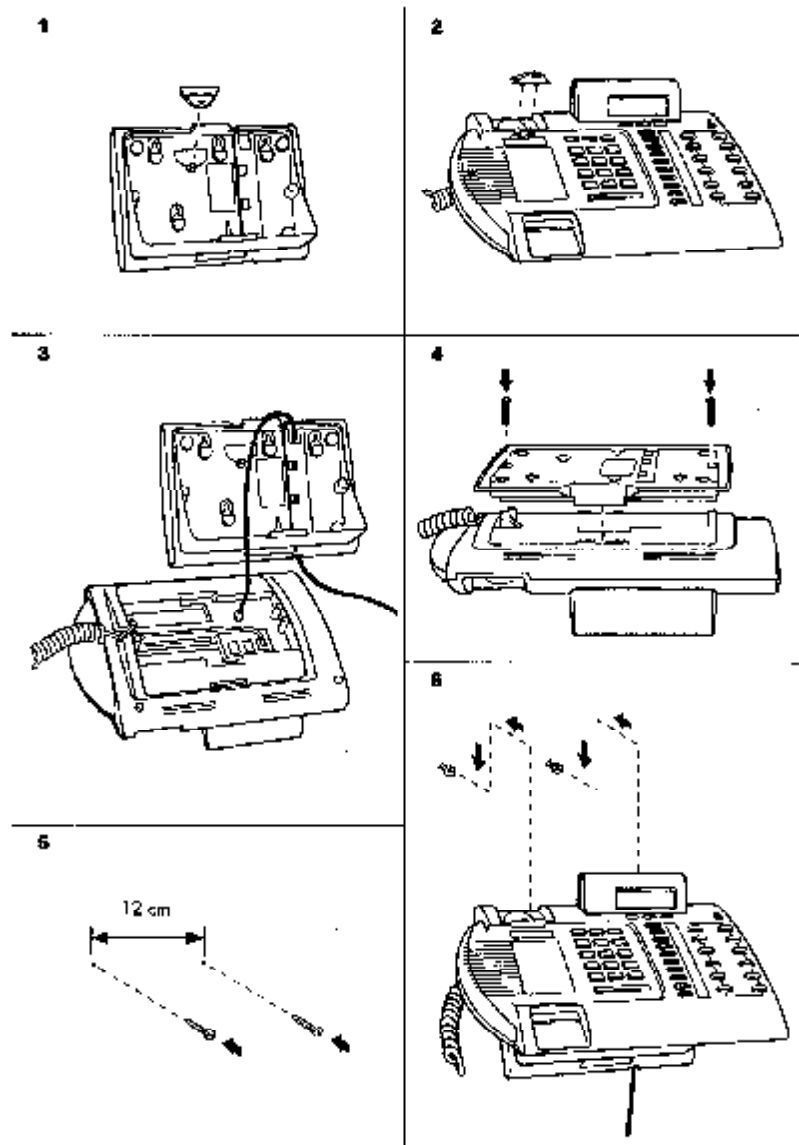
### Mounting a Commander NT Keystation on the wall



**Connecting the M7xxxN series Keystations**



### Wall mounting the M7xxx series Keystations



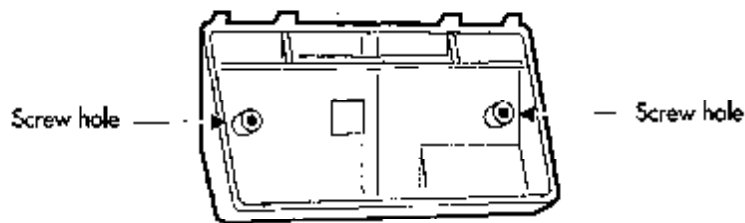



## Modifying an Advantage Keystation

The Advantage Keystation requires the following modifications to meet TNV requirements. The snap-off base that exposes the BLF connector must be firmly attached so that only service personnel can remove it.

1. The snap-off base contains 2 holes meant for fasteners. The holes have been over-moulded with a thin layer of plastic. Remove the plastic from one hole with a 4 mm drill, or other suitable tool.
2. Add the 10 mm long, 3.4 mm x 1.34 mm self-tapping fastener (normally supplied in the keycap bag) to securely attach the base to the station.

Advantage Keystation snap-off base



	<b>Advantage Keystation with BLF (Busy Lamp Field) Display must be modified.</b>
	The Advantage Keystation with BLF Display requires modification to prevent shock hazard. For instructions, see "Connecting a Busy Lamp Field Display" on page 116.

## Connecting a Busy Lamp Field Display

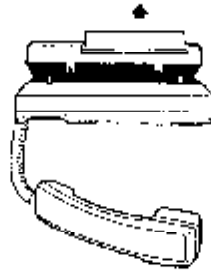
The Busy Lamp Field (BLF) Display attaches to the Advantage Keystation to provide extra indicators of the busy/not busy and DND (Do Not Disturb) status of up to 24 keystations. The device monitors the status of the dual memory keys that are programmed as internal autodial keys on the Advantage Keystation.

	<b>Advantage Keystation with BLF (Busy Lamp Field) must be modified</b>
	The Advantage Keystation with BLF Display must be modified by installing a BLF isolation plate to prevent shock hazards and to be compliant with Telecommunications Network Voltage (TNV) circuits.

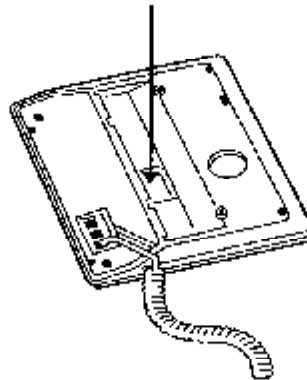
**Note:** If safety installation instructions are not included with your Busy Lamp Field (BLF) Display, follow the alternate instructions in "Alternate method of connecting a BLF Display" on page 121.

### Installing the BLF Display and BLF isolation plate

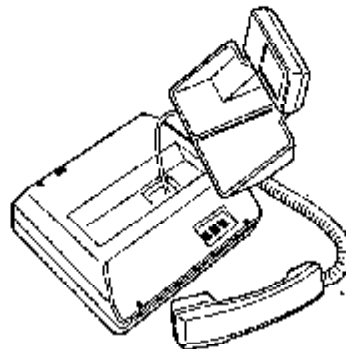
1. Unplug the Advantage Keystation and remove the base.



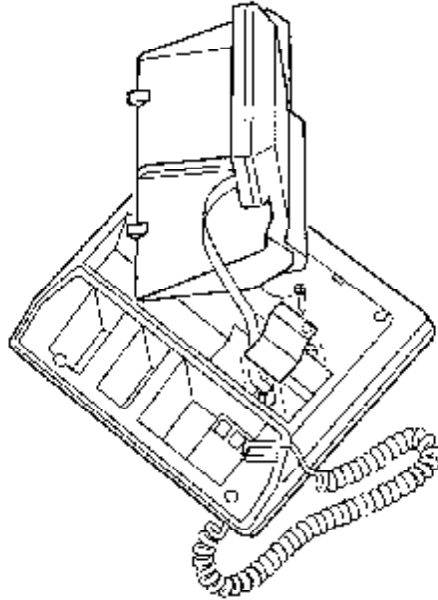
2. Locate the 10-pin connector on the bottom of the keystation and the ribbon cable on the BLF Display.



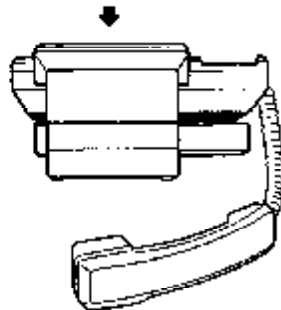
3. Connect the BLF ribbon cable to the 10-pin connector on the keystation.



4. Install the BLF Display isolation plate and fasten with the supplied fastener to prevent the BLF ribbon cable from being user accessible.



5. Align the BLF Display to the keystation and snap it into place.



### Removing the BLF Display

1. Unplug the keystation.
2. Hold the front of the keystation against you. Press down on the upper left part of the BLF Display base with both thumbs to remove it from the keystation. Once the first prong has been levered away from the keystation, the other prong should follow freely.
3. If a BLF isolation plate has been installed to prevent the BLF Display ribbon cable from being user accessible, remove the attachment fastener and plate.
4. Disconnect the BLF Display ribbon cable from the bottom of the keystation.
5. Re-attach the original base to the keystation.

## Alternate method of connecting a BLF Display

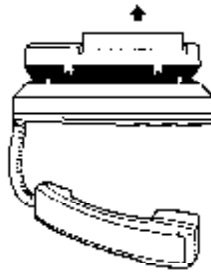


### **BLF Display Safety Instructions**

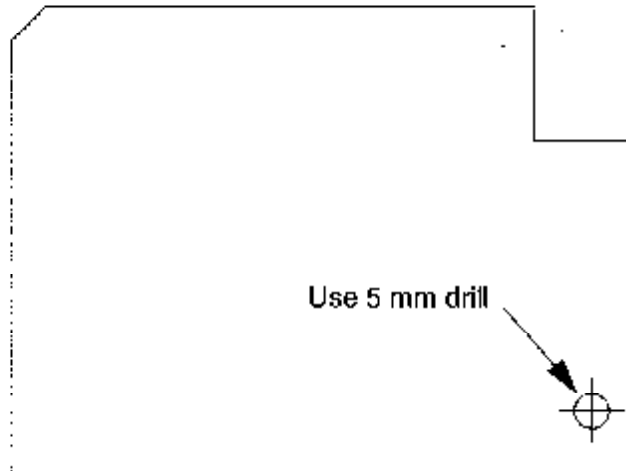
Follow any Busy Lamp Field Display Safety Instructions supplied with the BLF Display.

### **Installing the BLF Display using the template**

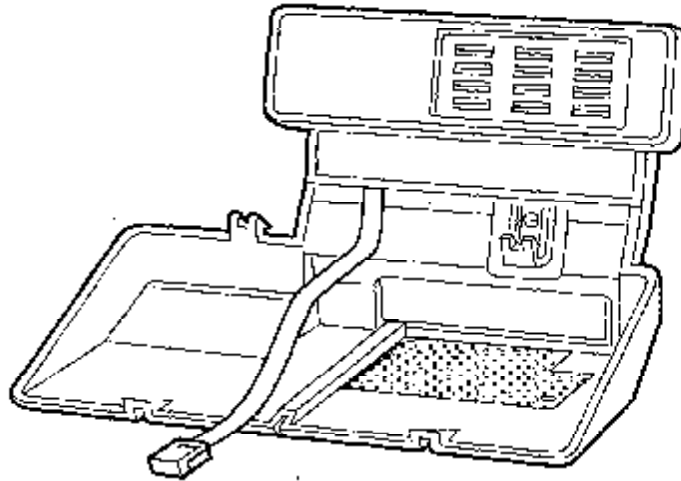
1. Unplug the Advantage Keystation and remove the base.



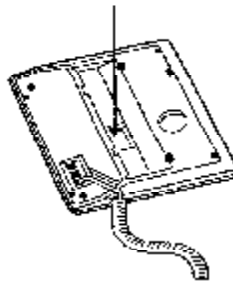
2. Photocopy this page and cut out the photocopy of this template.



3. Line up the template as shown in the picture below and drill a hole for the fastener. (see "Modifying an Advantage Keystation" on page 118).



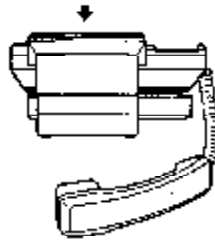
4. Locate the 10-pin connector on the bottom of the keystation and the ribbon cable on the BLF Display.



5. Connect the BLF ribbon cable to the 10-pin connector on the keystation.



- Align the BLF Display to the keystation and snap it into place.



- Add a 25 mm long, 3.5 mm x 1.34 mm self-tapping fastener to attach the base to the station. Do not overtighten the fastener. The fastener will not lie flush.

### Removing the Busy Lamp Field Display

- Unplug the keystation.
- Hold the front of the keystation against you. Press down on the upper left part of the BLF Display base with both thumbs to remove it from the keystation. Once the first prong has been levered away from the keystation, the other prong should follow freely.
- If a fastener and/or a protective metal plate have been installed to prevent the BLF Display ribbon cable from being user accessible, remove the fastener and/or the metal plate.
- Disconnect the BLF Display ribbon cable from the bottom of the keystation.
- Re-attach the original base to the keystation. See "Modifying an Advantage Keystation" on page 118.

## Direct Station Select (DSS) Console/Central Answering Position (CAPN) Module

The DSS Console(s)/CAPN Module(s) can only be attached to a Principal/M7324N Keystation. Each console has 48 memory keys that can be programmed as autodial, line or feature keys. Each Principal/M7324N Keystation can have up to two DSS Consoles/CAPN Modules connected. Only 5 (enhanced) DSS stations can have lines appearing, including autodial and hold features, on the DSS Console.

The DSS Console/CAPN Module comes complete with two six-wire line cords.

## Installing the Station Power Supply for the DSS Console/CAPN Module



### **Incorrect wiring can damage ME**

Take care in wiring the SPS. Incorrect wiring can damage the ME.

Use a 268/125 Krone 6x6 modular socket only. Do not use 600 series sockets.

1. Connect the negative lead (green) from the SPS to Pins 5 and 6 of the Krone 6x6 modular socket.
2. Connect the positive lead (red) from the SPS to Pins 1 and 2 of the Krone 6x6 modular socket.
3. Plug the SPS into a working mains socket.

## Installing one DSS Console/CAPN Module

Once you have installed an SPS, you can connect one or two DSS Consoles/CAPN Modules to a Principal/M7324N Keystation.

1. Unplug the Principal/M7324N Keystation from the line socket.
2. Plug the shorter six-wire line cord supplied with the DSS Console/CAPN Module into the socket identified by the following label on the Principal/M7324N Keystation.



3. Plug the other end of the line cord into the socket identified by the following label on the DSS Console/CAPN Module.






4. Route the cord through the appropriate cord guides on the DSS/CAPN and Principal/M7324N Keystation.
5. Plug the longer six-wire line cord supplied with the DSS Console/CAPN Module into the socket identified by the following label on the DSS Console/CAPN Module.



6. Plug the other end of the line cord into the line socket. The SPS should already be connected to the line socket wired from the System Distribution Frame.

**Note:** When the Main Equipment is powered up and the DSS Console/CAPN Module is connected, the indicators turn on, and then flash for ten seconds. Once the indicators are flashing, you can initialise the DSS Console/CAPN Module. For procedures to initialise the DSS Console/CAPN Module, see "Initialising a DSS Console/CAPN Module" on page 146.

## Installing a second DSS Console/CAPN Module

1. Unplug the first DSS Console/CAPN Module from the line socket.
2. Plug the shorter six-wire line cord supplied with the DSS Console/CAPN Module into the socket identified by the following label on the first DSS Console/CAPN Module.  

3. Plug the other end of the line cord into the socket identified by the following label on the second DSS Console/CAPN Module.  

4. Route the cord through the appropriate cord guides on the DSS Consoles/CAPN Modules.
5. Plug the longer six-wire line cord supplied with the DSS Console/CAPN Module into the socket identified by the following label on the second DSS Console/CAPN Module.  

6. Plug the other end of the line cord into the line socket. The SPS should already be connected to the line socket.

**Note:** When the Main Equipment is powered up and the DSS Console/CAPN Module is connected, the indicators turn on, and then flash for ten seconds. Once the indicators are flashing, you can initialise the DSS Console/CAPN Module. For procedures to initialise the DSS Console, see "Initialising a DSS Console/CAPN Module" on page 146.

**Note:** If installing two DSS/CAPN on a Remote Station, see "Installing remote stations" on page 92.

## Keystation headset and amplifier

Contact Commander Care Online at 1800 809 881 for details.



## Door Station and related equipment

The Door Station connects to a Commander NT Keystation port to provide call notification and handsfree communication from a premises entry location to other stations on the system. Up to four Door Stations can be connected to a Commander NT.

With a single press of the Door Station Call key, a person at a building entrance can alert multiple stations. This alerting can be in the form of a call to the stations or through special Door Station chimes which are heard at all stations in a programmed Page zone. Additionally, the Door Station may be contacted by any other station.

The Door Station can provide door opening if it is installed with either a Door Unlock Unit (DUU).

The DUU uses a two-wire connection to the Door Station. If a DUU is installed, the Door Station call will continue until the person at the called station presses **QUIT** or **[Rls]** on their keystation.

### Preparing for installation

Check that the following environment requirements are present at the Door Station location:

Temperature	-35° to 60°C
Relative humidity	5% to 95% non-condensing
Background noise	up to 70 d B.A.

Make sure the package contains:

- the Door Station unit
- a surface mount bracket
- two gaskets
- Door Station User Card

The Door Station will identify itself to the ME as a Standard Keystation.

There are five steps to follow when installing a Door Station:

1. Select a station port for the Door Station and determine the station number
2. Program the station port parameters
3. Wire and mount the Door Station
4. Program the Door Station
5. Test the Door Station

## Determining the Door Station number

Up to four Door Stations can be installed on a Commander NT. Each is assigned a station number by the ME.

To determine the station number of the port to which the Door Station will be connected, see the "ME wiring charts" on page 52, or:

1. Ensure Station Relocation feature is turned off.
2. Connect a socket and Commander NT Keystation to the port.
3. Press **Feature** **\*** **0** **Intercom** and record the station number.
4. Disable voice calls by pressing **Feature** **8** **8**.
5. Repeat steps 2-4 for each Door Station port.

## Programming station ports

Commander NT configuration must be performed before wiring the Door Station. Startup defaults can cause the Door Station to automatically answer incoming calls which were not intended to be heard over the Door Station.

1. Enter Commander NT Configuration programming from an Advantage/M7310N or Principal/M7324N Keystation:

Press **Feature** **\*** **\*** **C** **0** **N** **F** **1** **G**.

Enter the configuration password.

On a new installation or cold start up with software WI 8.2 or greater, the default configuration password is

**1** **N** **5** **T** **A** **1** or **4** **6** **7** **8** **2** **5**. If the system has been previously installed with pre-WI 8.2 software, or upgraded with software greater than WI 8.2 without a cold start, the default password is **2** **0** **N** **F** **1** **G** or **2** **6** **6** **9** **4** **4**.

2. Perform the following programming assignments.

### Lines

- Ensure that the Door Station is not the prime station for any line.

### Line Access

- Remove all line appearances and line ringing assigned to the Door Station. If you do not remove all line appearances, incoming calls will automatically be answered by the Door Station.
- Ensure no Answer Keys are assigned to the Door Station.
- Remove all line pools assigned to the Door Station.

- Assign only one intercom key to the Door Station. Two intercom keys are acceptable if the system doesn't offer you any other option.
- Assign the intercom (I/C) key or "none" as the Door Station's prime line. If programmed as "none" the Door Station becomes a monitor (listen) only device.

**Name**

- Assign a name to each Door Station (e.g., Front, Gate)

**Direct-Dial**

- Ensure the Door Station is not assigned as a Direct-Dial station

**Capabilities**

- Enable Full Handsfree
- Disable Auto Handsfree
- Enable Paging
- Assign a page zone other than the one used for the Door Station's own chimes
- Disable the Auxiliary Ringer
- Ensure the Door Station does not Divert on Busy
- Ensure the Door Station does not Divert on No Answer
- Ensure DND on Busy is set to No for the Door Station
- Ensure Hotline is assigned "None"
- Ensure Call Station does not Divert on Busy
- Ensure that all keystations to receive Door Station call chimes are included in the desired page zone and those for which Door Station chimes are not desired are excluded. Valid page zones for Door Station chimes are zones 1, 2 and 3. It is also good practice to assign more than one keystation to the page zone used by the Door Station.

**Services**

- Ensure the Door Station is not a control station
- Ensure the Door Station is not assigned as an extra-dial station
- Ensure the Door Station is not assigned as a ringing station

3. Exit Commander NT programming by pressing **[R]**.


**End programming before continuing**

The Door Station will not initialise if you do not exit Commander NT programming.

### Wiring and mounting the Door Station

The Door Station can be mounted in a suitable recessed box for flush mounting or surface mounted using the enclosed optional surface mount bracket.

The Door Station should be mounted at approximately shoulder height in the absence of other specifications, such as compliance with local handicapped access regulations, if required.

1. Select a location within 300 m of the ME. This distance can be increased to 780 m with the connection of a Station Power Supply (SPS) to the Door Station (0.5 mm cabling, loop resistance of 51 ohm).

**Important:** If installing a Door Station remotely, see "Installing remote stations" on page 92 for detail on configuration.

2. Remove the Door Station's face plate.
3. Attach gaskets and brackets.


**Install a gasket to protect from moisture**

Install a gasket between the Door Station and wall surface if the Door Station is mounted in a location that is unprotected from moisture.

For surface mounting, first verify the correct orientation of the gasket (if required), thread the wires through the center hole, then through the surface mount bracket and fasten the surface mount bracket at the desired location on the wall.

For flush mounting (into a box embedded in the wall), slide the flush mounting gasket onto the main housing assembly (if required).

4. Run standard 3-pair cable from the ME to the Door Station location. Use one pair to connect the "ME" terminals of the Door Station to a vacant station port of the ME. The second pair can be used to connect an optional DUU, leaving a spare pair.

All Door Station connections are polarity insensitive. Strip wires 6mm before inserting them in the TCM Connector fastener terminals and tightening.

- For the surface mount bracket, secure the wiring with a cable tie through the round hole in the rear of the bracket as a strain relief. Fasten the main Door Station assembly to the surface mount bracket or box (customer supplied), then fasten the faceplate to the main housing assembly.

### Programming the Door Station parameters

Once you have finished programming Commander NT station port parameters and connecting the Door Station, you must specify parameters for the Door Station's Chime Type, Volume and, if applicable, Door Opening Capabilities.



#### Do not program until initialisation is complete

Wait until initialisation is complete before programming the Door Station. It may take up to four minutes for initialisation to finish.

- Press **Feature** **9** **\*** **4**. The display reads **Please wait** momentarily then **Door Stn codes**.
- Press **SHOW**. The display reads **F9XX**.
- Press **ADMIN**. If the Door Station is not connected or fails, the display reads **F9XX: inactive**. The display shows the intercom number of Door Station 1.

**Note:** Use the **REMOVE** display key, which appears if a Door Station has been disconnected from the ME (and at least one Door Station remains connected to the ME) to remove F9XX from the system's memory.

- Press **OK**. The display reads **Volume: medium**.
- Press **OK** to accept the Volume level or press **CHANGE** to select low or high then **OK**. The display reads **Call: 221**.
- Press **OK** to select the default station or press **CHANGE** to enter another keystation's station number. This will be the keystation which rings when the Door Station's Call key is pressed. The display reads **Ring time: 30s**.
- Press **OK** to accept the programmed ring time before page chimes are presented, or press **CHANGE** to select the programmed ring time. If none is selected, the Door Station will not ring any keystations when the Call key is pressed. The display reads **Page zone: 3**.

8. Press **OK** to accept page zone 3 for chimes presentation, or press **CHANGE** to select Zone 1, 2 or none. If none is selected, no page chimes will be presented after ringing the Call keystation.

For a special application where no alerting capability is desired from the Door Station, select: Ring time: none and Page zone: none. The display reads Chime type: 1.

9. Press **OK** to accept the Chime type or press **CHANGE** to select 2, 3, 4 or none, then press **OK**. The display reads Opener type: none.
10. Press **OK** if no door opening capabilities are required for this application. See "Door Opening Control" on page 132 if door opening capabilities are required.
11. Press **DONE** if no other Door Stations need to be programmed.
12. Press **QUIT** or [Fis ] to end this session. Pressing [Fts ] at any time during the programming session will save any changes before quitting.

### Programming the Door Station to ring at several keystations

If required, you can program the Door Station to ring several keystations. In this example, station 236 has been selected as the Call Station in the above example and keystations 221, 222 and 223 are being programmed to also ring when the Door Station is called.

1. Press [Feature] [\*] [\*] [C] [O] [N] [F] [ ] [G]. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press [Show]. The display reads **Show stn#:**.
4. Enter station number 236.
5. The display reads **Line access** for station 221. Add an Answer key for station 236. Repeat this step for stations 222 and 223.

When the Door Station Call key is pressed, stations 221, 222 and 223 will ring because they have a ringing Answer key for station 236.

### Change the station names

Change the name of station 236 to DOOR and change the name of the Door Station to FRONT.

1. Press [Feature] [\*] [\*] [C] [O] [N] [F] [ ] [G]. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press [Show]. The display reads **Show stn#:**.
4. Enter station number 236.
5. Press [Show]. The display reads **Line access**.

6. Press **Next** until the display reads **Name**.
7. The display shows the station number or current name.
8. Press **CHANGE**. Enter the characters of the name using the keystation dial pad, to a maximum of 7 characters.
9. Press **Fls** to exit or **Next** to continue programming.

Stations 221, 222 and 223 will display **FRONT>DOOR** when the Door Station's Call key is pressed.

### Door Opening Control

One option is available for convenient door opening control, and requires optional equipment:

- Door Unlock Unit (DUU)



#### Do not use in high security environments

The DUU provide convenient control of locked mechanisms, but are not intended for sale premises security. Power failure, device failure, wiring faults and unauthorized equipment access can all contribute to a failed locked or unlocked situation.

The DUU fastener terminals are connected to the Door Station using one pair of wires. The DUU receives data from the Door Station and must be dip-switched for proper operation.

If a door opening device is installed, go to "Programming the Door Station parameters" on page 130, from step 10, proceed as follows:

1. Press **CHANGE** until the display reads **DUU**. Press **OK**.  
The display shows **To open dial: 6**.
2. Press **OK** to accept the number or press **CHANGE** to select a number between 0-9, \* or # then **OK**.
3. Press **Fls** or **DONE**, then **QUIT** to end this session.

### Test the Door Station

Press the Call key on the Door Station and ensure that the Call keystation alerts for the programmed ring time. Then chimes are heard at all appropriate sets included in the programmed Page zone.

To establish the voice path, dial the Door Station number from any Commander NT Keystation, or answer a ringing call from the Door Station at the Call keystation.

If installed, test the door release mechanism by pressing the **OPEN** display key or dialling the digit as specified under **Feature** **9** **\*** **4**. Press **Fls** to end the test.

**Tip** - The Door Station enters a 30-second waiting period after it originates page chimes. The Door Station Call key provides confirmation tones to the Door Station user during the waiting period, but it does not initiate subsequent calling until the 30 seconds have expired.

## Door Unlock Unit

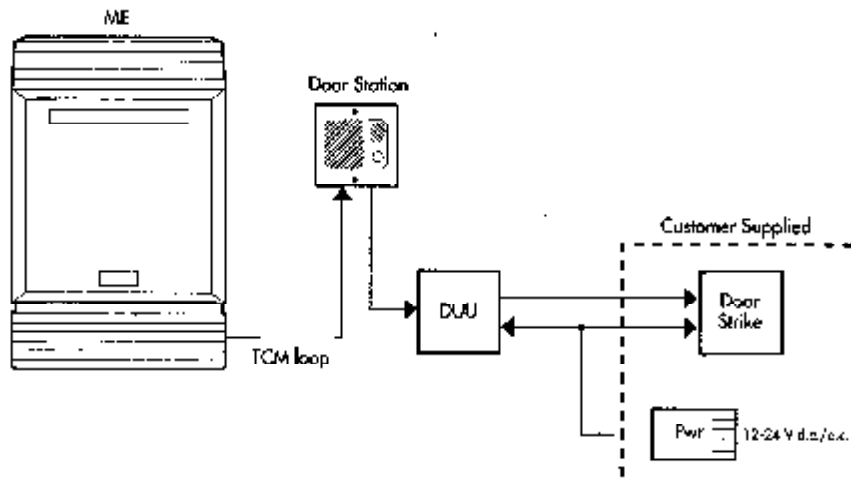
The Door Unlock Unit (DUU) operates through a Door Station connected to a Commander NT ME.

The DUU receives serial data from the Door Station, which is compared against a dip-switch set code for activation of a relay for operation of electric door release or gate mechanisms.

Check the following environment requirements:

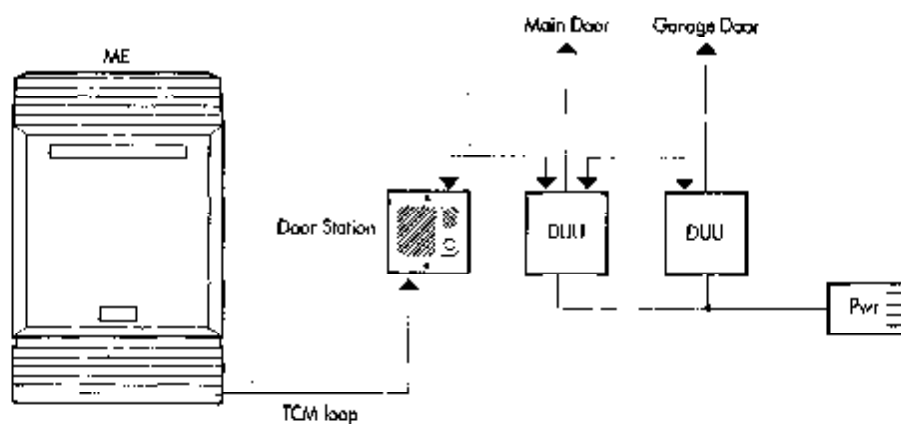
Temperature	-35° to 60°C
Relative humidity	5% to 95% non-condensing
Power	12 to 24 V a.c. or d.c., 60 mA
Relay Contacts	Max. 8 A 30 V

Door Unlock Unit overview





**Door Station with multiple DUUs**



**Installing the DUU**

There are three steps to follow when installing a DUU:

1. Set the DUU dip-switch.
2. Mount the DUU.
3. Wire the DUU.

**Step 1: Setting the DUU dip-switch**

Part A

Ensure that the upper four positions of the DUU dip-switch correspond with the opening digit or display key defined in Door Station Programming. See the following figure, "Dip Switch" on page 135, to determine dip-switch values.

*Note:* Both the Door Station and DUU are preset to 6.




For the steps to determine the display key or digit and to ensure that the Door Station is programmed for DUU operation, see "Programming the Door Station parameters" on page 130.

Part B

Ensure that the lower four positions of the DUU dip-switch correspond with the desired relay activation time.

*Note:* The DUU is preset to 3 s.

## Installing a second DSS Console/CAPN Module

1. Unplug the first DSS Console/CAPN Module from the line socket.
2. Plug the shorter six-wire line cord supplied with the DSS Console/CAPN Module into the socket identified by the following label on the first DSS Console/CAPN Module.  

3. Plug the other end of the line cord into the socket identified by the following label on the second DSS Console/CAPN Module.  

4. Route the cord through the appropriate cord guides on the DSS Consoles/CAPN Modules.
5. Plug the longer six-wire line cord supplied with the DSS Console/CAPN Module into the socket identified by the following label on the second DSS Console/CAPN Module.  

6. Plug the other end of the line cord into the line socket. The SPS should already be connected to the line socket.

**Note:** When the Main Equipment is powered up and the DSS Console/CAPN Module is connected, the indicators turn on, and then flash for ten seconds. Once the indicators are flashing, you can initialise the DSS Console/CAPN Module. For procedures to initialise the DSS Console, see "Initialising a DSS Console/CAPN Module" on page 146.

**Note:** If installing two DSS/CAPN on a Remote Station, see "Installing remote stations" on page 92.

## Keystation headset and amplifier

Contact Commander Care Online at 1800 809 881 for details.

## Door Station and related equipment

The Door Station connects to a Commander NT Keystation port to provide call notification and handsfree communication from a premises entry location to other stations on the system. Up to four Door Stations can be connected to a Commander NT.

With a single press of the Door Station Call key, a person at a building entrance can alert multiple stations. This alerting can be in the form of a call to the stations or through special Door Station chimes which are heard at all stations in a programmed Page zone. Additionally, the Door Station may be contacted by any other station.

The Door Station can provide door opening if it is installed with either a Door Unlock Unit (DUU).

The DUU uses a two-wire connection to the Door Station. If a DUU is installed, the Door Station call will continue until the person at the called station presses **QUIT** or **[Rls]** on their keystation.

### Preparing for installation

Check that the following environment requirements are present at the Door Station location:

Temperature	-35° to 60°C
Relative humidity	5% to 95% non-condensing
Background noise	up to 70 d B.A.

Make sure the package contains:

- the Door Station unit
- a surface mount bracket
- two gaskets
- Door Station User Card

The Door Station will identify itself to the ME as a Standard Keystation.

There are five steps to follow when installing a Door Station:

1. Select a station port for the Door Station and determine the station number
2. Program the station port parameters
3. Wire and mount the Door Station
4. Program the Door Station
5. Test the Door Station

## Determining the Door Station number

Up to four Door Stations can be installed on a Commander NT. Each is assigned a station number by the ME.

To determine the station number of the port to which the Door Station will be connected, see the "ME wiring charts" on page 52, or:

1. Ensure Station Relocation feature is turned off.
2. Connect a socket and Commander NT Keystation to the port.
3. Press **Feature** **\*** **0** **Intercom** and record the station number.
4. Disable voice calls by pressing **Feature** **8** **8**.
5. Repeat steps 2-4 for each Door Station port.

## Programming station ports

Commander NT configuration must be performed before wiring the Door Station. Startup defaults can cause the Door Station to automatically answer incoming calls which were not intended to be heard over the Door Station.

1. Enter Commander NT Configuration programming from an Advantage/M7310N or Principal/M7324N Keystation:

Press **Feature** **\*** **\*** **C** **0** **N** **F** **1** **G**.

Enter the configuration password.

On a new installation or cold start up with software WI 8.2 or greater, the default configuration password is

**1** **N** **5** **T** **A** **1** or **4** **6** **7** **8** **2** **5**. If the system has been previously installed with pre-WI 8.2 software, or upgraded with software greater than WI 8.2 without a cold start, the default password is **2** **0** **N** **F** **1** **G** or **2** **6** **6** **9** **4** **4**.

2. Perform the following programming assignments.

### Lines

- Ensure that the Door Station is not the prime station for any line.

### Line Access

- Remove all line appearances and line ringing assigned to the Door Station. If you do not remove all line appearances, incoming calls will automatically be answered by the Door Station.
- Ensure no Answer Keys are assigned to the Door Station.
- Remove all line pools assigned to the Door Station.

- Assign only one intercom key to the Door Station. Two intercom keys are acceptable if the system doesn't offer you any other option.
- Assign the intercom (I/C) key or "none" as the Door Station's prime line. If programmed as "none" the Door Station becomes a monitor (listen) only device.

**Name**

- Assign a name to each Door Station (e.g., Front, Gate)

**Direct-Dial**

- Ensure the Door Station is not assigned as a Direct-Dial station

**Capabilities**

- Enable Full Handsfree
- Disable Auto Handsfree
- Enable Paging
- Assign a page zone other than the one used for the Door Station's own chimes
- Disable the Auxiliary Ringer
- Ensure the Door Station does not Divert on Busy
- Ensure the Door Station does not Divert on No Answer
- Ensure DND on Busy is set to No for the Door Station
- Ensure Hotline is assigned "None"
- Ensure Call Station does not Divert on Busy
- Ensure that all keystations to receive Door Station call chimes are included in the desired page zone and those for which Door Station chimes are not desired are excluded. Valid page zones for Door Station chimes are zones 1, 2 and 3. It is also good practice to assign more than one keystation to the page zone used by the Door Station.

**Services**

- Ensure the Door Station is not a control station
- Ensure the Door Station is not assigned as an extra-dial station
- Ensure the Door Station is not assigned as a ringing station

3. Exit Commander NT programming by pressing **[R]**.


**End programming before continuing**

The Door Station will not initialise if you do not exit Commander NT programming.

### Wiring and mounting the Door Station

The Door Station can be mounted in a suitable recessed box for flush mounting or surface mounted using the enclosed optional surface mount bracket.

The Door Station should be mounted at approximately shoulder height in the absence of other specifications, such as compliance with local handicapped access regulations, if required.

1. Select a location within 300 m of the ME. This distance can be increased to 780 m with the connection of a Station Power Supply (SPS) to the Door Station (0.5 mm cabling, loop resistance of 51 ohm).

**Important:** If installing a Door Station remotely, see "Installing remote stations" on page 92 for detail on configuration.

2. Remove the Door Station's face plate.
3. Attach gaskets and brackets.


**Install a gasket to protect from moisture**

Install a gasket between the Door Station and wall surface if the Door Station is mounted in a location that is unprotected from moisture.

For surface mounting, first verify the correct orientation of the gasket (if required), thread the wires through the center hole, then through the surface mount bracket and fasten the surface mount bracket at the desired location on the wall.

For flush mounting (into a box embedded in the wall), slide the flush mounting gasket onto the main housing assembly (if required).

4. Run standard 3-pair cable from the ME to the Door Station location. Use one pair to connect the "ME" terminals of the Door Station to a vacant station port of the ME. The second pair can be used to connect an optional DUU, leaving a spare pair.

All Door Station connections are polarity insensitive. Strip wires 6mm before inserting them in the TCM Connector fastener terminals and tightening.

- For the surface mount bracket, secure the wiring with a cable tie through the round hole in the rear of the bracket as a strain relief. Fasten the main Door Station assembly to the surface mount bracket or box (customer supplied), then fasten the faceplate to the main housing assembly.

### Programming the Door Station parameters

Once you have finished programming Commander NT station port parameters and connecting the Door Station, you must specify parameters for the Door Station's Chime Type, Volume and, if applicable, Door Opening Capabilities.



#### Do not program until initialisation is complete

Wait until initialisation is complete before programming the Door Station. It may take up to four minutes for initialisation to finish.

- Press **Feature** [9] [\*] [4]. The display reads **Please wait** momentarily then **Door Stn codes**.
- Press **SHOW**. The display reads **F9XX**.
- Press **ADMIN**. If the Door Station is not connected or fails, the display reads **F9XX: inactive**. The display shows the intercom number of Door Station 1.

**Note:** Use the **REMOVE** display key, which appears if a Door Station has been disconnected from the ME (and at least one Door Station remains connected to the ME) to remove F9XX from the system's memory.

- Press **OK**. The display reads **Volume: medium**.
- Press **OK** to accept the Volume level or press **CHANGE** to select low or high then **OK**. The display reads **Call: 221**.
- Press **OK** to select the default station or press **CHANGE** to enter another keystation's station number. This will be the keystation which rings when the Door Station's Call key is pressed. The display reads **Ring time: 30s**.
- Press **OK** to accept the programmed ring time before page chimes are presented, or press **CHANGE** to select the programmed ring time. If none is selected, the Door Station will not ring any keystations when the Call key is pressed. The display reads **Page zone: 3**.

8. Press **OK** to accept page zone 3 for chimes presentation, or press **CHANGE** to select Zone 1, 2 or none. If none is selected, no page chimes will be presented after ringing the Call keystation.

For a special application where no alerting capability is desired from the Door Station, select: Ring time: none and Page zone: none. The display reads Chime type: 1.

9. Press **OK** to accept the Chime type or press **CHANGE** to select 2, 3, 4 or none, then press **OK**. The display reads Opener type: none.
10. Press **OK** if no door opening capabilities are required for this application. See "Door Opening Control" on page 132 if door opening capabilities are required.
11. Press **DONE** if no other Door Stations need to be programmed.
12. Press **QUIT** or **[Fis]** to end this session. Pressing **[Fts]** at any time during the programming session will save any changes before quitting.

### Programming the Door Station to ring at several keystations

If required, you can program the Door Station to ring several keystations. In this example, station 236 has been selected as the Call Station in the above example and keystations 221, 222 and 223 are being programmed to also ring when the Door Station is called.

1. Press **[Feature] [\*] [\*] [C] [O] [N] [F] [ ] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Show]**. The display reads **Show stn#:**.
4. Enter station number 236.
5. The display reads **Line access** for station 221. Add an Answer key for station 236. Repeat this step for stations 222 and 223.

When the Door Station Call key is pressed, stations 221, 222 and 223 will ring because they have a ringing Answer key for station 236.

### Change the station names

Change the name of station 236 to DOOR and change the name of the Door Station to FRONT.

1. Press **[Feature] [\*] [\*] [C] [O] [N] [F] [ ] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Show]**. The display reads **Show stn#:**.
4. Enter station number 236.
5. Press **[Show]**. The display reads **Line access**.



6. Press **Next** until the display reads **Name**.
7. The display shows the station number or current name.
8. Press **CHANGE**. Enter the characters of the name using the keystation dial pad, to a maximum of 7 characters.
9. Press **F1s** to exit or **Next** to continue programming.

Stations 221, 222 and 223 will display **FRONT>DOOR** when the Door Station's Call key is pressed.

### Door Opening Control

One option is available for convenient door opening control, and requires optional equipment:

- Door Unlock Unit (DUU)



#### Do not use in high security environments

The DUU provide convenient control of locked mechanisms, but are not intended for sale premises security. Power failure, device failure, wiring faults and unauthorized equipment access can all contribute to a failed locked or unlocked situation.

The DUU fastener terminals are connected to the Door Station using one pair of wires. The DUU receives data from the Door Station and must be dip-switched for proper operation.

If a door opening device is installed, go to "Programming the Door Station parameters" on page 130, from step 10, proceed as follows:

1. Press **CHANGE** until the display reads **DUU**. Press **OK**.  
The display shows **To open dial: 6**.
2. Press **OK** to accept the number or press **CHANGE** to select a number between 0-9, \* or # then **OK**.
3. Press **F1s** or **DONE**, then **QUIT** to end this session.

### Test the Door Station

Press the Call key on the Door Station and ensure that the Call keystation alerts for the programmed ring time. Then chimes are heard at all appropriate sets included in the programmed Page zone.

To establish the voice path, dial the Door Station number from any Commander NT Keystation, or answer a ringing call from the Door Station at the Call keystation.

If installed, test the door release mechanism by pressing the **OPEN** display key or dialling the digit as specified under **Feature** **9** **\*** **4**. Press **F1s** to end the test.

**Tip** - The Door Station enters a 30-second waiting period after it originates page chimes. The Door Station Call key provides confirmation tones to the Door Station user during the waiting period, but it does not initiate subsequent calling until the 30 seconds have expired.

## Door Unlock Unit

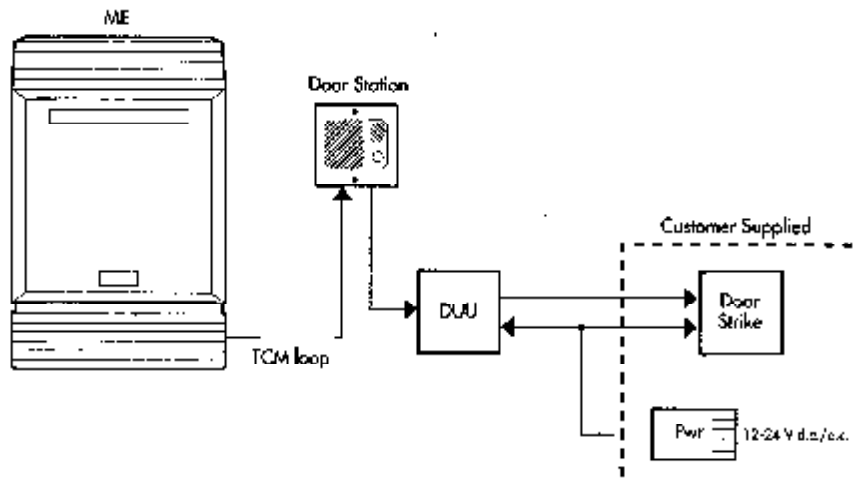
The Door Unlock Unit (DUU) operates through a Door Station connected to a Commander NT ME.

The DUU receives serial data from the Door Station, which is compared against a dip-switch set code for activation of a relay for operation of electric door release or gate mechanisms.

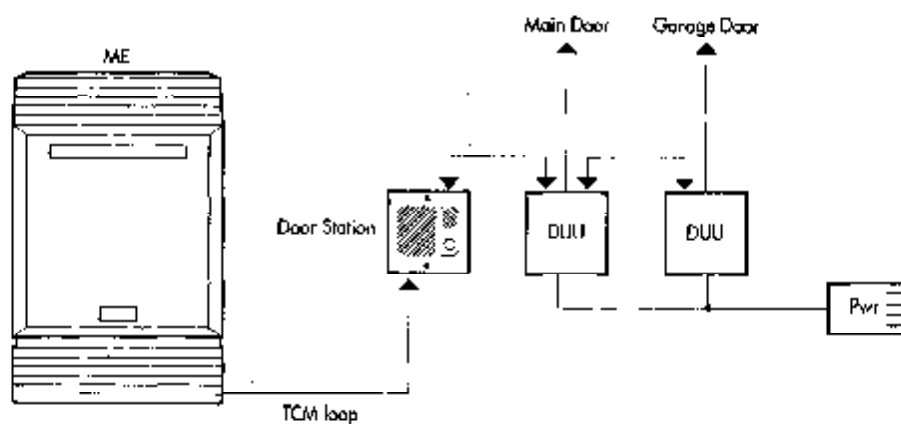
Check the following environment requirements:

Temperature	-35° to 60°C
Relative humidity	5% to 95% non-condensing
Power	12 to 24 V a.c. or d.c., 60 mA
Relay Contacts	Max. 8 A 30 V

### Door Unlock Unit overview



### Door Station with multiple DUUs



### Installing the DUU

There are three steps to follow when installing a DUU:

1. Set the DUU dip-switch.
2. Mount the DUU.
3. Wire the DUU.

#### Step 1: Setting the DUU dip-switch

##### Part A

Ensure that the upper four positions of the DUU dip-switch correspond with the opening digit or display key defined in Door Station Programming. See the following figure, "Dip Switch" on page 135, to determine dip-switch values.

**Note:** Both the Door Station and DUU are preset to 6.

For the steps to determine the display key or digit and to ensure that the Door Station is programmed for DUU operation, see "Programming the Door Station parameters" on page 130.

##### Part B

Ensure that the lower four positions of the DUU dip-switch correspond with the desired relay activation time.

**Note:** The DUU is preset to 3 s.

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## Powering up the system

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## Check the mains socket



**The mains socket must be connected to a properly grounded Protective Earth**

This equipment incorporates a protective earth for high voltage surge protection via the general purpose outlet. The Main Equipment must be plugged into a standard AS3112 mains socket.

## Battery back-up

Battery back-up on the Commander NT132 can be provided by use of a suitable Uninterruptible Power Supply (UPS) which in the event of a mains power failure will supply 240 V a.c. from internal batteries.

When installing a UPS the Commander NT132 mains plug must be plugged into the appropriate output socket on the UPS cabinet. The UPS is then connected to the mains General Purpose Outlet.



**UPS will provide 240 V a.c. to the Commander NT when the mains is switched off at the GPO**

If it is required to switch off the 240 V supply to the Commander NT (for example, for maintenance purposes) ensure that the UPS is ALSO switched off.

With mains power available the Commander NT132 is powered directly from the mains and a battery charger within the UPS ensures that the batteries are kept charged. In the event of a mains failure the batteries are automatically used to supply 240 V a.c. via an inverter.



**TNV Station modules cannot be connected to the same UPS as SELV modules and ME**

You must install a separate UPS for TNV Station modules.

Only a PlesTel approved UPS can be used. Details of suitable devices can be obtained from Commander Care Online at **1800 809 881**.

## ME Power Bar

Every ME is shipped with a Power Bar which is designed to protect the system from induced lightning surges on the mains. The Power Bar comes with a shorter flying mains lead to connect to the Power

Supply Unit of the ME or to another Power Bar if more power sockets are required.



**Always use a Power Bar**

The Power Bar includes a mains surge filter and must be fitted at every installation, even when no expansion modules are required.

1. Double-check all wiring before turning on the power for the system.
2. Plug one end of the shorter flying mains lead into the Power Supply Unit on the ME.
3. Plug the other end into the Power Bar.
4. Plug one end of the longer flying mains lead into the end of the Power Bar.
5. If the system consists of only an ME, place the Power Bar in the cable trough of the ME.
6. If the system includes a Line Module 12X0, slide the Power Bar into the holder located in the cable trough of the module.
7. Plug the other end of the mains lead into a working mains socket.

## Check that the power is on

After the power is supplied, the ME PSU will light up green. If the system is preconfigured, the installed ISDN BRA Cartridge or ISDN PRA Cartridge LEDs on the faceplate flash for up to 5 minutes. Keystations and lines may take up to 10 minutes to initialise.



**Allow time for the system to initialise**

The Commander NT system may take up to 10 minutes to fully initialise.

1. Check that the power LEDs of the PSU, the LM(s), and the SM(s) are on.

If none of the LEDs is on, verify that mains power is present at the socket. If there is mains power at the socket, see "Troubleshooting the ME and modules" on page 332.



**Allow time for ISDN BRA Cartridges to initialise**

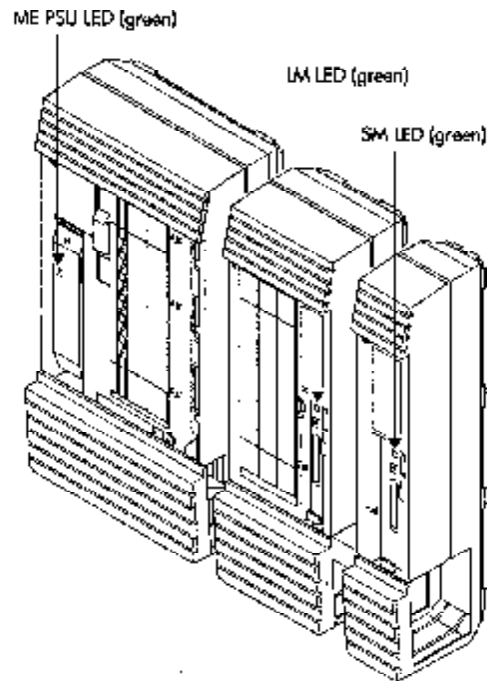
When ISDN BRA Cartridges initialise, the Commander NT132 system performance may appear slow until initialising is completed. The initialisation will take between 5 to 10 minutes. ISDN initialisation is performed when installing ISDN BRA Cartridges for the first time and also occurs when changing between different software loads.



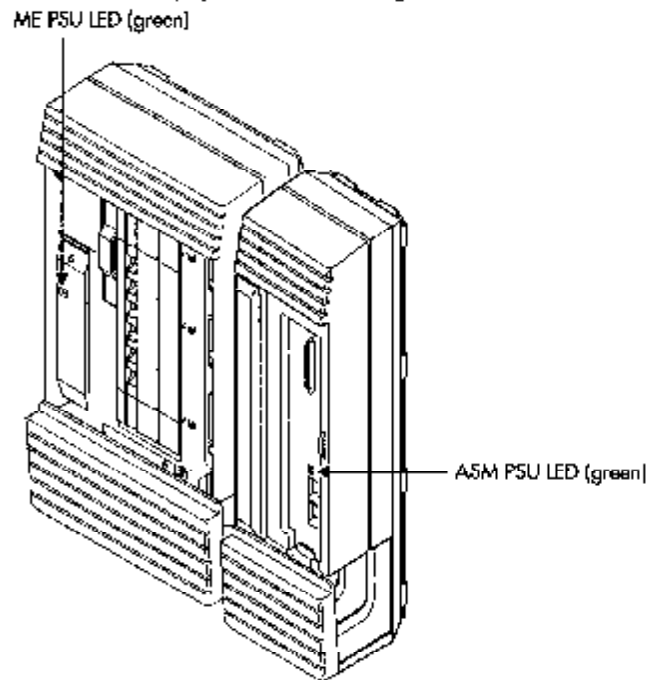
**Allow time for clock synchronisation**

When bringing ISDN BRA Cartridges into service, it may take up to 5 minutes for the ME to synchronise the system clock to the network.

**Power LEDs for Main Equipment, Line Module, and Station Module**



**Power LEDs for Main Equipment and Analogue**





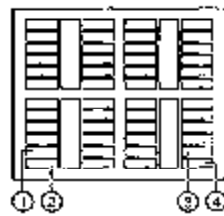
## Initialising a DSS Console/CAPN Module

You must initialise each DSS Console/CAPN Module individually during the first ten seconds after connecting the Console/Module, to establish default settings for the programmable memory keys. Once a Console/Module is initialised, it retains its programming, even if you move it or connect a second DSS Console/CAPN Module to it.

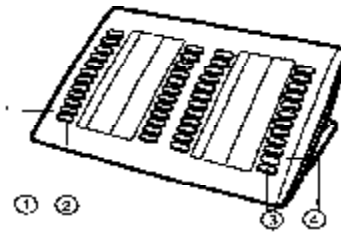
If the DSS Console/CAPN Module indicators have stopped flashing before it has been initialised, unplug the Console/Module, then reconnect it. The indicators should turn on, and then flash for 10 seconds.

To initialise a DSS Console/CAPN Module:

1. While the DSS Console indicators are flashing, simultaneously press the two keys on the lower left side and the lower right side of the DSS Console/CAPN.



DSS Console



CAPN Module

The indicators turn on one at a time in sequence, beginning at the lower right corner of the module. The indicators then turn off. After all the indicators turn off, the DSS Console/CAPN is initialised and ready to use.

---

## Starting programming

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## The programming overview

The chart on the following pages shows all the programming settings. Normally you move from one setting to the next by pressing **[Next]**; where a group of settings are gathered under another setting, you press **[Show]** to access them. Default values for the PBX template are shown in bold.

In general, any changes to the programming for Cartridge Data, Line Data and Line Access will not take effect until after the programming session ends. Station key assignments also will not take effect until the session ends. If the station is busy at that point, Commander NT will try again a minute later.

Changes to Commander NT feature defaults or other system programming will take effect immediately.

## Programming overview

<b>Startup</b>
Template: <b>PRX_Square_Hybrid</b>
Start Sm: <b>221</b>
<b>Sms&amp;Peripheral</b>
Show sh#?_
Line access
Line assignment
Show line?_
Non-DOT line
0001-0008 & 031-0308: Ring only, App&Ring, App only, Unsigned
DOT line (line 255 to 382)
255: Ring only, App&Ring, App only, Unsigned
Appearance: 1
LinePool access
Line pool A: Y, B-D: N
Prime user Name, Pool A, B/C
Info com keys: 2 (0 to 8)
Answer strs
Show str#_
221: Unsigned, App&Ring, App only
CLIR: None
<b>Capabilities</b>
Direct answer
Event to: None
Event delay: 0, 9, 12, 18, 30
Direct on busy
Event to: None
DND on busy: 221: N, others: Y
Handfree: Auto, Str, None
IF answerack: Y
Pickup grp: None, 1, 2, 3, 4, 5, 6, 7, 8, 9
Page grp: None, 1, 2, 3, 4, 5, 6
Ring: Y
D-Dial: None, Sm1, Sm2, Sm3, Sm4, Sm5
Priority call: N
Holding: None, Intnl, Extnl
(If Extnl) Use prime line, Use line, Pool code, Use routing tab
App ring: N
Redial ring: Y
Receiver tone: N
SITA settings
Answer timer: 3, 4, 7, 10
SITA mode: Tone, Pulse
SITA tones: N
Magdicolor: None, Tone, Lamp
Name: 221
<b>User preferences</b>
Model: Advantage/M7310N
Key programming
If M7000 Keystation: 4 keys
If Economy/M7100N: 1 key
If Standard/M7200N: 8 keys
If Advantage/M7310N: 10+24 keys
If Principal/M7324N: 24 keys
Personal Spd Cl
Call log opts: No one answered, Unanswered by me, Log all calls
No autologging
Dialing opts: Automatic dial, Prchal, Standard dial
Display opts: 1, 2, 3, 4, 5, 6, 7, 8, 9
Ring type: 1, 2, 3, 4
<b>Restrictions [stat]</b>
Restm Thrs: 100-999
Show str#_
Restm R# 00
No restrictions
Restm R# 01
Restm 01-0
Day: 0
Override 001-013
Restm 02:1
Day: 1
Override 001-13
Override 002: 1800
Restm R# 05
Restm 01: 00
Day: 00

No override
Restm 02: 1
Day: 1
Override 001: 13
Override 002: 11
Override 003: 1800
Restm R# 06
Restm 01: * (dot is a wildcard character)
Day: *
No override:
Restm R# 07: 99
No restrictions
<b>Sm restm</b>
Normal R# 02
Night: 11
Evening: 12
Lunch: 13
Mode 4: 00
Mode 5: 00
Mode 6: 00
SmLock: None, Partial, Full
Allow last no: Y
Allow forward: Y
Allow recall: Y
Allow redirect: Y
Line/line info
Show line#_
Normal: None
Night: None
Evening: None
Lunch: None
Mode 4: None
Mode 5: None
Mode 6: None
<b>Restm restm</b>
Normal R# 04
Night: 31
Evening: 32
Lunch: 33
Mode 4: 00
Mode 5: 00
Mode 6: 00
<b>Network features</b>
CL assignment
Show line#_
Call log str: N (Default for DDE: Y)
TelDisplay: Name, Number, Line
Auto called ID: N
Log space
Log 0: Pool 600
<b>Lines</b>
Show line#_
Line data
BRA line 1001 to 008, 031 to 008, 061 to 214:
Card type: BRA-4 (4-pin BRA card)
Line type: PoolA, PoolB to C, Public, Private etc
PrimeSm: 221
CL sm: None
Auto privacy: Y
Ans mode: Auto, Manual
(If Ans mode: Auto)
Ans w/ft: DISA: N
Ans. ringer: N
Full AutoHold: N
PRA line 1001 to 030, 031 to 062:
Card type: PRA
Line type: PoolA, PoolB to C, Public, Private etc
PrimeSm: 221
CL sm: None
Auto privacy: Y
Ans mode: Auto, Manual
Ans. ringer: N
Full AutoHold: N

<p> <b>ESSN lines (001 to 006, 031 to 034, 561 to 230)</b>            Call type: PSTN            Line type: Pool A, Pool B to C, Public, Private to:            Dial mode: Tone, Pulse            PrimeStar: 221            CLM: None            Auto privacy: Y            Line mode: Unsepr, RCM, RCM            Aux. ringer: N            Recall: 100, 600            Full Auto-fold: N            Direct Dial Inward lines (253 to 392)            Line type: Public, Private            Recd #: 253            If busy: BusyTone, To prime            PrimeStar: None            CLM: None            Aux. ringer: N            Name Line #            Restrictions (lines)            Restrict filters (00-99)              Show filter:                Restrict filter:                  No restrictions                Restrict filter:                  Restrict filter: 0                  Deny: 0                  Override 001: 033                Restrict filter:                  Deny: 1                  Override 001: 13                  Override 002: 1800                Restrict filter:                  Restrict filter: 00                  Deny: 00                  No overrides                Restrict filter:                  Deny: 1                  Override 031: 13                  Override 002: 11                  Override 003: 1800                Restrict filter:                  Restrict filter: * (asterisk is a wildcard character)                  Deny: *                  No overrides                Restrict filter:                  No restrictions            Line modes              Normal filter: 00              Night: 21              Evening: 22              Lunch: 23              Mode 4: 00              Mode 5: 00              Mode 6: 00            Remote restricts              Normal filter: 04              Night: 31              Evening: 32              Lunch: 33              Mode 4: 00              Mode 5: 00              Mode 6: 00         </p>	<p>           Aux. ringer: N            Mode: Evening            Mode: Lunch            Mode: Mode 4            Mode: Mode 5            Mode: Mode 6            Restrict service              Mode: Night              Service: Off, Auto, Manual              Mode: Evening              Mode: Lunch              Mode: Mode 4              Mode: Mode 5              Mode: Mode 6            Routing service              Route: (000-999)              Show route:              Rte: 000              DialOut: No number (Max 24 digits)              Use: Pool A, Pool C            Dist codes              Show DistCode:              Normal: 000              Access length: All              Night: None              Evening: None              Mode 4: None              Mode 5: None              Mode 6: None            Mode: Night              Service: Off, Auto, Manual              Overflow: N              Mode: Evening              Mode: Lunch              Mode: Mode 4              Mode: Mode 5              Mode: Mode 6            Common settings              Control at:              For lines                Show line:                1001: 221              For rts                Show rts:                221: 221            Mode names              Mode 1: Night              Mode 2: Evening              Mode 3: Lunch              Mode 4: Mode 4              Mode 5: Mode 5              Mode 6: Mode 6            Mode times              Monday                Mode: Night                Start time: 17:00                Skip time: 08:00                Mode: Evening                Mode: Lunch                Mode: Mode 4                Mode: Mode 5                Mode: Mode 6              Tuesday Mode              Wednesday Mode              Thursday Mode              Friday Mode              Saturday Mode              Sunday Mode         </p>
<p> <b>Services</b>            Ringing service              Ringing groups (0-100)                Show group:                Ringing grp: 0                Show rts:                221: Assigned, all others: Unassign              Mode: Night                Service: Off, Auto, Manual                Line answer: Y                ExtraDist: 221                Line settings                Show time:                Ringing grp: 01         </p>	<p> <b>Sys speed dial</b>            Speed dial # (11-20) (Max 24 digits)            Use prime line, Use line, Pool code, Use routing tool            Display digits: Y            (If Display digits=0 Name Max 16 characters)            Bypass restr: N  <b>Passwords</b>            COS passwords              Show password: (00-99)         </p>

**COI powd # 00**  
 Powd 00: None  
 User fr: None (00 to 99)  
 Line fr: None (00 to 99)  
 Remote plg: None (00 to 15)

**Call log powds**  
 Show stat: 221:22  
 Log powd: None

**Programming periods**  
 Installer:  
 SysAdmin: 227587  
 (SAPLJS)  
 SysAdmin: 23616  
 (ADMIN)  
 Pass: 22742  
 (BASIC)  
 Hospitality: Keycode#  
 Desk powd: 4677  
 (HOSP)  
 Card: None

---

**Time & Date**  
 Hour: 01  
 Minute: 01  
 Year: 99  
 Month: 01  
 Day: 01

---

**System programming**

**Host groups**  
 Show group:  
 HGM: station  
 Members:  
 001: (station)  
 App: only, App@Ring, Ring only  
 Line assignment  
 Show line:  
 Linn: Unassigned, Assigned  
 Mode: Sequential, Cyclic, Broadcast  
 Hunt delay: 3, 9, 12, 15, 18, 21, 24, 27, 30  
 If busy: BusyTone, Overflow, Queue  
 D3 timer: 15, 30, 45, 60, 120, 160  
 Overflow: (hold)  
 Name: HGM, (7 characters)

**Change time**  
 Old shif: (Max 7 digits)  
 New shif: (Max 7 digits)

**Feet settings**  
 Background music: N  
 On hold: Tones, Music, Silence  
 Hold duration: User's volume, Use on volume  
 Camp timeout: 30, 45, 60, 90, 120, 150, 180  
 Park timeout: 30, 45, 60, 90, 120, 150, 180, 300, 600  
 Park mode: Lowest, Cycle  
 Transfer: 20, 30, 45, 60, 90  
 Hold time: 15, 30, 45, 60, 90, 120  
 DRF to prime: Y  
 DRF delay: 3, 5, 10, 15, 20, 25  
 EX-EX Tr/Code: Y  
 Hold reminder: Y  
 Remind delay: 30, 60, 90, 120, 150, 180  
 Conference tone: Y  
 Direct pickup: Y  
 Page tone: Y  
 Prog timeout: 15, 30, 60, 120, 180, 300, 600, 2700  
 Auto Tone & Date: Y  
 Call log space:  
 Reset all logs?  
 Hunt delay: 1000 (1000 to 7000 in 500 sec increments)  
 Alarm ch: 221  
 Sim relocation: N  
 Atg rep y enh: N  
 Ann key: Basic, Enhanced, Extended

**Direct-dial**  
 D-Dial 1: Intnl, Extnl, None  
 Intnl# 221, Extnl#: None

**DSS assignment**  
 DSS1: None

**Access codes**  
 Line pool codes  
 Line pool A: None, Line pool B to C: None  
 Park prefix: 1, 3, 6, 7, 8, None  
 Extnl code: 0, 3, 6, 7, 8, None  
 Direct-dial: 3, 6, 7, 8, 9, None  
 Auto F: None  
 OLSA #: None

**Remote access**  
 Remote access plg: (00-15)  
 Show plg: 00  
 Rem plg 00  
 Info: access  
 Pool A: N  
 Pool B to C: N  
 Remote page: N  
 Remote line access:  
 Show line: (00)-Rem plg 00  
 Rec'd # length: 3, 4, 5, 6, 7  
 Str# length: 3, 4, 5, 6, 7  
 Release wait: 0  
 Text: Simple, Detailed, None  
 Hospitality (Keycode#):  
 Room / desk info:  
 Show str:  
 Room #:   
 Actn pwd req'd: Y  
 Call name:  
 Vacant: 00  
 Use fr:   
 Basic: 00  
 Mfr: 00  
 Full: 00  
 Service time:  
 Hour: 00  
 Minutes: 00  
 Alarm:  
 Attm attempts: 1, 2, 3, 4, 5  
 Retry intrvl: 2, 4, 6, 8  
 Allrd duration: 10, 15, 20, 30, 40, 50  
 Time format: 12hr, 24hr

---

**Netwk features**  
 OPEN blocking  
 Tone: 1831  
 P. In: 1831

---

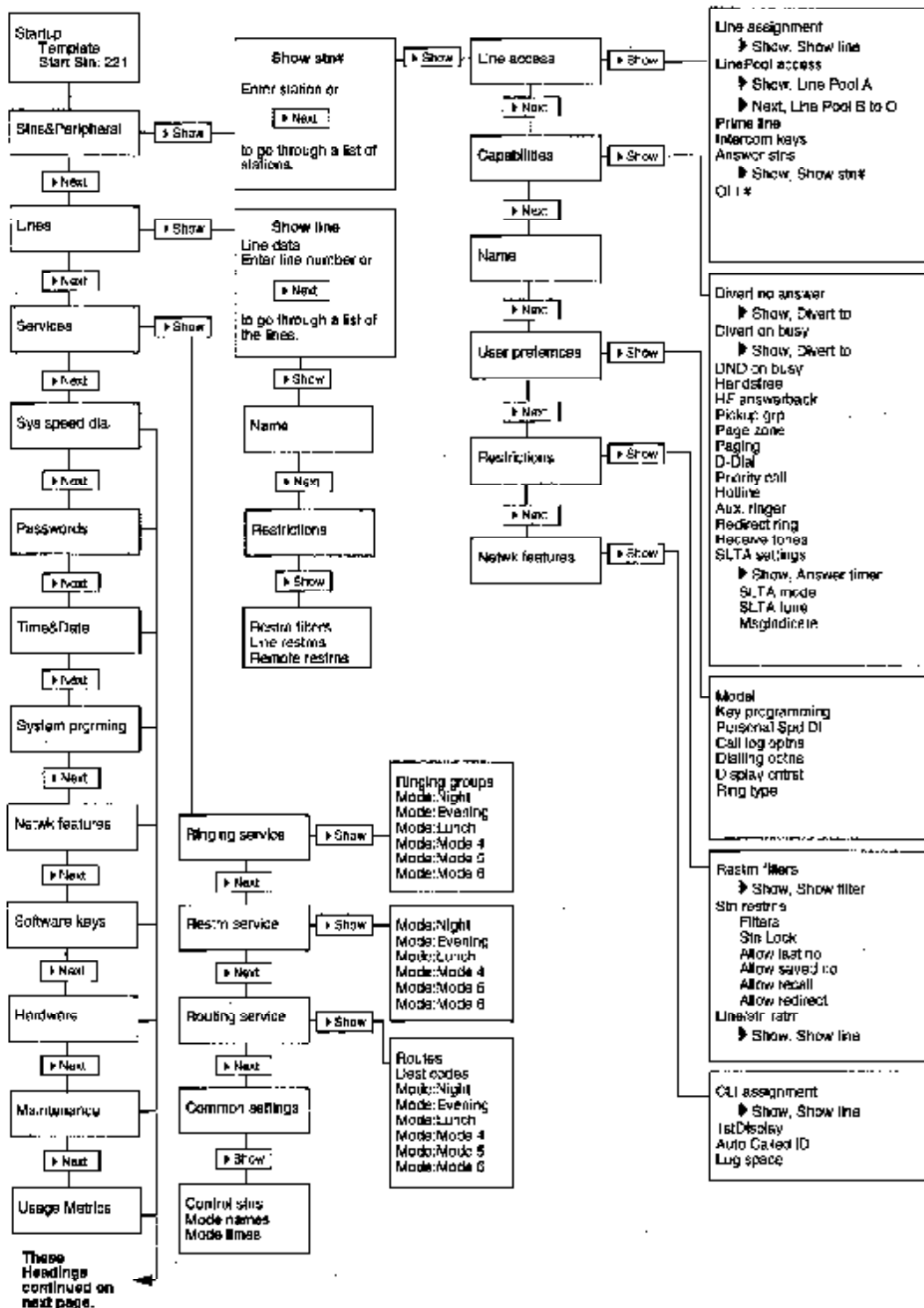
**Software Keys**  
 System (8 digits)  
**Password Keys**  
 Key 1: (8 digits)  
 Key 2: (8 digits)  
 Key 3: (8 digits)

---

**Hardware**  
 Show module  
 Cmts on ME:  
 LC1 - ME PSTN, 3RA-4, PRA  
 LC2 - ME PSTN, 3RA-4, PRA  
 (if BRA card)  
 LC type: BRA  
 Locat: 201-204 (BRA LC1), 231-234 (BRA LC2)  
 Linn: none  
 Type: S, T  
 (H Type S) Sampling, Adaptive, Fixed  
 Sigs on Lpms:  
 Assign rts:  
 Show shif: 999: Available  
 Loop shif: None  
 Clock Src: Primary, Secndry, Timing Master  
 (if ISDN PRA card)  
 LC type: PRA  
 Lines: 001-030, 031-060  
 Clock Src: Primary, Secndry, Timing Master  
 Cmts on Mod: (Module 3 to 8)  
 LC1 on Mod: BRA, PSTN  
 LC2 on Mod: BRA, PSTN  
 LC3 on Mod: BRA, PSTN

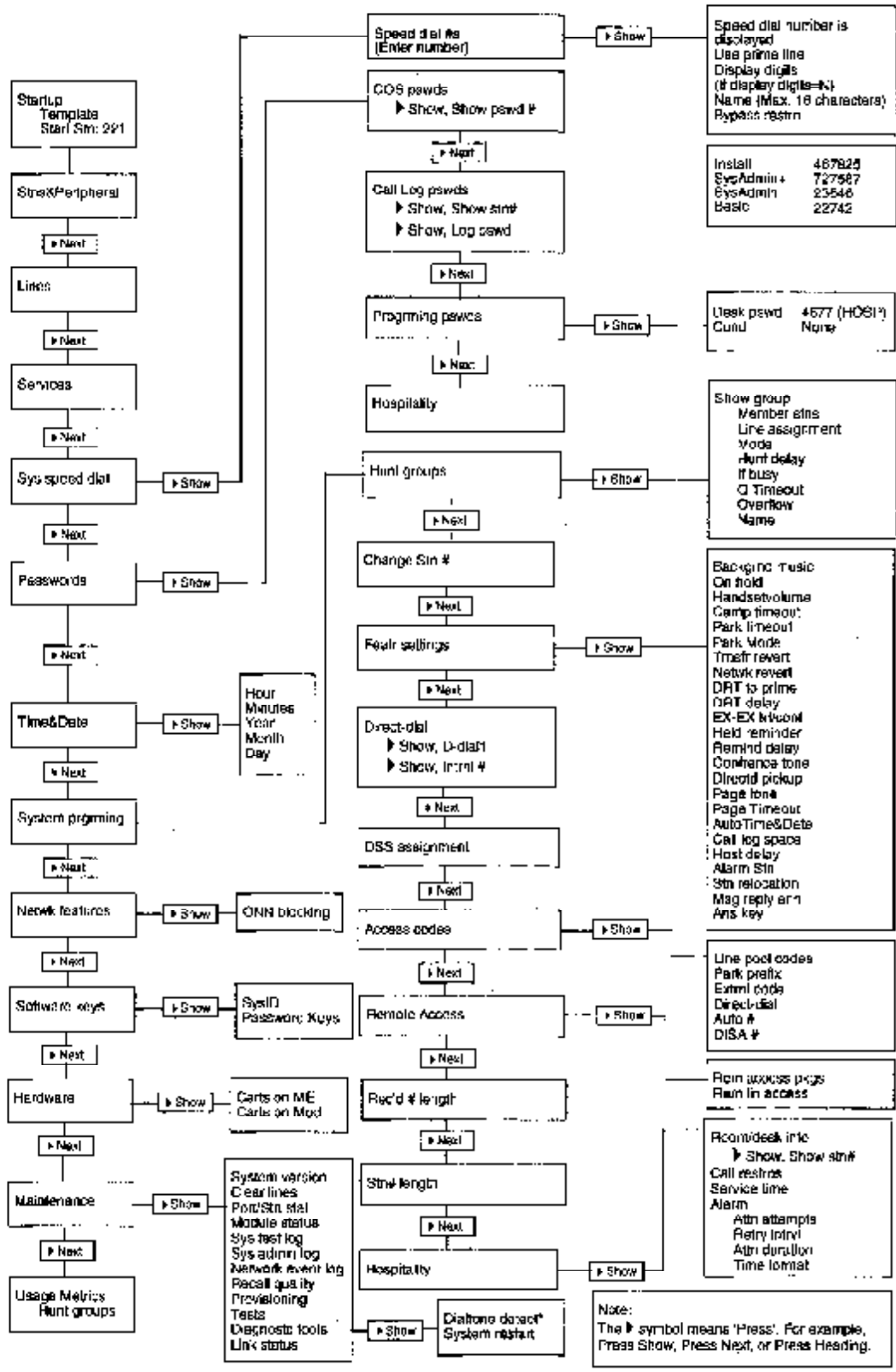
<pre> {# BPA card} Loops: 301 to 804 Type: S, T (If type S) Sampling: Adaptive, Fixed Shs on _pin Assign vls Show stat_ 900: Available Loop shif: None         </pre>
<p><b>Maintenance</b></p> <pre> System version Clear line Port/Slot stat Module status Sys int log Sys admin log Network int log Reset quality Provisioning Test loopback test Diagnostic tool Diagnose detect Show line_ System restart Restart system? Link status         </pre>
<p><b>Usage Metrics</b></p> <pre> Fuel groups Show group_ AG -&gt; metrics         </pre>

**Programming map**



These Headings continued on next page.





\*Dialtone detect may not be available for your system.

### Programming using the Installer password

The following tables give an overview of the programming available using the Installer password.

<b>Startup</b>	<b>Passwords</b>	<b>Hardware</b>
Template	COS pswds	Carts on ME
Start stn	Call log pswds	Carts on Mod
<b>Stns&amp;Peripheral</b>	Progming pswds	<b>Maintenance</b>
Line access	Hospitality	System version
Capabilities	<b>Time&amp;Date</b>	Clear lines
Name	<b>System prgming</b>	Port/Stn stat
User preferences	Hunt groups	Module status
Restrictions	Change Stn #	Sys test log
Netwk features	Featr settings	Sys admin log
<b>Lines</b>	Direct-dial	Network evt log
Line data	DSS/CAPN assignment	Recall quality
Name:	Access codes	Provisioning
Restrictions	Remote access	Tests
<b>Services</b>	Rec'd # lengths	Diagnostic tools
Ringing service	Stn# length	Link status
Restrn service	Hospitality	<b>Usage Metrics</b>
Routing service	<b>Netwk features</b>	Hunt groups
Common settings	ONN blocking	
<b>Sys speed dial</b>	<b>Software Keys</b>	
	SysID	
	Password keys	

## System Profile

There are three System Profiles that you can select when you install a Commander NT132. Each System Profile has system parameters for different country protocols.

You must select a System Profile before you do System Startup, in the first 15 minutes after the Norstar system is powered up. The System Profile default for Commander NT systems is PROF B.

See "Selecting a System Profile" on page 170.

## Selecting a default template on System Startup

System Startup allows you to select one of three programming templates: Square, PBX, or Hybrid. Selecting a template sets all of the programming data to system-wide defaults. The template you choose determines which lines appear on which keystations, whether keystations have access to line pools, and which keystations ring for each line.

System Startup is performed only when the system is first installed. When you first start the system, it will be set to a PBX default.

On a new system or a software upgrade to AUS1.2, port 101 station display shows **Region Underlined** until you specify a profile at this station. All other stations will continue to flash. See System Profile above for more information.



### Perform System Startup only on new installation

System Startup erases all system data. Perform System Startup only on a new system that has just been installed.

## Changing default settings to meet customer needs

After you power up the Commander NT system, it operates according to pre-established default values. Programming provides the opportunity to change the default values and to customise the system so that it meets the customer's specific needs.

The default values for the PBX template are shown in **bold type** in this section (see "Programming overview" on page 151) and can also be found in the *Programming Record*.

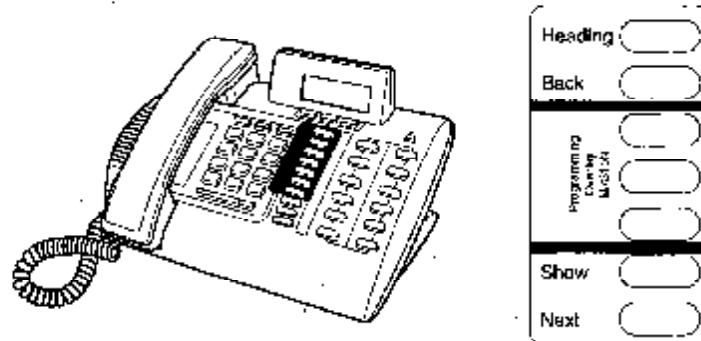
The *Programming Record* is a tool to assist you in planning and carrying out the programming for the system. Record all programming in the *Programming Record*.

The *Programming Record* is also used as an on-site reference after installation. It lets you see at a glance all of the programming that has been done for the system and for particular lines, keystations or basestations.

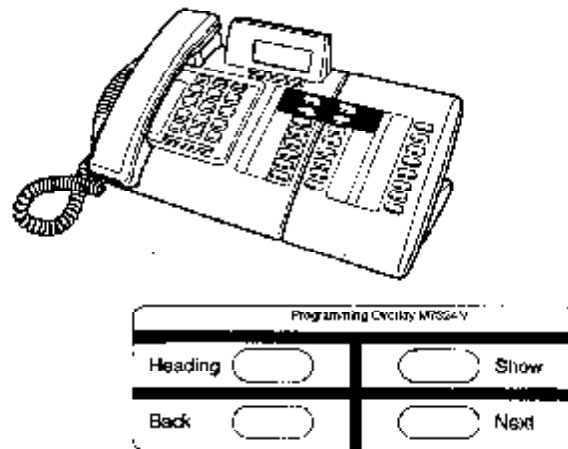
## Using the programming overlay

Programming is done on an Advantage/M7310N or Principal/M7324N Keystation. The programming overlay is a paper template that you place over the memory keys on the keystation. You will find it included with the Customer CDROM or the M7310N and M7324N Keystation User Card. You use the memory keys and the display keys to move through the programming display messages.

### M7310N Keystation with the Commander Programming Overlay



### M7324N Keystation with the Commander Programming Overlay



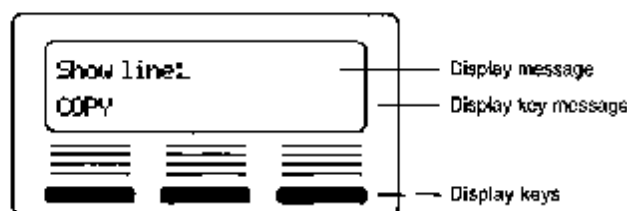
The indicators (▶) on the Advantage/M7310N or Principal/M7324N Keystation show which keys can be used at that programming step. The functions on these keys enable you to move through the headings and subheadings of Commander NT programming.

- ▶ Heading  moves to a higher level in the hierarchy of headings and subheadings.
- ▶ Show  moves to a lower level in the hierarchy of headings and subheadings, or begins programming for a heading or subheading.
- ▶ Next  moves forward at the same level in the hierarchy of headings and subheadings.

**Back** moves backward at the same level in the hierarchy of headings and subheadings.

## The Commander NT display keys

Display keys on the Advantage/M7310N and Principal/M7324N Keystation perform many functions. Depending on where you are in the programming, one, two, or three display keys may be available at any one time. Press one of the display keys to select the desired function.



The most common display key labels are:

Display key	What it does
<b>CHANGE</b>	changes a programmable setting
<b>BACKSP</b>	moves the cursor one space to the left (backspace) and deletes a character, enabling you to re-enter a number or letter
<b>COPY</b>	copies the settings of items like lines, stations, and filters to an item of the same type
<b>ADD</b>	allows you to add data
<b>QUIT</b>	allows you to quit a programming session
<b>FIND</b>	gives you the option to directly enter data
<b>SCAN</b>	generated search that displays a list of available settings such as lines and stations
<b>CANCEL</b>	cancels the previously invoked feature or programming setting
<b>RETRY</b>	used to re-enter preferred data or a setting
<b>JOIN</b>	used to join in on a call when, for example you are invoking the Transfer feature
<b>LIST</b>	displays the lowest value in a list of station numbers, lines, or other items
<b>VIEW</b>	displays the last part of a displayed message longer than 16 characters
<b>&gt;</b>	moves the cursor one position to the right when programming a name

Display key	What it does
<	moves the cursor one position to the left when programming a name

## Entering the Installer password

You need the Installer password to enter System Startup, System programming, Copy, and Maintenance.

On a new installation the default Installer password is

**I N S T A L** (4 6 7 8 2 5).



### Record your password

Record any password changes in the *Programming Record*. If you forget the Installer password you will not be able to program the system.

## Starting a programming session

Follow these steps any time you start programming:

1. Place the programming overlay on any Advantage/M7310N or Principal/M7324N Keystation.
2. Press **Feature** \* \* **C O N F I G**. The display reads **Password:**.
3. Enter the Installer password. The display reads **Stns&Peripheral**.
4. Press **Show**. The display reads **Show stn#:**.
5. Enter the number of the station you want to program or press **Next** to select the next station.
6. Press **Show** to show the settings for the displayed station.
7. Press **Next** until you reach the heading you want to use.

## Changing programming passwords

You can, and should, change your programming passwords regularly for security reasons. Keep a record of your passwords in a secure place, and remember: the longer the password, the more likely it is to be secure.

1. Place the programming overlay on any Advantage/M7310N or Principal/M7324N Keystation.
2. Press **Feature** \* \* **C O N F I G**. The display reads **Password:**.
3. Enter the Installer password. The display reads **Stns&Peripheral**.

4. Press **Next** until the display reads **Passwords**.
5. Press **Show**. The display reads **COS Pswds#**.
6. Press **Next** until the display reads **Programming Pswds**.
7. Press **Show**. The display reads **Installer:467825**.
8. Press **CHANGE** and enter up to six digits for a new Installer password. Use **BACKSP** for correction. Press **OK** to accept the new password.
9. Press **Next**. The display reads **SysAdmin+:727587**.
10. Press **CHANGE** and enter up to six digits for a new System Administrator Plus password. Use **BACKSP** for correction. Press **OK** to accept the new password.
11. Press **Next**. The display reads **SysAdmin:23646**.
12. Press **CHANGE** and enter up to six digits for a new System Administrator password. Use **BACKSP** for correction. Press **OK** to accept the new password.
13. Press **Next**. The display reads **Basic:22742**.
14. Press **CHANGE** and enter up to six digits for a new BASIC password. Use **BACKSP** for correction. Press **OK** to accept the new password.
15. Press **Fls** to exit or **Next** to continue programming.
16. Record the new password in the *Programming Record*.

## Copying programming to save time

**Copy** allows you to copy programmed data from one station to another. Copying data to a station overrides that station's previous programming. There are two options for Copy:

- **Copy: SYSTEM data** allows you to copy system data that has been previously programmed. The source and destination keystations do not need to be the same model.
- **Copy: SYSTEM+USER** allows you to copy system and user data. User data refers to the individual keystation programming that has been done by someone to customise their keystation. The source and destination keystations must be the same model and must be connected to the system before you can use this option.

### Copying settings from one station to another

The default is **SYSTEM** data.

1. Place the programming overlay on any Advantage/M7310N or Principal/M7324N Keystation.
2. Press **Feature** \* \* **C O N F I G**. The display reads **Password#**.

3. Enter the Installer password. The display reads **Stns&Peripheral**.
4. Press **Show** . Enter the station number whose programming you want to copy.
5. Press **COPY**. The display reads **Copy:SYSTEM data**.
6. Press **CHANGE** to toggle between **SYSTEM data** (to copy the programming of the system) and **SYSTEM+USER** (to copy the programming of the system and the programming of a particular station).
7. Press **Next** . The display reads **Copy:SINGLE**.
8. Press **Next** . The display reads **Copy to:**.
9. Enter the station number that you want to program. The display reads **nnn>nnn** briefly, then returns to **Copy to:**.
10. Keep entering station numbers if you have other single stations that you wish to program.
11. Press **CANCL** when you are finished.

### Copying to a range of stations

1. Place the programming overlay on any Advantage/M7310N or Principal/M7324N Keystation.
2. Press **Feature** \* \* **C** **O** **N** **F** **I** **G** . The display reads **Password:**.
3. Enter the Installer password. The display reads **Stns&Peripheral**.
4. Press **Show** . Enter the station number whose programming you want to copy.
5. Press **COPY**. The display reads **Copy:SYSTEM data**.
6. Press **CHANGE** to toggle between **SYSTEM data** (to copy the programming of the system) and **SYSTEM+USER** (to copy the programming of the system and the programming of a particular station).
7. Press **Next** . The display reads **Copy:SINGLE**.
8. Press **CHANGE**. The display reads **Copy:RANGE**.
9. Press **Next** . The display reads **Only equipped stn.**
10. Press **CHANGE** to switch between equipped stations and all stations. The display reads **All stn #'s**.
11. Press **Next** . The display reads **Begin at:**.
12. Enter the starting station number. The display reads **End at:**.
13. Enter the ending station number.  
The display reads **nnn>nnn-nnn?**.



14. Press OK to copy the programming to the specified stations.

### Copying to a all stations

1. Place the programming overlay on any Advantage/M7310N or Principal/M7324N Keystation.
2. Press **Feature** **\*** **\*** **C** **O** **N** **F** **G**. The display reads **Password:**.
3. Enter the Installer password. The display reads **Stns&Peripheral**.
4. Press **Show**. Enter the station number whose programming you want to copy.
5. Press **COPY**. The display reads **Copy:SYSTEM data**.
6. Press **CHANGE** to toggle between **SYSTEM data** (to copy the programming of the system) and **SYSTEM+USER** (to copy the programming of the system and the programming of a particular station).
7. Press **Next**. The display reads **Copy:SINGLE**.
8. Press **CHANGE**. The display reads **Copy:ALL**.
9. Press **Next**. The display reads **Only equipped stn**.
10. Press **CHANGE** to switch between equipped stations and all stations. The display reads **All stn #'s**.
11. Press **Next**. The display reads **nnn>ALL?**.
12. Press OK to copy the programming to the specified stations.

You can also use **COPY** to duplicate the settings found in the individual sub-headings. The **COPY** key is available in **Line access**, **Capabilities**, **User preferences**, **Restrictions** and **Netwk features** and will copy only the settings included in the sub-heading.

If you press **COPY** in one of these sub-headings, you will not be asked to decide if user data will be copied. Otherwise, the procedure is the same.

**Note:** To copy to a group of stations that are not part of a range, follow the steps for making a single copy and keep entering new numbers at the **Copy to:** display.

Depending on the activities going on in the system, a copy may not take effect for awhile. The brief display you see once you finish a copying session does not indicate that the process is complete.

You can exit the programming session even if the copy has not been completed. If you exit programming, copying continues uninterrupted until it is completed.

**User data settings**

<b>User data that will be copied:</b>	<b>User data that will be copied if destination station is the same type as the source station:</b>
Ring type Calls log options ( <i>Auto logging</i> ) Display contrast Dialling options (automatic, pre-dial, standard)	External autodial key assignments Internal autodial key assignments Programmable key assignments

**System data settings**

<b>System data that will be copied:</b>	<b>System data that will NOT be copied:</b>
<b>Line access</b> Line assignment Answer station numbers (unless Answer key station number is same as station being copied to) Line pool access Appearance (DDI lines only) Prime line designation Number of intercom keys <b>Capabilities</b> Divert No Answer (station number + delay + setting) Divert on Busy (station number + setting) Priority calling Paging Redirect ring Auxiliary ringer Receive tones DND on busy Hotline Handsfree answerback Handsfree setting Direct-dial (which station is reached by the Direct-Dial digit) Pickup group Paging zone SLTA settings (except Use ringback setting) <b>Restrictions</b> Line/station restrictions Station restrictions Station lock Allow last number Allow saved number Allow recall Allow redirect <b>Netwk features</b> 1st Display Caller ID stn (Auto call info) Call Log stn (Logging stn)	<b>Line access</b> Private line appearances <b>Station name</b> <b>Call services</b> Log passwords Log space <b>Direct-dial station designation</b> (which station is the D-Dial station) <b>DSS/CAPN assignment</b> <b>Ringin service</b> ExtraDial station designation Ringin station designation <b>Lines</b> Prime station designation for a line <b>System programming</b> Hunt group appearance

## Commander NT132 default key assignments

Default features are assigned automatically to the programmable keys on Commander NT132 Keystations and vary depending on the keystation. The default features are listed in the following tables.

### Rules of default key assignment

Line and Intercom keys are assigned by default templates and can be changed in programming. Answer keys are not assigned by default. If these features are defined, however, they are automatically assigned to specific keys, as described on this and the following page. None of these keys can be assigned to Economy/M7100N or M7000 Keystations.

The Handsfree/Mute feature appears on the bottom right-hand key (the bottom key on the Standard/M7208N Keystation), moving the Intercom key(s) up one position.

Each keystation can have up to eight Intercom keys. They appear above the Handsfree/Mute key at the bottom right-hand position on your keystation.

**Note:** A Standard Keystation can have only seven Intercom keys if Handsfree is programmed.

Each keystation can have up to four Answer keys. They appear above Intercom keys in the right-hand column and continue up from the bottom in the left-hand column, replacing the features on those keys. (On the Standard/M7208N Keystation, Answer keys appear above Intercom keys and below exchange line keys in a single column.)

Exchange line keys appear in ascending line order, starting at the top key in the left-hand column (the top key on the Standard/M7208N Keystation). If more than five exchange lines are assigned to an Advantage/M7310N Keystation, assignment continues down the keys in the right-hand column, erasing the features on those keys. Line keys have priority over feature access keys but not Handsfree/Mute, Intercom, or Answer keys.

### M7000 Keystation

Square	Hybrid	PBX
Last no. Red's	Last no. Redial	Last no. Redial
Divert	Divert	Divert
Transfer	Transfer	Transfer
Conference	Conference	Conference

### Economy/M7100N Keystation

Square	Hybrid	PBX
Transfer	Transfer	Transfer

**Standard/M7208N Keystation**

Square	Hybrid	PBX
Line 1	Line 1	Conference
Line 2	Line pool	Group Pickup
Line 3	Last no. Redial	Last no. Redial
Line 4	Speed Dial	Speed Dial
Transfer	Transfer	Transfer
Intercom	Intercom	Intercom
Intercom	Intercom	Intercom
Handfree MFC	Handfree MFC	Handfree MFC

**Advantage/M7310N Keystation dual-memory keys (all templates)**

Stn 233	Stn 237	Stn 241
Stn 221	Stn 225	Stn 229
Stn 234	Stn 238	Stn 242
Stn 222	Stn 226	Stn 230
Stn 235	Stn 239	Stn 243
Stn 223	Stn 227	Stn 231
Stn 236	Stn 240	Stn 244
Stn 224	Stn 228	Stn 232

The defaults shown for the dual-memory keys do not actually occur on any keystation, as no keystation has an autodial key for itself. The station number for each keystation appears as a blank key on that keystation.

**Advantage/M7310N Keystation memory keys with indicators**




Square		Hybrid*		PBX*	
Line 1	DND	Line 1	DND	Page General	DND
Line 2	Last no. Redial	Line pool	Last no. Redial	Conference	Last no. Redial
Line 3	Intercom	Divert	Intercom	Divert	Intercom
Line 4	Intercom	Group Pickup	Intercom	Group Pickup	Intercom
Speed Dial	Handfree MFC	Speed Dial	Handfree MFC	Speed Dial	Handfree MFC

## Principal/M7324N Keystation memory keys with indicators



Square		Hybrid*		PBX*	
Line 1	Divert	Line 1	Divert	blank	Divert
Line 2	Speed Dial	Line pool	Speed Dial	blank	Speed Dial
Line 3	Last no. Redial	blank	Last no. Redial	blank	Last no. Redial
Line 4	Saved No.	blank	Saved No.	blank	Saved No.
blank	Conference	blank	Conference	blank	Conference
blank	Transfer	blank	Transfer	blank	Page General
blank	DND	blank	DND	blank	DND
blank	Group Pickup	blank	Group Pickup	blank	Group Pickup
blank	Voice Call	blank	Voice Call	blank	Voice Call
blank	Intercom	blank	Intercom	blank	Intercom
blank	Intercom	blank	Intercom	blank	Intercom
blank	Handfree Mute	blank	Handfree Mute	blank	Handfree Mute

\* Default key assignments for station 231 are the same for all templates (Square, Hybrid, PBX).

**Note:** Some of the keys on the new M7xxxN series Keystations are different than the keys on the original Commander NT Keystations. The following table highlights these differences.

Principal Advantage Standard Economy	M7324N M7310N M7208N M7100N
Hold	
Rls	
Feature	
Handfree Mute	Hf/Mute

### Applying key cap labels

Before you apply key labels, activate the Key Inquiry feature (Feature  ) to verify the key functions and to avoid activating features as you put the labels onto the keys.

Keep the extra labels and key caps with each Commander NT Keystation or leave them with the system administrator.

## Identifying the stations

1. Write the individual station numbers on the labels and attach them to the appropriate Commander Keystations.
2. Write the station numbers and the keystation name on the appropriate handset card for each type of keystation that is to be installed.
3. Cover the handset card underneath the handset of each keystation with the plastic lens.

## Selecting a System Profile



**System Profile requires you to select a system profile immediately after connecting the power.**

On a new system or software upgrade to AUS1.2, port 101 station displays **Region Undefined** until you specify a profile at this station. All other stations will continue to flash.

1. Press **Feature**  **\* \* P R O F I L E** (**\* \* 7 7 8 3 4 5 3**). The display reads **Region: PROF B**.
2. Press **OK**.
3. **Resetting system** will briefly appear on the display, and then the system will reset. The display reads **Jan 1 1:00 am**.

## Performing System Startup

Perform System Startup after the system hardware has been installed and turned on. System Startup initialises the installed system, erasing any existing system memory and resetting it to the default values. During this process, you select one of three templates: Square, Hybrid, or PBX, to make subsequent programming faster and easier.

If the mains fails or if the Commander NT is disconnected, all programming data are retained for at least three days. After three days without power, it may be necessary to perform System Startup again if the data has been lost.



**Do not change station numbers within five minutes of System Startup**

Do not attempt station number (Stn#) changes within five minutes of completing System Startup. Attempting a station number change may disable the ports.

You must enter the System Startup code no later than 15 minutes after the Commander NT has been powered up. If you enter a System Startup code at any time after the 15 minute interval, the display reads **Startup denied**. If 15 minutes have elapsed since you powered up the system, repower the system to prepare for System Startup.

### Starting the system and setting the station numbers

1. Place the programming overlay on any Advantage/M7310N or Principal/M7324N Keystation.
2. Press **Feature** **[\*]** **[\*]** **[S]** **[T]** **[A]** **[R]** **[T]** **[U]** **[P]**. The display reads **Password:**.
3. Enter the Installer password. The display reads **Reset memory?**



#### **This will erase your system data!**

Saying yes to this prompt will erase all the data in your system. To stop now, leaving your system data intact, press **[Rts]**.

4. Press **YES**. The display reads **Template:PBX**.
5. If you want to apply a template other than PBX, press **CHANGE** until the template you want is displayed.



#### **This is your last chance to preserve your current system data!**

To stop now, leaving your system data intact, press **[Rts]**. This is your last chance.

6. Press **Next** to accept the template shown. The display reads **Start stn:221**.



#### **Station numbering cannot conflict with Direct-dial digit, Park prefix, or Line Pool and destination codes.**

If the new station numbers clash with the Direct-dial digit, Park prefix, or Line Pool, and destination codes, those numbers are overridden and set to None.

7. Press **CHANGE**. The display reads **Start stn:**.
8. Enter three to seven digits (cannot start with 0), according to the desired station number length and range.
9. Press **OK**. If the starting station number is too high for the system the display reads **Allow 360 Stns** and then returns to the **Start stn:** prompt. Otherwise, the display reads the starting station number followed by the ending station number, and then returns to the **Start stn:** heading.



10. Press **Next** . The display reads **Template applied**. The indicators begin to flash after a few moments, then the display reads **Jan 1 1:00 am**



**Changing the template resets system programming.**

If you change your system template, your system programming resets.

*Note:* If you have changed the start stn number (e.g. from 221 to 6001) be sure to change any devices or terminals that have the old number programmed as a default. For instance, a door station's default "Call" number of 221 will have to be changed to the new number 6001.

## Programming checklist for a system with PRA or BRA cartridges

This is a list of the basic sequence of programming actions to be done after installing all hardware and cards. It is not meant to be a comprehensive list of all available programming.

After powering up the system, wait 5 minutes to allow the system and lines to initialise before programming.

1. Perform System Startup. (If you choose the PBX template, the Received numbers automatically map to stations.)



**Perform System Startup only on new installations.**

System Startup erases all system data. Perform System Startup only on a newly installed system.

2. Change the value and number of digits of the **Start stn #** if the default is not appropriate. The number of digits must be between three and seven. Upon System Startup, the leading digit must be between one and nine. After Startup, the value can be individually changed to zero if desired, under **Change stns**, in **System programming**.
3. After System Startup, wait 5 minutes to allow the system to initialise.
4. Enter the Installer password and adjust the time and date so that you can trace any alarms generated (under **Time&Date**).
5. If you install a BRA cartridge, program for the BRA loop type and set the Sampling rate (S-loops only) under **Cart on ME** in **Hardware**.

**Note:** It is recommended that the sampling rate be set to **Fixed** if 2 or more devices are being installed on a User-Side S Bus less than 200m. If 2 or more devices are being installed on a User-Side S Bus greater than 800m the sampling rate should be set to **Adaptive**. You can connect one device on a User-Side S Bus up to 800m and set the sampling rate to **Adaptive**.

6. Program the line data settings for BRA and PRA lines. Line data programming includes external handling to establish how the Commander NT system will interface with the line, and internal handling to determine how the Commander NT system classifies or groups the line (under **System programming** in **Rec'd # Length**).

**Note:** Program BRA lines under the same BRA loop identically.

7. Program the Received number length for incoming calls on network lines (under **System programming** in **Rec'd # Length**). If the PBX template was selected, then the Received number length has already been set to match the Station length. The default number of digits for the Received Number is three.
8. Perform line access programming to establish which stations have access to the various lines and line pools. Line access programming also assigns Answer stations, intercom keys, a Prime line and the Originating Line Identification for each station (under **Line access** in **Stns&Peripheral**).
9. On a networked system, perform any necessary route programming to specify how the Commander NT system will route outgoing calls (under **Routine service** in **Services**). The route also integrates a uniform numbering plan and provides dialling transparency.
10. Perform any necessary programming to determine how the Commander NT system handles incoming calls (under **Feature settings**, **Direct-dial**, **DSS assignment**, and **Access codes** in **System programming**).
11. Complete other optional programming required by the user to customise the system.
12. After programming is complete, check all settings to ensure they correspond to the information entered in the Programming Record.

## Programming checklist for a system with a PSTN line card

The default setting for line cartridges on the ME is PSTN.

1. Perform System Startup. (The default startup template is PBX. Received numbers automatically map to stations.)



**Perform System Startup only on new installations.**

System Startup erases all system data. Perform System Startup only on a newly installed system.

2. Change the value and number of digits of the **Start str #** if the default is not appropriate. The number of digits must be between three and seven. Upon System Startup, the leading digit must be between one and nine. After startup, the value can be individually changed to zero if desired, (under **System Programming**).
3. After System Startup, wait 5 minutes to allow the system to initialise.
4. Enter the Installer password and adjust the time and date so that you can trace any alarms generated (under **Time&Date**).
5. Disable module 2 of the ME (under **Maintenance, Module status**). Note that when you select module 2 of the ME, the display may show **Unequipped**; ignore this display. For instructions on how to disable and enable a module, see "Checking the state of a module" on page 363.



**Do not disable module 1 of the ME.**

If the station being used for programming is on module 1 of the ME, disabling this module will also disable the station.

6. Under **Hardware**, select LC1 to program the line cartridge in slot 1, or LC2 to program the line cartridge in slot 1.
7. Return to **Maintenance, Module status** and enable module 2.
8. Exit the programming session and wait 5 minutes to allow the system to initialise.

If both line cards on the ME are now Analogue, continue with steps 5 to 11 of the "Programming checklist for a system with PRA or BRA cartridges" on page 172, leaving out any BRA programming actions. If one of the LC slots on the ME is PRA or BRA and the other is Loop, continue with steps 4 to 11 of "Programming checklist for a system with PRA or BRA cartridges" on page 172 to program both digital and analogue settings.

## Changing the Time and Date

The system time and date appear on the display of idle Commander NT Keystations. Telephones connected to an SLT Adaptor cannot display the time and date. If the mains power is off for more than three days, you may have to reset the time and date.

**Note:** You only need to change the time and date at one Commander NT Keystations. The clock is reset for the entire system. The clock also controls the schedules used for services such as ringing and routing. After a power failure, the clock is behind by the length of time power was lost.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **Time&Date**.
4. Press **Show** . The display reads **Hour:**.
5. Press **CHANGE**. If you don't want to change the hour, press **Next** .
6. Enter the hour (00 to 23). If you entered an hour less than 13, the display reads **AM**. Press **CHANGE** to select **PM**.
7. Press **Next** . The display reads **Minutes:**.
8. Press **CHANGE**. If you don't want to change the minutes, press **Next** .
9. Enter the minutes (00 to 59).
10. Press **Next** . The display reads **Year:**.
11. Press **CHANGE**. If you don't want to change the year, press **Next** .
12. Enter the year (last two digits of the current year).
13. Press **Next** . The display reads **Month:**.
14. Press **CHANGE**. If you don't want to change the month, press **Next** .
15. Enter the month (01 to 12).
16. Press **Next** . The display reads **Day:**.
17. Press **CHANGE**. If you don't want to change the day, press **Next** .
18. Enter the day (01 to 31).
19. Press **Exit**  to exit or **Next**  to continue programming.

## Programming Hardware

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## Before you change Hardware, disable the Line/BRA Cartridge



### Disable the cartridge first

Disable the Line/BRA Cartridge in Maintenance before changing any Cart Data setting, and re-enable the cartridge after changing the setting.

For instructions on disabling a module, see "What you can do with Module Status" on page 362.

**IMPORTANT:** Note that the term "Loop" is initially used to mean Loop Start PSTN lines (versus ISDN BRA lines) for setting the Line Cartridge type in system programming. Thereafter, the term Loop or "Lp" is used to mean a BRA loop on an ISDN BRA Cartridge.



### Allow time for ISDN BRA Cartridges to initialise

When ISDN BRA Cartridges initialise, the Commander NT132 system performance may appear slow until initialising is completed. The initialisation will take between 5 to 10 minutes.

ISDN initialisation is performed when installing ISDN BRA Cartridges for the first time and also occurs when changing between different software loads.



### Allow time for clock synchronisation

When bringing ISDN BRA Cartridges into service, it may take up to 5 minutes for the ME to synchronise the system clock to the network.

## Programming for the type of Line/BRA Cartridges in the ME

The Commander NT ME and Line Modules support analogue Line Cartridges and ISDN BRA Cartridges. Program the cartridge type for each slot to match the cartridge in that slot. The default is PSTN.

### Programming for Cartridge type

1. Press **Feature**  \*          . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **Hardware**.
4. Press **Show** . The display reads **Show module:**.
5. Press **Next** . The display reads **Carts on ME**.

6. Press **Show** . The display reads **LC1-ME:PSTN**. Press **CHANGE** to choose the appropriate cartridge. Choices are PSTN, BRA-4 and PRA.

If you are setting the second cartridge on the ME, press **Next** . The display reads **LC2-ME**:

If you are setting a cartridge on a Line Module, press **Heading** until the display reads **Carts on ME**.

Press **Next** until the display reads the module you want then repeat step 6.

7. Press **Heading** until the display reads **Hardware**.
8. Press **Next** until the display reads **Maintenance**.
9. Press **Show** . The display reads **System version**.
10. Press **Next** until the display reads **Module status**.
11. Press **Show** . The display reads **Show module**.
12. Enter the module number you want. The display reads **ME Q :** or **Mod n:**
13. Press **STATE**. The display reads **Disabled by user**.
14. Press **ENABLE**.
15. Press **Als** to exit.

## Programming for the ISDN BRA loop type



**Loop type selection of ISDN lines is limited to the default T or S.**

If you have installed an ISDN BRA Cartridge, set the loop type (T or S) for each of the four loops. The default is T.

1. Press **Feature** \* \* C : C N F C . The display reads **Password:**
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Hardware**.
4. Press **Show** . The display reads **Show module:**
5. Press **Next** . The display reads **Carts on ME**.

If you are programming Loop type for a cartridge on a module, press **Next** until the display reads the module you want.

6. Press **Show** . The reads **LC1-ME**.

7. Press **[Next ]**. The display reads **LC type: BRA-4**.
8. Press **[Show ]**. The display reads **Loops: 201- 204**.
9. Press **[Next ]**. The display reads **Loop nnn**.
10. Press **[Show ]**. The display reads **Type: T**. To change the type setting, you press **CHANGE** and choose between T or S.
11. Press **[Bls ]** to exit or **[Next ]** to continue programming.

## Programming the Clock Source

Systems with digital interfaces need to synchronise to the network in order to function. Synchronisation is done in a hierarchical manner, where each device or switch obtains the network clock from the device or switch above it in the synchronisation hierarchy and passes the network clock to the device or switch below it in the synchronisation hierarchy. There are three settings to choose from:

- **Primary**—The timing reference is obtained from the network to which the system synchronises. For a system equipped with an ISDN PRA cartridge, always program the setting as Primary.
- **Secondary**—The ISDN PRA cartridge acts as a standby reference. If the ISDN PRA cartridge designated as the primary reference fails, this ISDN PRA cartridge obtains the timing reference from the network to which the system synchronises.
- **Timing master**—The ISDN PRA cartridge does not obtain timing from the network, but transmits the system's timing to equipment connected to it.

**Note:** For a system equipped with 2 PRA cartridges, set one as primary and the other as secondary. For a system equipped with a PRA and a BRA cartridge, set the PRA cartridge as the primary and the BRA cartridge as the secondary. For a system equipped with 2 BRA cartridges, set one as primary and the other as secondary.

To set synchronisation:

1. Press **[Feature ] [\* \* C D N F ] [G ]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Next ]** until the display reads **Hardware**.
4. Press **[Show ]**. The display reads **Show module:**.
5. Press **[Next ]**. The display reads **Cards on ME**.
6. Press **[Show ]**. The display reads **LC1-ME**. If you are setting the second card, press **[Next ]**. The display reads **LC2-ME:**.
7. Press **[Show ]**. The display reads **LC type:PRA**.



8. Press **Next** until the display reads **ClockSrc:**.
9. Press **CHANGE** to select the setting: **Primary**, **Secondary** or **Time Master**.
10. Press **Exit** to exit programming.

## Lines

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## Programming Lines

Lines is a group of settings in programming that controls the lines coming into the system and the Direct Dial Inward lines set up within the system.

When you are finished programming settings for a line, you can copy those settings to another line using **COPY**.



### Only applicable settings are displayed

Not all Lines programming sections apply to all types of lines. You will see only the sections appropriate to the line you are programming.

## Programming settings common to all line types

Each line assigned to a keystation appears at a key with an indicator on that keystation. The Economy/M7100N and M7000 Keystation have no line keys but can be assigned any number of lines. The default line assignments depend on the template assigned (PBX, Hybrid, Square) during System Startup.

A private line can be assigned to only one keystation in the system. When a Prime station is assigned for a private line, however, unanswered calls may ring at the Prime station as well.

The System Administrator can apply restrictions to each line in the system to restrict the numbers that can be dialled on that line.

### Viewing the current programming for a line

Using an Advantage/M7310N or an Principal/M7324N Keystation, you can view all of the system programming applied to any line.

1. Enter the Line Profile feature code  
Feature: \* [X] [ ] [N] [E] (5 4 6 3).
2. Enter the number of the line whose programming you want to check.
3. Use the **BACK**, **SHOW** and **NEXT** display keys to navigate through the settings. See "The programming overview" on page 150, for a map of the programming settings.)

### Line type

You can set up the external lines of the Commander NT system in three different ways: public, private, or part of a line pool.

- A public line can be assigned to more than one keystation.
- A private line can be assigned to only one keystation and to the Prime station for that line.

- A line in a line pool operates like a public line but is assigned to one of 15 line pools.



**All lines in a line pool must be the same type.**

Because lines in a line pool are selected at random for making outgoing calls, and because dialled digits mean different things on different types of lines, all the lines in a line pool must be of the same type.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** . The display reads **Lines**.
4. Press **Show** . The display reads **Show line:**.
5. Enter the line number. The display reads **Line nnn: Line nnn**.
6. Press **Show** . The display reads **Line data**.
7. Press **Show** . The display reads **Cart. Type:** or **DDI line**.
8. Press **Next** . The display reads **Line type**.
9. Press **CHANGE** until the display reads the desired line type.  
Options for BRA lines and PSTN lines are: **PoolA** to **Pool O**, **Public**, and **Private** to:  
Options for DDI lines are: **Public** and **Private** to:  
Options for PRA lines are: **PoolA** to **Pool O**, **Public**, and **Private** to:
10. Press **Fls**  to exit or **Next**  to continue programming.

### Changing the Prime station for a line

A Prime station provides backup answering for incoming calls on external lines. If a keystation is assigned as a Prime station for a line, the keystation rings for any unanswered calls on that line. By default, station 221 is the Prime station for all lines, but you can set up a different Prime station for each line.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** . The display reads **Lines**.
4. Press **Show** . The display reads **Show line:**.
5. Enter the line number. The display reads **Line nnn: Line nnn**.
6. Press **Show** . The display reads **Line data**.
7. Press **Show** . The display reads **Cart. Type:** or **DDI line**.

8. Press **Next** until the display reads **PrimeStrt:**.
9. Press **CLR** to set the Prime station to **None** or press **CHANGE**.
10. Enter a station number or press **CANCL** to assign no Prime station.
11. Press **RTS** to exit or **Next** to continue programming.

### CU station

A Commander NT Keystation can briefly display the station number reached when an outgoing call is connected. The Call Line Identifier (CLI) set prompt allows you to program which stations are able to use this feature.

1. Press **Feature** | **\*** | **\*** | **C** | **O** | **N** | **F** | **|** | **|** | **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**. The display reads **Lines**.
4. Press **Show**. The display reads **Show line:**.
5. Enter the line number. The display reads **Line nnn:Line nnn**.
6. Press **Show**. The display reads **Line data**.
7. Press **Show**. The display reads **Cart. Type:**.
8. Press **Next** until the display reads **CLI strt:**.
9. Enter the station numbers on which you want this feature enabled.
10. Press **RTS** to exit or **Next** to continue programming.

### Programming Auto privacy for a line

A Commander NT user can select a line in use at another station to join an existing call. The default setting is Yes, so that no one else can join a call in progress at another station.

Auto privacy is programmable for BRA, PRA and PSTN lines.

1. Press **Feature** | **\*** | **\*** | **C** | **O** | **N** | **F** | **|** | **|** | **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**. The display reads **Lines**.
4. Press **Show**. The display reads **Show line:**.
5. Enter the line number. The display reads **Line nnn:Line nnn**.
6. Press **Show**. The display reads **Line data**.
7. Press **Show**. The display reads **Cart. Type:**.
8. Press **Next** until the display reads **Auto Privacy**.
9. Press **CHANGE** to toggle the setting between **Y (Yes)** and **N (No)**.

10. Press **[F15]** to exit or **[Next]** to continue programming.

### Answer mode

Calls on PRA, BRA and PSTN lines can be handled manually or automatically. The default is Auto for PRA lines and Manual for BRA and PSTN lines.



#### Set PRA lines to Auto Answer.

There is no fixed mapping between the channel number and the line number on the PRA interface. PRA lines must be configured as DIA lines otherwise each user would need line appearances for all lines on the interface.

If you program the Answer mode setting for PRA lines to Manual, incoming calls will be lost.

### Manual

Incoming calls are handled the same as other PSTN lines (for example, by ringing at one or more Commander NT Keystations).

### Auto

The system automatically detects incoming calls, interprets the dialled sequence and routes calls to a DDI line, which then determines the station to ring. The calls do not usually ring at the line appearance for that line unless the call cannot ring at the intended DDI line. If they are not able to ring elsewhere, calls ring at the Prime station for the line.

Received digits must be programmed for the system to select a DDI line.



#### Prime station must be defined for lines set to Auto.

To ensure incoming calls ring somewhere in the system, ensure a Prime station is defined for each PRA or BRA line that is set to Auto.

1. Press **[Feature]** **[\*]** **[\*]** **[C]** **[0]** **[N]** **[F]** **[ ]** **[3]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Next]**. The display reads **Lines**.
4. Press **[Show]**. The display reads **Show line:**.
5. Enter the line number. The display reads **Line nnn: Line nnn**.
6. Press **[Show]**. The display reads **Line data**.
7. Press **[Show]**. The display reads **Cart. Type:**.
8. Press **[Next]** until the display reads **Ans mode:**.

9. Press **CHANGE** to select either **Manual** or **Auto**.
10. Press **Rls** to exit or **Next** to continue programming.

### Programming the Auxiliary ringer to ring for a line

You can program a separate external telephone ringer or bell to ring for calls on a particular line or keystation. An auxiliary ringer can also be programmed to ring for a line placed in a service mode. The default for auxiliary ringer is No (N).

1. Press **Feature** \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**. The display reads **Lines**.
4. Press **Show**. The display reads **Show line:**.
5. Enter the line number. The display reads **Line nnn: Line nnn**.
6. Press **Show**. The display reads **Line data**.
7. Press **Show**. The display reads **Cart. Type:**.
8. Press **Next** until the display reads **Aux. ringer:**.
9. Press **CHANGE** to toggle the setting between Y (Yes) and N (No).
10. Press **Rls** to exit or **Next** to continue programming.

### Setting Full Autohold on idle line

When Full Autohold is active and you select a line, then immediately select another line, the first line is put on hold. Without Full Autohold, the first line drops when you select another line. Full Autohold is disabled by default and should only be enabled if required for a specific application.

The Full Autohold setting is available for PRA, BRA and PSTN lines.

1. Press **Feature** \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**. The display reads **Lines**.
4. Press **Show**. The display reads **Show line:**.
5. Enter the line number. The display reads **Line nnn: Line nnn**.
6. Press **Show**. The display reads **Line data**.
7. Press **Show**. The display reads **Cart. Type:**.
8. Press **Next** until the display reads **Full AutoHold:**.
9. Press **CHANGE** to select either N (No) or Y (Yes).

10. Press **RLS** to exit or **Next** to continue programming.

## Programming for PSTN lines

### Dial mode

The Signalling mode of a PSTN line can be tone or pulse. Rotary-dial telephones traditionally use pulse. Tone is also referred to as Touchtone or dual tone multi-frequency (DTMF) tones. The default setting is **Tone**.

1. Press **Feature** \* \* C D N F I G . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** . The display reads **Lines**.
4. Press **Show** . The display reads **Show line:**.
5. Enter the line number. The display reads **Line nnn: Line nnn**.
6. Press **Show** . The display reads **Line data**.
7. Press **Show** . The display reads **Cart. Type: PSTN**.
8. Press **Next** until the display reads **Dial mode:**.
9. Press **CHANGE** to select either **Tone** or **Pulse**.
10. Press **RLS** to exit or **Next** to continue programming.

### Line mode

If you have a Line Cartridge with Line Supervision (LC-NT-B), specify one of three modes of operation for each line: ROI, ROA or unsupervised.

Reversal on Idle (ROI) detection, also referred to as Disconnect Supervision, releases an external line when a battery reversal is detected during a call on that line.

Reversal on Answer (ROA) detection, also referred to as answer supervision, detects when a call has been answered (also when battery reversal occurs). ROA detection is often used for billing purposes.

1. Press **Feature** \* \* C D N F I G . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** . The display reads **Lines**.
4. Press **Show** . The display reads **Show line:**.
5. Enter the line number. The display reads **Line nnn: Line nnn**.
6. Press **Show** . The display reads **Line data**.



7. Press **Show**. The display reads **Cart. Type: PSTN**.
8. Press **Next** until the display reads **Line mode:**.
9. Press **CHANGE** to select the setting: **Unspr**, **ROI** or **ROA**.
  - **Unspr** (the default) turns disconnect supervision off for the line.
  - **ROI** detection allows the system to detect when a call disconnects.
  - **ROA** detection allows the system to detect when a call is answered.
10. Press **Fis** to exit or **Next** to continue programming.

#### Set the line to ROI when:

- you want to transfer an external call to an external number or to a keystation in another Commander NT system (External Transfer)
- you want to leave two external callers connected to each other after you hang up; one person must call you on a ROI line (External Transfer from a conference)
- calls will be redirected to an external number on the ROI line (Line Redirection)
- Disconnect Supervision is required with Voice Mail and ACD

#### Set the line to ROA when:

- calls on the line will be timed (with a Call Detail Recorder Unit)
- the outgoing line will be used for Line Redirection

**Note:** The line must be equipped with ROI detection or ROA detection from the Exchange for the ROA or ROI option to work with the system. DISA and Auto Answer are not supported by the Commander NT system.

#### Recall time

Recall time enables you to specify the duration of a signal required to access a network or remote system feature. The Recall time specified depends on the requirements of the host switching system that must be accessed. The default setting is 100 milliseconds.

1. Press **Feature** \* \* C O N E L G. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**. The display reads **Lines**.
4. Press **Ernw**. The display reads **Show line:**.
5. Enter the line number. The display reads **Line nnn: Line nnn**.

6. Press **Show** . The display reads **Line data**.
7. Press **Show** . The display reads **Call Type: PSTN**.
8. Press **Next** until the display reads **Recall:**.
9. Press **CHANGE** to select the setting: 100, 600 milliseconds.
10. Press **Fls** to exit or **Next** to continue programming.

## Programming for Direct Dial Inward (DDI) lines

Direct Dial Inward (DDI) allows PRA and BRA lines to use internal lines to route incoming calls from the public exchange; the calls pass directly to a Commander NT station without operator intervention. The internal lines 255 to 382 between the Commander NT132 ME and the stations are called DDI lines.

DDI requires that the Answer mode of the PRA or BRA lines be set to Auto. Outgoing calls can also be made on auto-answer BRA and PRA lines if they are assigned to a line pool or appear on a station.

The Commander NT system handles simultaneous calls on DDI lines. The number of appearances of a DDI line on a station depends on the Line assignment setting for that station (see "Assigning a line to a keystation" on page 198).

The appearance options are: Appr&Ring, Appr only and Ring only. If Appr&Ring or Appr only is selected, that station can have as many simultaneous DDI calls as there are DDI key appearances. If Ring only is selected, that station can have as many simultaneous DDI calls as there are I/C (intercom) keys.

### Number of appearances

You program the number of appearances for each DDI line assigned to the station in **Appearances**, under **Stns&Peripheral**. When a station with an appearance of a DDI line answers a call, other stations with appearances of that DDI line do not track the state of that call. The other stations key lamps appear idle, freeing the stations to receive additional calls on the DDI line while the first call is still in progress.

By default the number of DDI line appearances is one. The secondary appearance of a target line, is any appearance given to a station after the first appearance. There is a limit to the number of secondary target line appearances depending on your system configuration.

If the Square template is selected at System Startup, you must assign the DDI lines to Appear and ring, Appear only or Ring only at specific stations. For example, you can assign DDI line 255 (Public Received number 5001) to appear and ring at station 221 and station 222, and assign DDI line 256 (Received number 5002) to appear and ring at station 223, and so on.

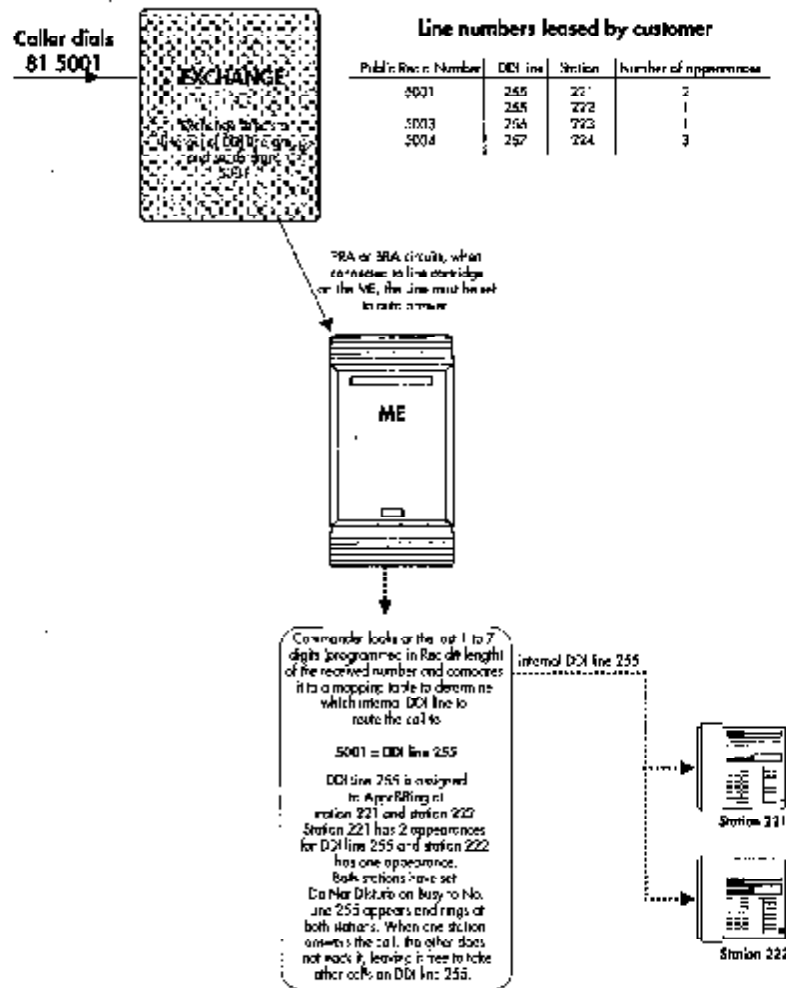
If the PBX template is selected at System Startup, DDI lines 255 to 382 are automatically assigned to Ring only at their corresponding stations. The first number assigned by the public exchange (5001 in this example) can be entered as the Start station number at System Startup.

Automatically, the first DDI line (255) is assigned to the first Start station number of 5001, DDI line 256 is assigned to the next station number 5002, and so on. Also, the Received numbers, as well as the Originating Line Identification number, are automatically set to the station number.

When a station with an appearance of a DDI line answers a call, other stations with appearances of that DDI line do not track the state of that call. The other stations key lamps appear idle, freeing the stations to receive additional calls on the DDI line while the first call is still in progress.

The Hybrid template has the same line assignments as the PBX template.

In the following illustration, the customer has leased line numbers 5001 to 5004 (on a PRA or BRA circuit).



## Received number

When the system automatically answers an incoming call on auto-answer ISDN BRA lines, it collects the number of digits specified by the Rec'd # length setting, matches these digits to a Received number, and routes the call to the appropriate DDI line.

The Received number setting specifies the digits that the Commander NT must receive on an incoming ISDN line to select a specific Direct Dial Inward (DDI) line. For the PBX template, the Received number is set to match the starting station number when the system is first turned on.

You program the Received number length, under Rec'd # length in System Programming, to receive the last one to seven digits the public exchange sends on the PRA or BRA line. The public exchange determines the number range assigned to the DDI lines (for example 5001 to 5040, see illustration above).

**Note:** If the numbers of digits received on an incoming line exceed the received number length (1 to 7) that has been programmed for the system, the leading digits are truncated (cut off).



**Received number is not the same as DDI line number**

The Received number and the Direct Dial Inward line number are not the same. For example, you can program Direct Dial Inward line number 256 to ring when the Commander NT receives the digits 34.

**Note:** A Received number cannot be the same as another Received number or the Auto number. It also cannot start with the same first digit as any line pool code.

1. Press **Feature**  **\***  **\***   **C**   **O**  **N**  **F**   **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** . The display reads **Lines**.
4. Press **Show** . The display reads **Show line:**.
5. Enter the line number of a DDI line (255 to 382). The display reads **Line nnn: Line nnn**.
6. Press **Show** . The display reads **Line Data**.
7. Press **Show** . The display reads **DDI line**.
8. Press **Next**  until the display reads **Rec'd #:None**.
9. Press **CHANGE**. Enter a number (1 to 7 digits).
10. Press **RLS** to exit or **Next**  to continue programming.

### If busy

When an auto-answer DDI line cannot ring anywhere in the system (e.g. all appearances are busy), you can program the line to either return busy tone to a second caller, or to route the second call to the Prime station for the line.

When a call comes in on DDI line and there are no available appearances of the DDI line, and If busy is set to Busy Tone, the caller receives busy tone. When If busy is set To Prime the call will be routed to the Prime station. If all intercom keys on the Prime station are busy the caller receives busy tone.

1. Press **Feature**  **\***  **\***   **C**   **O**  **N**  **F**   **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.

3. Press **Next**. The display reads **Lines**.
4. Press **Show**. The display reads **Show line:**.
5. Enter the line number of a DDI line (255 to 382).  
The display reads **Line nnn: Line nnn**.
6. Press **Show**. The display reads **Line Data**.
7. Press **Show**. The display reads **DDI line**.
8. Press **Next** until the display reads **If busy: Busy Tone** or **If busy: To Prime**.
9. Press **CHANGE** to toggle the setting.
10. Press **Exit** to exit or **Next** to continue programming.

**Note:** If busy does not apply to ISDN lines that are programmed as manual answer lines.

### Busy tone with Do Not Disturb on Busy

When Do Not Disturb on Busy (DND) is turned on for the station, internal and private network callers hear a busy tone instead of ringing when you are on the keystation. External callers are transferred to the Prime station used in your system.

When the auto-answer DDI line is not busy, the call is routed to the appropriate station. If there are no available appearances of the DDI line and the DND on busy feature is set to Yes for one of these stations, the second caller hears ring-back and the call is routed to the Prime station for the line.

If there are no available appearances of the DDI line and the DND on busy feature is set to No on all stations with an appearance of the DDI line, the caller will hear busy tone when If busy is set to Busy Tone. The call will be routed to the Prime station if the DDI line feature is set to Prime station.

The If busy feature is a line feature and DND is a station feature.

When DND is set to Yes and there are no available appearances of the DDI line, the caller is routed to the Prime station because of the DND on busy feature. The If busy feature is activated when a call cannot ring at any appearance in the system.

The table outlines the call scenarios when a DDI line is busy, that is, there are no available appearances of the DDI line.

DND on busy	Yes	Yes	No	No
If busy	Busy Tone	Prime	Busy Tone	Prime
The caller hears	Ring-back, call goes to Prime	Ring-back, call goes to Prime	Busy Tone	Ring-back, call goes to Prime

## Line Access

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## Assigning a line to a keystation

Not every line needs to be assigned to every keystation. Distribute lines to keystations to suit customer requirements. Lines that are assigned to a keystation can be made available at that keystation in one of three ways: they may ring for incoming calls, they may appear on keys or they may ring and appear. Lines may also appear on a keystation as part of a line pool, on an Answer key or a hunt group.

It is common practice to have lines appear at all keystations in a system, but appear and ring only at the receptionist's keystation. It is not necessary for a keystation to have an appearance of a line in order to receive a call on that line; once a call has been answered, it can be transferred to any keystation in the system, whether or not the line it is on appears at the keystation.

A keystation need not have an appearance of a line in order to make a call on that line. Provided the line is in a line pool and the keystation has access to the line pool, you can make a call simply by choosing the line pool or dialling the exchange code. A single line pool key on a keystation is often a more convenient way to give someone access to multiple lines than having all lines appear on their keystation.

If a line is assigned to ring at a keystation but not appear, it will appear on an intercom key.

The options for assigning a line to a keystation are:

- Appr&Ring
- Appr only
- Unassigned
- Ring only

For station 221, the default (in the PBX template) for lines 001 to 008 and 031 to 038 is Ring only. The default for lines 009 to 030, 039 to 254 and 256 to 382 is Unassigned.

Ensure that lines assigned to an Economy/M7100N and M7000 Keystation ring; otherwise, you cannot detect incoming calls on the lines.

1. Press  \* \*     . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press . The display reads **Show stn#:**.
4. Enter the station number.
5. Press . The display reads **Line access**.
6. Press . The display reads **Line assignment**.



7. Press **Show** . The display reads **Show line#:**
8. Enter the line number. The display reads the line number followed by the current setting.
9. Press **CHANGE** to change the setting.
10. Press **Next** to display the next line number.
11. If you wish to continue to assign lines to other stations, press **Heading** until the display reads **Show stn#:**
12. Press **Rls** to exit, or **Next** to continue programming.

The above procedure is also used for removing a line appearance or changing ring capability.

## Setting up one keystation to monitor calls for another station

An Answer key lets a keystation monitor and answer calls intended for another station. For example, an Answer key allows a secretary to monitor calls to a manager's station. For more information on Answer key, refer to page 227.

A keystation automatically receives an Answer key when it is assigned to answer for another station. The keystation it answers for is called an Answer station. A keystation may have as many as eight Answer keys, each for a different station. The default setting is that no Answer stations are assigned to any keystations.

More than one keystation can have an Answer key for the same station. In this way, more than one keystation can alert for and answer calls directed to the Answer station. Label each Answer key with the name or number of the station it monitors.



### The Economy/M7100N, M7000 Keystations and SLT cannot have Answer keys

Since they have no memory keys with indicators, the Economy/M7100N, M7000 Keystations and SLT cannot have any Answer keys. The system allows you to assign Answer stations to Economy/M7100N, M7000 Keystations and SLT, but this does not create Answer keys. Calls for the monitored station do not ring at the Economy/M7100N, M7000 Keystations or SLT.

### Assigning a keystation to monitor another station

1. Press **Feature** \* \* **C O N F I G** . The display reads **Password#:**
2. Enter the Installer password. The display reads **Stn#Peripheral.**
3. Press **Show** . The display reads **Show stn#:**
4. Enter the station number of the keystation you want to assign the Answer key to.
5. Press **Show** . The display reads **Line access.**

6. Press **Show** . The display reads **Line assignment**.
7. Press **Next** until the display reads **Answer stns**.
8. Press **Show** . The display reads **Show stn#:**.
9. Enter the station number of the keystation you want to monitor and answer calls for. If this is a new Answer station, the display reads **Unassigned**.
10. Press **CHANGE** to select either **Answering** or **Answer only**.
11. Press **[His]** to exit or **[Heading]** to continue programming.

### Changing the ringing status of an Answer key

For each Answer key, you can set whether incoming calls will appear and ring at the keystation, or appear only.

1. Press **Feature** [\*] [\*] **C** **O** **N** **F** **[G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number of the keystation that has the Answer key.
5. Press **Show** . The display reads **Line access**.
6. Press **Show** . The display reads **Line assignment**.
7. Press **Next** until the display reads **Answer stns**.
8. Press **Show** . The display reads **Show stn#:**.
9. Enter the Answer station number whose ringing status you want to change. The display reads the current ringing status.
10. Press **CHANGE** to toggle the setting.
11. Press **[His]** to exit or **[Heading]** to continue programming.

### Removing an Answer station

1. Press **Feature** [\*] [\*] **C** **O** **N** **F** **[G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number of the keystation you want to remove the Answer key from.
5. Press **Show** . The display reads **Line access**.
6. Press **Show** . The display reads **Line assignment**.
7. Press **Next** until the display reads **Answer stns**.

8. Press  . The display reads **Show stn#:**.
9. Enter the station number of the keystation you no longer want to monitor and answer calls for.
10. Press **CHANGE** until the display reads **Unassigned**.
11. Press  to exit or  to continue programming.

## Giving a keystation access to a Line Pool

A line pool is a group of lines used for making external calls. Line pools provide an efficient way of giving a keystation access to exchange lines without requiring keys with indicators.

The Commander NT132 can have fifteen line pools, and a keystation can be given access to any number of them.

A line pool is a collection of lines used only for making outgoing calls. Note that these groupings are for convenience in making and answering calls. They do not limit how the lines themselves may be used. A line may appear in a line pool and individually on keystations at the same time. However, a line cannot be placed in more than one line pool.

Before a keystation can use a line pool it must be given access to that line pool.

1. Press  \* \*       . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press  . The display reads **Show stn#:**.
4. Enter the station number.
5. Press  . The display reads **Line access**.
6. Press  . The display reads **Line assignment**.
7. Press  . The display reads **LinePool access**.
8. Press  . The display reads **Line pool A:**.
9. If you want to program access for a different line pool, press  until the display reads that line pool.
10. Press **CHANGE** to toggle the setting.
11. Press  to exit or  to continue programming.

## Assigning line pool codes to line pools

A user accesses a line pool by entering a line pool code on their keystation. If there is no code for a line pool, that line pool cannot be used.

A line pool code can be one to four digits in length. Codes starting with the same digit must be the same length.

A line pool code cannot be the same as:

- the first digit of a station number
- the Direct-Dial station code
- a Call Park retrieval code
- the exchange code
- a routing service code

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System prgrming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Access codes**.
6. Press **Show** . The display reads **Line pool codes**.
7. Press **Show** . The display reads **Line pool A:**.
8. If you want to program access for a different line pool, press **Next**  until the display reads that line pool.
9. Press **CHANGE**. Enter the digits for the line pool code (maximum four digits) and press **OK**.
10. Press **Als**  to exit or **Next**  to continue programming.

## Assigning a prime line to a keystation

If you assign a prime line to a keystation, that line is selected automatically whenever the keystation handset is lifted, the Handsfree/Mute key is pressed, or an automatic dialling feature is used.

The prime line can be any one of the lines assigned to the keystation, any one of the line pools to which the keystation has access, or an intercom line. The default is I/C (Intercom).

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number.
5. Press **Show** . The display reads **Line access**.
6. Press **Show** . The display reads **Line assignment**.
7. Press **Next**  until the display reads **Prime line:I/C**.

8. Press **CHANGE** to change the setting.
9. Press **[F15]** to exit or **[Next]** to continue programming.

**Note:** If intercom is chosen as the prime line, and automatic dialling is required, the keystation must have access to a line pool. This enables features such as Speed Dial and Redial to select an exchange line automatically.

If intercom is chosen as the prime line for an Economy/M7100N Keystation or a telephone connected to an SLT Adaptor, the station must have access to a line pool or a specific line in order to access exchange lines.

An exchange line must be assigned to the keystation in Line assignment before it can be assigned as the prime line to the keystation.

Prime line is not associated with the assignment of a prime station.

A line pool must be assigned to the keystation in line pool access before a line pool can be assigned as the prime line to the keystation.

## Changing the number of intercom keys assigned to a keystation

When you want to make or receive calls, or to access exchange lines through line pools, use **[intercom]**. A keystation may be assigned up to eight intercom keys.

Each intercom key assigned during programming automatically appears on a Standard/M7208N, Advantage/M7310N, or Principal/M7324N Keystation (overriding any other feature or memory that has been programmed onto that key). The keys appear starting at the lowest right-hand position, or one key above that if the Handsfree feature is assigned to the keystation.

To establish a conference call with two other Commander NT Keystations, a keystation must have two intercom keys assigned to it.

The default assignment of two intercom keys cannot be changed for the Economy/M7100N Keystation. (You can change the setting, but it doesn't make any difference.) The Economy/M7100N Keystation does not have actual keys for intercom key assignment.

The options for the number of intercom keys assigned to a keystation, are 0, 1, 2, 3, 4, 5, 6, 7, and 8. The default is 2.

1. Press **[Feature] [\*] [\*] [C] [O] [N] [F] [ ] [G]**. The display reads **Password:**.

2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Show]**. The display reads **Show str#:**.
4. Enter the station number.
5. Press **[Show]**. The display reads **Line access**.
6. Press **[Show]**. The display reads **Line assignment**.
7. Press **[Next]** until the display reads **Intercom key#:**.
8. Press **CHANGE** to change the setting.
9. Press **[F15]** to exit or **[Next]** to continue programming.

## Originating Line Identification number

Outgoing calls on a Direct Dial Inward (DDI) line use an Originating Line Identification number which appears on the station display of the called party as part of the CLID (if available and subscribed to). OLI is only available on ISDN lines/ Commander NT132 allows you to program the OLI number for each DDI line assigned to a keystation. The OLI number could be the received number for the assigned DDI line or it could be a different received number if you wish calls to be returned to someone else's keystation. The OLI number must be allocated to the number range on the ETSI service the station will call out on.

For example, a sales manager who uses a DDI line to call clients may wish to have returned calls directed to an assistant. The OLI programmed for the manager's DDI line is the received number for the assistant's keystation. A client viewing the CLID number on their keystation display, will see the assistant's keystation number.

If the OLI number is set to **None**, then the CLID displayed at the called party's station is the main telephone number of the company.

1. Press **[Feature] \* \* [C] [C] [N] [F] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Show]**. The display reads **Show str#:**.
4. Enter the station number.
5. Press **[Show]**. The display reads **Line access**.
6. Press **[Show]**. The display reads **Line assignment**.
7. Press **[Next]** until the display reads **OLI #:**.
8. Enter a 9 digit number excluding the first 0 of the Full National Number.
9. Press **[F15]** to exit or **[Next]** to continue programming.

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## Programming Hunt groups

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Establish hunt groups in your system to allow incoming calls to reach a group of stations. The hunt groups feature allows you to call a group of stations with a single directory number.

Hunt groups are used in situations where a group of people performing the same task are required to answer a number of related telephone queries. Some typical uses of hunt groups are:

- a sales department answering questions on product prices, availability etc.
- a support department answering questions concerning the operation of a product
- an emergency department answering calls for help

A company with support services for different products may want to have a hunt group dedicated to each product. Support personnel handling Product A can be in one group, and support personnel handling Product B can be in another group. Incoming calls look for the next available station in the group. If no station is available, the hunt groups feature places the call in a queue or routes it to an overflow station.

Under the hunt groups sub-heading, you program:

- members of a group
- member position in a group
- the lines assigned to a group
- the distribution of incoming calls
- the length of time the system looks for available agents before sending the call to the overflow position
- how the system handles calls if all agents are busy

**Note:** Do not program videophones as members of a hunt group. Hunt groups allow one B channel connection at a time and videophones use two B channels.

## Adding or removing members from a group

Commander NT132 supports up to 30 groups. Members of the group can be any Commander keystation, or ISDN keystation. A station can be in multiple hunt groups but each occurrence increases the total number of members in the system.

There can be one appearance of the same hunt group on a station.

The default station number range for hunt groups is 551 to 580. The station numbers in this range cannot be members of a hunt group.

1. Press **[Feature] \* \* [C] [O] [N] [E] [I] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.



3. Press **Next** until the display reads **System prgrming**.
4. Press **Show**. The display reads **Hunt groups**.
5. Press **Show**. The display reads **Show group:**.
6. Enter the hunt group number you want to program (01-30).
7. Press **Show**. The display reads **Member stns:**.
8. Press **Show**. The display reads the members for that group.
9. Press **ADD** to add a member or press **REMOVE** to remove a member from the group.
10. Press **File** to exit or **Next** to continue programming.

## Moving members of a group

Member order within a hunt group is important. The member order determines how the system routes calls through a hunt group.

1. Press **Feature** \* \* \* \* N F \* G. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System prgrming**.
4. Press **Show**. The display reads **Hunt groups**.
5. Press **Show**. The display reads **Show group:**.
6. Enter the hunt group number you want to program (01-30).
7. Press **Show**. The display reads **Member stns:**.
8. Press **Show**. The display reads the members for that group.
9. Press **MOVE** to move an existing member to another place within the hunt group. The display reads the member number followed by an arrow.
10. Enter the new position number for the station.
11. Press **File** to exit or **Next** to continue programming.

## Assigning or unassigning lines to a group

It is recommended to set the hunt group's line Prime station to None. Doing so prevents delayed ring transfer of external hunt group calls to the Prime station before the hunt group can receive the call.

You can assign a line to only one group.

1. Press **Feature** \* \* \* \* N F \* G. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.

3. Press **[Next]** until the display reads **System programming**.
4. Press **[Show]**. The display reads **Hunt groups**.
5. Press **[Show]**. The display reads **Show group:**.
6. Enter the hunt group number you want to program (01-30).
7. Press **[Show]**. The display reads **Member stns:**.
8. Press **[Next]**. The display reads **Line assignment**.
9. Press **[Show]**. The display reads **Show line:**.
10. Enter the line number you want to program, press **SCAN** to go the first line assigned to this group or press **LIST** to go to the first line in the system.
11. Press **CHANGE** to program the line as **Unassigned** or **Assigned**.  
\*HGrn\* means the line is assigned to another hunt group.
12. Press **[Fils]** to exit or **[Next]** to continue programming.

## Setting the distribution mode

There are three distribution settings.

- **Broadcast**—rings each station in the group simultaneously. The system handles calls one at a time, routing other calls according to the routing option selected in the **If busy** setting (see "Programming options if all hunt group members are busy" on page 210). When the first call rings into a hunt group the group is considered busy. The second call, depending on what is programmed, will overflow. When a call is answered, the next call in the queue is presented to the hunt group.

In Broadcast mode, a single incoming call will ring simultaneously at all the stations in a group. This way, all receptionists in the group can share the load of answering large volumes of calls. An example is a fund-raising campaign where a group of operators wait to take each call as it comes in.

- **Sequential**—starts the call at the first station in the hunt group. Distribution is complete when the system finds the first free station. This distribution method allows the system to present simultaneous calls to the hunt group. Distribution is order-based.

In Sequential mode, you can program your top salesperson to be the first member of the group to receive incoming calls.

- **Cyclic**—distribution begins with the member following the last station to receive a hunt group call. Distribution is complete when the system finds the first free station. This distribution method allows the system to present simultaneous calls to the hunt group. Distribution is order-based.

Using Cyclic mode, you ensure that your helpline personnel receive calls in an evenly distributed method.

If a call goes unanswered and the hunt group has available agents, the system routes the call through the member list until someone answers the call or the queue time-out occurs. If a queue timeout occurs, the system routes the call to the overflow position.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System programming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Show** . The display reads **Show group:**.
6. Enter the hunt group number you want to program (01-30).
7. Press **Show** . The display reads **Member stns:**.
8. Press **Next**  until the display reads **Mode:**.
9. Press **CHANGE** to set the mode: **Sequential**, **Cyclic**, **Broadcast**.
10. Press **[Rls]** to exit or **Next**  to continue programming.

## Setting the hunt delay

You can program the number of ring cycles the system allows at a hunt group station before moving to the next hunt group station.

You can estimate the delay in seconds by multiplying the number of rings by six.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System programming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Show** . The display reads **Show group:**.
6. Enter the hunt group number you want to program (01-30).
7. Press **Show** . The display reads **Member stns:**.
8. Press **Next**  until the display reads **Hunt delay:**.
9. Press **CHANGE** to select the setting: 6, 9, 12, 15, 18, 21, 24, 27, 30.
10. Press **[Rls]** to exit or **Next**  to continue programming.

## Programming options if all hunt group members are busy

When all hunt group members are busy, there are three routing options if to handle customers calls:

- **BusyTone**—the caller gets a busy tone
- **Overflow**—the call routes to the hunt group overflow position when the hunt group is busy or the Queue timeout has expired.
- **Queue**—the call stays in the system for the period of time programmed in **Q timeout**. Within this period of time, the call presents to an agent if one becomes available. When time-out occurs, the call routes to the hunt group overflow position.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F**  **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System Programming**.
4. Press **Show** . The display reads **Hunt Groups**.
5. Press **Show** . The display reads **Show Group:**.
6. Enter the hunt group number you want to program (01-30).
7. Press **Show** . The display reads **Member stns:**.
8. Press **Next**  until the display reads **If busy:**.
9. Press **CHANGE** to set the mode: **BusyTone**, **Overflow**, **Queue**.
10. Press **Fils** to exit or **Next**  to continue programming.

## Programming the queue timeout

This setting allows you to program the number of seconds a call remains in the hunt group queue before it is also routed to the overflow position.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F**  **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System Programming**.
4. Press **Show** . The display reads **Hunt Groups**.
5. Press **Show** . The display reads **Show Group:**.
6. Enter the hunt group number you want to program (01-30).
7. Press **Show** . The display reads **Member stns:**.
8. Press **Next**  until the display reads **Q Timeout:**.

9. Press **CHANGE** to set the queue timeout: 15, 30, 45, **60**, 120 or 180.
10. Press **Fls** to exit or **Next** to continue programming.

## Programming the overflow station

You can program which station receives overflow calls. If the overflow station is a hunt group station, the call is considered a new call and joins the queue.

The overflow station can be a station number associated with a voice mailbox.

1. Press **Feature** \* \* **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System prgrming**.
4. Press **Show**. The display reads **Hunt groups**.
5. Press **Show**. The display reads **Show group:**.
6. Enter the hunt group number you want to program (01-30).
7. Press **Show**. The display reads **Member stns:**.
8. Press **Next** until the display reads **Overflow:**.
9. Press **Show**. The display reads **Overflow:HGr**.
10. Press **CHANGE** to change the overflow position.
11. Enter the new overflow position.
12. Press **Fls** to exit or **Next** to continue programming.

## Setting the name

You can program the hunt group name, such as SERVICE or SALES. The name can be up to seven characters in length.

1. Press **Feature** \* \* **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System prgrming**.
4. Press **Show**. The display reads **Hunt groups**.
5. Press **Show**. The display reads **Show group:**.
6. Enter the hunt group number you want to program (01-30).
7. Press **Show**. The display reads **Member stns:**.
8. Press **Next** until the display reads **Name:**.

9. Press **CHANGE**.
10. Using the dialpad, enter the name of the hunt group.
11. Press **[Next \_\_\_\_\_]** to store the name.
12. Press **[Fis]** to exit or **[Next \_\_\_\_\_]** to continue programming.

## Checking hunt group metrics

This feature provides you with hunt group call information.

1. Press **[Feature] [\*] [\*] [C] [C] [N] [F] [0] [0]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Next \_\_\_\_\_]** until the display reads **Usage Metrics**.
4. Press **[Show \_\_\_\_\_]**. The display reads **Hunt Groups**.
5. Press **[Show \_\_\_\_\_]**. The display reads **Show Group:**.
6. Enter the number of the hunt group you wish to view. The display reads **HG<nn> metrics**.
7. Press **[Show \_\_\_\_\_]**. The display reads the date the information was last cleared.
8. Press **[Next \_\_\_\_\_]**. The display reads **Total Calls:**.  
The value shown is the total number of calls received by the hunt group, to a maximum of 99999.
9. Press **[Next \_\_\_\_\_]**. The display reads **Ans:**.  
The values shown are the total number of calls that were answered and the percentage of answered calls to total calls.
10. Press **[Next \_\_\_\_\_]**. The display reads **Avg ans: .sec.**.  
The value shown is the average time in seconds that it took to answer a call, to a maximum of 999.
11. Press **[Next \_\_\_\_\_]**. The display reads **Abndn:**.  
The values shown are the number of abandoned calls and the percentage of abandoned calls to total calls.
12. Press **[Next \_\_\_\_\_]**. The display reads **Busy:**.  
The values shown are the number of times the hunt group was busy and the percentage of busy calls to total calls.
13. Press **[Next \_\_\_\_\_]**. The display reads **Overfl:**.  
The values shown are the number of calls sent to the overflow position and the percentage of overflow calls to total calls.
14. Press **[Next \_\_\_\_\_]**. The display reads **Avg Q: .sec.**.  
The value shown is the average time, in seconds, the call waited in the queue, to a maximum of 999.
15. Press **[Fis]** to exit or **[Next \_\_\_\_\_]** to continue programming.

# Change station numbers

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## Change station numbers

Change station numbers enables you to change the station number of a keystation.

No station number changes occur until the programming session ends. If the new station number already exists for another station, that other station is given the old station number. All station numbers must be the same length.

The first digit of a new station number cannot be the same as the first digit of: an exchange line access code; a Line Pool access code; the Park prefix; the Direct-dial digit. To avoid a conflict, refer to the table of default settings provided under Access codes on page 236.

The lowest default station number is 221.



**Changing a station number locks the programming session.**

Changing an individual station number locks the programming session into the Change station numbers programming mode. After you have finished and have pressed **[F15]**, re-enter the programming access code and the Installer password to continue with other programming.

Do not perform Startup again, or all previous programming will be erased.

1. Press **[Feature] \* \* [C] [O] [N] [F] [I] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stn&Peripheral**.
3. Press **[Next]** until the display reads **System prgrning**.
4. Press **[Show]**. The display reads **Hunt groups**.
5. Press **[Next]**. The display reads **Change Stn #**.
6. Use **[Show]** and the dial pad to identify the station number you want to change (old station number). Then, use the dial pad to enter the new station number.
7. Press **[F15]** to exit or **[Next]** to continue programming.



## Programming feature settings

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## Background Music

This feature allows people to listen to music from an external music source over their keystation speakers. An external music source must be connected to the ME. The default setting for Background music is N (No).

1. Press **Feature**        . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System prgrming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Featr settings**.
6. Press **Show** . The display reads **Backgrnd music:**.
7. Press **CHANGE** to choose Y (Yes) or N (No).
8. Press **Fls**  to exit or **Next**  to continue programming.

## On hold

You can choose what a caller hears when the call has been put on hold. There are three options: a periodic tone, music from an external source connected to the ME, and silence. The default is **Tones**.

1. Press **Feature**        . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System prgrming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Featr settings**.
6. Press **Show** . The display reads **Background music:**.
7. Press **Next** . The display reads **On hold:**.
8. Press **CHANGE** to toggle the setting.
9. Press **Fls**  to exit or **Next**  to continue programming.

## Handset volume

Handset volume allows you to specify whether the volume level of a handset or headset returns to the system default level when a call is ended or put on hold, or whether it remains at the level set at the individual keystation.

1. Press **Feature**        . The display reads **Password:**.

2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Next]** until the display reads **System programming**.
4. Press **[Show]**. The display reads **Hunt groups**.
5. Press **[Next]** until the display reads **Featr settings**.
6. Press **[Show]**. The display reads **Background music**.
7. Press **[Next]** until the display reads **Handset volume...**
8. Press **[Show]** and use **CHANGE** to choose **Use sys volume** or **Use stn volume**.
9. Press **[Ris]** to exit or **[Next]** to continue programming.

## Camp timeout

You can send an external call to another station, even though all of its lines are busy. Camp-on is useful for people who process many calls, such as secretaries or receptionists.

Camp timeout specifies the number of seconds before an unanswered call reverts to the keystation that camped the call. Options are 30, 45, 60, 90, 120, 150, and 180 seconds. The default is 45.

1. Press **[Feature] [\*] [\*] [C] [O] [N] [E] [I] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Next]** until the display reads **System programming**.
4. Press **[Show]**. The display reads **Hunt groups**.
5. Press **[Next]** until the display reads **Featr settings**.
6. Press **[Show]**. The display reads **Background music**.
7. Press **[Next]** until the display reads **CAMP timeout**.
8. Press **CHANGE** to change the setting.
9. Press **[Ris]** to exit or **[Next]** to continue programming.

**Note:** Auxiliary ringer, if programmed to a line, is re-activated when a camped call times-out and reverts back to the set that originated the camp-on. When it returns to the originating set, it will ring and the call can be picked up.

## Park timeout

Park timeout specifies the number of seconds before an unanswered call reverts to the keystation that parked the call. Options are 30, 45, 60, 90, 120, 150, 180, 300 and 600 seconds. The default is 60.

1. Press **Feature**  **\* \* C O N F**  **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System Program**.
4. Press **Show** . The display reads **Hunt Groups**.
5. Press **Next**  until the display reads **Featr settings**.
6. Press **Show** . The display reads **Background music:**.
7. Press **Next**  until the display reads **Park timeout:**.
8. Press **CHANGE** to change the setting.
9. Press **HS** | to exit or **Next**  to continue programming.

**Note:** If Auxiliary ringer is programmed to the line where Park timeout is being used, Auxiliary ringer will not re-activate once the feature is complete.

## Park Mode

Park Mode lets you suspend a call, and lets someone retrieve the call by entering a retrieval code at any Commander NT station in the system.

The Park Mode retrieval code is a three-digit number. By default, the first digit of that number is 1, with the possible retrieval codes ranging from 101 to 124. The M7000 Keystation and SLT use only retrieval code 125.

**Lowest**—Commander NT assigns the lowest available retrieval code. If there is only one parked call on the system, the number is 101. If there are 3 calls, they are assigned 101, 102, and 103.

**Cycle**—Commander NT assigns the next available retrieval code in the sequence (101 to 124). If the last parked call was assigned 106, then the next one is assigned 107. If the last retrieval code was 124, then the next code is 101.

1. Press **Feature**  **\* \* C O N F**  **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System Program**.
4. Press **Show** . The display reads **Hunt Groups**.

5. Press **Next** until the display reads **Featr settings**.
6. Press **Show**. The display reads **Background music**.
7. Press **Next** until the display reads **Park Mode**.
8. Press **CHANGE** to choose **Lowest** or **Cycle**.
9. Press **Fls** to exit or **Next** to continue programming.

## Transfer revert

After a specified number of seconds, an unanswered, transferred call reverts to the keystation that made the transfer.

**Note:** A call that has been reverted to the keystation that made the transfer will be dropped if it is not answered after 3 minutes.

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System prgrming**.
4. Press **Show**. The display reads **Hunt groups**.
5. Press **Next** until the display reads **Featr settings**.
6. Press **Show**. The display reads **Background music**.
7. Press **Next** until the display reads **Transfr revert**.
8. Press **CHANGE** to choose 20, 30, **45**, 60, 90 seconds.
9. Press **Fls** to exit or **Next** to continue programming.

## Network revert

After a specified number of seconds, an unanswered, transferred call to a private network destination reverts to the keystation that made the transfer.

Since the time required to transfer a call across the private network varies depending on the complexity of your private network, you may need to experiment to achieve the correct setting.

**Note:** Depending on how a private network call is routed, it may not always be possible for the system to return a transferred call.

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System prgrming**.

4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next** until the display reads **Featr settings**.
6. Press **Show** . The display reads **Background music:**
7. Press **Next** until the display reads **Netwk revert:**
8. Press **CHANGE** to choose 15, 30, 45, 60, or 90 seconds.
9. Press **Fit** to exit or **Next** to continue programming.

## Delayed Ring Transfer (DRT) to prime and delay

After a specified number of seconds, the system transfers an unanswered ringing call to the prime station for the line that the call is on. DRT does not work for a line that has no prime station.

You can set the amount of time the system waits before transferring a call. Options are 3, 5, 10, 15, 20, and 25 seconds.

The default is **Yes** (DRT to prime station) at 15.

1. Press **Feature** \* \* C O N F G . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System prgrmmg**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next** until the display reads **Featr settings**.
6. Press **Show** . The display reads **Background music:**
7. Press **Next** until the display reads **DRT to prime:**
8. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
9. If you set DRT to prime to **Y**, press **Next** . The display reads **DRT delay:**
10. Press **CHANGE** until you reach the required setting.
11. Press **Fit** to exit or **Next** to continue programming.

## Exchange line to exchange line connections (ISDN lines only)

The Conference and Transfer features can connect calls on different lines together. Whether it is possible to connect two ISDN lines depends on the type of equipment in use, and whether exchange line to exchange line connections are allowed in the system.

Exchange line to exchange line connections are allowed by default, however, if the equipment in use does not support this type of connection, it will not be allowed regardless of this setting.

1. Press **Feature** \* \* C O N F G . The display reads **Password:**.

2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Next]** until the display reads **System prgrming**.
4. Press **[Show]**. The display reads **Hunt groups**.
5. Press **[Next]** until the display reads **Featr settings**.
6. Press **[Show]**. The display reads **Background music**.
7. Press **[Next]** until the display reads **Ex-EX Trf/Conf**.
8. Press **CHANGE** to choose Y (Yes) or N (No).
9. Press **[Fis]** to exit or **[Next]** to continue programming.

## Held Reminder

A reminder tone and display message occur at a Commander NT Keystation when a call has been placed on hold for a certain period of time. The display continues to show the name of the held line until the call is dealt with. In the case of multiple calls on hold, the display reads the name of the line that has been held the longest. Once that call has been dealt with, the next longest held call is displayed.

You can switch Held Reminder on and off and set the time before it occurs. The options are 30, 60, 90, 120, 150, and 180 seconds. The defaults are Y (Yes) (Held Reminder is on) and 30 s (the reminder tone will be heard every 30 s).

The Held Reminder emits a double periodic tone; this distinguishes the feature from the Call Waiting tone which uses a single periodic tone.

1. Press **[Feature...]** \* \* C O N F [G]. The display reads **Password**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Next]** until the display reads **System prgrming**.
4. Press **[Show]**. The display reads **Hunt groups**.
5. Press **[Next]** until the display reads **Featr settings**.
6. Press **[Show]**. The display reads **Background music**.
7. Press **[Next]** until the display reads **Held reminder**.
8. Press **CHANGE** to choose Y (Yes) or N (No).
9. Press **[Next]**. The display reads **Remind delay**.
10. Press **CHANGE** to change the setting.
11. Press **[Fis]** to exit or **[Next]** to continue programming.

## Conference tone

This tone may be heard by all parties as soon as a three-way call is established using the Conference or Privacy feature. You can turn conference tones on and off for the whole system.

1. Press **Feature**  \* \* **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System prgming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Featr settings**.
6. Press **Show** . The display reads **Backgrnd music**.
7. Press **Next**  until the display reads **Conference tones**.
8. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
9. Press **Rls**  to exit or **Next**  to continue programming.

## Call pickup directed

The Call Pickup Directed feature allows someone to pick up calls that are ringing at another keystation (by entering the Call Pickup Directed feature code and the number of the called station).

You can enable or disable Call Pickup Directed for the system. The default is **Y** (Yes), which means that the person is connected to the call that has been ringing the longest in the Call pickup group.

1. Press **Feature**  \* \* **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System prgming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Featr settings**.
6. Press **Show** . The display reads **Background music:**.
7. Press **Next**  until the display reads **Directed pickup:**.
8. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
9. Press **Rls**  to exit or **Next**  to continue programming.



## Page tone

You can choose whether a tone sounds before a page begins.

1. Press **Feature**  \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Strs&Peripheral**.
3. Press **Next**  until the display reads **System prgrming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Featr settings**.
6. Press **Show** . The display reads **Background music:**.
7. Press **Next**  until the display reads **Page tone:**.
8. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
9. Press **Als**  to exit or **Next**  to continue programming.

## Page timeout

The paging feature is automatically disconnected after a specified length of time.

1. Press **Feature**  \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Strs&Peripheral**.
3. Press **Next**  until the display reads **System prgrming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Featr settings**.
6. Press **Show** . The display reads **Background music:**.
7. Press **Next**  until the display reads **PageTimeout:**.
8. Press **CHANGE** to choose 15, 30, 60, 120, 180, 300, 600, 2700 seconds.
9. Press **Als**  to exit or **Next**  to continue programming.

## Automatic Time & Date

When an outgoing BRA or PRA call is answered, the network may provide time and date information to the Commander NT system. The Auto Time&Date feature enables the Commander NT system to use this information to automatically update the time and date on the Commander NT system.

1. Press **Feature**  \* \* **C O N F I G**. The display reads **Password:**.

2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System prgrming**.
4. Press **Show**. The display reads **Hunt groups**.
5. Press **Next** until the display reads **Featr settings**.
6. Press **Show**. The display reads **Background music**.
7. Press **Next** until the display reads **Auto Time&Date**.
8. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
9. Press **Fls** to exit or **Next** to continue programming.

## Call log space

Call log space customises how log space is allocated to keystations in the system. Resetting all logs allows you to re-allocate the Call log space equally to all keystations in your system.

Use this heading only if you want to allocate an equal amount of log space to all the keystations in your system. There are 600 call log spaces available in the system. There are no spaces allocated by default. Changing the space allocation using Call Log spaces defines the log space available to all keystations in the system. Any remaining unassigned log space is available in a log pool, and can be re-allocated under **Stns&Peripheral**.

Re-allocating call log space may destroy call log data at keystations that lose space.

1. Press **Feature** **[\*] [\*] [C] [D] [N] [F] [ ] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System prgrming**.
4. Press **Show**. The display reads **Hunt groups**.
5. Press **Next** until the display reads **Featr settings**.
6. Press **Show**. The display reads **Background music**.
7. Press **Next** until the display reads **Call log space**.
8. Press **Show**. The display reads **Reset all logs?**.
9. Press **YES** and use the dial pad to enter the space allocation for the call log at each keystation. You must use a three-digit number (for example, 020 to give each station 20 spaces).
10. Press **YES** to accept the settings and end programming. The system automatically re-allocates Log space. Press **NQ** to reset the number of spaces allocated to each log.
11. Press **Fls** to exit or **Next** to continue programming.

## Host delay

Host delay specifies the delay between when a line is selected for an external call (by lifting the handset, for example) and when the system sends dialled digits or codes on the line. Host delay is provided to ensure that dial tone is present before the dialling sequence is sent. Options range from 1000 ms to 7000 ms in 500 ms increments. The default is 1000 ms.

1. Press **Feature**  \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System prgrming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Featr settings**.
6. Press **Show** . The display reads **Background music:**.
7. Press **Next**  until the display reads **Host delay:**.
8. Press **CHANGE** to change the setting.
9. Press **Fts** to exit or **Next**  to continue programming.

## Alarm station

An Alarm Station displays system alarm codes, should they occur. You can set which keystation will be the Alarm station. The default is station 221.



### The Alarm keystation must have a two-line display

The Alarm keystation must be an Advantage/M7310N or Principal/M7324N Keystation.

1. Press **Feature**  \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System prgrming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Featr settings**.
6. Press **Show** . The display reads **BackGround music:**.
7. Press **Next**  until the display reads **Alarm stn:**.
8. Press **CHANGE**. Enter the station number.
9. Press **Fts** to exit or **Next**  to continue programming.

## Station relocation

The Station Relocation feature lets you move a keystation from one station socket to another without it losing any of its custom programming. By default Station Relocation is N (No), that is, set to off.



### Wait one minute between moves

After moving a keystation, wait one minute before moving the keystation a second time or changing the keystation's station number. The ME may take up to 60 seconds to recognise a keystation moved to a new location.



### Don't fill old socket before relocating keystation

When moving a keystation with Station Relocation turned on, do not connect another keystation to the station socket of the keystation you are moving before connecting that keystation to a new station socket.

If you connect a keystation of the same type to the vacated station socket, that keystation will receive the programming of the original keystation.

If you connect a keystation of a different type to the vacated station socket, that keystation will receive default programming, and the original keystation's programming will be lost.

1. Press **Feature**  **\*** **\***   **N**  **F**  **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System Prgrming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Featr settings**.
6. Press **Show** . The display reads **Background music:**.
7. Press **Next**  until the display reads **Stn relocation:**.
8. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
9. Press **RLs**  to exit or **Next**  to continue programming.

**Note:** Turn Station Relocation off after the keystation installation and programming has been completed. This provides you with more flexibility in testing equipment. If Station Relocation is off while a keystation is moved, that keystation's station number and data remain with the physical port on the ME, and the keystation does not receive the original programming when it is reconnected elsewhere.

## Message reply enhancement

The Message reply enhancement feature allows the message waiting indicator on analogue telephones (connected to an ASM) to deactivate automatically. If the user replies from the analogue telephone to the designated direct-dial telephone and their call is answered, the message waiting indicator deactivates.

This feature also functions if the user invokes the Call Pickup feature to answer the reply call from the analog set. It does not however, work with the Retrieve Parked Call feature.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System prmrng**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Featr settings**.
6. Press **Show** . The display reads **Background music:**.
7. Press **Next**  until the display reads **Mes reply enh:**.
8. Press **CHANGE** to choose Y (Yes) or N (No).
9. Press **Fls?** to exit or **Next**  to continue programming.

## Answer key

The Answer Stns setting in **Stns&Peripheral** programming lets you assign Answer station numbers to a keystation. The **Ans Key** setting in **Featr settings** programming lets you determine what types of calls will alert at the keystation. Your choices are: Basic, Enhanced and Extended.

An Answer key lets a keystation answer calls intended for another keystation. For example, an Answer key allows an assistant to answer incoming calls to a manager's keystation.

Basic, Enhanced and Extended settings determine what types of calls will alert at the keystation.

The Basic Answer key setting answers all calls except:

- Priority calls
- other Answer key calls
- Overflow call routing calls
- Voice calls
- Ringing service calls
- Callback calls
- Delayed ring transfer calls

Enhanced permits the same as Basic as well as overflow call routing calls but will not answer blind transferred calls. Extended answers the same as Enhanced plus Ringing service, Callback and Delayed Ring Transfer calls. The Extended setting cannot answer priority calls, voice calls and other Answer key calls.

1. Press **Feature** **☐** **\*** **\*** **☐** **☐** **N** **F** **☐** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** **☐** until the display reads **System prgrming**.
4. Press **Show** **☐** **:**. The display reads **Hunt groups**.
5. Press **Next** **☐** until the display reads **Featr settings**.
6. Press **Show** **☐**. The display reads **Background music:**.
7. Press **Next** **☐** until the display reads **Ans. key:**.
8. Press **CHANGE** to select the settings: **Basic**, **Enhanced**, and **Extended**.
9. Press **Fls** to exit or **Next** **☐** to continue programming.

# Programming Direct-dial

- D-Dial1.....230
- Number.....230
- Line selection.....231

Direct-dial lets you dial a designated station with a single digit. Direct-dial stations can be inside the Commander NT132 or it can be outside the system in the exchange network. A Direct-dial station is usually assigned to a receptionist for an entire office or for a particular department.

The Commander NT132 system can have up to five Direct-dial stations.

## D-Dial 1

For the Direct-dial station, indicate whether it is an internal or external number. The default setting is **Intrnl**.

1. Press [Feature] [\*] [\*] [C] [O] [N] [E] [I] [G]. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press [Next] until the display reads **System Programming**.
4. Press [Show]. The display reads **Hunt Groups**.
5. Press [Next] until the display reads **Direct-dial**.
6. Press [Show]. The display reads **D-Dial1:**.
7. Use [Show] and **CHANGE** to select the setting: **Intrnl**, **Extrnl**, or **None**.
8. Press [Fls] to exit or [Next] to continue programming.

## Number

Enter the internal or external numbers that the system will automatically dial when someone enters the Direct-dial digit.

1. Press [Feature] [\*] [\*] [C] [O] [N] [E] [I] [G]. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press [Next] until the display reads **System Programming**.
4. Press [Show]. The display reads **Hunt Groups**.
5. Press [Next] until the display reads **Direct-dial**.
6. Press [Show]. The display reads **D-Dial1:**.
7. Press [Show]. The display reads **Intrnl#:**.
8. Use **CHANGE**, and the dial pad to enter the station number. The default number for the first Direct-dial station is **221**.
9. Press [Fls] to exit or [Next] to continue programming.



## Line selection

If you assign an external number as a Direct-dial station, you must indicate which line to use for the call.

The Commander NT132 cannot verify that the number you assign as an external Direct-dial station is valid. Check the number before assigning it as a Direct-dial station, and call the Direct-dial station after you have assigned it in order to test it.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **:**  **G** . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System Prgrming**.
4. Press **Show**  . The display reads **Hunt Groups**.
5. Press **Next**  until the display reads **Direct-dial**.
6. Press **Show**  . The display reads **D-Dial1:Extrnl**.
7. Press **Show**  . The display reads **Extrnl#:**.
8. Use **Next**  , **CHANGE**, and use the dial pad to enter up to 24 digits for the external number.
9. Press **OK**. The display reads the number you have entered.
10. Press **Next**  . The display reads an outgoing facility.
11. Press **CHANGE** until the display reads the facility you want. If you choose **Use line:** or **Pool code:** you will have to enter a specific line number or pool code.
12. Press **Fls**  to exit or **Next**  to continue programming.

You cannot divert calls to any Direct-dial station that is outside your Commander NT. See "Divert" in the *System Administration Manual*.

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# Programming the DSS Console/CAPN Module

- Direct Station Select Console/Central Answering Position (CAPN) Module.....234

## Direct Station Select Console/Central Answering Position (CAPN) Module

You can designate up to five stations in the system as an enhanced Direct Station Select (DSS) stations. When a station is designated as an enhanced DSS it gains the following features:

- The limit on the number of messages that the station can send to other stations is increased from 4 to 30.
- A Principal/M7324N Keystation equipped with two DSS Consoles/CAPN Modules can handle up to 120 separate lines.



### Keystations will be temporarily disabled

When you exit programming after assigning or reassigning a DSS, the affected keystations are temporarily disabled and any active calls are dropped.

1. Press **Feature**  \* \*     (N: | F | ) | G | . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System Programming**.
4. Press **Show**  . The display reads **Hunt Groups**.
5. Press **Next**  until the display reads **DSS assignment**.
6. Press **Show**  . The display reads **DSS 1:**.
7. Press **CHANGE**. Enter the number of the station that you are assigning as a DSS.
8. Press **[Ris]** to exit or **Next**  to continue programming.

### Changing or deleting an enhanced Direct Station Select assignment

1. Press **Feature**  \* \*     (N: | F | ) | G | . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System Programming**.
4. Press **Show**  . The display reads **Hunt Groups**.
5. Press **Next**  until the display reads **DSS assignment**.
6. Press **Show**  . The display reads **DSS 1:**.
7. Press **CHANGE**. Enter the new station number and press **Next**  . If you do not enter any number, that DSS is erased.
8. Press **[Ris]** to exit or **Next**  to continue programming.

## Programming Access codes

- Line pool codes.....236
  - Park prefix.....237
- Exchange line access code.....237
  - Direct-dial #.....238
  - Auto number.....239
  - DISA number.....240

Access codes are used by the system to direct calls to the correct lines and destinations. If the codes conflict, some of the features on the system will not work. The table of default settings can help you plan your access codes to prevent conflicts.

#### Digits assigned by default to programming settings

Digit	Use	Heading
0	exchange line access code	Access codes
1	Park prefix	Access codes
2	the first digit of B1 station numbers	Startup
3	possible first digit for station numbers (maxi)	Startup
5	the first digit of Hunt group stations	System prgming
9	Direct-dial digit	Access codes
--	Line Pool access code (Not assigned by default, but takes precedence over the Exchange line access code if there is a conflict.)	Access codes
--	destination code	Services

## Line pool codes

This setting enables you to assign a Line Pool access code for each of the fifteen line pools (A to O). These codes are used to specify the line pool you wish to use for making an outgoing external call. The default setting is **None** for all line pools.

The code can be one to four digits in length. Line Pool access codes starting with the same digit must be the same length. A Line Pool access code can be the same as an exchange line access code. In this case, the Line Pool access code takes priority over the exchange line access code, and a line from the line pool is selected.

A Line Pool access code cannot conflict with: the Park prefix, the Direct-dial digit; the first digit of any Received number; the first digit of any station number (including the Auto number or the DISA number).

1. Press **Feature** **\*** **\*** **0** **0** **N** **F** **L** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System prgming**.
4. Press **Show**. The display reads **Hunt groups**.
5. Press **Next** until the display reads **Access codes**.
6. Press **Show**. The display reads **Line pool codes**.

7. Use **Show** , **CHANGE**, the dial pad, and **OK** to program the access code.
8. Press **Als** to exit or **Next** to continue programming.

## Park prefix

The Park prefix is the first digit of the Call Parking retrieval code that must be entered to retrieve a parked call. If the Park prefix is set to None, calls cannot be parked. The default setting is 1.

The Park prefix cannot be the same as the Direct-dial digit, the exchange line access code, the first digit of a station number, the first digit of a Line Pool access code, or the first digit of a destination code.

Other programmable settings may affect which numbers appear on the display during programming. Although the numbers 0 to 9 are valid Park prefix settings, some may have already been assigned elsewhere by default or by programming changes.

If station number length is changed, and the changed station numbers conflict with the Park prefix, the setting changes to None.

1. Press **Feature** \* \* C O N F [ ] G . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System Programming**.
4. Press **Show** . The display reads **Hunt Groups**.
5. Press **Next** until the display reads **Access codes**.
6. Press **Show** . The display reads **Line pool codes**.
7. Press **Next** . The display reads **Park prefix:**.
8. Press **CHANGE** to select the setting: 1 to 9, None, or 0.
9. Press **Als** to exit or **Next** to continue programming.

## Exchange line access code

External code enables you to assign the exchange line access code. This code enables keystations and peripherals to access exchange lines. It is generally required to make external calls on the Economy/M7100N Keystation and on telephones connected to an SLT Adaptor. The default setting is 0 (zero).

The exchange line access code cannot conflict with the Park prefix, the Direct-dial digit, the first digit of a Line Pool access code, the first digit of a station number, or the first digit of a destination code.

If the station number length is changed, and the changed station numbers conflict with the exchange line access code, the setting changes to None.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F**  **C**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System programming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Access codes**.
6. Press **Show** . The display reads **Line pool codes**.
7. Press **Next**  until the display reads **Extnl code:**.
8. Use **CHANGE** to select the setting: 1 to 9, None, or 0.
9. Press **Fls** to exit or **Next**  to continue programming.



#### Ensure the prime line connects to an exchange line

When you use the exchange code, the system selects an exchange line based on your prime line. Make sure that anyone who will use this feature has a prime line that is an exchange line or a line pool containing exchange lines. If the prime line is an intercom, make sure that the lowest lettered line pool in the system contains exchange lines.

## Direct-dial #

Direct-dial digit enables you to dial a single system-wide digit to call specific stations called Direct-dial stations. You can have one Direct-dial digit to access up to five Direct-dial stations. A person whose telephone is a Direct-dial station is usually an attendant for the entire office or for a particular department.

Note that ISDN terminals cannot use the Direct-dial digit to reach a Direct-dial station. The Direct-dial digit is the digit people dial to reach the attendant. The options are 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, and None. The default setting is 9.

Another Direct-dial station, an Extra-dial station, can be assigned for each mode in Services programming.

The Direct-dial digit cannot be the same as the first digit of a station number, of a Line Pool access code, the exchange line access code, or the Call Parking prefix. It cannot be the first digit of a destination code.

If the station number length is changed and the changed station numbers conflict with the Direct-dial digit, the setting changes to None.

1. Press **Feature**  \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System programming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Access codes**.
6. Press **Show** . The display reads **Line Pool codes**.
7. Press **Next**  until the display reads **Direct-dial:**.
8. Press **CHANGE** to select the setting: 1 to 9, None, or 0.
9. Press **RLS** to exit or **Next**  to continue programming.

## Auto number

An external caller does not need DISA and a password to access the Commander NT132 and use its features. The caller can just dial the Auto Number to gain access. The Class of Service (COS) on the line the caller calls in on determines what features the caller can use.

The length of the Auto number is the same as the **Rec'd # length** specified in **System programming**. The Auto number is cleared if the Received number length is changed.

The Auto number cannot be the same as a Line Pool access code or a station number.

1. Press **Feature**  \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System programming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Access codes**.
6. Press **Show** . The display reads **Line Pool codes**.
7. Press **Next**  until the display reads **Auto #:**.
8. Use **CHANGE** and the dial pad to enter the digits to be received from the auto-answer line. Press **CLR** to set the Auto number back to **None**.
9. Press **RLS** to exit or **Next**  to continue programming.



## DISA number

For calls answered with DISA, the system presents a stuttered dial tone to prompt a caller to enter a valid COS password. The Class of Service (COS) that applies to the call is determined by this COS password.

After a remote user is on the Commander NT132, the DISA number can be used to change the existing Class of Service.

The length of the DISA number is the same as the Rec'd # length specified in **System programming**. The DISA number is cleared if the Received number length is changed.

The DISA number cannot be the same as a Line Pool access code or a destination code.

1. Press **Feature** [ \* \* C O N F I G ]. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** [ ] until the display reads **System programming**.
4. Press **Show** [ ]. The display reads **Hunt groups**.
5. Press **Next** [ ] until the display reads **Access codes**.
6. Press **Show** [ ]. The display reads **Line pool codes**.
7. Press **Next** [ ] until the display reads **DISA #:**.
8. Use **CHANGE** and the dial pad to enter the digits to be received from the auto-answer line. Press **CLR** to set the DISA number to **None**.
9. Press **File** [ ] to exit or **Next** [ ] to continue programming.

## Programming Remote access

- Remote access packages.....242
  - Line Pool access.....242
    - Remote page.....243
  - Remote line access.....243

Remote access packages enable you to control the remote use of Commander NT132 line pools and the paging feature.

You create a Remote access package by defining which of your system line pools it will be able to access and whether it can use Page and line pools. You then assign the package to individual lines (using Rem line access) and to a particular Class of Service password (Remote package in COS passwords).

## Remote access packages

1. Press **Feature**        . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System programming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Remote access**.
6. Press **Show** . The display reads **Rem access pkgs**.
7. Press **Show** . The display reads **Show pkg:**.
8. Use the dial pad to select the Remote access package you want to program. The display reads **Rem pkg nn**.
9. Press **File**  to exit or **Next**  to continue programming.

## Line Pool access

1. Press **Feature**        . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System programming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Remote access**.
6. Press **Show** . The display reads **Rem access pkgs**.
7. Press **Show** . The display reads **Show pkg:**.
8. Use the dial pad to select the Remote access package you want to program.
9. Press **Show** . The display reads **LinePool access**.
10. Press **Show**  and **CHANGE**.
11. Press **Next**  to select the Line Pool access setting for each pool: N (No) or Y (Yes).
12. Press **File**  to exit or **Next**  to continue programming.

## Remote page

1. Press **Feature**  \* \* **C** **O** **N** **F**  **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System programming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Remote access**.
6. Press **Show** . The display reads **Rem access pkgs**.
7. Press **Show** . The display reads **Show pkg:**.
8. Use the dial pad to select the Remote access package you want to program.
9. Press **Show** . The display reads **LinePool access**.
10. Press **Next** . The display reads **Remote page:**.
11. Press **CHANGE** to select the Remote page setting: N (No) or Y (Yes).
12. Press **Fits**  to exit or **Next**  to continue programming.

## Remote line access

Enter the number of the line that will be accessible by remote users.

### L001 Remote package

1. Press **Feature**  \* \* **C** **O** **N** **F**  **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System programming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Remote access**.
6. Press **Show** . The display reads **Rem access pkgs**.
7. Press **Next** . The display reads **Rem line access**.
8. Press **Show** . The display reads **Show line:**...
9. Press **Next** . The display reads **L001:Rem PKG 00**.
10. Press **CHANGE** and enter the number of the Remote access package that will apply to remote use of the line.
11. Press **Fits**  to exit or **Next**  to continue programming.

**Remote access packages defaults**

Parameter	Square	PBX	Hybrid
Package 00	Prohibits remote access to line pools, Page. Cannot be changed.		
Package 01 Line Pool access	Y for Pool A N for Pools B and O		
Remote page	No		
Packages 02 - 15 Line pool access	N for Pools A to O		
Remote Page	No		

You can use **COPY** and the dial pad to copy settings from one remote package to another.

The Line Pool access display reads an alphabetic line pool identifier, followed by a numeric Line Pool access code in brackets, for example, Pool A (9):N. If no access code has been identified, there is nothing between the brackets, for example, Pool A ( ):N. The Line Pool access code can be programmed under **Access Codes** in **System Programming**.

Remote package 00 is the default setting for the Remote package setting. It permits no access to line pools or to Remote paging. Unlike packages 01 to 15, package 00 cannot be changed.

You can define up to 15 Remote access packages (01 to 15).

For remote users who call into the Commander NT132 to use Commander NT132 lines for calling out, the remote restrictions on the incoming line and line restrictions on the outgoing still apply.

## Received and station number length

- Changing the Received number length.....246
- Changing the Station number length.....246

## Changing the Received number length

The length of the Received number can be one to seven digits. The default length matches the length of the starting station. For information on programming Received numbers, see "Programming for Direct Dial Inward (DDI) lines" on page 191.



### Received numbers will be set to None

When you change the Received number length, any existing Received numbers are reset to None.

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System Programming**.
4. Press **Show**. The display reads **Hunt Groups**.
5. Press **Next** until the display reads **Rec'd # lengths:**.
6. Press **CHANGE** to choose 3, 4, 5, 6 or 7.
7. Press **Als** to exit or **Next** to continue programming.



### Received number must be correct length

If the number of digits entered does not match the Received number length, the Received number remains at the previous value.

## Changing the Station number length

You can set the Station number length for the system. Station numbers can be three to seven digits in length. The default is three digits.

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System Programming**.
4. Press **Show**. The display reads **Hunt Groups**.
5. Press **Next** until the display reads **Stn# lengths:**.
6. Press **CHANGE** to choose 3, 4, 5, 6 or 7.
7. Press **Next**. The display reads **Drop data calls?**.

8. Press **YES**. The display reads **End of session**.



#### **Data calls are dropped**

Commander NT data devices will drop calls if you change the station number length.

**Note:** The first digit of a new station number cannot be the same as the first digit of an exchange code, a line pool access code, a Direct-Dial digit, or a Call Park retrieval code.

At System Startup, you can change the base numbering for station numbers.

The lowest default station number is 221, but that can be changed. At Startup, the default station numbers for keystations range from 221 to 245, assuming the lowest default is 221.

When you increase the station number length, the system automatically places the digit 2 in front of any existing station numbers to increase the length. For example, if the station number length is increased to four, station 234 becomes 2234.

No station number changes occur until the configuration session ends. If the new station number already exists, the two station numbers are exchanged.

Changes to station number length can take a few minutes to take effect after you end the configuration session.

## Release reasons

Choose what information a station displays when a call is released. Release reasons can be **Simple**, **Detailed** or **None**. The default is **Simple**.

1. Press **Feature**  **\*** **\*** **C** **D** **N** **E** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **System Programming**.
4. Press **Show** . The display reads **Hunt groups**.
5. Press **Next**  until the display reads **Release reasons:**.
6. Press **CHANGE** to choose **Simple**, **Detailed** or **None**.
7. Press **Fls** to exit or **Next**  to continue programming.



# Programming Hospitality Services

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  - Room keystation.....250
- Hospitality Services (HS) admin keystation.....250
  - Hospitality passwords.....251
- Room desk information.....252
  - Call restrictions.....252
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Hospitality Services (HS) is a group of features that increases the value of the Commander NT system in small to medium sized hotels, motels or hospitals.

To gain access to Hospitality Services programming you must enter the Software Keys. See "Software Keys" on page 257 for more information.

**Note:** You can program a Call Detail Recorder (CDR) to collect Hospitality Services information. See "Call Detail Recorder" on page 80 for more information.

In a hotel setting, guests gain improved services through immediate access to basic functions like:

- wake-up service or reminders
- accurate tracking of the room's service requirements.

Commander NT Keystations are classified as one of three types of keystations: a common keystation, a room keystation or a Hospitality Services (HS) admin keystation.

## Common keystation

A common keystation can be a telephone found in a lobby, office, or common area, it is not associated with a room. A common keystation does not have access to the all of HS features.

Common keystations are Commander NT Keystations or analogue telephones connected to a Single Line Telephone (SLT) Adaptor, or an analogue station module (ASM).

## Room keystation

A Room keystation is a keystation assigned to a room in System programming. Up to five keystations can be assigned to the same room (they all share same room number).

Room keystations can be any Commander NT Keystation or a single line telephone connected to an SLT Adaptor or ASM.

## Hospitality Services (HS) admin keystation

A Hospitality Services (HS) admin keystation is any two-line display Commander NT Keystation. A Hospitality Services (HS) admin keystation can be programmed to require a user to enter the Desk admin password before access to HS admin features is granted.

## Hospitality passwords

The Hospitality Services feature allows for two types of passwords to access different areas of Hospitality programming.

### Desk admin password

The Desk admin password is used to access all Hospitality Services admin features. The default Desk admin password is: **H O S P (4677)**. To change the default Desk admin password:

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Passwords**.
4. Press **Show**. The display reads **COS Pswds**.
5. Press **Next** until the display reads **Hospitality**.
6. Press **Show**. The display reads **Desk Pswd:4677**.
7. Press the **CHANGE** display key. Enter a one to six digit number. Press **OK**.

### Room condition password

The Room condition password controls the ability to change the room condition with **Feature** **G** **7** **6**. The default room condition password is: **None**. Different from the Desk admin password, the room condition password can remain as **None**. To change the default Room condition password:

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Passwords**.
4. Press **Show**. The display reads **COS Pswds**.
5. Press **Next** until the display reads **Hospitality**.
6. Press **Show**. The display reads **Desk Pswd:4677**.
7. Press **Next**. The display reads **Cond Pswd:None**.
8. Press the **CHANGE** display key. Enter a one to six digit number. Press **OK**.

## Room desk information

The **Room/desk info** heading of programming under **Hospitality** in **System Programming** allows for the installer to assign keystations to a room. To programme a Commander NT Keystation, an M7000 Keystation or an analogue telephone:

1. Press **Feature** | **\*** | **\*** | **C** | **O** | **N** | **F** | **I** | **G**. The display reads **Password:**.
2. Enter the installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System Prgrming**.
4. Press **Show**. The display reads **Hunt Groups**.
5. Press **Next** until the display reads **Hospitality**.
6. Press **Show**. The display reads **Room/desk info**.
7. Press **Show**. The display reads **Show stns**.
8. Enter a room keystation number or press the **SCAN** or **FIND** display keys to find the room keystations defined in the system.
9. The display reads **nnnnn:ns**. The display indicates a room keystation number, the room number and the number of keystations in that selected room.
10. Press **Show**. The display reads **Room #:None**. To change the room number of the room keystation, press the **CHANGE** display key. The default setting is **None**.
11. Press **Next**. The display reads **Adm pwd req'd?Y**. Determine if the keystation requires the use of the Desk admin password to access Hospitality features. Press the **CHANGE** display key to select **Y** or **N**. The default is **Y**.
12. Press **Fls** to exit or **Next** to continue programming.

## Call restrictions

The **Call restrns** heading of programming under **Hospitality** in **System Programming** allows for the installer to assign dialling filters to room occupancy states. Call restrictions is an integral part of the Room occupancy (RO) feature.

The default dialling filter for all Room occupancy states (Vacant, Basic, Mid, and Full) is **00**. The filters are the standard Commander NT dialling filters and range from **00** to **99**.

To assign dialling filters:

1. Press **Feature** | **\*** | **\*** | **C** | **O** | **N** | **F** | **I** | **G**. The display reads **Password:**.

2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System programming**.
4. Press **Show**. The display reads **Hunt groups**.
5. Press **Next** until the display reads **Hospitality**.
6. Press **Show**. The display reads **Room/desk info**.
7. Press **Next**. The display reads **Call restrictions**.
8. Press **Show**. The display reads **Vacant:00**.
9. Press the **CHANGE** display key. The display reads **Use flt:**.
10. Enter the dialling filter (00 to 99). The display reads **Vacant:nn**.
11. Press **Next**. The display reads **Basic:00**. Repeat steps 7 and 8 for Basic, Mid and Full Room occupancy states.
12. Press **Als** to exit or **Next** to continue programming.

## Service time

The **Service time** heading of programming under **Hospitality** in **System programming** allows for the installer or system administrator to programme the time when occupied rooms change state from **Service done** to **Service required**. The **Service time** heading is an integral part of the **Room condition (RC)** feature.

1. Press **Feature** **]** **\*** **\*** **C** **O** **N** **F** **]** **@**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System programming**.
4. Press **Show**. The display reads **Hunt groups**.
5. Press **Next** until the display reads **Hospitality**.
6. Press **Show**. The display reads **Room/desk info**.
7. Press **Next** until the display reads **Service time**.
8. Press **Show**. The display reads **Hour:00**.
9. Press the **CHANGE** display key. Enter the hour (00 to 23). If the number is less than 13, the display reads **AM**. Press **CHANGE** to select **PM**.
10. Press **Next**. The display reads **Minutes:00**.
11. Press the **CHANGE** display key. Enter the minutes (00 to 59).
12. Press **Als** to exit or **Next** to continue programming.

## Alarm

The **Alarm** heading of programming under **Hospitality** in **System Programming** is an integral part of the Alarm time feature. Under the Alarm heading the installer programs the following settings:

- **Attention attempts** — Number of times the Alarm time feature attempts to get the attention of the occupant before cancelling.
- **Retry intervals** — The interval period in minutes, between each Alarm attempt.
- **Attention duration** — The period programmed in seconds for which a keystation alerts or each alarm attempt.
- **Time format** — Option to select whether the 12 hour or 24 hour clock is used when users program the Alarm time feature.

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **System Programming**.
4. Press **Show**. The display reads **Hunt Groups**.
5. Press **Next** until the display reads **Hospitality**.
6. Press **Show**. The display reads **Room/desk info**.
7. Press **Next** until the display reads **Alarm**.
8. Press **Show**. The display reads **Attn attempts:3**.
9. Press the **CHANGE** display key to select 1, 2, 3, 4, or 5. The default is 3.
10. Press **Next**. The display reads **Retry interval:4**.
11. Press the **CHANGE** display key to select 2, 4, 6, or 8 minutes. The default is 4.
12. Press **Next**. The display reads **Attn duration:15**.
13. Press the **CHANGE** display key to select 10, 15, 20, 30, 40 or 50 seconds. The default is 15.
14. Press **Next**. The display shows **Time format: 12hr**.
15. Press the **CHANGE** display key to select 12hr or 24 hr. The default is 12 hour format.
16. Press **Dis** to exit or **Next** to continue programming.

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# Network features

- ONN blocking (CLIR).....256

## ONN blocking (CLIR)

When activated, ONN blocking (Calling Line Identification Restriction (CLIR), **Feature**: **8** **1** **9**) blocks the outgoing number CLI. When this feature is used, the call is flagged to the exchange so that the number will not be presented to the person being called.

On CLI supported lines, a call blocking digit sequence is sent to the exchange before sending the dialout digits. You can change these digits in System Prgrming and set it to the digit sequence recognized by the local exchange for number blocking on a call by call basis.

To cancel ONN blocking press **Feature** **#** **8** **1** **9**.

**Note:** For ONN blocking to work on BRA trunks, the OLI must be set to use ONN blocking. You must program the OLI # to something other than the default None.

1. Press **Feature** **1** **\*** **\*** **C** **O** **N** **F** **8**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** | until the display reads **Netwk features**.
4. Press **Show** |. The display reads **ONN blocking:**.
5. Press **Show** |. The display reads **Tone:None**.
6. Press **CHANGE** to enter a new tone dialling Name and Number blocking code. The code for tone trunks can include a maximum of 10 digits consisting of the exchange Pause (F78), digits 0-9, \*, and #.
7. Press **Next** |. The display reads **Pulse:None**.
8. Press **CHANGE** to enter a new pulse dialling Name and Number blocking code. The code for pulse trunks can include a maximum of 10 digits consisting of the digits 0-9. Pulse trunks do not support F78, \* or #.



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## Software Keys

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  - Password Keys.....258

## Using Software Keys

Software Keys are password numbers provided by Commander Care Online, that enable the technician to activate the PRA system capability and the Hospitality Services group of features.

The Commander NT132 system comes activated with 10 channels. A keycode is required to activate each additional 10 channels. If you require 60 channels, you need 5 keycodes. See "ISDN PRA cartridge" on page 40.

There are three keys, consisting of eight numbers each. In order to provide the password numbers, the manufacturer must be informed of the unique System ID of the Main Equipment.

Once the appropriate Software Keys have been entered the system makes either the PRA capability or the Hospitality Services group of features available.

**Note:** Following a system cold-start, your Commander NT132 system ID will be reset. Previously recorded password keys cannot be reused in such an instance.

## Expansion keycodes

The software contained in the cartridge must be unlocked with Expansion keycodes. Refer to the latest Technical Bulletin for instructions on how to obtain these keycodes.

## Password Keys

Once you have received the codes record them in the *Programming Record*.

1. Press  \* \*      . The display reads **Password:**
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press  until the display reads **Software Keys**.
4. Press . The display reads **Sys ID:** followed by the eight-digit System ID Number.
5. Press . The display reads **Password Keys**.

The ten channel PRA upgrade keycodes or Hospitality Services keycodes are entered here. The system is able to determine by the keycodes entered which feature is to be unlocked.

6. Press  and enter the first eight-digit code for Key 1. Use **BACKSP** to make corrections.
7. Enter the eight-digit codes for the next two keys in the same way.

**Note:** You will not know if the software keys are being entered successfully until all the eight-digit codes have been entered. You will see the numbers on the display as you enter them and be able to make corrections.

If you have entered keycodes to expand the number of PRA channels or to activate the Hospitality Services features and have successfully entered the keys the display reads **Successfully entered.**

Select **YES**. Wait for the system to re-start.



**System will Warm Start when entering Expansion keycodes.**

If you select **YES**, the system warm starts. All calls in progress will be lost.

## Programming System Speed Dial

- Assigning a number to a System Speed Dial code...262
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- Setting the system to display a name instead of number...263
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Speed Dial saves time by allowing you to dial frequently called numbers using a two-digit code. For example, you can program telephone numbers for major suppliers or clients for easy dialling.

Speed Dial codes numbered from 01 to 70 are intended for system-wide use. Speed Dial codes from 71 to 94 are for personal use and can be individually programmed at each Commander NT Keystation.

The steps to programming System Speed Dial are:

1. Assign a telephone number to a System Speed Dial code.
2. Select a line to be used by the telephone number.
3. Set whether the system displays the telephone number or a name (optional).
4. Set whether the speed dial number will bypass any restrictions on the line or station where it is used (optional).

**Note:** When a speed dial number is changed, all of its associated attributes must be reprogrammed.

## Assigning a number to a System Speed Dial code

First, you choose a two-digit speed dial code (between 01 and 70) and then assign a telephone number to it.

1. Press **[Feature]** **[\*]** **[\*]** **[C]** **[O]** **[N]** **[F]** **[.]** **[G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Next]** until the display reads **Sys speed dial**.
  1. Press **[Show]**. The display reads **Speed dial #:**.
  2. Enter the System Speed Dial code.
  3. Press **[Show]**. The display shows the telephone number currently assigned to the code, or **No number**.
  4. Press **CHANGE**. Enter the telephone number (up to 24 digits) and press **OK**.
  5. Press **[Fls]** to exit or **[Next]** to continue programming. If you press **[Next]**, the display shows the line currently selected for that speed dial number.

## Selecting a line

After assigning a keystation number to the speed dial code, you must select an outgoing facility for the number to use. Choose either a Prime line, an exchange line, a line pool, or the routing table.

When you program a line pool as part of a speed dial number, use **Intercom** and the line pool access code, or a programmed line pool key.

If you assign a specific line to a system speed dial number, only keystations with an appearance of that line can use the speed dial number.

1. Press **Feature**  \* \* **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **Sys speed dial**.
4. Press **Show** . The display reads **Speed dial #:**.
5. Enter the System Speed Dial code.
6. Press **Show** . The display shows the telephone number currently assigned to the code, or **No number**. If you are changing the line selection for an existing speed dial number, go to step 7.
7. Press **CHANGE**. Enter the telephone number (up to 24 digits) and press **OK**.
8. Press **Next** . The display shows the line type currently selected for that speed dial number.
9. Press **CHANGE** until the display shows the line you want. If you choose **Use prime line:** or **Use line:** or **Pool code:** or **Use routing table:** you will have to enter a specific line number or pool code.
10. Press **Exit**  to exit or **Next**  to continue programming.

## Setting the system to display a name instead of number

When you use a speed dial number, you can choose to have the display show either the telephone number or a name for that speed dial number. For example you could program a speed dial to call a frequently used courier and have the display show **Courier** instead of a number.

System speed dial names can be 16 characters long. The default is set to display the telephone number.

1. Press **Feature**  \* \* **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **Sys speed dial**.
4. Press **Show** . The display reads **Speed dial #:**.
5. Enter the System Speed Dial code.

6. Press **Show** . The display shows the telephone number currently assigned to the code, or **No number**.
7. Press **Next** until the display reads **Display digits:**.
8. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
9. If you choose **Y**, press **[Ris]** to exit. If you choose **N**, press **Next** to set the name to be displayed. The display reads **Name: Sys Speed Dial nr.**
10. Press **Show** . The display shows the currently assigned name.
11. Press **CHANGE**. Enter the characters for the new name using the dial pad.
12. Press **[Ris]** to exit or **Next** to continue programming.

## Setting whether this speed dial number will bypass restrictions

System speed dial numbers are normally subject to any restrictions that are programmed in the Commander NT, but they can be programmed to bypass these restrictions. You may choose to have the speed dial number bypass the normal call restrictions (Yes to bypass), or you may choose to have the speed dial number be subject to normal call restrictions (No). The default is No.

1. Press **[Feature] \* \* C O N F [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Sys speed dial**.
4. Press **Show**. The display reads **Speed dial #:**.
5. Enter the System Speed Dial code.
6. Press **Show**. The display shows the telephone number currently assigned to the code, or **No number**.
7. Press **Next** until the display reads **Bypass restrn:**.
8. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
9. Press **[Ris]** to exit or **Next** to continue programming.

**Note:** If you are in the Speed Dial setting location and no number is stored and the Bypass Restriction is set to "Yes", then you must enter in a number. The Bypass Restriction is set back to the "No" default. If you try to change an existing one, the Bypass Restriction is reset to the default, "No".

## Naming stations and lines

- Naming stations.....266
  - Naming lines.....266



You can personalise your office communications by assigning names to lines and stations in the Commander NT. The station's default name is its station number (for example, 221). A line's default name is its line number (for example, Line 001).

Names can be 7 characters long. Line and station names can contain both letters and numbers, but not the # and \* symbols. To avoid confusion, do not assign the same name to more than one station or line, or to a station and a line in your system. Use creative combinations of initials, abbreviations, or even nicknames, to give each station and line a unique name.

## Naming stations

You can program the system so that when a station number is dialled, the person's name appears on the keystation display. At the same time, the person called sees the caller's name on their display.




1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show**. The display reads **Show stn#:**.
4. Enter the station number.
5. Press **Show**. The display reads **Line access**.
6. Press **Next** until the display reads **Name**.
7. The display shows the station number or current name.
8. Press **CHANGE**. Enter the characters of the name using the keystation dial pad, to a maximum of 7 characters.
9. Press **It's** to exit or **Next** to continue programming.

## Naming lines

Assigning names to lines can help you identify incoming calls. For example, if both the Sales line and the Service line ring at your station, your display will show which line is calling, **Sales** or **Service**.

If the Sales department is in a meeting and have diverted their lines to your station, the keystation display will read **Sales** for any incoming calls on their lines.

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Lines**.

4. Press **Show** . The display reads **Show Line:**.
5. Enter the line number.
6. Press **Next**  until the display reads **Name**. The display shows the line number or current name.
7. Press **CHANGE**. Enter the characters of the name using the keystation dial pad.
8. Press **Fls** to exit or **Next**  to continue programming.

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## Programming station capabilities

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Many features that can be used at individual stations must first be programmed. You can:

- assign a Direct-Dial station to enable your colleagues to reach an attendant by dialling just one digit
- assign a Hotline station to dial one number automatically
- assign page zones so that colleagues can call page within their groups without disturbing the whole office
- assign pick-up groups to allow colleagues to easily answer calls ringing at another station
- set Diversions so that all calls can be answered at other stations even when people's stations are busy or they do not answer
- lock a station to limit the features that can be used on it
- program an Auxiliary ringer.
- program Do not Disturb on Busy
- program Full and Automatic Handsfree
- allow Priority Call
- activate Redirect ring

## Seeing what has been programmed on a station

Station profile lets you examine, without changing, all of the system programming assigned to any Commander NT Keystation.

1. Enter **Feature**  **\*** **\*** **E** **X** **T** **N** on any Advantage/M7310N or Principal/M7324N Keystation.
2. Enter the station number of the keystation whose programming you want to check.
3. Use **NEXT**, **SHOW**, and **BACK** to navigate through the settings.

## Setting divert

As the Administrator, you can set the system to automatically divert your calls to another keystation or external telephone when your keystation is busy and when it is not answered.

To temporarily divert all calls to another station in your Commander NT system, enter **Feature**  **E**, and the station to divert to, on the keystation you want to be diverted.

### Setting Divert to external destinations

To temporarily divert all calls to an external destination, enter **Feature**  **4**, the line pool access code plus the telephone number, on the keystation you want to be diverted.

You must program a station to *Allow Redirect* in order to Divert to external destinations. Only supervised lines can divert to external destinations. Calls diverted outside the Commander NT system are

subject to the restriction filters placed on the lines for the line pool code specified.

You cannot program   using:

- last number redial key
- saved number redial key
- external auto-dial key

### Setting the system to divert calls for an unanswered keystation

When you set the system up to divert calls that are not answered at a particular keystation, you must define the station (or external destination) that the calls are sent to and the number of times that an incoming call rings before the call is diverted. You can choose the delay before which a call is diverted: 6, 9, 12, 18 or 30 seconds. The default is 12 seconds.

**Note:** If the station that you are diverting calls to does not have a free intercom key, or has Do Not Disturb or Do Not Disturb on busy activated, the incoming call continues to visually alert at your keystation, and the caller continues to hear ringback.

If this is not desirable, you can program a Divert on busy or Divert no answer destination for the second station.

For example, station 224 is programmed to divert all incoming calls to station 235, which in turn is programmed to divert all incoming calls to station 240.

Unanswered calls coming in on an outside line are automatically transferred to the Prime station for that line.

If the station is a member of a hunt group, the Divert no answer feature is overridden and the hunt group call will continue to ring until the hunt time has expired.

You can Divert on busy to a Hunt Group number.

1. Press  \* \*      . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press . The display reads **Show str#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press . The display reads **Line access**.
6. Press . The display reads **Capabilities**.
7. Press . The display reads **Divert no answer**.
8. Press . The display reads **Divert to:None**.

9. Press **CHANGE** and enter the station number where you want the calls to be sent. You can press **CLR** to change the destination back to None.

**Note:** For external destinations, enter the line pool access code plus the telephone number.

10. Press **[Next]**. The display reads **Divert delay:**.
11. Press **CHANGE** to choose between 6, 9, 12, 18 or 30 seconds.
12. Press **[F1s]** to exit or **[Next]** to continue programming.

### Canceling Divert for an unanswered keystation

1. Press **[Feature] [\*] [\*] [C] [D] [N] [F] [I] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Show]**. The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnnnnn**.
5. Press **[Show]**. The display reads **Line access**.
6. Press **[Next]**. The display reads **Capabilities**.
7. Press **[Show]**. The display reads **Divert no answer**.
8. Press **[Show]**. The display reads **Divert to:**.
9. Press **CHANGE**. You can press **CLR** to change the destination back to None.
10. Press **[F1s]** to exit or **[Next]** to continue programming.

### Setting the system to divert calls for a busy keystation

When a call comes in and you are already engaged on a call, Divert on busy will pass the incoming call on to another station or an external destination.

1. Press **[Feature] [\*] [\*] [C] [D] [N] [F] [I] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Show]**. The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnnnnn**.
5. Press **[Show]**. The display reads **Line access**.
6. Press **[Next]**. The display reads **Capabilities**.
7. Press **[Show]**. The display reads **Divert no answer**.

8. Press **Show** . The display reads **Divert to:**.
9. Press **CHANGE**. Enter the number of the station you want your calls diverted to.

**Note:** For external destinations, enter the line pool access code plus the telephone number.

10. Press **RLS** to exit or **Next**  to continue programming.

### Canceling Divert on busy

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Strns&Peripheral**.
3. Press **Show** . The display reads **Show str#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnnnnn**.
5. Press **Show** . The display reads **Line access**.
6. Press **Next** . The display reads **Capabilities**.
7. Press **Show** . The display reads **Divert no answer**.
8. Press **Show** . The display reads **Divert to:**.
9. Press **CHANGE**. You can press **CLR** to change the destination back to None.
10. Press **RLS** to exit or **Next**  to continue programming.

**Note:** You can use the Do Not Disturb (**Feature**  **B** **S**) to divert your calls to the prime station.

## Programming Do Not Disturb on Busy

When you are busy on a call and a second call comes in, your keystation rings softly to alert you to the second call. If you find this second ring distracting, you can have the system prevent a second call from ringing by assigning Do Not Disturb (DND) on busy to your station.

When DND on busy is turned on for the station, internal and private network callers hear a busy tone instead of ringing when you are on the keystation. External callers are transferred to the Prime station used in your system.

If you use DND on busy, the line indicator for an external incoming call still flashes, but your keystation does not ring.

Divert on busy takes priority over DND on busy.

If an external call uses a DDI line, the call is processed according to the programming of the DDI line. If there are no available appearances of the DDI line, the caller will hear a busy tone. See "Busy tone with Do Not Disturb on Busy" on page 195.

**Note:** When using DND on busy with the Economy/M7100N or M7000 Keystations, there is no indication that a second call is ringing on your keystation. Putting your first call on hold, automatically answers the second incoming call.

If the station is a member of a hunt group, the DND on busy feature overrides the hunt group. This station does not receive notification of hunt group calls while on a call.

### Setting and cancelling Do Not Disturb on Busy

You can set or cancel DND on Busy for each keystation according to personal preference. Except for the prime station (221), the default is Y (the station has DND on Busy).

1. Press  \* \*       . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press  . The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press  . The display reads **Line access**.
6. Press  . The display reads **Capabilities**.
7. Press  . The display reads **Divert no answer**.
8. Press  twice. The display reads **DND on busy:**.
9. Press **CHANGE** to choose Y (Yes) or N (No).
10. Press  to exit or  to continue programming.

## Programming Handsfree

Commander NT Keystations allow you to make calls without using the keystation handset. When Handsfree operation is programmed for a keystation, a Handsfree/Mute key is automatically assigned to the station. Once a keystation has Handsfree you can also program Automatic Handsfree. Automatic Handsfree allows you to make and receive Handsfree calls without pressing the Handsfree/Mute key.

**Note:** Handsfree operation is not available on Economy/M7100N, M7000 Keystations or a telephone connected to a Single Line Telephone Adaptor.



Handsfree allows you to use a Handsfree/Mute key to activate the handsfree microphone and receiver.

1. Press **Feature**  \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press **Show** . The display reads **Line access**.
6. Press **Next** . The display reads **Capabilities**.
7. Press **Show** . The display reads **Divert no answer**.
8. Press **Next**  until the display reads **Handsfree:**.
9. Press **CHANGE** to choose **Auto**, **Std.** or **None**.
10. Press **Rls** to exit or **Next**  to continue programming.

## Programming Handsfree Answerback

Handsfree answerback allows you to answer a call without lifting the receiver. It is always turned off for an Economy/M7100N and M7000 Keystation.

1. Press **Feature**  \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press **Show** . The display reads **Line access**.
6. Press **Next** . The display reads **Capabilities**.
7. Press **Show** . The display reads **Divert no answer**.
8. Press **Next**  until the display reads **HF answerback:**.
9. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
10. Press **Rls** to exit or **Next**  to continue programming.

## Assigning a pickup group

The Call pickup feature allows you to pick up calls that are ringing at another keystation in your Pickup group.

You can assign keystations into one of four Pickup groups. Options for this setting are 1 to 9, and None. The default is None.

Keystations can be put into and taken out of any Pickup group. See "Call pickup directed" on page 222 for information on using this feature.

A hunt group call ringing at a station that is a member of a Pickup Group can be picked up by any station in that Call Pickup Group.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password#:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnnnnn**.
5. Press **Show** . The display reads **Line access**.
6. Press **Next** . The display reads **Capabilities**.
7. Press **Show** . The display reads **Divert no answer**.
8. Press **Next**  until the display reads **Pickup grp:**.
9. Press **CHANGE** to assign the keystation to Pickup Group 1, 2, 3, 4, 5, 6, 7, 8, 9, or None.
10. Press **Fls**  to exit or **Next**  to continue programming.

## Assigning a page zone

Page zones give you the advantage of paging different parts of the office without disturbing the entire office. You can assign keystations to one of six page zones. (A zone is any set of Commander Keystations that you want to group together for paging, regardless of their location.) The options for this setting are zones 1, 2, 3, 4, 5, 6, or None (no page zone assigned). The default is page zone 1.

Members of a hunt group can be included in a page zone but hunt group stations (551 to 580) cannot.

You can make a keystation part of a page zone only if the keystation has paging set to Y (Yes).

Make sure that everyone who needs to make page announcements has a list showing the keystations that are in each page zone.

**Note:** You can make an announcement to one person by placing a Voice call (**Feature**  **6** **6**) to that person's keystation.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password#:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.

3. Press **Show**. The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press **Show**. The display reads **Line access**.
6. Press **Next**. The display reads **Capabilities**.
7. Press **Show**. The display reads **Divert no answr**.
8. Press **Next** until the display reads **Page zone**.
9. Press **CHANGE** to assign page zone 1, 2, 3, 4, 5, 6, or None.
10. Press **Fls** to exit or **Next** to continue programming.

## Programming paging

1. Press **Feature** \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show**. The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press **Show**. The display reads **Line access**.
6. Press **Next**. The display reads **Capabilities**.
7. Press **Show**. The display reads **Divert no answr**.
8. Press **Next** until the display reads **Paging:**.
9. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
10. Press **Fls** to exit or **Next** to continue programming.

## Assigning keystations to Direct-dial stations

You must determine whether a keystation will have access to the Direct-dial station, which rings when someone dials the Direct-dial digit. You can choose from **Stn1**, **Stn2**, **Stn3**, **Stn4**, **Stn5** or **None**. By default all stations have access to a Direct-dial station.

1. Press **Feature** \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show**. The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press **Show**. The display reads **Line access**.

6. Press **Next** . The display reads **Capabilities**.
7. Press **Show** . The display reads **Divert no answr**.
8. Press **Next** until the display reads **D-Dial**.
9. Press **CHANGE** to toggle the setting **Stn1**, **Stn2**, **Stn3**, **Stn4**, **Stn5** or **None**.
10. Press **Fls** to exit or **Next** to continue programming.

## Allowing Priority Call

If you get a busy signal or a Do Not Disturb message when you have an urgent call for someone in your office, you can interrupt their call using the Priority call feature.

By default, keystations are not allowed to make Priority calls. If you want a keystation to be able to make a Priority call, you must program Priority call for that station.

A person who receives a Priority call while on another call has 8 seconds to accept or block the call. For information on blocking calls see "Programming Do Not Disturb on Busy" on page 273. If the person does nothing, the Priority call feature puts their active call, including conference parties, on Exclusive Hold and connects your call.

1. Press **Feature** **FE \* C O N E L G** . The display reads **Password**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** . The display reads **Show stn#**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn2nnn**.
5. Press **Show** . The display reads **Line access**.
6. Press **Next** . The display reads **Capabilities**.
7. Press **Show** . The display reads **Divert no answr**.
8. Press **Next** until the display reads **Priority call**.
9. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
10. Press **Fls** to exit or **Next** to continue programming.

## Assigning a Hotline

You can set up a Hotline keystation that automatically calls one number (internal or external) when you lift the handset or press the **Hotline** key. For example, you can have an external Hotline to your local taxi company for your customers to use.

A hunt group station number can be specified as a Hotline keystation.

Label the keystation, telling people that it is a Hotline and what number it dials so that they do not use it mistakenly.

1. Press **Feature**  \* \* **C** **O** **N** **E**   . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnnnnn**.
5. Press **Show** . The display reads **Line access**.
6. Press **Next** . The display reads **Capabilities**.
7. Press **Show** . The display reads **Divert no ansur**.
8. Press **Next**  until the display reads **Hotline**.
9. Press **CHANGE** to select the type of call the hotline makes: **None**, **Intrnl**, or **Extrnl**.
10. Choosing **Internal** assigns a station number.
11. Choosing **External** assigns a telephone number.

**If you select an external number:**

12. Press **Show** . The display reads **Extrnl#None**.
13. Press **CHANGE**. Enter the telephone number as you would dial it. Press **OK**.
14. Press **Next** , then **CHANGE** to choose **Use prime line**, **Use line**, **Pool code**, or **Use routing tabl**.
15. Press **Fls**  to exit or **Next**  to continue programming.

### Bypassing a Hotline

Press a line key, or use the Pre-Dial or Automatic dial feature before you pick up the handset or press  <sup>Handset</sup> <sub>Use</sub>  on a hotline keystation. Refer to the *Keystation Feature Card*.

## Auxiliary ringer

An Auxiliary ringer is a separate external keystation ringer or bell that must be connected by the Installer. The Installer programs the Auxiliary ringer to generate ringing for calls on particular lines in Programming. An Auxiliary ringer can also be programmed to generate ringing for a line placed in Services. The station default for Auxiliary ringer is No.



## Receive tones

Analogue equipment that is connected to the system with a Single Line Telephone Adaptor (external or internal), responds only to tone dialling signals. If you have analogue equipment connected to a station, set Receive Tones for that station to Yes. Otherwise, leave Receive Tones set to No.

1. Press **Feature** \* \* **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show**. The display reads **Show str#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press **Show**. The display reads **Line access**.
6. Press **Next**. The display reads **Capabilities**.
7. Press **Show**. The display reads **Divert no answer**.
8. Press **Next** until the display reads **Receive tones**.
9. Press **CHANGE** to choose Y (Yes) or N (No).
10. Press **Fls** to exit or **Next** to continue programming.

## **Barring calls and privileges (Restrictions)**

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Restrictions are digits that the system does not accept during dialling. Overrides are digits that the system accepts in spite of the restrictions. Groups of restrictions and overrides are programmed into Restriction filters.

Rather than define individual restrictions and apply them repeatedly to each station and line, a restriction filter allows you to apply restrictions as a single package of dialling sequences that are not permitted.

Different filters can be applied to

- lines, to prevent stations that share a line from dialling restricted numbers
- stations, to prevent a specific station from dialling restricted numbers
- a combination of line and station, to allow specific stations to be exempt from the line filter.

For example, a manager and four employees share a line but the employees have a line/station filter that restricts the calls they can make on that line.

The number of restriction filters that you have for your system depends on a number of factors. You may want to have different restrictions for different times of the day (such as barring long-distance calls after work hours). You may want different restrictions for a station that clients may use.

### Default filters

You may not have to create or change a filter. Some of the more popular filters restricting long distance calls exist by default. The following table shows the default filters available and what restrictions each filter gives you.

Filter 01 prevents you from dialling any number that begins with 0 or 1, except when the number begins with 1800, 013, 13.

Filter 05 prevents you from dialling any number that begins with 010, 1, and 00, except when the number begins with 13, 11, 1800.

Filter 06 prevents you from dialling numbers that begin with any digit.

You may change the default filters before you apply them. For instance, you might add override 002 to Restriction 01, permitting calls to 0500.

#### Restriction filter defaults

Filter	Restrictions (denied)	Overrides (exception)
00	No restrictions (cannot be changed)	
01	01: 0	001: 013
	02: 1	001: 13 002: 1800
02	No restrictions	
By default affects all Stations		
03	No restrictions	
By default affects all Lines		
04, 31, 32, 33	No restrictions	
By default affects all external line redirection and Divert external calls		
05	01: 00	
	02: 1	001: 13 002: 11 003: 1800
06	01: *	
	(the dot represents any digit)	
07 - 99	No restrictions or overrides programmed	

Dialling 000 and 1144\* cannot be barred in any filter.

Filter 02 is the default filter for stations.

Filter 04 is the default filter for line. Line filters apply for remote access.

Filters 04, 31, 32 and 33 are default filters for Line Redirection.

You can use any restriction or exception in more than one filter.

**Note:** Although the system accepts emergency service numbers as a restriction, the system does not in fact restrict the call.

## Customising a call barring filter

You can customise default filters for your needs before you apply them. You can

- create a new restriction filter
- add or remove restrictions
- add or remove overrides

The rules for adding and creating filters are as follows:

- You can have up to 100 restriction filters.

- There is a maximum of 400 restrictions and overrides allocated to the 100 programmable filters.
- Each programmable filter can have up to 48 restrictions. There is no limit on the number of overrides that can be allocated to a restriction.
- You can use any restriction or override in more than one filter. Each time it is used, it counts as one entry. For example, if restriction 411 exists in filters 01, 02 and 03, it uses up three of the 400 entries available.
- You can use \* and # in a sequence of numbers in either a restriction or an override. These characters are often used as part of feature codes for other systems or for features provided by the PSTN.
- The maximum length of a restriction is 15 digits. The maximum length of an override is 16 digits.
- The solid dot (•) can represent any digit. It is inserted by pressing PNM.
- When you are finished programming restrictions for one station, you can copy those settings to other stations by using COPY at the Restrictions display. For more information about copying telephone programming, see "Copying programming to save time" on page 162.
- You cannot delete a filter but you can delete a restriction within a filter. Removing the restrictions programmed on a filter makes it an unrestricted filter but the filter itself is not removed.



**Removing a restriction changes the identifying number of the restriction.**

Removing a restriction removes the overrides associated with it, and changes the identifying number of the restriction. For example, removal of restriction 01 renumbers restrictions 01 to 08 as 01 to 07.

### Applying restriction filters

Once you create the filters, you can assign the restrictions to a station (under **Stns&Peripheral**), to a line (under **Lines**), and to a particular line on a station (under **Stns&Peripheral**).

To assign restriction filters for different times of the day, see "Restriction service" on page 300.

1. Press **Feature**  \* \* C O N F    . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show**  . The display reads **Show str#:**.
4. Enter the station number you want to program. The display reads **nnnnnnn**.

5. Press **Show**. The display reads **Line access**.
6. Press **Next** until the display reads **Restrictions**.
7. Press **Show**. The display reads **Restrm filters**.
8. Press **Show**. The display reads **Show filter:**
9. Enter the two-digit code or press **Next**.
10. Press **Show**.
11. Use **REMOVE**, **ADD**, and **OK** to change the restrictions for the filter.
12. Press **Show**, then **Next** to see the overrides (if any) for the restriction.
13. Use **REMOVE**, **ADD**, and **OK** to change the overrides (if any) for the restriction.
14. Press **Exit** to quit or **Next** to continue programming.

### Assigning filters to a keystation (Stn restrns)

Extension restrictions lets you assign a restriction filter to a station to prevent certain numbers from being dialed from that station. You can assign a different restriction filter for normal service and for each of six modes.

1. Press **Feature** \* \* C O N F I G. The display reads **Password:**.
2. Enter the **Installer** password. The display reads **Stns&Peripheral**.
3. Press **Show**. The display reads **Show str#:**.
4. Enter the station number you want to program. The display reads **nnn2nn**.
5. Press **Show**. The display reads **Line access**.
6. Press **Next** until the display reads **Restrictions**.
7. Press **Show**. The display reads **Restrm filters**.
8. Press **Next**. The display reads **Stn restrns**.
9. Press **Show**. The display reads **Filters**.
10. Press **Show**. The display reads **Normal fltr:**
11. Press **CHANGE**. The display reads **Use fltr:**
12. Enter the number of the restriction filter to be assigned to the station for each mode. The following table shows the default restrictions.

**Default filters for stations**

Mode	Restriction filter
Normal	02
Mode 1 (Night)	11
Mode 2 (Evening)	12
Mode 3 (Lunch)	13
Mode 4	00
Mode 5	00
Mode 6	00

This means, for example, that if you enter a set of restrictions for filter 11, they are automatically applied when the Night mode is in use.

13. Press **Fig** to quit or **Next** to continue programming.

**Assigning filters to a line (Line restrms)**

Line restrictions let you assign a restriction filter to a line to prevent certain numbers from being dialled from any station with that line appearance. You can assign a different restriction filter for normal service and for each of six modes.

1. Press **Feature** **\*** **\*** **C** **0** **N** **F** **G**. The display reads **Password#:**
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show**. The display reads **Show str#:**
4. Enter the station number you want to program. The display reads **nnnnnn**.
5. Press **Show**. The display reads **Line access**.
6. Press **Next** until the display reads **Restrictions**.
7. Press **Show**. The display reads **Restrm filters**.
8. Press **Next**. The display reads **Line restrms**.
9. Press **Show**. The display reads **Normal fltr:**
10. Press **CHANGE**. The display reads **Use fltr:**
11. Enter the number of the restriction filter to be assigned to the line for each mode. The following table shows the default restrictions.

**Default filters for lines**

Mode	Restriction filter
Normal	03
Mode 1 (Night)	21
Mode 2 (Evening)	22
Mode 3 (Lunch)	23
Mode 4	00
Mode 5	00
Mode 6	00

This means, for example, that if you enter a set of restrictions for filter 21, they are automatically applied when the Night mode is in use.

12. Press **[Bis]** to quit or **[Next ...]** to continue programming.

**Note:** Default filters for Line Redirection are 04, 031, 032 and 033. These filters have no restrictions. If you add restrictions to these filters it may affect your ability to handle calls.

**Assigning filters to a specific line/station (Line/stn restrns)**

Line/station restrictions let you assign a restriction filter to a specific line that can be used for outgoing calls at a specific station. This type of filter replaces any line or station restriction filters that might otherwise apply. It restricts the numbers you can dial on a line, but only from that station. The same line on another station can have different restrictions.

As with station restrictions, you can apply a different line or station restriction for normal service and for each of six modes.

A maximum of 255 line/station restrictions may be applied to lines at stations.

If a line/station restriction is assigned to a line at a particular station, it overrides any line restrictions or station restrictions that might otherwise apply.

If no line/station restrictions have been defined, the numbers are checked against the station restrictions and the line restrictions, if either of these have been defined. The numbers may be rejected by either restriction.

1. Press **[Feature] [\*] [\*] [C] [Q] [N] [F] [I] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Show ...]**. The display reads **Show str#:**.
4. Enter the station number you want to program. The display reads **nn:nnn**.

5. Press **Show**. The display reads **Line access**.
6. Press **Next** until the display reads **Restrictions**.
7. Press **Show**. The display reads **Restrn filters**.
8. Press **Next** until the display reads **Line/stn restrn**.
9. Press **Show**. The display reads **Show line#**.
10. Enter the line number.
11. Press **Show**. The display reads **Normal filter**.
12. Press **CHANGE**. The display reads **Use filter**.
13. Enter the number of the filter to be assigned as the line/station restriction for each mode. There are no default line/station restrictions.
14. Press **End** to quit or **Next** to continue programming.

### Remote restrictions

Specify the restriction filter to be applied to remote callers calling in to the Commander NT on this line. A restriction filter is a set or group of restrictions and exceptions.

As with line restrictions, you can apply a different remote restriction for normal service and for each of six modes.

1. Press **Feature** **1** **\*** **\*** **C** **C** **N** **E** **L** **G**. The display reads **Password**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show**. The display reads **Show stn#**.
4. Enter the station number you want to program. The display reads **nnnnnn**.
5. Press **Show**. The display reads **Line access**.
6. Press **Next** until the display reads **Restrictions**.
7. Press **Show**. The display reads **Restrn filters**.
8. Press **Next** until the display reads **Remote restrns**.
9. Press **Show**. The display reads **Normal filter:04**.
10. Use **CHANGE** and the dial pad to program the remote restrictions for each mode. The default restrictions are as follows:

**Default filters for lines**

Mode	Restriction filter
Normal	04
Mode 1 (Night)	31
Mode 2 (Evening)	32
Mode 3 (Lunch)	33
Mode 4	00
Mode 5	00
Mode 6	00

11. Press **[Ris]** to quit or **[Next]** to continue programming.

The remote restriction restricts the numbers that can be dialled on an incoming auto-answer line. If a remote user then selects a line to make an external call, the call is subject to the line restriction filter of this line and the remote restriction filter on the incoming line.

## Assigning calling privileges (Class of Service Password)

Call barring allows you customise and apply dialling filters to restrict calls. You can temporarily override these filters with a Class of Service (COS) password. Class of Service passwords replace one set of filters with another to allow someone to make calls that would otherwise be restricted.

A system can have a maximum of 100 six-digit COS passwords, ranging from 00 to 99. Each password consists of a user filter, which replaces the current station or line/station filter, and a line filter, which replaces the current line filter.

You can choose and change a password number, the password content, and finally the user and line filters for your new Class of Service.

Your COS password is in effect only for the duration of your call and does not affect the restrictions placed on other users of the system.

### Setting up or changing Class of Service passwords

1. Press **[Feature]** **[\*]** **[\*]** **[C]** **[0]** **[N]** **[F]** **[ ]** **[G]**. The display reads **Password#:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Next]** until the display reads **Passwords**.
4. Press **[Show]**. The display reads **COS Pswds**.
5. Press **[Show]**. The display reads **Show Pswd #:**.
6. Enter a two-digit password (00 to 99).
7. Press **[Show]**. The display shows the setting for that COS password.



8. Press **CHANGE**. Enter a new password (maximum six digits) or change an existing password. To erase a password, press **CHANGE** then press **Next**.
9. Press **Fls** to exit or **Next** to continue programming.

### Changing line or user restrictions for a COS password

You may find the need to change the dialling filter used by a Class of Service password.

1. Press **Feature** \* \* **C** **O** **N** **F** **l** **C**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Passwords**.
4. Press **Show**. The display reads **COS Pswds**.
5. Press **Show**. The display reads **Show Pswd #:**.
6. Enter the password number of the COS password that has the filter you want to change (00 to 99).
7. Press **Show**. The display reads **Pswd**, followed by the number you chose and the current password.
8. Press **Next**. The display reads **User fltr:** and the current setting.
9. If you are changing the user filter, press **CHANGE**. The display reads **User fltr:**.
10. Enter the two digit number of an existing dialling filter or leave the entry area blank to return to the default filter.
11. Press **Next**. The display reads **Line fltr:** and the current filter assigned.
12. If you are changing the line filter, press **CHANGE**. The display reads **Line fltr:**.
13. Enter the two digit number of an existing dialling filter or leave the entry area blank to return to the default filter.
14. Press **Fls** to exit or **Next** to continue programming.

### Locking a station

You can limit the number of features that can be used or programmed at a particular station. The options are

- **None** (default)—not locked. You can program any system or station setting.
- **Full**—fully locked. You can program only these settings: display contrast, ring type, ring volume, and volume control.

- **Partial**—partly locked. You can program most station settings. You cannot program system settings, User Speed Dial codes, dialling mode, or memory keys; and you cannot move line keys or enable Voice Call Deny.

**Note:** Do not apply station lock to the keystation you use to program the system. There must be at least one Advantage/M7310N or Principal/M7324N keystation in the system that has Station Lock set to None, or you will not be able to program the system.

### Setting Station Lock for a keystation

1. Press **Feature**  \* \* **C** **C** **N** **F**  **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number of the keystation you want to program. The display reads **nnn:nnn**.
5. Press **Show** . The display reads **Line access**.
6. Press **Next**  until the display reads **Restrictions**.
7. Press **Show** . The display reads **Restrtn filters**.
8. Press **Next** . The display reads **Stn restrns**.
9. Press **Show** . The display reads **Filters**.
10. Press **Next** . The display reads **StnLock:**.
11. Press **CHANGE** to select **None**, **Partial**, or **Full**.
12. Press **RLS** to exit or **Next**  to continue programming.

### Preventing Last Number Redial

Under some conditions, a keystation may be used by customers or clients. You can prevent non-employees from accessing sensitive numbers by blocking certain features at the keystation. The default setting allows a station to use the Last Number Redial feature.

1. Press **Feature**  \* \* **C** **C** **N** **F**  **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number of the keystation you want to program. The display reads **nnn:nnn**.
5. Press **Show** . The display reads **Line access**.

6. Press **Next** until the display reads **Restrictions**.
7. Press **Show**. The display reads **Restrm filters**.
8. Press **Next**. The display reads **Stn restrms**.
9. Press **Show**. The display reads **Filters**.
10. Press **Next** until the display reads **Allow last no.**
11. Press **CHANGE** to choose Y (Yes) or N (No).
12. Press **Fls** to exit or **Next** to continue programming.

## Preventing Saved Number Redial

The default setting allows a station to use the Saved Number Redial feature.

1. Press **Feature** \* \* C Q N F L G. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show**. The display reads **Show stn#:**.
4. Enter the station number of the keystation you want to program. The display reads **nnn:nnn**.
5. Press **Show**. The display reads **Line access**.
6. Press **Next** until the display reads **Restrictions**.
7. Press **Show**. The display reads **Restrm filters**.
8. Press **Next**. The display reads **Stn restrms**.
9. Press **Show**. The display reads **Filters**.
10. Press **Next** until the display reads **Allow saved no.**
11. Press **CHANGE** to choose Y (Yes) or N (No).
12. Press **Fls** to exit or **Next** to continue programming.

## Preventing Recall

The default setting allows a station to use the Recall feature.

1. Press **Feature** \* \* C Q N F L G. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show**. The display reads **Show stn#:**.
4. Enter the station number of the keystation you want to program. The display reads **nnn:nnn**.
5. Press **Show**. The display reads **Line access**.
6. Press **Next** until the display reads **Restrictions**.

7. Press . The display reads **Restrn filters.**
8. Press  until the display reads **Stn restrns.**
9. Press . The display reads **Filters.**
10. Press  until the display reads **Allow recall:.**
11. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
12. Press  to exit or  to continue programming.

## Preventing Redirect

The default setting allows a station to use the Redirect feature.

**Note:** If you prevent Redirect, the station will not be able to Redirect lines or Divert calls to an external destination.

1. Press  \* \*      . The display reads **Password:.**
2. Enter the Installer password. The display reads **Stns&Peripheral.**
3. Press . The display reads **Show stn#:**
4. Enter the station number of the keystation you want to program. The display reads **nnnnnn.**
5. Press . The display reads **Line access.**
6. Press  until the display reads **Restrictions.**
7. Press . The display reads **Restrn filters.**
8. Press  until the display reads **Stn restrns.**
9. Press . The display reads **Filters.**
10. Press  until the display reads **Allow redirect:.**
11. Press **CHANGE** to choose **Y** (Yes) or **N** (No).
12. Press  to exit or  to continue programming.

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# Programming Services

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## Using alternate or scheduled services

Your Commander NT system is set up to handle calls during normal business hours. However, you may wish to handle incoming calls differently at lunch time, in the evening, at night, or during holidays.

To accommodate changes, Commander NT provides Services that let you customise the way calls are handled at different times of the day. Besides a Normal mode, there are six additional modes. Three of the modes are already named: Lunch, Evening, and Night. You can assign new names for these modes and assign names to the three unnamed modes.

When Ringing service and Restriction service are set to manual, a control station is used to place the stations and exchange lines that it controls, into and out of service modes. A control station can be assigned to control either lines or stations, or both lines and stations.

A service mode activates three aspects of how the system operates: Ringing, Restriction, and Routing.

- You can customise the Ringing service so that
  - an extra station rings for calls placed to the Direct-Dial keystation
  - additional stations ring for incoming calls
  - an auxiliary ringer notifies when a line rings
- You can bar long-distance calls by applying Restriction service to a line or station in a service mode.
- You can take advantage of alternate route selection by assigning different routes to be used during the different modes.

## Turning Services on or off

### Ringing service

You can have Ringing service set up to run differently for each of the six modes. You may decide you want Ringing service for the Night mode to come into effect only when it is turned on and off manually.

If you manually call on a service, it remains in effect until you cancel it, regardless of any automatic modes scheduled. Manual service also overrides any automatic mode that is active.

If you program a service as Manual, you must use the control station to turn the service on using a feature code. The default control station for all lines and stations is 221.

1. Press `[Feat,inc] [*] [*] [C] [O] [N] [F] [ ] [G]`. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.

3. Press **Next** until the display reads **Services**.
4. Press **Show**. The display reads **Ringin9 service**.
5. Press **Show**. The display reads **Ringin9 groups**.
6. Press **Next**. The display reads **Mode:Night**.
7. Press **Show**. The display reads **Service:**.
8. Press **CHANGE** to choose **Off**, **Auto**, or **Manual**.
9. Press **Fls** to exit or **Next** to continue programming.

### Assigning stations to Ringing groups

You can assign stations to Ringing groups that are applied to a specific line for a mode.

For example, you may want line 001 to ring at three different stations for Night mode. First, program those stations to a Ringing group, then assign that Ringing group to line 001 in Night mode.

By default, station 221 is assigned to all Ringing groups.

1. Press **Feature** **\*** **\*** **2** **6** **6** **3** **4** **4** (CONFIG). The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Services**.
4. Press **Show**. The display reads **Ringin9 service**.
5. Press **Show**. The display reads **Ringin9 groups**.
6. Press **Show**. The display reads **Show group:**.
7. Enter the number of the ringing group you want to program. The display reads **Ring gr#: nnn**.
8. Press **Show**. The display reads **Show stn#:**. Enter the station number you wish to assign to the Ringing group.
9. Press **CHANGE** to choose **Assigned**, or **Unassign**.
10. Press **Next** to continue with the next station number, or **Feading** to return to **Ring gr#: nnn**, or **Fls** to exit programming.

### Assigning a Ringing group to a line

1. Press **Feature** **\*** **\*** **2** **6** **6** **3** **4** **4** (CONFIG). The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Services**.
4. Press **Show**. The display reads **Ringin9 service**.
5. Press **Show**. The display reads **Ringin9 groups**.

6. Press **Next** until the display reads the mode you wish to program. For example, **Mode: Night**.
7. Press **Show**. The display reads **Service:**.
8. Press **Next** until the display reads **Line settings**.
9. Press **Show**. The display reads **Show line:**.
10. Enter the line number you wish to program.
11. Press **Show**. The display reads **Ring grp:**.
12. Press **CHANGE** and enter the Ring group number you wish to assign to this line.
13. Press **Rls** to exit or **Next** to continue in programming.

### Restriction service

Assigning restriction filters to modes gives you control over calls made outside of normal business hours. For example, you may allow long-distance calls during the day but bar them in the evening (using the Night mode), and on weekends (using Mode 5, which you may have renamed Weekend mode).

1. Press **Feature** **\* \* C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Strs&Peripheral**.
3. Press **Next** until the display reads **Services**.
4. Press **Show**. The display reads **Ringng service**.
5. Press **Next**. The display reads **Restrn service**.
6. Press **Show**. The display reads **Mode: Night**.
7. Press **Show** and use **CHANGE** to choose **Off**, **Auto**, or **Manual**.
8. Press **Rls** to exit or **Next** to continue programming.

### Routing service

Instead of having to manually decide which routes to use at different times of the day, you can set the routes to automatically be selected according to the programmed settings for each of the six modes.

## Designating alternate routes for calls

The programming for Routing service decides what path an outgoing call takes using the digits that are dialled.

When you select an internal line and dial, the numbers you enter are checked against the routes. If the number you dialled starts with a destination code, the system uses the line pool and dials out digits specified by the route assigned to that destination code, and then dials the number that you dialled.



Routing service replaces a number of tasks that otherwise have to be done manually, including

- entering a line pool code
- dialling an access code for a long-distance carrier
- accessing an alternate route if the Prime line is busy or unavailable

### Uniform numbering plan

Commander NT132 can be programmed to provide dialling transparency by using a uniform numbering plan. For example, a worker at an office in Melbourne can call a colleague at a branch office in Adelaide as though the person is calling a station in their own company.

Dialling transparency depends on establishing a numbering plan where all station numbers are unique and of a uniform length. For example, if you have three company sites (two in Melbourne and one in Adelaide) then all three sites should have the same number of digits in their station numbers, and each station number should be unique.

When performing System Startup you can change the starting value and length of station numbers as well as the received number length. If you apply the PBX template at System Startup, received numbers and the received number length are set automatically to match the station numbers.

### How Routing service works

There are two headings for Routing service: **Routes** and **Dest codes**. Under **Routes**, you program **DialOut** and **Use**.

- **DialOut**—specifies the digits (up to 24) to be dialled out to reach the called station.
- **Use**—defines a specific line pool to be used to make the call.

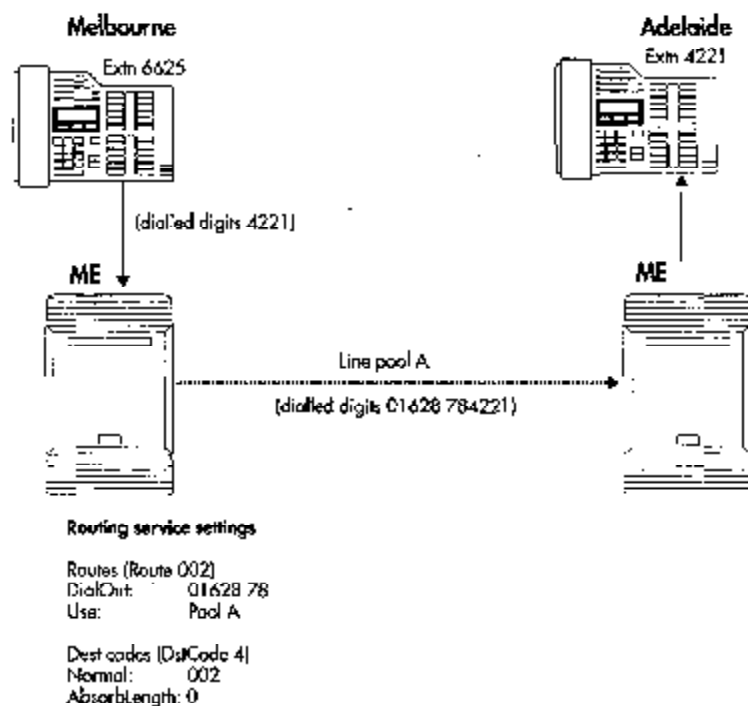
Under **Dest codes** you program the **Destination route** and **Absorb length**.

- **Normal**—is for assigning the route code to be used during regular business hours.
- **Absorb length**—indicates how many of the digits in the destination code should be absorbed by the system (not dialled out to reach the called station).

When a caller dials a number, Commander NT checks the leading digits of the number against the destination codes. If the leading digits are matched to a destination code, Commander NT proceeds to select the route containing the appropriate line pool and dial-out digits. It then adds the digits that the caller dialled (subtracting the ones that are to be absorbed from the destination code).

In the following example, a caller at station 6625 in Melbourne wants to reach a colleague in Adelaide. Without the routing service, the caller would have to select a line and dial 01628 784221 to reach station 4221 in Adelaide.

Because the system has an appropriate route and destination code, the caller simply dials 4221. The system recognises 4 as a destination code. It checks destination code 4, which instructs it to use DialOut 01628 78 and Line Pool A from Route 002. It is instructed not to absorb any digits from the destination code, so it adds all of the caller's digits (4221) to complete the call.



### Specifying the type of line to be used

Each Routing table lets you program the line pool, and thus the type of line to be used as the outgoing facility to reach a destination. For example, if ISDN lines have been placed in line pool B, specifying pool B as the line pool to use in a route for a particular destination code, ensures that all calls being routed to that destination use ISDN lines.

You must ensure that stations and ISDN terminals have access to the line pools that they need to make calls (programmed under Line Access in *Stns&Peripherals*).

## Programming routes

### DialOut

1. Press **Feature**  \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **Services**.
4. Press **Show** . The display reads **RingIn service**.
5. Press **Next**  until the display reads **Routing service**.
6. Press **Show** . The display reads **Routes**.
7. Press **Show** . The display reads **Show route:**.
8. Enter a three-digit route code or press **Next** .
9. Press **Show** . The display reads **DialOut:**.
10. Press **CHANGE**. Enter the Dial Out digits (up to 24) or press **CANCL** to choose **No number**.

You can press **Feature**  7 8 to insert a 1.5 second pause in the dialling string, if necessary.

Route 000 shows no **DialOut:No numbr** by default and cannot be changed.

11. Press **Pls** to exit or **Next**  to continue programming.

### Use pool

1. Press **Feature**  \* \* **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **Services**.
4. Press **Show** . The display reads **RingIn service**.
5. Press **Next**  until the display reads **Routing service**.
6. Press **Show** . The display reads **Routes**.
7. Press **Show** . The display reads **Show route:**.
8. Enter a three-digit route code or press **Next** .
9. Press **Show** . The display reads **DialOut:**.
10. Press **Next** . The display reads **Use:**.
11. Press **CHANGE** to choose a line pool. (Route 000 uses Pool A by default and cannot be changed.)
12. Press **Pls** to exit or **Next**  to continue programming.

## Programming destination codes

### Dest Code

When programming destination codes, you can use wild cards in the destination code string. As a result of wild card characters, the number of destination codes programmed in the system is reduced, maximizing the use of destination codes in the system.

The wild card character can be used only for the last digit of a destination code and represents any digit from 0 to 9 except for digits already programmed or used by other numbering plans. Should there be a conflict with other digits already programmed or used with by numbering plans, the digit will not be displayed.

**Note:** The destination code number must not be the same as station numbering, park codes and direct dial numbers.

The wild card character can only be used to group destination codes that use the same Route and Absorb Length.

#### Destination codes without the use of a wild card character

Route	DialOut	Line Pool
555	0162 237 625	Line Pool C
565	0173 133 2211	Line Pool A

Destination codes	Route	Absorb Length	DialOut
0621	555	3	0162 237 6251
0622	555	3	0162 237 6252
0623	555	3	0162 237 6253
0624	555	3	0162 237 6254
0625	555	3	0162 237 6255
0626	555	3	0162 237 6256
0627	565	All	0173 133 2211
0628	555	3	0162 237 6258
0629	555	3	0162 237 6259

#### Destination codes with the use of a wild card character

Destination codes	Route	Absorb Length	DialOut
062 *	555	3	0162 237 625 *
0627	565	All	0173 133 2211

Enter a destination code that is recognised when used as part of a telephone number for an outgoing call. It can be up to seven digits long.

1. Press **Feature**  \* \* **C** **O** **N** **F** **I** **L** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **Services**.
4. Press **Show** . The display reads **RingIn service**.
5. Press **Next**  until the display reads **Routing service**.
6. Press **Show** . The display reads **Routes**.
7. Press **Next** . The display reads **Dest codes**.
8. Press **Show** . The display reads **Show DestCode:**.
9. If there are no codes defined, use **ADD**, and **OK** to add a new destination code (up to 7). To enter a wild card character (\*) in the destination code, press the **ANY** display key.
10. If there are codes defined, press **Next**  to select one.
11. Use **ADD**, **FIND**, and **REMOVE** to change the destination code.
12. Press **Ris**  to exit or **Next**  to continue programming.

### Normal rte

Select which route a call using the destination code will take during normal service and for each of the modes. The automatic mode times are programmed under **Services**. The default Normal route is 000, which has no DialOut digits and uses Pool A.

1. Press **Feature**  \* \* **C** **O** **N** **F** **I** **L** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **Services**.
4. Press **Show** . The display reads **RingIn service**.
5. Press **Next**  until the display reads **Routing service**.
6. Press **Show** . The display reads **Routes**.
7. Press **Next** . The display reads **Dest codes**.
8. Press **Show** . The display reads **Show DestCode:**.
9. If there are no codes defined, use **ADD**, and **OK** to add a new destination code (up to 7). To enter a wild card character (\*) in the destination code, press the **ANY** display key.
10. Press **Show** . The display reads **Normal:**.
11. Press **CHANGE** to select a different route for the destination code.

12. Enter the three-digit code.
13. Press [Rls.] to exit or [Next] to continue programming.

## Turning a manual service on or off with a feature code

There are separate on and off codes for each of the services: Ringing, Routing, and Restriction.

Feature [ ] [8] [7] [1]	Turn on Ringing service.
Feature [ ] [#] [8] [7] [1]	Turn off Ringing service.
Feature [ ] [8] [7] [2]	Turn on Restriction service.
Feature [ ] [#] [8] [7] [2]	Turn off Restriction service.
Feature [ ] [8] [7] [3]	Turn on Routing service.
Feature [ ] [#] [8] [7] [3]	Turn off Routing service.

### To turn on a service

1. From a Control station, enter the feature code to turn Ringing, Restriction, or Routing service on.
2. Enter the Admin password if prompted (for Restriction or Routing service). The display reads **Services ON**.

### To turn off a service

1. From a Control station, enter the feature code to turn Ringing, Restriction, or Routing service off.
2. The display reads **Normal** followed by the name of the service (Ringing, Restrn, or Routing).

## Assigning control stations

When Ringing service and Restriction service are set to Manual, a control station is used to place the stations and exchange lines that it controls into and out of service modes. A control station can be assigned to control either lines or stations, or both lines and stations.

You can also use a control station to manually override an automatic mode.

You may want different lines to be assigned to different control stations. For example, if the Customer Service department is open during evening hours, you could place the Customer Service lines under a separate control station. The Sales department, which closes at the end of the afternoon, could be placed under a different control station that could call on a service mode for those lines, while leaving the Customer Service lines unaffected.

### Assigning lines to a control station

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **Services**.
4. Press **Show** . The display reads **Ringing service**.
5. Press **Next**  until the display reads **Common settings**.
6. Press **Show** . The display reads **Control stns**.
7. Press **Show** . The display reads **For lines**.
8. Press **Show**  twice. The display reads **Show line:**.
9. Enter the line number. The display shows the line number followed by the current control station.
10. Press **CHANGE** and enter the station number you want to assign as the control station for this line.
11. Press **Als**  to exit or **Next**  to continue programming.

### Assigning stations to a control station

In addition to placing lines into Services, a control station can apply Restriction service (dialling filters) to other stations.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **Services**.
4. Press **Show** . The display reads **Ringing service**.
5. Press **Next**  until the display reads **Common settings**.
6. Press **Show** . The display reads **Control stns**.
7. Press **Show** . The display reads **For lines**.
8. Press **Next** . The display reads **For stns**.
9. Press **Show** . The display reads **Show str#:**.
10. Enter the station number. The display reads **nnnnnn**. The station number followed by the current control station.
11. Press **CHANGE** and enter the station number you want to assign as the control station.
12. Press **Als**  to exit or **Next**  to continue programming.

## Changing the name of a mode

1. Press **Feature**  **\*** **\*** **C** **D** **N** **F**  **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **Services**.
4. Press **Show** . The display reads **Ringing service**.
5. Press **Next**  until the display reads **Common settings**.
6. Press **Show** . The display reads **Control stns**.
7. Press **Next** . The display reads **Mode names**.
8. Press **Show** . The display reads **Mode 1:**.
9. Press **CHANGE** and enter the name you want to assign to the mode.
10. Press **Rs**  to exit or **Next**  to continue programming.

## Changing the time of a mode

It is only necessary to program the start and stop times for modes that are activated automatically.

If you are programming a mode to start and stop at the same time each day, use **COPY** to transfer the settings from one day to the next.

1. Press **Feature**  **\*** **\*** **C** **D** **N** **F**  **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next**  until the display reads **Services**.
4. Press **Show** . The display reads **Ringing service**.
5. Press **Next**  until the display reads **Common settings**.
6. Press **Show** . The display reads **Control stns**.
7. Press **Next** . The display reads **Mode names**.
8. Press **Next** . The display reads **Mode times**.
9. Press **Show** . The display reads **Monday mode**.
10. Press **Show** . The display reads **Mode:Night**.
11. Press **Show** . The display reads **Start time:**.
12. Press **CHANGE** and enter the time you want the mode to start. Press **OK** to accept AM or **CHANGE** and **OK** to accept PM.
13. Press **Next** . The display reads **Stop time:**.
14. Press **CHANGE** and enter the time you want the mode to stop. Press **OK** to accept AM or **CHANGE** and **OK** to accept PM.
15. Press **Als**  to exit or **Next**  to continue programming.



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## Settings for analogue equipment

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Analogue equipment includes answering and fax machines as well as Single Line Telephones (SLT's). Analogue equipment is connected to the Commander NT with a Single Line Telephone (SLT) Adaptor that responds only to tone dialling signals.

The SLT Adaptor allows SLT's to access some Commander NT features such as Divert, Conference, Transfer, and Last Number Redial. Keystations connected to the SLT Adaptor cannot display the system time and date. For information on using features available from an SLT connected to an SLT Adaptor, see the *SLT Adaptor User Card*.

Note that unlike Commander NT Keystations that retain an active call for a minute if unplugged from the socket, a device connected to the SLT Adaptor will immediately drop an active call if the SLT Adaptor is disconnected.

You can adjust the following settings:

- whether the station used for analogue equipment will receive tone dialling signals
- change the dial mode of the SLT Adaptor to send the correct tone
- set whether the SLT Adaptor should receive confirmation and error tones (only for analogue keystations rather than analogue devices such as faxes and answering machines).
- set the timer for when dialling is complete for the SLT Adaptor

## Analogue Station Module (ASM)

The Analogue Station Module (ASM) supports an additional 8 SLT ports to connect analogue devices such as a single line telephone or answering machine, credit card verifier or data communication device, such as a modem or facsimile machine (fax).

The ASM uses an optical fibre link to connect the ME expansion port to eight SLT ports. It is a Telecommunications Network Voltage (TNV) designated device that is compatible with the Commander NT 132 system.

The ASM SLT ports cannot be used as an outdoor extension (ODX) which is connected through network cabling such as Voicelink C.

Additional ASMs can be connected if a greater number of SLT ports are required.

## Setting the delay before the SLT answers

To accommodate the device connected to the Single Line Telephone (SLT), you may want to lengthen or shorten the delay before the device is able to receive tones. For example, a modem or fax machine requires only a short delay.

Refer to the *SLT Adaptor User Card* for information on using the SLT features.

The SLT answer timer controls this delay. The default setting is a 10 second delay before the speech path is connected.

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show**. The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press **Show**. The display reads **Line access**.
6. Press **Next**. The display reads **Capabilities**.
7. Press **Show**. The display reads **Divert no answer**.
8. Press **Next** until the display reads **SLTA settings**.
9. Press **Show**. The display reads **Answer timer:**.
10. Press **CHANGE** to choose 3, 5, 7, or 10 seconds.
11. Press **Rs** to exit or **Next** to continue programming.

## Changing the dial mode of an SLT Adaptor

You must tell the system whether the device connected to the SLT Adaptor sends out pulse or tone (DTMF) signals. The default is Tone.

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show**. The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press **Show**. The display reads **Line access**.
6. Press **Next**. The display reads **Capabilities**.
7. Press **Show**. The display reads **Divert no answer**.
8. Press **Next** until the display reads **SLTA settings**.
9. Press **Show**. The display reads **Answer timer:**.
10. Press **Next**. The display reads **SLTA mode:**.
11. Press **CHANGE** to choose **Tone** or **Pulse**.
12. Press **Rs** to exit or **Next** to continue programming.



each time the handset is picked up. Lamp turns on the SLT's Message Lamp when a message is received.

**Note:** Indicator only turns on the SLT's Message Lamp if the SLT is fitted with a Message Waiting Indicator.

Parameters for Message Waiting Lamp for SLT	
Output strike voltage	80 to 110 V a.c.
Voltage across tip & ring	60 to 85 V a.c.
Loop current	1 mA nominal

1. Press **Feature**        . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press **Show** . The display reads **Line access**.
6. Press **Next** . The display reads **Capabilities**.
7. Press **Show** . The display reads **Divert no ansur**.
8. Press **Next**  until the display reads **SLTA settings**.
9. Press **Show** . The display reads **Answer timer:**.
10. Press **Next**  until the display reads **MsgIndicate:**.
11. Press **CHANGE** to choose **None**, **Tone** or **Lamp**.
12. Press **Als**  to exit or **Next**  to continue programming.

**Note:** Set the ASM to **Tones** for use with an analogue voice device or **None** for use with a data communications device. If the analogue voice device has a message waiting indicator, the ASM can be set to **Lamp**. For details refer to the User Guide for devices connected to an ASM.

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## Network services

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## CLI assignment

If you subscribe to Call Display services (often called Calling Line identification), external calls are identified on the display. The display may also show a message indicator from an external voice mail service. CLI assignment programming enables you to customise how this information is used. You can program a station to display Caller ID and you can program a station to log Call Display information for calls on an exchange line.

## Call log station

Call log station enables you to specify whether the station automatically logs Call Display information for calls on an exchange line. The line must appear on that station but it does not have to be a ringing line. The default setting is No.

1. Press **Feature**  **\*** **\*** **2** **6** **6** **6** **4** **4** (CONFIG). The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnnnnn**.
5. Press **Show** . The display reads **Line access**.
6. Press **Next**  until the display reads **Netwk features**.
7. Press **Show** . The display reads **CLI assignment**.
8. Press **Show** . The display reads **Show line:**. Enter the number of the line you want to program with CLI settings for the station.
9. Press **Show** . The display reads **Call log stn:**.
10. Press **CHANGE** to select the setting: N (No) or Y (Yes).
11. Press **Ans**  to exit or **Next**  to continue in programming.

## 1st Display

The Commander NT system allows stations to display call information. You specify the station number under CLI stn in Line data. The 1st Display option lets you choose what call information is first displayed on that station. The options are Number or Line. The default is **Numbr**.

Depending on the services you subscribe to, Call Display information may contain the number of the caller, or the name of the line in your Commander NT system that the call is on.

1. Press **Feature**  **\*** **\*** **C** **O** **N** **F**  **6**. The display reads **Password:**.

2. Enter the Installer password. The display reads **Stn&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press **Show** . The display reads **Line access**.
6. Press **Next** until the display reads **Netwk features**.
7. Press **Show** . The display reads **CLI assignment**.
8. Press **Next** . The display reads **1stDisplay**.
9. Press **CHANGE** to choose Name, Numbr or Line.
10. Press **Fls** to exit or **Next** to continue programming.

On an incoming call, the display may show **Unknown** number if the information is not available from your telephone company. You may see **Private** number on the display if the caller blocks that information.

## Auto called ID

This setting applies to Commander NT132 stations only. The Auto called ID (identification) momentarily shows the number of the called party on the display of a Commander NT132 station. The default is No, the Auto called ID is not displayed.

1. Press **Feature** [\* \* **0** **N** **F** **0** **G**]. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stn&Peripheral**.
3. Press **Show** . The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnnnnn**.
5. Press **Show** . The display reads **Line access**.
6. Press **Next** until the display reads **Netwk features**.
7. Press **Show** . The display reads **CLI assignment**.
8. Press **Next** until the display reads **Auto called ID:**.
9. Press **CHANGE** to choose N (No) or Y (Yes).
10. Press **Fls** to exit or **Next** to continue programming.



## Log space

Log space determines the number of items that can be stored in the Call log for each station.



1. Press **Feature** **]** **\*** **[** **2** **]** **6** **]** **3** **]** **4** **]** **4** (CONFIG). The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Show** **\_\_\_\_\_**. The display reads **Show stn#:**.
4. Enter the station number of the keystation you wish to program. The display reads **nnn:nnn**.
5. Press **Show** **\_\_\_\_\_**. The display reads **Line access**.
6. Press **Next** **\_\_\_\_\_** until the display reads **Netwk features**.
7. Press **Show** **\_\_\_\_\_**. The display reads **CLI assignment**.
8. Press **Next** **\_\_\_\_\_** until the display shows **Log Space**.
9. Use **Show** **\_\_\_\_\_**, **ADD**, and **REMOVE** to redistribute the log space. There is no log space assigned by default.
10. Press **File** **\_\_\_\_\_** to exit or **Next** **\_\_\_\_\_** to continue programming.

Space must be available in the log pool to add space to a Call log. The maximum number of spaces available is 600. System-wide log space allocation is performed in Call log space under System programming.

## List of Commander NT features

### How to use Commander NT features

**Note:** Some of the keys on the new M7xxxN series Keystations are different than the keys on the original Commander NT Keystations. The following table highlights these differences.

Principal Advantage Standard Economy	M7324N M7310N M7208N M7100N
[Ic d]	[ 
[Rls]	[ 
[Feature]	[F <sub>x</sub> ]
[Handfree WA]	[Hf/Mute]

To use Commander NT features:

1. Press [Feature    ], and enter the desired feature code on the dial pad.  
or  
Press the programmed memory key.
2. Follow the display messages.

If you change your mind while entering a feature code, press [Feature    ] to cancel. If you use the [Rls] key to end a feature, you may drop an active call.

To view what has been programmed on a memory key, enter the Key Inquiry feature code ([Feature    ] [\*] 0) and press the memory key.

Feature Name	To Activate	To Cancel
Admin Alarm time (Hospitality)	Feature [ 8 ] [ 7 ] [ 7 ]	
Alarm time (Hospitality)	Feature [ 8 ] [ 7 ] [ 5 ]	Feature [ # ] [ 8 ] [ 7 ] [ 5 ]
Autobumping (Call Logs)	Feature [ 8 ] [ 1 ] [ 5 ]	Feature [ # ] [ 8 ] [ 1 ] [ 5 ]
Background music	Feature [ 8 ] [ 6 ]	Feature [ # ] [ 8 ] [ 6 ]
Callback	Feature [ 2 ]	Feature [ # ] [ 2 ]
Call Camp-on	Feature [ 8 ] [ 2 ]	
Call Duration Timer	Feature [ 7 ] [ 7 ]	
Call log	Feature [ 8 ] [ 1 ] [ 2 ]	
Call log options	Feature [ * ] [ 8 ] [ 4 ]	
Call log password	Feature [ * ] [ 8 ] [ 5 ]	
Call Parking	Feature [ 7 ] [ 4 ]	
Call Pickup Directed	Feature [ 7 ] [ 6 ]	
Call Pickup Group	Feature [ 7 ] [ 5 ]	
Call Queuing	Feature [ 8 ] [ 0 ] [ 1 ]	
Class of service password	Feature [ 6 ] [ 9 ]	
Conference	Feature [ 3 ]	[Ris]
Contrast adjustment	Feature [ * ] [ 7 ]	
Dialling modes	Feature [ * ] [ 8 ] [ 2 ]	
Divert All Calls	Feature [ 4 ]	Feature [ # ] [ 4 ]
Do Not Disturb	Feature [ 8 ] [ 5 ]	Feature [ # ] [ 8 ] [ 5 ]
Group listen	Feature [ 8 ] [ 0 ] [ 2 ]	Feature [ # ] [ 8 ] [ 0 ] [ 2 ]
Hold	Hold [ ]	
Holding a call exclusively	Feature [ 7 ] [ 9 ] or Feature [ HOLD ]	
Key Inquiry	Feature [ * ] [ 0 ]	
Last Number Redial	Feature [ 5 ]	
Line pools	Feature [ 6 ] [ 4 ]	
Line redirection (not available on Economy/M7100N)	Feature [ 8 ] [ 4 ]	Feature [ # ] [ 8 ] [ 4 ]
Logit (Call Logs)	Feature [ 8 ] [ 1 ] [ 3 ]	

Feature Name	To Activate	To Cancel
Long tones	Feature <input type="text" value="8"/> <input type="text" value="0"/> <input type="text" value="8"/>	
Memory keys		
Programming		
Feature codes	Feature <input type="text" value="*"/> <input type="text" value="3"/>	
Internal Autodial	or Feature <input type="text" value="*"/> <input type="text" value="2"/>	
External Autodial	or Feature <input type="text" value="*"/> <input type="text" value="1"/>	
Erasing	Feature <input type="text" value="*"/> <input type="text" value="1"/> then OK	
Messages		
Reply	Feature <input type="text" value="6"/> <input type="text" value="5"/>	Feature <input type="text" value="#"/> <input type="text" value="1"/>
Sending	Feature <input type="text" value="1"/>	Feature <input type="text" value="#"/> <input type="text" value="1"/>
View messages	Feature <input type="text" value="6"/> <input type="text" value="5"/>	
Moving line keys	Feature <input type="text" value="*"/> <input type="text" value="8"/> <input type="text" value="1"/>	His
ONN blocking	Feature <input type="text" value="8"/> <input type="text" value="1"/> <input type="text" value="9"/>	Feature <input type="text" value="#"/> <input type="text" value="8"/> <input type="text" value="1"/> <input type="text" value="9"/>
Page		
General	Feature <input type="text" value="6"/> <input type="text" value="0"/>	
Internal	Feature <input type="text" value="6"/> <input type="text" value="1"/>	
External	Feature <input type="text" value="6"/> <input type="text" value="2"/>	
Internal and external	Feature <input type="text" value="6"/> <input type="text" value="3"/>	
Pause	Feature <input type="text" value="7"/> <input type="text" value="8"/>	
Priority Call	Feature <input type="text" value="6"/> <input type="text" value="9"/>	
To block a Priority call	Feature <input type="text" value="8"/> <input type="text" value="5"/>	Feature <input type="text" value="#"/> <input type="text" value="8"/> <input type="text" value="5"/>
Privacy	Feature <input type="text" value="8"/> <input type="text" value="3"/>	Feature <input type="text" value="#"/> <input type="text" value="8"/> <input type="text" value="3"/>
Programmed release	Feature <input type="text" value="*"/> <input type="text" value="8"/> <input type="text" value="9"/>	
Recall	Feature <input type="text" value="7"/> <input type="text" value="1"/>	
Ring type	Feature <input type="text" value="*"/> <input type="text" value="6"/>	
Ring volume	Feature <input type="text" value="*"/> <input type="text" value="8"/> <input type="text" value="0"/>	
Room condition (Hospitality)	Feature <input type="text" value="8"/> <input type="text" value="7"/> <input type="text" value="6"/>	
Room occupancy (Hospitality)	Feature <input type="text" value="8"/> <input type="text" value="7"/> <input type="text" value="9"/>	
Saved Number Redial	Feature <input type="text" value="6"/> <input type="text" value="7"/>	
Services		

Feature Name	To Activate	To Cancel
Alternative ringing	Feature [ 8 ] [ 7 ] [ 1 ]	Feature [ # ] [ 8 ] [ 7 ] [ 1 ]
Alternative restrictions	Feature [ 8 ] [ 7 ] [ 2 ]	Feature [ # ] [ 8 ] [ 7 ] [ 2 ]
Alternate routing	Feature [ 8 ] [ 7 ] [ 3 ]	Feature [ # ] [ 8 ] [ 7 ] [ 3 ]
Show Time and Date	Feature [ 8 ] [ 0 ] [ 3 ]	
Speed Dial	Feature [ ] [ 0 ]	
Transfer	Feature [ 7 ] [ 0 ]	
Voice Call	Feature [ ] [ 6 ] [ 8 ]	
Voice Call deny	Feature [ 8 ] [ 8 ]	Feature [ # ] [ 8 ] [ 8 ]

# List of Commander NT features

## How to use Commander NT features

**Note:** Some of the keys on the new M7xxxN series Keystations are different than the keys on the original Commander NT Keystations. The following table highlights these differences.

Principal Advantage Standard Economy	M7324N M7310N M7208N M7100N
[Hold]	[Hold]
[Rls]	[Rls]
[Feature]	[F <sub>x</sub> ]
[Handfree Call]	[Hi/Mute]

To use Commander NT features:

1. Press [Feature], and enter the desired feature code on the dial pad.  
or  
Press the programmed memory key.
2. Follow the display messages.

If you change your mind while entering a feature code, press [Feature] to cancel. If you use the [Rls] key to end a feature, you may drop an active call.

To view what has been programmed on a memory key, enter the Key Inquiry feature code ([Feature] [\*] 0) and press the memory key.

Feature Name	To Activate	To Cancel
Admin Alarm time (Hospitality)	Feature 8 7 7	
Alarm time (Hospitality)	Feature 8 7 5	Feature # 8 7 5
Autobumping (Call Logs)	Feature 8 1 5	Feature # 8 1 5
Background music	Feature 8 6	Feature # 8 6
Callback	Feature 2	Feature # 2
Call Camp-on	Feature 8 2	
Call Duration Timer	Feature 7 7	
Call log	Feature 8 1 2	
Call lag options	Feature * 8 4	
Call log password	Feature * 8 5	
Call Parking	Feature 7 4	
Call Pickup Directed	Feature 7 6	
Call Pickup Group	Feature 7 5	
Call Queuing	Feature 8 0 1	
Class of service password	Feature 6 8	
Conference	Feature 9	Fls
Contrast adjustment	Feature * 7	
Dialling modes	Feature * 8 2	
Divert All Calls	Feature 4	Feature # 4
Do Not Disturb	Feature 8 5	Feature # 8 5
Group listen	Feature 8 0 2	Feature # 8 0 2
Hold	Hold	
Holding a call exclusively	Feature 7 9 or Feature HOLD	
Key Inquiry	Feature * 0	
Last Number Redial	Feature 5	
Line pools	Feature 6 4	
Line redirection (not available on Economy)	Feature 8 4	Feature # 8 4
Logit (Call Logs)	Feature 8 1 3	

Feature Name	To Activate	To Cancel
Long tones	Feature [ ] 8 0 8	
Memory keys		
Programming		
Feature codes	Feature [ ] * 3	
Internal Autodial	or Feature [ ] * 2	
External Autodial	or Feature [ ] * 1	
Erasing	Feature [ ] * 1 then OK	
Messages		
Reply	Feature [ ] 6 5	Feature [ ] #
Sending	Feature [ ] 1	Feature [ ] # 1
View messages	Feature [ ] 6 5	
Moving line keys	Feature [ ] * 8 1	Rls
ONN blocking	Feature [ ] 8 1 9	Feature [ ] # 8 1 9
Page		
General	Feature [ ] 8 0	
Internal	Feature [ ] 6 1	
External	Feature [ ] 6 2	
Internal and external	Feature [ ] 8 3	
Pause	Feature [ ] 7 8	
Priority Call	Feature [ ] 6 9	
To block a Priority call	Feature [ ] 8 5	Feature [ ] # 8 5
Privacy	Feature [ ] 8 3	Feature [ ] # 8 3
Programmed release	Feature [ ] * 8 9	
Recall	Feature [ ] 7 1	
Ring type	Feature [ ] * 6	
Ring volume	Feature [ ] * 8 0	
Room condition (Hospitality)	Feature [ ] 8 7 6	
Room occupancy (Hospitality)	Feature [ ] 8 7 9	
Saved Number Redial	Feature [ ] 6 7	
Services		



**Feature Name**

**To Activate**

**To Cancel**

Alternative ringing	Feature [ 8 ] [ 7 ] [ 1 ]	Feature [ # ] [ 8 ] [ 7 ] [ 1 ]
Alternative restrictions	Feature [ 8 ] [ 7 ] [ 2 ]	Feature [ # ] [ 8 ] [ 7 ] [ 2 ]
Alternate routing	Feature [ 8 ] [ 7 ] [ 3 ]	Feature [ # ] [ 8 ] [ 7 ] [ 3 ]
Show Time and Date	Feature [ 8 ] [ 0 ] [ 3 ]	
Speed Dial	Feature [ 0 ]	
Transfer	Feature [ 7 ] [ 0 ]	
Voice Call	Feature [ 6 ] [ 6 ]	
Voice Call deny	Feature [ 8 ] [ 8 ]	Feature [ # ] [ 8 ] [ 8 ]

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## Check that devices are available and idle

After Commander NT has been installed, powered up, and programmed, it must be tested. Follow the steps to test each device and to check that the system is operating. Use Port/Stn Status, heading in Maintenance, (see "What you can do with Port/Stn status" on page 356) to check that all devices are available and idle.

## Confirming that the exchange lines and keystations are operational

1. Check all stations by calling each Commander NT Keystation from another and by making as many simultaneous outgoing calls as there are external lines.
2. Check the quality and clarity of all connections.
3. Check the visual indicators.
4. If there are any problems, see "Troubleshooting" on page 331.

## Testing a power-fail telephone

### ME connected to a switched power source

1. If the ME is directly connected to a switched 240 V a.c. mains socket, switch off the mains socket and proceed.
2. Pick up the power-fail telephone handset. If you hear dial tone, both the power-fail telephone and the line are functioning properly.
3. If you hear no dial tone:
  - Check that power to the ME is disconnected.
  - Check that the exchange line and the power-fail telephone connections are correct.
  - Ensure that the power-fail telephone is not faulty by connecting it directly to the exchange line and listening for dial tone.
4. When the test is complete, switch on the mains or mains socket.

### ME connected to an unswitched power source

Two people are required for this procedure.

#### Person 1

1. Disconnect the AMP Champ connectors from the ME.
2. Disconnect the mains lead.
3. Carefully remove the fuse located behind the mains lead where it attaches to the ME. Remain with the ME.

4. Replace the mains lead to make sure it is earthed.
5. Replace the AMP champ connectors.



**Follow proper disconnect procedures to avoid electric shock.**

Do not disconnect the mains lead from the mains socket or the ME while AMP Champ connectors are connected to the ME.



**Hazards on ground pin and Software Cartridge.**

Do not leave the ME alone while the AMP Champ connectors are connected and the mains lead or the fuse is disconnected.

**Person 2**

1. Pick up the power-fail telephone handset. If you hear dial tone, both the power-fail telephone and the line are functioning properly.
2. If you hear no dial tone:
  - Check that power to the ME is disconnected.
  - Check that the exchange line and the power-fail telephone connections are correct.
  - Ensure that the power-fail telephone is not faulty by connecting it directly to the exchange line and listening for dial tone.

**Person 1**

1. When the test is complete, remove the AMP champ connectors.
2. Remove the mains lead.
3. Replace the fuse, then reconnect the mains lead, and then reconnect the AMP Champ connectors.

## Testing the Single Line Telephone Adaptor

To confirm that the SLT Adaptor is operational:

1. Connect an analogue telephone to the analogue side of the SLT.
2. Listen for dial tone.
3. Make an internal call.
4. Make an external call (if an exchange line or line pool has been assigned).
5. Call the SLT from another keystation.

Refer to the *SLT Adaptor User Card* for details.

## Testing the ASM

Confirm that the ASM is operating by connecting a single line telephone and making an intercom call and an external call, and by calling the ASM SLT port from another Commander NT Keystation. Refer to the *User Guide for devices connected to an ASM* for details.

## Testing the Call Detail Recorder Unit

Test the CDR unit by dialing the Administration feature code from any Commander NT Keystation.

Press **Feature** | **9** | **\*** | **2**. The display reads: **Call logging**.

**Note:** On Economy/M7100N or Standard/M7208N keystations, the second line of the display does not appear.

## Testing the Remote Access Device

After the RAD installation and on site programming are completed you should test the RAD's data transfer capabilities. To test the RAD, make a connection between the PC running RU and the ME at the customer site.

If the PC is not located at the customer site and the RAD is not programmed with Auto-answer ON, you must phone the RU operator and instruct the operator to establish an on-line connection with the RAD. In this case, refer to **Rerouting a call to the RAD** on page 109.

The test is passed when the remote or local PC establishes a connection with the ME.

If the RAD is programmed to report alarms, you can test alarm calls by disconnecting the RAD mains supply. After a few seconds, reconnect the mains supply. The RAD reports an alarm to the specified alarm connection centers.

To test the RAD from a keystation:

1. Press **Feature** | **9** | **\*** | **\*** | **4** | **6** | **7** | **8** | **2** | **5**. If the display reads **Password**, the RAD is functioning properly. If the display reads **Inactive feature**, the RAD is not functioning.

## Testing the Busy Lamp Field Display

1. Call any keystation using a dual-memory key on the Advantage Keystation with the BLF.
2. Answer the call at the other keystation. Do not end the call.
3. Go back to the Advantage Keystation with the BLF. On the BLF, the indicator associated with the dual-memory key you pressed should be on (dark).

4. End the call at both keystations.

## Testing the Direct Station Select Console/Central Answering Position Module

1. Use Key Inquiry (Feature  \* ) to check that the pre-assigned line keys and internal autodial keys have the correct snap-on caps.
2. Turn on the Do Not Disturb feature on an keystation and check that the indicator appears beside the internal autodial key for that keystation on the DSS Console/CAPN Module.
3. Call a Commander NT Keystation using the programmed internal autodial key on the DSS Console/CAPN Module.

## Testing the Door Station

1. Press the Call key on the Door Station and ensure the "Call" keystation alerts for the programmed ring time, then chimes are heard at all appropriate sets included in the programmed page zone.

To establish the voice path, dial the Door Station's number from any Commander NT Keystation, or answer a ringing call from the Door Station at the Call keystation.

If installed, test the door release mechanism:

1. Press the OPEN display key or dialling the digit as specified under Feature   \* .
2. Press  to end the test.

**Note:** If ERU is the selected opener type, the call will be automatically released. There will be no need to press .

**Note:** The Door Station will enter a 30 second waiting period after it originates page chimes. The Door Station's Call key will provide confirmation tones to the Door Station user during the waiting period, but it will not initiate subsequent calling until the 30 seconds have expired.

### Door Unlock Unit (DUU)

In idle mode the DUU flashes twice per second, indicating proper operation and communication with the Door Station.

To test the DUU, place an intercom call to the appropriate Door Station and push the digit on the dial pad which corresponds to the dip-switch code on the DUU.

The DUU should activate for the designated time, accompanied by a steady LED light.

### External Relay Unit (ERU)

1. From any keystation, call the Door Station by dialling its station number.
2. Press the **OPEN** display key or dial the selected digit.
3. The ERU should activate in conjunction with the MF page relay activating the door or gate.

*Note:* When the Door Station is programmed for ERU door opening control, the Door Station disconnects the call when you press the **OPEN** display key or dial the selected digit.

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# **Section III: Testing, Troubleshooting and Maintenance**



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# Testing

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## Check that devices are available and idle

After Commander NT has been installed, powered up, and programmed, it must be tested. Follow the steps to test each device and to check that the system is operating. Use Port/Stn Status, heading in Maintenance, (see “What you can do with Port/Stn status” on page 356) to check that all devices are available and idle.

## Confirming that the exchange lines and keystations are operational

1. Check all stations by calling each Commander NT Keystation from another and by making as many simultaneous outgoing calls as there are exchange lines.
2. Check the quality and clarity of all connections.
3. Check the visual indicators.
4. If there are any problems, see “Troubleshooting” on page 333.

## Testing a power-fail telephone

### ME connected to a switched power source

1. If the ME is directly connected to a switched 240 V a.c. mains General Purpose Outlet (GPO), switch off the mains General Purpose Outlet (GPO) and proceed.
2. Pick up the power-fail telephone handset. If you hear dial tone, both the power-fail telephone and the line are functioning properly.
3. If you hear no dial tone:
  - Check that power to the ME is disconnected.
  - Check that the exchange line and the power-fail telephone connections are correct.
  - Ensure that the power-fail telephone is not faulty by connecting it directly to the exchange line and listening for dial tone.
4. When the test is complete, switch on the mains or mains General Purpose Outlet (GPO).

### ME connected to an unswitched power source

Two people are required for this procedure.

Person 1

1. Disconnect the AMP Champ connectors from the ME.
2. Disconnect the mains lead.

3. Carefully remove the fuse located behind the mains lead where it attaches to the ME. Remain with the ME.
4. Replace the mains lead to make sure it is earthed.
5. Replace the AMP champ connectors.



**Follow proper disconnect procedure to avoid electric shock.**

Do not disconnect the mains lead from the mains General Purpose Outlet (GPO) or the ME while AMP Champ connectors are connected to the ME.



**Hazards on ground pin and Software Cartridge.**

Do not leave the ME alone while the AMP Champ connectors are connected and the mains lead or the fuse is disconnected.

Person 2

1. Pick up the power-fail telephone handset. If you hear dial tone, both the power-fail telephone and the line are functioning properly.
2. If you hear no dial tone:
  - Check that power to the ME is disconnected.
  - Check that the exchange line and the power-fail telephone connections are correct.
  - Ensure that the power-fail telephone is not faulty by connecting it directly to the exchange line and listening for dial tone.

Person 1

1. When the test is complete, remove the AMP champ connectors.
2. Remove the mains lead.
3. Replace the fuse, then reconnect the mains lead, and then reconnect the AMP Champ connectors.

## Confirming that an ISDN S loop is operational

1. Check that the corresponding loop LED on the ISDN BRA Cartridge faceplate is on.
2. Check that the ISDN terminal can make and receive calls.
3. If there are any problems, see “Troubleshooting” on page 333.

## Confirming that an ISDN T loop is operational

1. Check that the corresponding loop LED on the ISDN BRA Cartridge faceplate is on. (The LED will come on as soon as wiring is connected in the SDF to the network.)
2. Check for dial tone on ISDN lines from a Line appearance/Line pool at a station. Ensure that calls can be received on ISDN and DDI lines at the appropriate stations.
3. If there are any problems, see "Troubleshooting" on page 333.

## Testing the SLT and I-SLT Adaptors

To confirm that the Single Line Telephone (SLT) Adaptor or the Internal Single Line Telephone (I-SLT) Adaptor are operational:

1. Connect an analogue telephone to the analogue side of the SLT or I-SLT Adaptor.
2. Listen for dial tone.
3. Make an internal call.
4. Make an external call (if an exchange line or line pool has been assigned).
5. Call the SLT or I-SLT Adaptor from another keystation.

Refer to *the SLT Adaptor User Card* for details.

## Testing the Call Detail Recorder Unit

Test the master CDR unit by dialling the Administration feature code from any Commander NT Keystation. Please note that only the master CDR can be accessed via the Administration feature code.

Press **Feature**  **\***  . The display reads: Cal 1 logging.

**Note:** On Economy/M7100N or Standard/M7208N keystations, the second line of the display does not appear.

## Testing the Remote Access Device

After the RAD installation and on site programming are completed you should test the RAD's data transfer capabilities. To test the RAD, make a connection between the PC running RU and the ME at the customer site.

If the PC is not located at the customer site and the RAD is not programmed with Auto-answer ON, you must phone the RU operator and instruct the operator to establish an on-line connection with the RAD.

If you are using a PC at the work site, refer to **Commander NT Remote Utilities** for instructions on starting an on-line session.

The test is passed when the remote or local PC establishes a connection with the ME.

If the PAD is programmed to report alarms, you can test alarm calls by disconnecting the PAD mains supply. After a few seconds, reconnect the mains supply. The RAD reports an alarm to the specified alarm connection centers.

To test the RAD from a keystation:

Press **Feature** **[9]** **[\*]** **[\*]**, followed by the password, **[4]** **[6]** **[7]** **[0]** **[2]** **[5]**. If the display reads **RAD Admin**, the RAD is functioning properly. If the display reads **Inactive feature**, the PAD is not functioning.

## Testing the Busy lamp Field Display

1. Call any keystation using a dual-memory key on the Advantage Keystation with the BLF.
2. Answer the call at the other keystation. Do not end the call.
3. Go back to the Advantage Keystation with the BLF. On the BLF, the indicator associated with the dual-memory key you pressed should be on (dark).
4. End the call at both Commander NT40 Keystations.

## Testing the Direct Station Select Console/Central Answering Position Module

1. Use Key Inquiry (**Feature** **[\*]** **[0]**) to check that the pre-assigned line keys and internal autodial keys have the correct snap-on caps.
2. Turn on the Do Not Disturb feature on an keystation and check that the indicator appears beside the internal autodial key for that keystation on the DSS Console/CAPN Module.
3. Call a Commander NT Keystation using the programmed internal autodial key on the DSS Console/CAPN Module.

## Testing the Door Station

1. Press the Call key on the Door Station and ensure the "Call" keystation alerts for the programmed ring time, then chimes are heard at all appropriate sets included in the programmed page zone.

To establish the voice path, dial the Door Station's number from any Commander NT Keystation, or answer a ringing call from the Door Station at the Call keystation.

If installed, test the door release mechanism:

1. Press the OPEN display key or dialling the digit as specified under 

Feature	9	*	4
---------	---	---	---

.
2. Press 

PS
----

 to end the test.

**Note:** If ERU is the selected opener type, the call will be automatically released. There will be no need to press 

Fls
-----

,

**Note:** The Door Station will enter a 30 second waiting period after it originates page chimes. The Door Station's Call key will provide confirmation tones to the Door Station user during the waiting period, but it will not initiate subsequent calling until the 30 seconds have expired.

### Door Unlock Unit (DUU)

In idle mode the DW flashes twice per second, indicating proper operation and communication with the Door Station.

To test the DW, place an intercom call to the appropriate Door Station and push the digit on the dial pad which corresponds to the dip-switch code on the DW.

The DW should activate for the designated time, accompanied by a steady LED light.

### External Relay Unit (ERU)

1. From any keystation, call the Door Station by dialling its station number.
2. Press the OPEN display key or dial the selected digit.
3. The ERU should activate in conjunction with the ME page relay activating the door or gate.

**Note:** When the Door Station is programmed for ERU door opening control, the Door Station disconnects the call when you press the OPEN display key or dial the selected digit.

# Troubleshooting

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## Troubleshooting steps and precautions

After the Commander NT has been tested and you have confirmed that it is operating as intended, a device or feature may appear to malfunction. Follow the troubleshooting steps to determine if a malfunction exists. Once you have confirmed that a device is faulty, follow the steps given to rectify the problem.



### Observe these precautions when troubleshooting the system

Never install or remove any of the components of the system while the mains to the ME is on.

Follow all instructions in the Installing the hardware Section when re-installing equipment.



### Only qualified persons should service the system.

The installation and service of this unit should be performed only by service personnel with appropriate training and experience necessary to be aware of hazards to which they are exposed in performing a task and of measures to minimise the danger to themselves or others.

## Troubleshooting the ME and modules

### ME and module mains leads

1. Determine whether the LED on the Power Supply Unit or module (if included in the installation) is on.
2. If the LED is off, check that the mains leads for the ME and module are plugged into the Power Bar.
3. Check the fuse in the Power Bar.

### Power Bar mains leads

1. Check that the mains lead from the ME or Power Bar is plugged into a working AC mains socket.

Four or more modules require a second Power Bar. Ensure that the mains lead from the second Power Bar is plugged into the first Power Bar. For instructions on installing Power Bars and mains connections, see "Installing the Power Bar (system with ME only)" on page 44.



## Cartridges

1. Check that each cartridge (Feature, Expansion and Line) is seated firmly in its proper slot.



### Don't power up the ME while an Expansion Cartridge is removed

Re-applying the mains after a cartridge has been removed resets the system programming to defaults. To retain system programming, an Expansion Cartridge must be replaced by another one.

## Fibre cables

1. Check that the fibre cables are plugged into the ME Expansion Cartridge and into the module connectors, and that the polarity is correct.
2. Check that the fibre cables do not have any kinks, twists, or folds. Ensure that the excess fibre cable is coiled in a circle no tighter than 100mm in diameter (50mm radius). See "Connecting fibre cables" on page 42.

## 50-pin connectors

1. Ensure that the 50-pin connectors on the ME and Expansion Modules (for exchange lines and station wiring) are plugged in and fastened securely. Refer to "Wiring" on page 30.

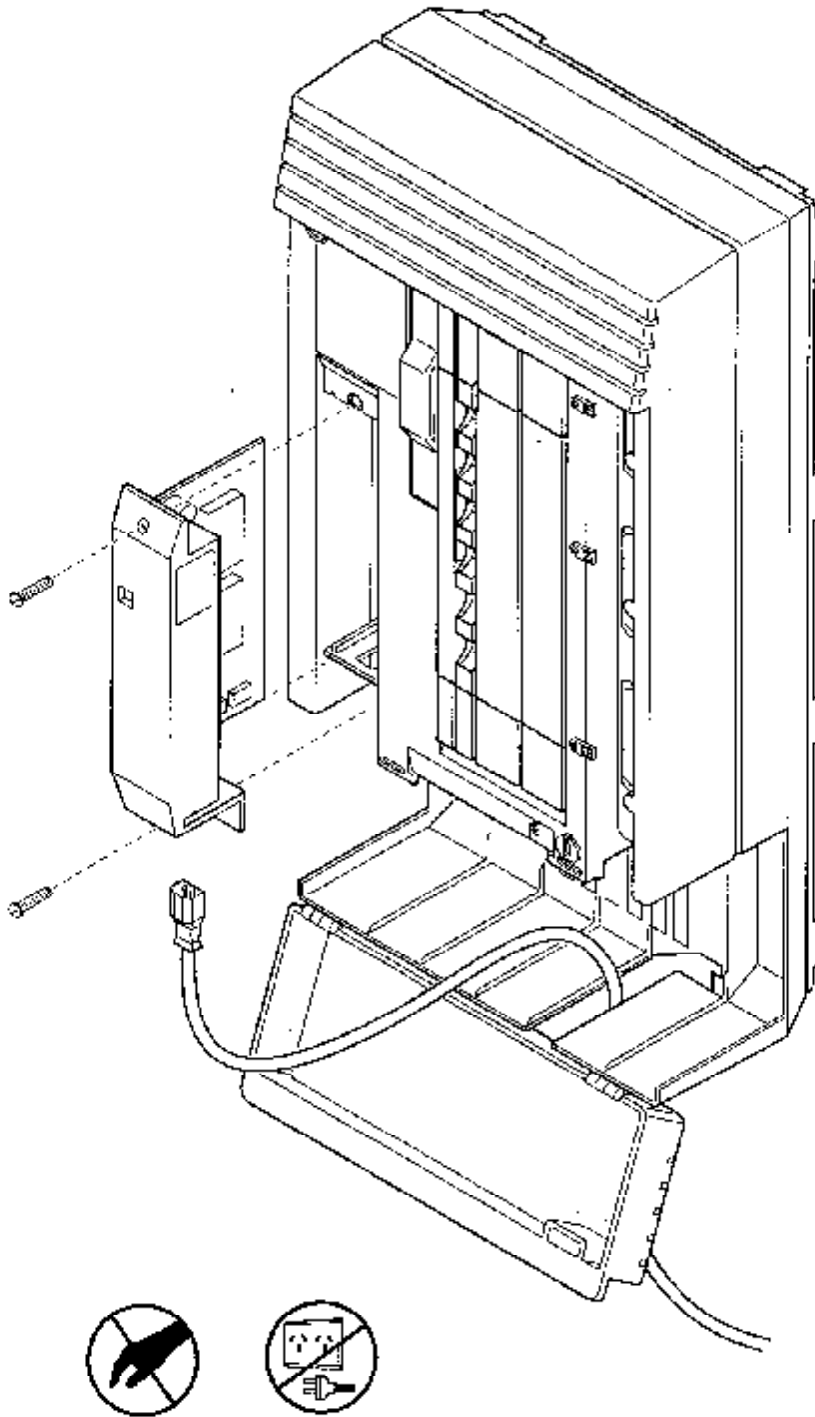
## Internal wiring

1. Check that the station loop resistance does not exceed 59  $\Omega$  on 0.5mm wire.
2. If the loop length is greater than 300m, ensure that a Station Power Supply (SPS) is in place and functional.

## ME

1. Check that the mains lead is properly connected to the Power Supply Unit (PSU) in the ME. If a Power Bar is used, check that the mains lead is properly connected to the unit. Check the fuse in the Power Bar.
2. Check that the Software Cartridge is firmly seated in its slot.
3. If the mains is on and the LED indicator on the PSU module is off, replace the PSU.
4. Turn off the ME and replace the Software Cartridge with a new one. Check if the ME works with the new Software Cartridge. If it does not, re-install the original Software Cartridge.

### Replacing the PSU



## Replacing the ME

Replacing the ME should only be performed as a last resort, as the system must then be reprogrammed. The new ME will have a unique System ID that is required for activating PRA software keys. New Software Keys will need to be entered. See "Software Keys" on page 257.

1. Disable all modules by running a Maintenance session. See "Beginning a Maintenance session" on page 356. Removing a module without first disabling it causes an alarm code to appear on the Alarm station (if available). See "Alarm codes" on page 369.
2. Unplug the ME mains lead from the PSU.
3. Remove the Software Cartridge and all Line Cartridges.
4. Unplug the connectors for the fibre cables (if installed) from the Expansion Cartridge in the ME. For fibre cable handling instructions, see "Connecting fibre cables" on page 42.
5. Unplug the 50-pin connectors at the ME for the exchange lines, station wiring and auxiliary equipment. Remember to unfasten the threaded pin at the top of the connector.
6. Gently lift the ME from underneath to free it from the mounting bracket.
7. Slide a new ME onto the mounting bracket.
8. Replace the Software Cartridge and Line Cartridges as described in "Installing the cartridges" on page 33.
9. Reconnect all of the cabling.
10. Reprogram the system.

## Station Module

1. Be sure that you have checked all other hardware components, as described in the preceding pages.
2. To ensure that the module is not disabled, run a Maintenance session.
3. Disable the SM using the subheading **Module Status**.
4. Enable the SM using the subheading **Module Status**.
5. If the module is still faulty, unplug the SM fibre cable from the ME, then plug it in again (refer to "Connecting fibre cables" on page 42).

If the trouble persists, try each of the following until the problem is solved:

- Check the AC mains and the Power Bars (check fuses).
- If the mains is on and the LED indicator on the SM is off, replace the module.

- Replace the fibre cable.
- Replace the Expansion Cartridge.
- Replace the SM.

### Line Module

1. Be sure that you have checked all other hardware components as described above.
2. To ensure that the LM is not disabled, run a Maintenance session (see "What you can do with Module Status" on page 362").
3. Disable the module using the Maintenance subheading **Module Status**.
4. Enable the module using the Maintenance subheading **Module Status**.
5. Check for dial tone by connecting a test telephone on the SDF.

If the trouble persists, try each of the following until the problem is solved:

- Check the Power Bars.
- If the mains is on and the LED indicator on the LM is off, replace the module.
- Referring to "Connecting fibre cables" on page 42, replace the fibre cable.
- Replace the Line Cartridge.
- Replace the Expansion Cartridge.
- Replace the LM.

### Confirming that a PRA card is operational

1. Check the in-service LED is on and that none of the other LEDs are lit. See Figure on page 337.
2. Check dialtone and that calls can be made and received at the station.

The station must have access to the lines on the card, either an appearance (if manual answer), a DDI line reachable from it (if auto answer) or access to a line pool.

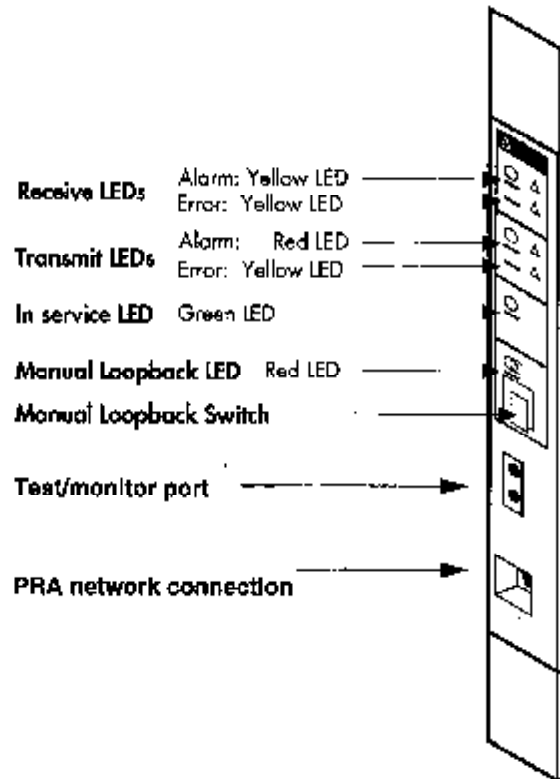
3. If there are any problems, see "Troubleshooting" on page 331.

### PRA card

1. To ensure that the card is not disabled, run a Maintenance session. See "Checking the state of a module" on page 363.
2. Check that the line type administered is PRA.

**Note:** It is recommended that PRA lines be configured as Auto-answer.

Check the LEDs on the front of the card.



3. **Receive Alarm:** A steady yellow LED indicates a problem with receiving digital transmission. Check that the cable is connected as shown on page 42 and page 43.

  - **Receive Error:** A steady or flickering yellow LED indicates a minor error as a result of degraded digital transmission. Check that the cable is connected as shown on page 42 and page 43.
  - **Transmit Alarm:** A steady red LED indicates an inability to transmit. This LED will be steady red upon a ME check. Check that the cable is connected as shown on page 42 and page 43.
  - **Transmit Error:** A steady yellow LED indicates a Remote Alarm as a result of a cable problem or loss of transmission at the far end node. Check that the cable is connected as shown on page 42 and page 43.
  - **In-service:** A steady green LED indicates that the card is functioning. The LED flashes during initialisation or when loopback is activated.
  - **Manual Loopback:** A steady red LED indicates that a continuity loopback test is running.

4. Replace the PRA card if all LEDs flash continuously.
5. If the trouble persists, try each of the following until the problem is solved:
  - Check the 8-pin modular connector to the PRA Network termination point.
  - Replace the PRA card.
  - As a last resort, replace the ME.

#### **Dial tone absent on PRA lines**

1. Use Key Inquiry (Feature  \* 0) to check the key you think is assigned as a digital line.
2. Check the LED's on the front of the PRA card.
3. Check the cable connections between the ME, box connection and the Network termination point.
4. Check that the PRA card is installed properly in the ME.
5. If a PRA card has been installed, ensure it is providing network clocking.
6. For back-up Network Clocking, it is recommended to have a BRA card in the ME rather than an analogue card (for systems that have both).
7. To ensure that the line is not disabled, run a Maintenance session. See "Checking the state of a module" on page 363. Ensure that the line is provisioned.
8. Ensure that all lines on the PRA card are provisioned with respect to the number of software key credits that you have ordered.
9. Contact the Network provider to confirm digital link and service features.

#### **ISDN BRA Cartridge**

1. To ensure that the cartridge is not disabled, run a Maintenance session. See "What you can do with Module Status" on page 362.
2. Check that the line type administered is BRA.

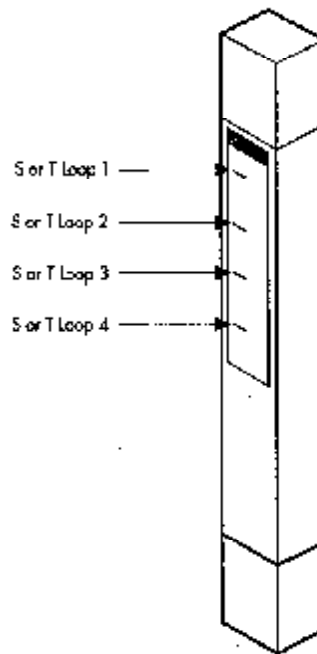
3. Check that you have programmed the loop type and Sampling rate correctly.

**Green light on BRA cartridge**

**Steady:**  
BRA cart loop is provisioned  
ISDN link connected

**Flashing:**  
BRA cart loop is not provisioned

**Not lit:**  
BRA cart loop is provisioned  
ISDN link not connected



4. Check the LEDs on the front of the ISDN BRA Cartridge: In service: steady green LED indicates that the cartridge is functioning (flashes during initialisation or when loopback is activated).
5. Replace the ISDN BRA Cartridge if all LEDs flash continuously.
6. If the trouble persists, try each of the following until the problem is solved:
  - - Check cable wiring between the Network Termination Point and the System Distribution Frame. Contact your network supplier to confirm BRA connection.
  - Replace the ISDN BRA Cartridge.
  - As a last resort, replace the LM or ME.

**Analogue Cartridge**

1. To ensure that the cartridge is not disabled, run a Maintenance session. See "What you can do with Module Status" on page 362.

If the trouble persists, try each of the following until the problem is solved:

- If the mains is on and the LED indicator on the LM is off, check the Power Bar fuse. Replace the ME PSU or LM, if used.
- Referring to "Section I: Installing the hardware" on page 13, replace the fibre cable, if used.
- Replace the Analogue Cartridge.
- Replace the Expansion Cartridge, if used.

## Troubleshooting the Single Line Telephone Adaptor

1. Check that the SLT power supply is properly connected to a working mains socket.
2. Ensure that a prime line is assigned, if required.
3. Check the wiring:

SLT to the device	The resistance must be 1000 ohm or less.
ME to the SLT	The wiring must be equivalent to 790m of 0.5mm twisted-pair cable or less.
Exchange line to the ME	The exchange line must have dial tone and be properly connected to the ME.

4. If there is dial tone at the SLT's prime line and ringing line(s), test the SLT's assigned line with a test telephone at the System Distribution Frame. This will indicate whether the line or the SLT is at fault.
5. Replace the SLT unit.

### Voice applications

1. Ensure that the SLT is configured properly and is programmed for a signalling mode (tone/pulse) appropriate for the analogue device.

### Data applications

1. Check that the SLT has tones turned off.
2. Check that the SLT's station port is properly configured for data communication.
3. Ensure that a ringing line is assigned, if required (for example, auto-answer modems or fax machines).
4. Check for dial tone at the SLT by substituting an analogue telephone for the analogue device. If there is no dial tone at the SLT, check that the line from the ME is working by plugging in a Commander NT Keystation in place of the SLT and checking for dial tone.
5. Replace the SLT.



## Troubleshooting the ASM

Check the wiring.

1. If your ASM is not working, ensure that there is a.c. power connected to the ASM.
2. Ensure the 25 pin connector is plugged in and fastened securely.
3. Ensure the fibre connectors are plugged in properly.

Check that the ASM SLT port is in the Tones OFF mode (for Data Applications only).

1. Ensure sufficient start up time is allowed. Start up time required depends on the ME type.
2. Ensure that a prime line is assigned.
3. Ensure that a ringing line is assigned if required (for example: auto-answer modems, fax etc.).

Check for dial tone at the ASM SLT port.

1. Substitute a single line telephone for the data communication device.

If the problem persists, follow as many of the next steps as required to solve the problem:

1. If a.c. power is present and the LED indicator on the ASM module is off, replace the module.
2. Replace the fibre cable.
3. Replace the Expansion Cartridge.
4. Replace the ASM.

## Troubleshooting an Auxiliary ringer

1. If an Auxiliary ringer is used in Service Modes, ensure that a Service Mode is activated on the Control station.
2. Check the wiring between the auxiliary ring port and the ringing device.
3. Check the wiring between the auxiliary ring generator and the System Distribution Frame.
4. Ensure that the auxiliary ring contacts are operating by checking for contact operation with an ohmmeter across pins 19 and 44, or 20 and 45, of the ME Stn & Aux. connector strip in the System Distribution Frame.
5. Check that the Auxiliary ringer has been properly programmed.

## Troubleshooting the Direct Station Select Console/Central Answering Position Module

1. If you cannot monitor the status of a Commander NT Keystation from the DSS Console/CAPN Module, check that an internal autodial key has been programmed for the station.
2. If you can only send 4 messages from the DSS Console/CAPN Module (rather than 30), check in programming that the station has been assigned as an enhanced DSS Console/CAPN Module.
3. If lines are not automatically assigned to keys on the DSS Console/CAPN Module, check in programming that the keystation has been assigned as an enhanced Direct Station Select Console//CAPN Module.

## Troubleshooting the Call Detail Recorder Unit

### Problem

The CDR will not respond to the feature code.

### Solution

Make sure you are using an Economy/M7100N, Standard/M7208N, Advantage/M7310N or a Principal/M7324N Keystation to program the unit.

*or*

Check that the ME port is operating by plugging in a working Commander NT Keystation. If the port is not operating, plug the CDR into another port. Wait 60 seconds after plugging the CDR into a new port. It can take up to 60 seconds for the unit to become operational. For additional troubleshooting information, refer to the *Call Detail Recorder System Administration Manual*.

*or*

Plug a station into the CDR. If the station comes up the CDR is functional. You can also remove dc power and plug in a station to the CDR to see if the station comes up. For additional troubleshooting information, refer to the *Call Detail Recorder System Administration Manual*.

*or*

Connect a PC/laptop with Hyperterminal to test the CDR output.

**Note:** Ensure that "VT100 as emulation" is selected in the PC's Config/Properties settings.

1. Press **Feature** **[9]** **[\*]** **[2]**, and make note of the baud rate setting of the CDR (under Printer).
2. Connect the CDR to a PC/laptop running Hyperterminal using a RS232 cable.

3. Configure Hyperterminal as follows:
  - same baud rate as CDR
  - 8 data bit
  - parity none
  - 1 stop bit
  - hardware flow control
  - VT100 as emulation
4. Ensure that the COM port specified is the same port that the CDR is connected to. Exit and restart the PC/laptop with Hyperterminal.
5. Enter the AT1 command and press ENTER on the PC/laptop. The CDR will respond with the Base code version ID, the download code version ID and the C84 hardware ID.

**Note:** If your AT1 command is not echoed and there is no response from the CDR, check the cable connection to ensure you are using the right COM port and check the baud rate setting.

## Troubleshooting Hold/Background Music

Although Hold and Background Music are separate features, they share the same wiring and music source.

1. Ensure that the music source is turned on, that its output is operational, and that its volume control is properly adjusted.
2. Check the music input and output from the LIU.
3. Ensure that you are using the Background Music feature code (Feature [ ] [8] [6]) and that the speaker volume is turned up at the keystation.
4. If you are using a programmed memory key to activate the feature, use Key Inquiry (Feature [ ] \* [0]) to check that the memory key is properly programmed.
5. Check the applicable programming settings to ensure that the feature is enabled.
6. Check the wiring between the music source to the approved LIU, and between the LIU and the System Distribution Frame pins 17 and 42 on the ME Strn & Aux. connector strip.
7. Check the wiring from the connection pins on the System Distribution Frame.

## Troubleshooting paging

1. Ensure that the external paging device is switched on.
2. Make sure that the correct feature code is being used to access paging. If you are using a programmed memory key to activate the feature, use Key Inquiry (Feature [ ] [\*] [0]) to check that the memory key is properly programmed.
3. Check the wiring from the System Distribution Frame to the LIU, and between the LIU and the external pager.
4. Test the External Page feature (Feature [ ] [6] [2]) to ensure that it is working. The nominal output level is 775 mV rms using an AC voltmeter across 600 ohm.

## Troubleshooting the Remote Access Device

Troubleshooting the RAD installation is needed if you start a programming session and the display reads **Inactive feature**.

1. Check the wiring at the system distribution frame.
2. Make sure the Commander NT port that the RAD is attached to is working.
3. Check that the mains LED on the RAD unit is lit to confirm the mains connection.
4. Refer to the appropriate Commander NT Installer Manual for further diagnostic tests.

**Note:** If the wiring at the system distribution frame has been disconnected, the RAD can take up to two minutes to reset after the wiring is reconnected.

After you have checked all the wiring:

1. Press Feature [ ] [9] [\*] [\*].  
The display should read: **Enter password**.
2. Press **NEXT**. The display reads: **Rad admin**.

If the display still reads **Inactive feature**, repackage the RAD, and return it to the point of purchase.

## Troubleshooting the Door Station

### If your Door Station is not working

1. Check the wiring. Without a Station Power Supply (SPS) installed, the wiring must be no longer than 300m of 0.5mm twisted-pair wire. With a SPS installed, the distance can be increased to 790m.

2. After connecting the Door Station to the ME station port, allow up to 4 minutes for initialisation.
3. Check that the Commander NT port connecting the Door Station is properly programmed.
4. If your Door Station does not cause ringing at the "Call" station when the Call key is pressed:
  - Ensure that the Door Station is programmed to call a valid station number.
  - Ensure "Ring time" is not set to none.
5. If your Door Station does not present page chimes after the programmed ring time at the "Call" station:
  - Ensure Page Zone: 1, 2, or 3 is selected.
  - Ensure at least one keystation is assigned to the selected page zone, and not in use during this test.

Check that the Commander NT port connecting the Door Station is functioning properly.

1. Ensure Auto Set Relocation feature is set to OFF (N).
2. Disconnect the Door Station and connect a Commander NT Keystation to the Door Station wiring.
3. Verify that the connection from the Door Station to the ME is functioning properly by making an intercom call to another Commander NT Keystation.
4. Connect the Door Station into a different port and program Commander NT for the Door Station. If the problem persists, the Door Station is likely at fault.

For more information about the Door Station, contact Commander Customer Care Online at 1 800 809 881.

## Troubleshooting TCM Isolators

### If your TCM device is not working when connected via a TCM Isolator.

1. Check the wiring. Disconnect the TCM Isolator from the device and check the internal wiring. The wiring should be checked at both the modular socket and the System Distribution Frame.



**Use caution when connecting and disconnecting TCM cables.**

All TCM cabling is considered to be Telecommunications Network Voltage (TNV). It may contain hazardous voltages due to external fault conditions.



**Feed each TCM cable from opposite sides of the TCM Isolator only.**

For safety, keep Telecommunications Network Voltage (TNV) TCM cabling separate from Safe Extra Low Voltage (SELV) cabling.

### Powering with the TCM Isolator

A Commander NT TCM port should have between 15 and 26 V d.c. across the ME side of the TCM isolator connection. The voltage level will remain the same whether the TCM isolator is in place or is disconnected.

The TCM Isolator does not allow d.c. loop powering from the ME to pass through to the station device. If the station device normally depends on the ME to provide power, use a Station Power Supply (SPS) with a Krone 6x6 modular socket such as 268/125. Do not use 600 series sockets.

### Station Power Supply

If the station device normally depends on the ME to provide power, a Station Power Supply (SPS) must be used. Ensure the SPS is properly wired and connected as described in "Station Power Supply" on page 112.

1. Reconnect the TCM isolator and allow up to 4 minutes for the TCM port to initialize.
2. If the fault persists, replace the TCM Isolator. See "Installing the TCM Isolator" on page 94.



**Use caution when connecting and disconnecting TCM cables.**

All TCM cabling is considered to be Telecommunications Network Voltage (TNV). It may contain hazardous voltages due to external fault conditions.

## Troubleshooting keystations



**Ensure that Station Relocation is to N (Off)**

Ensure that Station Relocation is set to N (Off) before moving keystations for testing (under Feature settings in System Programming).

Station Relocation should always be turned N (Off) at the end of a maintenance visit.

### \*\*SHADOW

Feature  \*  S  H | A | D | K | W (742369) allows you to link with another keystation for diagnostic purposes. With this powerful feature you can see the active display and lamps of the target

keystation. As you "shadow" the keystation you can initiate calls, activate features and program keys. However, you cannot hear telephone conversations or generate tones on the target keystation.

**\*\*SHADOW** is particularly useful for remote support staff who can access the system and "shadow" a keystation while the user demonstrates the problem.

**Note:** Users must communicate with the technician from another keystation while this feature is activated because the technician cannot hear the target keystation.

1. Press **Feature** **\*** **\*** **S** **H** **A** **D** **O** **W** from the diagnostic telephone. The display reads **Password:**.

The diagnostic keystation must be the same model as the target keystation.

2. Enter the Installer password. The display reads **Target Stn:**.
3. Enter the station number of the keystation you want to shadow. The display reads **Shadowing <Stn DN>**.

As you continue with your diagnostic session your display will mirror the target keystation display.

4. To exit, press **Feature** **\*** **\*** **S** **H** **A** **D** **O** **W** from either the diagnostic or target keystation. You do not need to enter the Installer password to exit the feature. If both keystations are idle for 30 minutes the feature exits.

### Keystation is faulty

1. If more than one keystation on the same Station Module is not working properly, check the placement of the fibre cables. Fibre cable problems can cause noisy voice connections.

Unplug the SM fibre cable from the ME, then plug it in again (refer to "Connecting fibre cables" on page 42).

2. If the trouble persists and more than one keystation is affected, check the Station Module.
3. Check for dial tone.
4. Check the handset cord connections.
5. Check the line cord connections.
6. Check the display. If the display is unreadable, ensure that the display contrast adjustment (**Feature** **\*** **7**) is set correctly.
7. Ensure that the 50-pin connectors at the ME and SM are plugged in and terminated correctly at the System Distribution Frame.
8. Ensure that the station wiring connections to the System Distribution Frame are at the appropriate pins, as shown in "Section I: Installing the hardware" on page 13.

9. If the problem persists, replace the keystation with a known working Commander NT Keystation. Station wiring should have between 18 and 21 V DC across the pair when the keystation is disconnected.

### **Autodial keys/personal speed dial numbers cannot be programmed**

1. Refer to the appropriate user cards.
2. If the message **Autodial full** appears, there is no memory left for autodial keys.
3. If the message **Access denied** appears, a system programming session may be in progress elsewhere. Wait five minutes then try again to program the keys.
4. Run a Maintenance session and look at the events shown under **Sys Test Log** for event 408, which indicates that there is no more memory for speed dial numbers.

### **Calls cannot be made**

1. Press **Feature** **\*** **0**.
2. Press the appropriate **Line** key.
3. If an incorrect line number or name appears on the display, check the programming settings.
4. If the correct line number or name appears on the display, make sure the exchange lines are properly connected.
5. Check the exchange lines by terminating a test keystation directly on the System Distribution Frame.
6. Check the Line Modules or Line Cartridges, if installed.
7. Ensure that the 25-pair cable is properly connected to the ME and/or Line Module(s), and the System Distribution Frame.
8. Check the connection of the fibre cables.
9. Check the exchange line by running a Maintenance session. If you still cannot make exchange calls, unplug the ME mains lead from the AC socket or Power Bar, then plug it back in. This disconnects calls in progress. Note that the system will take approximately 10 minutes to re-initialise.

### **Checking the exchange line**

1. To ensure that the line (and the Line Cartridge) is not disabled or unequipped, run a Maintenance session. See "What you can do with Module Status" on page 362.
2. Disable the appropriate ports using the subheading **Module Status**.



3. Enable the appropriate ports using the subheading **Module Status**.

### Dial tone absent on analogue lines

1. Use Key Inquiry ( **Feature** **\*** **0** ) to check the key that you think is assigned as an exchange line.
2. Check for dial tone by using a test telephone at the System Distribution Frame terminals for the exchange line.
3. Check the connections between the ME and the System Distribution Frame, and between the System Distribution Frame and the exchange lines.
4. If applicable, check that the Analogue Line Cartridge is installed properly in the Line Module.
5. If more than one line on the same Line Module is having trouble, check the connection of the fibre cables.
6. Make sure that the Line Module fibre cable is connected properly to the Expansion Cartridge in the ME.
7. To ensure that the line is not disabled, run a Maintenance session. See "What you can do with Module Status" on page 362.

### Dial tone absent on ISDN lines

1. Use Key Inquiry ( **Feature** **\*** **0** ) to check the key that you think is assigned as an exchange line.
2. Check the LEDs on the front of the ISDN BRA Cartridge (see "ISDN BRA Cartridge" on page 338).
3. Check the cable connections between the ME, System Distribution Frame, and the Network Termination Point.
4. Check that the ISDN BRA Cartridge card is installed properly in the ME.
5. If you have installed an ISDN BRA Cartridge, ensure that you have programmed for the loop type and sampling rate.
6. To ensure that the line is not disabled, run a Maintenance session. See "What you can do with Module Status" on page 362. Ensure that the line is provisioned.

### Display unreadable / contrast adjustment

If the trouble is with an Advantage/M7310N or Principal/M7324N Keystation:

1. Press **Feature** **\*** **7**.
2. Press **UP** or **DOWN** to adjust the display to the desired level.
3. Press **OK**.
4. If the trouble is with an Economy/M7100N or Standard/M7208N Keystation:

5. Press **[Feature] [\*] [7]**.
6. Press a number on the dial pad to adjust the display to the desired level.
7. Press **[Hold]**.

If the display is still unreadable, replace the problem keystation with a known working Commander NT Keystation.



#### **Ensure that Station Relocation is to N (Off)**

Ensure that Station Relocation is set to N (Off) before moving keystations for testing (under Featr settings in System Programming).

Station Relocation should always be turned N (Off) at the end of a maintenance visit.

## Troubleshooting lines

A line is hung when it remains busy even though no conversation or data communication is taking place, and it cannot be disconnected by normal means. Lines connected to a device such as an answering machine, fax machine or modem can become hung.

It is a matter of judgement to decide that a line is hung and not simply in use. When a line is busy, you see a solid indicator next to the line key and the message **Line in use** when you attempt to select the line.

For a line that is the only line in a line pool, indications that the line is busy are a solid indicator next to a programmed line pool key and the message **No free lines**. For a line that is one of several lines in a line pool, there is no direct indication that the line is busy as long as other lines in the line pool are free. The indicator next to the line pool key and the **No free lines** message appear only when all lines in a line pool are busy. If one or more lines in a line pool become hung, these busy indications will appear with greater frequency than usual.

If you ensure that all lines assigned to line pools appear individually on at least one station in the system, it will be much easier to detect hung lines.

### Clearing a hung line

1. Check the line name or number of the hung line using the Key Inquiry feature (**[Feature] [\*] [0]**).
2. Press **[Feature] [\*] [\*] [C] [O] [N] [F] [I] [G]**. The display reads **Password:**.
3. Enter the Installer password. The display reads **Stns&Peripheral**.
4. Press **[NEXT]** until the display reads **Maintenance**.

5. Press . The display reads **System Version**.
6. Press  until the display reads **Clear Lines**.
7. Press . The display reads the number of the first busy line in the system, followed by the time, in hours and minutes, that the line has been busy.
8. If this is not the line you want to clear, press  until the line you want to clear is displayed.
9. Press **CLEAR** to disconnect the line. The display confirms that the line has been cleared.
10. Press  to exit or  to continue programming.

## Troubleshooting for external or remote users

### Remote feature code gets no response

#### Problem

A Commander NT user calls in remotely to the Commander NT132 and tries to activate a remote feature, but gets no response after dialling the feature code.

#### Solution

1. If a COS password is needed for remote access, ensure that the user has entered the appropriate password.
2. Ensure that the remote caller is dialling the feature code correctly. Use the asterisk (\*) character, then the feature code, to activate a remote feature. Do not use  for accessing features on a remote Commander NT132.
3. Ensure that the remote user is dialling tones, not pulses, after the call is answered.
4. Ensure that an appropriate remote package is used with the incoming line.
5. Check the restrictions for the remote package used with the incoming line.

### Dialled DISA number gets ringback instead of stuttered dial tone

#### Problem

The remote caller dials a DISA number after being Auto-Answered or from the Auto-Attendant, but is routed instead to the prime station for the auto-answer line.

#### Solution

1. Check that you have defined the correct DISA number for your system.
2. Ensure that the published telephone numbers for your systems are correct.

**DISA user gets overflow tone when entering COS password****Problem**

The remote caller may have entered an invalid password.

**Solution**

Check the Administration programming under COS passwords and verify that the caller has a valid password.

**Problem**

The remote caller may have entered an asterisk or number sign (\* or #) as one of the six digits.

**Solution**

Instruct remote callers to enter their COS password correctly: enter six digits.

**Problem**

The remote caller may have waited more than 15 seconds between entering digits.

**Solution**

Instruct remote callers to enter their COS password correctly: enter six digits, and do not pause too long between digits.

**Problem**

The caller may be dialling on a rotary-dial telephone or on a push-key telephone that uses pulse signalling.

**Solution**

Inform remote callers that they must dial on a push-key telephone that uses DTMF, also known as a tone dialling telephone.

**Dialled feature code gets overflow tone****Problem**

The remote caller does not have access to that feature.

**Solution**

1. If the call came in on a line with DISA, check the Class of Services that is associated with the remote caller's COS password. If it is too restrictive, modify the remote package assigned to the COS password, or assign another COS password that is more suitable.
2. If the call came in on a line without DISA, check the remote package that you assigned to the incoming line. Ensure that it gives the appropriate access to the remote caller.

**Problem**

The feature code is not valid.

**Solution**

1. Ensure that remote callers have a correct listing of the features that are programmed for remote access.

2. Ensure that remote callers are dialling the feature code correctly. Press **[\*]**, then the feature code, to activate a remote feature.

**Problem**

The caller may be dialling on a rotary-dial telephone or on a push-key telephone that uses pulse signalling.

**Solution**

Inform remote callers that they must dial on a push-key telephone that uses DTMF, also known as a tone dialling telephone.

**Dialled feature code gets busy tone****Problem**

A resource that the remote feature uses may currently be in use. For example, a remote caller trying to use the paging feature would get a busy tone if the auxiliary speaker were being used at the same time.

**Solution**

If repeated attempts to use the remote feature produce a busy tone, there may be a malfunction in a resource that the feature uses. Check that the remote feature hardware is functioning normally.

**Line Pool access code gets overflow tone****Problem**

The Line Pool access code is valid, but the remote caller does not have access to that line pool.

**Solution**

If the incoming line answers with DISA, give the remote caller a COS password that permits access to that line pool.

**OR**

Change the remote package for the incoming line so that it permits access to that line pool.

**OR**

Give the remote caller a Line Pool access code that is permitted within the Class of Service on the incoming line.

**Problem**

The published Line Pool access code is invalid and there is no prime station for the auto-answer line.

**Solution**

1. Ensure that the published Line Pool access codes are correct.
2. Check that the Line Pool access codes have been entered correctly under Access codes in System programming.

**Problem**

The caller may be dialling on a rotary-dial telephone or on a push-key telephone that uses pulse signalling.

**Solution**

Inform remote callers that they must dial on a push-key telephone that uses DTMF, also known as a tone dialling telephone.

**Line Pool access code gets ringback**

**Problem**

The published Line Pool access code is invalid, and the system has routed the call to the prime station for the incoming PSTN line.

**Solution**

1. Ensure that the published Line Pool access codes are correct.
2. Check that the Line Pool access codes have been entered correctly under Access codes in System prgming.

**Line Pool access code gets busy tone**

**Problem**

There are not enough lines in the line pool to serve the number of users.

**Solution**

If the line pool contains PSTN lines, go to Lines in programming and move less-used PSTN lines from other line pools into the deficient line pool.

**Dialled number gets no response**

**Problem**

The remote caller, after accessing a line in a line pool, may have started dialling before the far end was ready to receive digits.

**Solution**

Instruct remote callers to wait until they hear feedback before entering any digits.

**Problem**

There may be a malfunction in the line that the remote caller accessed.

**Solution**

If the problem persists, check that all lines in the affected line pool are functioning normally.

**Problem**

There may be a malfunction in the system that the caller is trying to reach.

**Solution**

Inform the system operators at the far end that the dialled number is not getting a response.

---

# Maintenance

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## Beginning a Maintenance session

A Maintenance session helps you quickly diagnose problems that may arise within the Commander NT, and allows you to provision and test ISDN lines.

You can run a Maintenance session from any working Commander NT Advantage/M7310N or Principal/M7324N Keystation. Keep a pencil handy to record important information on photocopies of the maintenance records. The maintenance records are found at the end of this chapter. Follow these steps any time you enter a Maintenance session:

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next** until you reach the heading you want to begin with. In this guide instructions begin with the heading. Only one person at a time can programming.

## Checking the System Version of the software

System Version tells you the release number of the software installed in the Software Cartridge. The release number can be used to trace a software fault if one occurs. Write the System Processor (SP) version number in the maintenance records.

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Show**. The display reads the version number of the System Processor (SP).
6. Write the System Processor version number on the appropriate maintenance record.
7. Press **Exit** to exit or **Next** to continue programming.

## What you can do with Port/Stn status

Port/Stn Status is used to check lines and devices on the system.

Although the following procedures describe how to check devices, you can use the same procedures to check lines. You cannot,



however, remove lines from service in **Port/Stn Status**. To place Analogue or ISDN lines in or out of service, enable or disable the appropriate Line Cartridge in **Module Status**.

**Port/Stn Status** allows you to:

- identify any device or line connected to the system
- check the version number of a device (a Single Line Telephone Adaptor, for example) for compatibility with the system
- check the state of a device or line (for example, idle or busy)
- disable or enable a station or device
- determine which port number corresponds to each station (including ISDN)
- determine the port number of a malfunctioning device
- determine which channel (B1 or B2) a device on a port is using
- disable a device before replacing it. Disabling a device generates Commander NT Keystation display messages informing device users of what you are doing.

Do not disable devices when many people are using the Commander NT. You cannot disable the Commander NT Keystation from which you are accessing the Maintenance session.

Do not enable or disable ports at the following times:

- during the first two minutes after a System Startup
- during the first minute after connecting or disconnecting a fibre cable.

Do not connect or disconnect the fibre cable while enabling or disabling ports. If you do so, incorrect ports may be enabled or disabled. To recover from this, disable then enable the affected modules using **Module Status**.

### Identifying a device connected to the system (Analogue)

1. Press **Feature** **[\*]** **[\*]** **[C]** **[D]** **[N]** **[F]** **[ ]** **[G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stn&Peripheral**.
3. Press **[Next:.....]** until the display reads **Maintenance**.
4. Press **[Show]**. The display reads **System Version**.
5. Press **[Next:.....]**. The display reads **Port/Stn stat**.
6. Press **[Show]**. The display reads **Show port:..**
7. Enter the port number of the device, or press **STN** then enter the station number of the device. The display reads device information, as illustrated in the following sample device

- identification display. This identifies the device connected to the B1 channel.
8. To view an optional device attached to a Commander NT Keystation, such as a Direct Station Select (DSS) Console/Central Answering Position (CAPN) Module or a Busy Lamp Field (BLF) Display, press **SHOW**.
  9. To identify the device connected to the B2 channel, such as a Call Detail Recorder Unit, press **82**.
  10. Press **RLS** to exit or **Next** to continue programming.

#### Sample device identification display



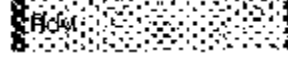

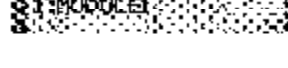
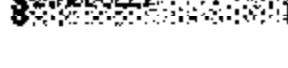
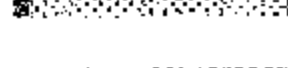


```

P104-Prin 2224
VERSIN B2 STATE
  
```

This display indicates that a Principal/M7324N Keystation, station 2224, occupies port 104.

The following chart lists some of the device types that may appear on the Commander NT device identification display.

#### Explanation of device type

	Economy Keystation
	Standard Keystation
	Advantage Keystation
	Principal Keystation
	First DSS Console attached to an Principal Keystation
	Second DSS Console attached to an Principal Keystation
	Busy Lamp Field Display
	Single Line Telephone Adaptor
	Remote Access Device

**Explanation of device type**

Call Detail Recorder

**Checking the version number of the device**

If the device has a firmware version number available, a **VERSN** key appears with the Commander NT device identification display. From the Commander NT device identification display:

1. Press **VERSN**. The display shows the version number of the device.
2. Write this number on the appropriate maintenance record.

If the version number is not available, the display briefly reads **Not available** and then returns to the previous display.

To return to the Commander NT device identification display from the display showing the version number:

- If you want to retain the same port number, press **OK**.
- If you want to see information about the next port number (or station if that is how you entered), press **Next**.
- If you want to see information about the previous port number (or station if that is how you entered), press **Back**.

**Checking the version number of an add-on device**

If there is an add-on device attached to the port, a **SHOW** key appears with the Commander NT device identification display. If the add-on device has a firmware version number available, a **VERSN** key appears with the display.

1. Press **SHOW**. The display shows the add-on device.
2. Press **VERSN**. The display shows the version number of the add-on device.

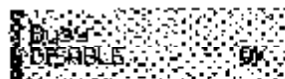
**Checking the state of the device**

From the Commander NT device identification display:

1. Press **STATE**. The display shows one of the states listed in the following chart.

If required, you can disable or enable the device. See "Disabling the device" on page 360 or "Enabling the device" on page 360.

2. Press **OK**, to return to the device identification display.

**How the device state is shown on the display**

The device is in use.

### How the device state is shown on the display



The device is being disabled.



The device is being enabled.



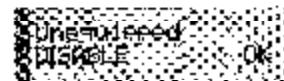
The device is not in use.



The device is being enabled.



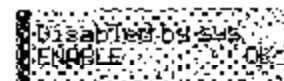
The device will be disabled as soon as it becomes idle.



There is no device connected to that port.



The device has been disabled by someone running a Maintenance session.



The device has been disabled by the system because it is faulty or because a test is running.



There is no state information available.

### Disabling the device

Make sure that you inform people when you are going to disable their devices.

To disable immediately when the display indicates the device is busy:

1. Press **DISABLE**. The display reads **Disable at once?**.
2. Press **YES**. The device is disabled in one minute. To leave this display without disabling the device, press **EXIT**.

### Enabling the device

When the display indicates that the device is disabled:

1. Press **ENABLE**. The display briefly reads **Enabling...**. The device is immediately enabled and the display reads **Idle**.

The display may briefly read **Enabling...**, then either **Disabled by sys.** or **Disabled by user.** In the latter case, the system is waiting to disable the module. This may occur after someone has run a Maintenance session and used either Module Status or tests. You cannot enable the device until its module has been enabled.

### Checking the version and state of a BRA loop

You can check:

- the version of the cartridge
- the version of the cartridge's firmware
- the version of the loop protocol

If you have installed a BRA cartridge, you can query a port number to determine the busy or idle status of a loop. Port/stn status does not determine whether a specific device on a BRA loop is busy or idle. You cannot disable an ISDN device from Port/stn status.

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next**. The display reads **Port/stn stat**.
6. Press **Show**. The display reads **Show port:**.
7. Enter the port number, or loop number, of the device. Lines or Loops, or both, start at P(port) 201. You can look at the version or the state of a loop.
8. Press **Pls** to exit or **Next** to continue programming.

#### Sample device identification display

A sample device identification display showing 'P201' and 'T-Loop 201' on the top line, and 'VERSION' and 'OK' on the bottom line.

This display indicates that T-Loop 201 on a BRA cartridge occupies port 201.

A sample device identification display showing 'P201' and 'T-Loop 202' on the top line, and 'VERSION' and 'STATE' on the bottom line.

This display indicates that S or T-Loop 202 on a BRA cartridge occupies port 202.

### Checking version of a BRA loop protocol

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.

4. Press **Show**. The display reads **System Version**.
5. Press **Next**. The display reads **Port/stn stat**.
6. Press **Show**. The display reads **Show port:**.
7. Enter the port number of the loop. Lines or Loops, or both, start at P(port) 201. The display reads **Pnn:Lenn**.
8. Press **VERS**. The display reads **Pnn:Hardware**.
9. Press **VERS**. The display reads **Lenn:xxxxxxxx**.
10. Press **Show**. The display reads **Pnnn 1: cart f/w**.
11. Press **VERS** to see the version of the card's firmware.
12. Press **Next**. The display reads **Pnnn 2: LP protcl**.
13. Press **VERS** to see the version of the loop's protocol.
14. Press **F1** to exit or **Next** to continue programming.

## What you can do with Module Status

Use Module Status to:

- look at the inventory of LMs, SMs, ASMs, and modules inside the Main Equipment (ME)
- check the number of Line Cartridges (LCs) attached to each LM
- see if the ME or LMs contain ISDN BRA or PRA Cartridges
- check the state of a module or its cartridges
- disable or enable a module or its cartridges
- isolate any malfunctioning modules or ISDN BRA or PRA Cartridges
- disable a module before replacing it
- see how many loops are busy

### Looking at the module inventory

Commander NT devices may occupy both the B1 and B2 channels. This may increase the number of devices indicated on the module inventory display.

1. Press **Feature** **]** **\*** **\*** **0** **0** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **Module Status**.
5. Press **Show**. The display reads **Show module: ..**
6. Enter the module number. Modules 1 and 2 are located inside the ME. Additional modules are connected to an Expansion

Cartridge and are numbered sequentially from the bottom port up.

If you are checking module 1, the display shows how many stations are connected to the ME.

If you are checking module 2 or a Line Module, the display shows how many Line Cartridges are connected to the ME or to the Line Module.

If you are checking a Station Module, the display shows how many devices are connected to that module. Module numbering on the 2 port and the 6 port Expansion Cartridges. See "ME wiring charts" on page 52. Module numbering begins at 3 on the lowest port on the cartridge and works up.

### Checking the number of Line Cartridges attached to an LM

Start at the module inventory display, which shows the number of Line Cartridges connected to the module that you chose (for example, Mod 4:2 carts).

1. Press **CART**. The display shows that zero lines are connected if there is no Line Cartridge in a slot. If there is a Line Cartridge in a slot, the display shows that four lines are connected (for example, Cart 1:4 lines).
2. To check if there are Line Cartridges present in the other two slots, press **Next** or **Back**.
3. To return to the module inventory display, press **MODULE**.

### Checking the state of a module

Begin at the module inventory display.

1. Press **STATE**. The display shows the state of the module. The following table shows some examples of this display. If required, you can disable or enable the module. See Disabling a module or its cartridges or Enabling a module or its cartridges later in this chapter.
2. To return to the module inventory display, press **OK**.

#### How the module or cartridge state is shown on the display

3 ports busy  
DISABLE OK

There are three devices in use that are connected to the module or cartridge.

2 ports busy  
DISABLE OK

There are two ports in use that are connected to the module or cartridge.

4 lines busy  
DISABLE OK

There are four lines in use that are connected to the module or cartridge.

### How the module or cartridge state is shown on the display

	The module or cartridge is being disabled.
	The module or cartridge is being enabled.
	The module or cartridge will be disabled as soon as it becomes idle.
	There is no cartridge connected to Module 4.
	Module 4 has been disabled from a Maintenance session.
	The module or cartridge has been disabled by the system because it is faulty or because there is a test running.
	Press <b>YES</b> . The device is disabled immediately.

### Checking the state of a cartridge

Start at the display that shows the number of lines connected to the Line Cartridge you chose (for example, **Cart 1:4 lines**).

1. Press **STATE**. The display shows the state of the cartridge. Some examples of this display are shown previously.
2. If you want to check the state of a Line Cartridge present in one of the other two slots, press **Next** or **Back**. If required, you can disable or enable the cartridge, as described in the next two sections.
3. To return to the display showing how many lines are connected to the Line Cartridge, press **OK**.

### Disabling a module or its cartridges

If you want to disable a module while people are using the Commander NT, first inform them by using Page.

Begin with the display showing the state of the module or cartridge.

1. Press **DISABLE**.



2. The display reads **Disable at once?**. Press **YES** to disable the module or **EXIT** to leave this display without disabling the module.

Some restrictions apply when you are disabling modules. For details on those restrictions, see "Disabling the device" on page 360. Disabling a cartridge places all lines supported by that cartridge, out of service.

Station displays show the same messages when disabling modules as are shown when disabling a device. For more information, see "Disabling the device" on page 360.

### Enabling a module or its cartridges

Begin with the display showing the state of the module or cartridge:

1. Press **ENABLE**. The display briefly reads **Enabling...**. The module or cartridge is immediately enabled. The display then shows the state of the module or cartridge.

## Checking the System Test Log

The System Test Log lists test results, audits, event messages, and alarm codes. As the System Test Log holds a maximum of 20 events, you should check and record these events at regular intervals, then erase them after dealing with them.

### Checking the events in the log

1. Press **Feature** **\*** **\*** **C** **D** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next** until the display reads **Sys test log**.
6. Press **Show**. The display reads **Start of new log or Start of log**.
7. Use **Next** and **Back** to review the test log, recording the events in the maintenance record. Press **TIME** to see the time an event occurred. Press **REPEAT** (if available) to see how many times the event occurred in succession.

### Checking the current alarm

You can check the highest severity alarm before viewing all the log items.

1. Press **Feature** **\*** **\*** **C** **D** **N** **F** **I** **G**. The display reads **Password:**.

2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next** until the display reads **Sus test log**.
6. Press **Show**. The display reads **Start of new log** or **Start of log**.
7. Press **ALARM**. The display reads an alarm code if there is a current alarm.
8. Press **EXIT**, **Fls** or **Next** to continue programming.

### Erasing the log

1. Press **Feature** **[\*][\*][C][O][N][F][I][G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next** until the display reads **Sus test log**.
6. Press **Show**. The display reads **Start of new log** or **Start of log**.
7. Press **ERASE**. The display reads **Erase log?**.
8. Press **YES**. Unless new events have occurred since you entered the log, the display reads **Log is empty**.
9. If the display reads **Log has changed**, press **Show** to show the new log.
10. Press **EXIT**, **Fls** or **Next** to continue programming.

## Checking the System Administration Log

The System Administration Log keeps a record of administrative events such as system initialisation, Programming sessions in which a change was made, invalid password attempts, and password changes. As the System Administration Log holds a maximum of ten events, you should erase the log after dealing with the events.

### Checking the events in the log

1. Press **Feature** **[\*][\*][C][O][N][F][I][G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.

4. Press **Show** . The display reads **System Version**.
5. Press **Next** until the display reads **Sys admin log**.
6. Press **Show** . The display reads **Start of new log** or **Start of log**.
7. Use **Next** and **Back** to review the test log, recording the events in the maintenance record. Press **TIME** to see the time an event occurred. Press **REPEAT** (if available) to see how many times the event occurred in succession.

### Checking the current alarm

1. Press **Feature** \* \* **C O N F I G** . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show** . The display reads **System Version**.
5. Press **Next** until the display reads **Sys admin log**.
6. Press **Show** . The display reads **Start of new log** or **Start of log**.
7. Press **ALARM**. The display reads an alarm code if there is a current alarm.
8. Press **EXIT**, **Fis** or **Next** to continue programming.

### Erasing the log

1. Press **Feature** \* \* **C O N F I G** . The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show** . The display reads **System Version**.
5. Press **Next** until the display reads **Sys admin log**.
6. Press **Show** . The display reads **Start of new log** or **Start of log**.
7. Press **ERASE**. The display reads **Erase log?**.
8. Press **YES**. Unless new events have occurred since you entered the log, the display reads **Log is empty**.
9. If the display reads **Log has changed**, press **Show** to show the new log.
10. Press **EXIT**, **Fis** or **Next** to continue programming.

## Checking the Network Log

The Network Log keeps a record of network events and alarms. As the Network Log holds a maximum of twenty events, you should erase the log after dealing with the events.

### Checking the events in the log

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next** until the display reads **Network evt log**.
6. Press **Show**. The display reads **Start of new log** or **Start of log**.
7. Use **Next** and **Back** to review the log, recording the events in the maintenance record. Press **TIME** to see the time an event occurred. Press **REPEAT** (if available) to see how many times the event occurred in succession.

### Checking the current alarm

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next** until the display reads **Network evt log**.
6. Press **Show**. The display reads **Start of new log** or **Start of log**.
7. Press **ALARM**. The display reads an alarm code if there is a current alarm.
8. Press **EXIT**, **Back** or **Next** to continue programming.

### Erasing the log

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.

5. Press **Next** until the display reads **Network evt log**.
6. Press **Show**. The display reads **Start of new log** or **Start of log**.
7. Press **ERASE**. The display reads **Erase log?**.
8. Press **YES**. Unless new events have occurred since you entered the log, the display reads **Log is empty**.
9. If the display reads **Log has changed**, press **Show** to show the new log.
10. Press **EXIT**, **File** or **Next** to continue programming.

## Alarm codes

The Commander NT Main Equipment generates alarm codes after system disconnections. All alarm codes appear at the Alarm station and in the System Test Log of a Maintenance session. Alarms have a higher priority than events. Attend to alarm codes before event messages.

Alarm codes are not displayed for up to two minutes after a disconnection occurs. If the ME is turned off when the disconnection occurs, the alarm code is not displayed until two minutes after the ME is turned on.

### Reporting and recording Alarm codes

If an alarm code appears on the Alarm station's display:

1. Record the alarm code on the appropriate maintenance record.
2. Find out the cause of the alarm code from the following chart.
3. Press **TIME** and record the time displayed.
4. Call your support number and report the alarm code.
5. After speaking to the support person, press **CLEAR**.

#### Alarm codes

Example display	Meaning	Possible causes
Alarm:10	All ME devices disconnected	The last remaining device on Commander NT bus 1 (port numbers 101-132) has been removed. The link cable was disconnected from the ME. There is an internal ME fault.
Alarm:37 ABBDD	An error has occurred in the download of a protocol to a BRA card. A: the maintenance index of the BRA BB: a code describing the nature of the error C: the current download state DD (appears when the error is limited to one protocol): the two-character product identifier of the protocol	The BRA card is not properly installed.

## Alarm codes

Alarm:40 Alarm:41 Alarm:42 Alarm:43 Alarm:44 Alarm:45 Alarm:46 Alarm:47	There is a problem with the PRA signal	The cable connecting the PRA to the network termination point or the ME has been disconnected. There is a problem with the PRA signal from the network.
Alarm:50 X	All devices on the SM disconnected	The last remaining device on Commander NT bus X (port numbers X03-X16) has been removed. The link cable was disconnected from the SM. The fibre cable from the SM to the ME has been disconnected. The SM was turned off.
Alarm:51 X	Line Module disconnected	All Line Cartridges have been disconnected from the module. The LM was turned off. The fibre cable from the LM to the ME has been disconnected.
Alarm:52 X Y	A Line Cartridge has been disconnected	Line Cartridge on module X has been disconnected.
Alarm:61 X Y	Administered line type is incompatible	The inserted Line Cartridge does not match the line type programmed for that slot.
Alarm:62 X Y	Unsupported Auto-answer setting (Loop Start TCs)	Trunk Cartridge X on fibre part Y does not support the auto-answer setting.
Alarm:63 Z	No available DTMF receivers	DTMF receivers are busy, not working properly, or have not been installed.
Alarm:64	EC in wrong slot	EC is not in the correct ME slot.
Alarm:67	Unsupervised analogue Line Cartridge working improperly	Unsupervised analogue Line Cartridge is administered to ROA/ROI. Line Cartridge Y on port X cannot operate with the line type assigned to it in programming.
Alarm:68 Z	A device has been connected to a port which is not available for the device type	Power down the system and disconnect the device from the port identified. Reconnect it to a valid port.
Alarm:74	The system detects no installed Services Cartridge.	An ISDN BRA Cartridge is booting up and no system Services Cartridge is present.
"X" = fibre port numbers, "Y" = Trunk Cartridge number (numbered from left to right) and "Z" = Trunk port number		

## Alarm troubleshooting

## Alarm: 10

1. Check to see if there is a device connected to the ME (that has a port number beginning with the number "1").

2. If there are no devices connected to the ME, connect one and then press **CLEAR**.
3. If there are any devices connected to the ME, check all the wiring associated with the devices.
4. Refer to the information on faulty ME in "Troubleshooting the ME and modules" on page 332.

**Alarm: 37**

1. Check that the ISDN BRA Cartridge is properly installed.
2. Remove and re-install the ISDN BRA Cartridge.
3. If the alarm persists, replace the ISDN BRA Cartridge with another ISDN BRA Cartridge of the same type.

**Alarm: 40 to Alarm: 47**

1. Check the System Network evt log for events in the range 315-336 to verify the frequency of the alarms.
2. Refer to "Confirming that a PRA card is operational" on page 336.

**Alarm: 50-X**

1. Check to see if there is a device connected to the Station Module.
2. If there are no devices connected to the Station Module, connect one and then press **CLEAR**.
3. If there are any devices connected to the Station Module, check all the wiring associated with the devices.
4. Refer to the information on Station Modules in "Troubleshooting the ME and modules" on page 332.

**Alarm: 51-X**

1. Check the wiring from the ME to the LM.
2. Check to see if there is a Line Cartridge in the LM.
3. Follow the procedure in the section Checking the Line Cartridge in the Troubleshooting chapter.
4. Refer to the information on Line Modules in "Troubleshooting the ME and modules" on page 332.

**Alarm: 52-X-Y**

1. Follow the procedure in "Checking the state of a cartridge" on page 364.
2. If the problem persists, replace Line Cartridge on fibre cable port X. For the definition of "X", refer to the previous chart.

**Alarm: 61-X-Y**

1. Verify that the line type administered matches the Line Cartridge in the slot.
2. Follow the procedure for changing the Line Cartridge, or line type, in "Installing the cartridges" on page 33.

**Alarm 62:-X-Y**

1. Ensure that the proper analogue Line Cartridges are inserted in the proper slots of the ME.
2. Enter programming and look under the Lines/Line Data heading. Check that the analogue Line Cartridge type is correctly configured. Check that the Line Mode and Answer mode settings do not conflict for every line connected to the analogue Line Cartridge Y. If Line Mode is set to Unsupervised, Answer mode must be set to Manual.

**Alarm: 63-Z**

Enter programming and look under Lines/Line Data heading. Check that the Answer mode is correct for all the PSTN lines.

**Alarm: 64**

1. Remove the Expansion Cartridge.
2. Follow the procedure for installing the Expansion Cartridge in "Installing the cartridges" on page 33.

**Alarm: 67-X-Y**

1. Ensure that the proper analogue Line Cartridges are inserted in the proper slots of the ME.
2. Enter programming and look under the Lines/Line data heading. Check that the analogue Line Cartridge type is correctly configured. Check that the Line Mode and Answer mode settings do not conflict for every line connected to the analogue Line Cartridge Y. If Line Mode is set to Unsupervised, Answer mode must be set to Manual.

**OR**

Install an analogue Line Cartridge in slot Y that matches the type of line you have configured.

3. If the line on Port XXX does not function after several minutes, disable and re-enable the cartridge in the Maintenance.

**Alarm: 68-Z**

1. Locate the device(s) that is connected to port(s) not available for that device type.
2. Power down the system.
3. Disconnect the device from the port identified.
4. Reconnect it to a valid port.



**Alarm: 73**

No more ISDN S-Loop terminal DNs are available. To make a DN available:

- Change the DN type from portable to ISDN in programming.

**OR**

- Unplug an S-Loop terminal

**Alarm: 74**

1. Refer to the table for determining the proper cartridge slot arrangement in "Installing the cartridges" on page 33.
2. If no Services Cartridge is present, power the ME down before inserting a new cartridge.
3. Insert the Services Cartridge with the ISDN BRA Cartridge already installed.

The system will now detect a Services Cartridge when booting the ISDN BRA Cartridge at startup.

**Alarm: 75**

1. Check the connection to your ISDN service provider.

## Event messages

Event messages appear as items in the System Administration Log, System Test Log, or the Network Log of the Maintenance session. Most of these event messages can be caused only by an unusual combination of events, and should occur rarely.

The first three digits of the event message represent the event number, followed by up to six digits that identify the specific cartridge, module, station or slot number involved.

Each event is assigned a severity number from 1 to 9, with 9 being the most severe. An "S" preceding this number, "S4" for example, may appear in the event message. If the Log is full, new event messages with a higher severity number replace existing event messages of a lower severity. For this reason, you should check event messages at regular intervals. You can then deal with all messages before they are replaced.

For every event message that you see, do the following:

1. Record the event on the appropriate maintenance record.
2. Consult the following list of event numbers to see if the event caused the Commander NT to restart automatically.

**Significant event messages**

<b>Event message</b>	<b>The event message is recorded when...</b>
EVT210-YYZ S4	Loopback test YYY on Line Cartridge Z has been started.
EVT211-YYZ S4	Loopback test YYY on Line Cartridge Z has been stopped.
EVT220-3546 S4	The System Administration Log was cleared at stn 3546.
EVT221-3546 S4	The System Test Log was cleared at stn 3546.
EVT222-3546 S5	Stn 3546 entered the debugging facility that is password protected.
EVT255 S9	The administered line type is incompatible for the Line Cartridge present at that slot.
EVT260-302 S8	The ME took the exchange line on port 302 out of service because no current was detected.
EVT261-302 S1	The exchange line on port 302 was returned to service after current was detected (see EVT260).
EVT268-07 S8	Dialling filter 07 lost data due to a fault in the system memory. All administered dialling filters must be reprogrammed.
EVT269-3546 S8	The line/stn filter for the stn 3546 lost data due to a fault in the system memory.
EVT299 S1	The system was turned on after a power failure.
EVT 327 S5	Short term alarm threshold has been surpassed in the PRA cartridge.
EVT328 S5	Short term alarm threshold has been surpassed in the PRA cartridge.
EVT329 S5	Short term alarm threshold has been surpassed in the PRA cartridge.
EVT330 S5	Short term alarm threshold has been surpassed in the PRA cartridge.
EVT336 S5	Long term alarm has been surpassed in the PRA cartridge.
EVT343 S4	The Line Module assigned on Port nnn is not supported by the Line Cartridge in the system. An unsupervised cartridge has its line on Port nnn set to ROA/ROI mode. Change the line of Port nnn to unsupervised. If the line on Port nnn does not function after several minutes, the cartridge must be reset by disabling and enabling the cartridge in the Maintenance.
EVT367 S4	A reset has occurred in the ISDN BRA Cartridge. Obtain the BRA traceback for the cartridge that reset.



Event message	The event message is recorded when...
EVT459 S9	DN length has been changed to less than 3 digits.
EVT688 S4	The data driver has received a bad data event.
EVT689 S4	The data driver could not allocate a new index.
EVT690 S4	No response to the ME within 10 seconds of being sent an initialisation message.
EVT691 S4	No response to the ME within 3 seconds.
EVT692 S4	A bad parameter value has been received in a stimulus message from the data device.
EVT693 S3	Old data to be discarded has been detected.
EVT694 S4	RADAR flow control has received a bad stimulus message from an off-core application.
EVT695 S4	Attached set denied request for a B-channel.
EVT696 S2	Corrupt CU length.
EVT697 S2	An asynchronous data report generated by ethernet module.
EVT698 S8	Incorrect software key entered.
EVT799-00050B S7	A call processing error on the fourth BRA loop; see "Event message 799" on page 376.
EVT822 S8	Alarm code 63 is sent because there are no DTMF receivers for an incoming call.
EVT883 S4	An invalid dial pulse signal was received by the PRA.

### Event message 799

Event message 799 indicates a call processing error has occurred on an ISDN line. The event number is followed by a number representing the line or loop number, and a code for the type of error.

EVT799-XXXX YY57      In this example, the error has occurred on line XXX and the error code is YY.

Error code	Meaning
01	Internal software error. Cannot acquire the B-channel from the B-channel arbitrator.
02	Internal software error. There is no free line available for the call.
03	A call that is not on the B-channel has been attempted.
04	Internal software error. Failed to instantiate on the chain.
05	Internal software error. Activation procedure failed.

Error code	Meaning
06	Internal software error. Index conversion failed.
07	Unexpected digits on a Manual answer mode line. Configuration of the ME and the network connection may not match.
08	Internal software error. Cannot seize central office (CO) line on a BRA connection.
09	Cannot get vterm (virtual terminal) from the Vterm Server.
0C	Internal software error. Already instantiated on the chain.

### Complete list of event numbers

You should rarely see event messages other than those listed above. If you do see another event message, the Commander NT has followed its normal recovery from an unusual combination of system events. Repeated occurrences of the event number should be reported to the support person as soon as possible.

As a result of some events, the Commander NT automatically restarts itself. The following chart lists all the event numbers and tells you which of these events are associated with Commander NT restarts. Most of these events are recorded in the System Test Log. The few exceptions to this are recorded in the System Administration Log, as indicated.

#### System restart event numbers

Event message	System restart
101-106	Yes
107	No
108-112	Yes
113	No
114-116	Yes
117	No
118-120	Yes
121-123	No
124-125	Yes
126-129	No
130	Yes
131-132	No

Event message	System restart
367-372	No
400 (Admin log)	Yes
401-403	No
405-411	No
412-419 (Admin log)	No
421-423 (Admin log)	No
424-425	No
426-430	Yes
431	No
432	Yes
433	No
437	Yes

Event message	System restart
133-134	Yes
135-136	No
137	Yes
138-150	No
151	No
152	No
160-164	No
170-173	No
188-189	Yes
200-211	No
220 (Admin log)	No
221-222	No
223-224	Yes
225-228	No
229 (Admin log)	Yes
230-235	No
245-248	No
250-256	No
260-271	No
280-283	No
285-298	Yes
299	No
327-330	No
336	No

Event message	System restart
441-442	No
453-454	No
458-459	No
600-602	Yes
603-613	No
614	Yes
615-629	No
630	Yes
631-646	No
800-802	No
803	Yes
804-807	No
808	No
808	Yes
809	No
810	Yes
811-820	No
823	Yes
824-825	No
851	No
882-883	No
900	No
940-943	No
950-989	No

## ISDN network messages

The following list contains prompts the Commander NT132 receives from the ISDN network in the event that the network releases a call. These five second transient displays do not indicate an error on the part of the Commander NT132 system, but relay information from the ISDN network.

Included in the following list is the category of errors provided by the network. The release code numbers associated with the network messages may be of use to those trying to isolate problems with a Commander NT132 ISDN connection.

#### ISDN network messages

Prompt		Category of error
Unalloc Num	1	Normal Event
Ntut Unavail	2	Normal Event
Ntut Unavail	3	Normal Event
Call Cleared	6	Normal Event
Ntut Unavail	7	Normal Event
Call Cleared	16	Normal Event
User Busy	17	Normal Event
No Answer	18	Normal Event
No Answer	19	Normal Event
Call Cleared	21	Normal Event
Num Changed	22	Normal Event
Call Cleared	26	Normal Event
Ntut Unavail	27	Normal Event
Invalid Num	28	Normal Event
Call Cleared	29	Normal Event
Signal Error	30	Normal Event
Call Cleared	31	Normal Event
Ntut Unavail	34	Network Congested
Ntut Unavail	38	Network Congested
Ntut Unavail	41	Network Congested
Ntut Unavail	42	Network Congested
Call Cleared	43	Network Congested
Ntut Unavail	44	Network Congested
Ntut Unavail	47	Network Congested
Ntut Unavail	49	Service or Option Not Available
Call Cleared	50	Service or Option Not Available
Call Cleared	57	Service or Option Not Available

Prompt	Category of error
Call Cleared 58	Service or Option Not Available
Call Cleared 63	Service or Option Not Available
Call Cleared 65	Service or Option Not Implemented
Call Cleared 66	Service or Option Not Implemented
Call Cleared 69	Service or Option Not Implemented
Call Cleared 70	Service or Option Not Implemented
Call Cleared 79	Service or Option Not Implemented
Call Cleared 81	Invalid Message
Call Cleared 82	Invalid Message
Signal Error 83	Invalid Message
Signal Error 84	Invalid Message
Signal Error 85	Invalid Message
Signal Error 86	Invalid Message
Call Cleared 88	Invalid Message
Ntwk Unavail 91	Invalid Message
Call Cleared 95	Invalid Message
Call Cleared 96	Protocol Error
Call Cleared 97	Protocol Error
Call Cleared 98	Protocol Error
Call Cleared 99	Protocol Error
Call Cleared 100	Protocol Error
Call Cleared 101	Protocol Error
Call Cleared 102	Protocol Error
Call Cleared 111	Protocol Error
Call Cleared 127	Interworking



## Recall Quality



### Do not change any of the settings in this section

Recall Quality settings should not be changed from the default values.

The Commander NT responds to the following digital network events which indicate an interruption or degradation of transmission quality:

- Loss of Signal (LOS)
- Out of Frame (OOF)
- Alarm Indication Signal (AIS)
- Remote Alarm Indication (RAI)

Recall Quality sets levels used by the system to monitor the transmission quality of Basic Rate Lines. The system will automatically remove Basic Rate lines from service should transmission deteriorate beyond the levels set for Recall Quality. The system will also automatically reinstate the lines once transmission quality returns to an acceptable level.

Recall Quality also establishes the level at which transmission problems trigger the logging of an Alarm at the designated alarm station, or an Event in the Network Log.

### Event log threshold

The event log threshold determines how long transmission deterioration can occur before an alarm or an event is logged. This setting uses a fixed 60 second window to sample transmission quality.

To change the event log threshold:

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **]** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next** until the display reads **Recall Quality**.
6. Press **Show**. The display reads **Log event at:**.
7. Press **CHANGE** and enter the event log threshold, between 3 to 60 s.
8. Press **OK**. The display reads the new setting.

9. Press **File** to exit or **Next** to continue programming.

### Long term recall quality

The long term recall quality determines how many seconds transmission deterioration can occur before the line is disabled.

To change the long term recall quality:

1. Press **Feature** \* \* **C** **O** **N** **F** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next** until the display reads **Recall Quality**.
6. Press **Show**. The display reads **Log event at:**.
7. Press **Next**. The display reads **Block link at:55**.
8. Press **CHANGE** and enter the recall quality threshold, between 0 to 59 s. The system will ignore thresholds that are higher than the sample window size.
9. Press **OK**. The display reads the new setting.
10. Press **File** to exit or **Next** to continue programming.

### Sample window size

The sample window size determines the unit of time used to sample the recall quality of the transmission. Lines are disabled by the system for a period of time equal to at least one sample window, or multiples thereof, until the system determines the quality has returned.

To change the sample window size:

1. Press **Feature** \* \* **C** **O** **N** **F** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next** until the display reads **Recall Quality**.
6. Press **Show**. The display reads **Log event at:**.
7. Press **Next** until the display reads **Window size:**.
8. Press **CHANGE** and enter the window size, between 0 to 60 s. The system will ignore window sizes that are smaller than the current long term threshold value.

9. Press **OK**. The display reads the new setting.
10. Press **Exit** to exit or **Next** to continue programming.

## Provisioning

Provisioning allows you to place ISDN loops in or out of service. It is possible to provision ISDN loops before the cards have been installed.

When you provision a loop, ISDN keystations on the loop can be used to make outgoing calls or receive incoming calls. When you are configuring a T or S loop, you must also provision each line on the loop to place the lines in service.

You can pre-provision the loops even though the system is not equipped with an ISDN BRA or PRA Cartridge. Each ISDN loop has two lines assigned to it. The **Show** key to view programming for the ISDN lines will only appear if the loop has been provisioned. **Provisioned** is the default setting.

### Deprovisioning an ISDN loop

If you deprovision a loop, both of the lines associated with the loop are disabled as well.

1. Press **Feature** \* \* **C** **D** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next** until the display reads **Provisioning**.
6. Press **Show**. The display reads **Show module:**. Enter the module where the card is located or press **Next** until the display shows the module you want.
7. Press **Show**. The display reads **Carts on ME** or **Carts on Modn**.
8. Press **Show**. The display reads **LCn on ME** or **LCn on Modn**.  
To view another cartridge on the module, press **Next** until the display shows the cartridge you want.
9. Press **Show**. The display reads **L=201:Provisnd**. (If you are deprovisioning a loop on another cartridge, the Lp number will be different.)
10. Press **REMOVE** to deprovision the loop. If the loop is in use, the display will read **Busy! Remove now?**. Press **YES** to deprovision the loop in 60 seconds or **CANCEL** to leave the loop provisioned.
11. Press **Next** to view settings for the next loop number.

12. Press **Fls** to exit or **Next** to continue programming.

### Provisioning an ISDN loop and lines

1. Press **Feature** **\*** **\*** **C** **O** **N** **F** **I** **G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **Next** until the display reads **Maintenance**.
4. Press **Show**. The display reads **System Version**.
5. Press **Next** until the display reads **Provisioning**.
6. Press **Show**. The display reads **Show module:**. Enter the module where the card is located or press **Next** until the display shows the module you want.
7. Press **Show**. The display reads **Carts on ME** or **Carts on Modn**.
8. Press **Show**. The display reads **L0n on ME** or **L0n on Modn**.  
To view another cartridge on the module, press **Next** until the display shows the cartridge you want.
9. Press **Show**. The display reads **L#201:Provisnd**. (If you are deprovisioning a loop on another cartridge, the Lp number will be different.)
10. Press **ADD** to provision the loop. The display momentarily reads **Updating state..** followed by **L# 201:Provisnd**.
11. Press **Show**. The display reads **L001:Deprovisnd**.
12. Press **ADD** to provision the line. The display momentarily reads **Updating state..** followed by **L001:Provisnd**.
13. Press **Next**. The display reads **L002:Deprovisnd**.
14. Press **ADD** to provision the line. The display momentarily reads **Updating state..** followed by **L002:Provisnd**.
15. Press **Heading** until you return to **L# 201:Provisnd**.
16. Press **Next** to view settings for the next loop number.
17. Press **Fls** to exit or **Next** to continue programming.

### Running Loopback tests

Loopback tests loop the incoming ISDN signal back to the network supplier for evaluation of the transmission quality.

The tests should only be performed under the guidance of the network supplier.

It is possible to exit Maintenance, or move on to another programming task while the loopback test is running. While the



13. Press **START** to begin the test. The display reads the test name followed by **Full load running**. Press **STOP** to terminate the test.
14. If you wish to initiate a loopback test on a second cartridge, proceed from step 7 above otherwise, press **[F15]** to exit or **[Next]** to continue programming.











# Appendix

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## Commander NT 132 Serial/Item List

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**Main Equipment 742 (unless shown otherwise)**

Item	Code	Description	Remarks
1	ME-NT-A	Main Equipment	Accommodates 32 stations and up to two Line/ISDN Basic Rate Cartridges. Includes power supply and power bar.
2	PS-NT-A	Power Supply	Main Equipment power supply - Spare part only.
3	SC132-NT-B	NT132 Software Cartridge	Required with each Main Equipment. Used for ISDN TSO13 and has TSO13 and ETSI protocol selectability option.
155	SC-132-NT-C	NT132 Software Cartridge V2.0	Required for PRA.
160	SWC-NT-132-A	NT132 Software Cartridge V2.1	Replaces 155 and includes Hospitality Services option.
4	LM-NT-A	Line Module	Accommodates up to three additional Line/ISDN Basic Rate Cartridges.
5	SM-NT-A	Station Module	Provides sixteen additional stations.
6	EXC2-NT-A	2 Port Expansion Cartridge	Allows connection of up to two Line/Station Modules.
7	EXC6-NT-A	6 Port Expansion Cartridge	Allows connection of up to six Line/Station Modules.
10	LC-NT-A	Line Cartridge	Accommodates four Analogue lines.
119	LC-NT-B	Line Cartridge with Line Supervision.	Accommodates four lines with Line Supervision.
11	BRAC-NT-A	ISDN Basic Rate Cartridge	Accommodates four Microlinks (eight channels).
12	PRAC-NT-A	ISDN PRA Cartridge	Digital trunk cartridge. 1 meter cable included.
13	SVC-NT-A	Services Cartridge	Required when one or more ISDN Basic Rate Cartridges are installed.
132	ASM-NT-A	Analogue Station Module	Provides eight additional Single Line Telephone ports to connect to analogue devices.
133	ASM-NT-MW-A	Analogue Station Module with Message Waiting Indication	Provides the Message Waiting Indication function in the ASM.
732/30		Fibre Cable Kit	Spare part
82	PC-NT-A	Power cord 3 pin AUS to IEC	

## Stations

Item	Code	Description	Remarks
742/191	TSG-NT-M7100N-A	M7100N Keystation	Dolphin grey
742/192	TSG-NT-M7208N-A	M7208N Keystation	Dolphin grey
742/193	TSG-NT-M7310N-A	M7310N Keystation	Dolphin grey
742/194	TSG-NT-M7324N-A	M7324N Keystation	Dolphin grey
742/195	CAPNG-NT-A	CAPN	Dolphin grey
742/196	TSB-NT-M7100N-A	M7100N Keystation	Black
742/197	TSB-NT-M7208N-A	M7208N Keystation	Black
742/198	TSB-NT-M7310N-A	M7310N Keystation	Black
742/199	TSB-NT-M7324N-A	M7324N Keystation	Black
742/200	CAPNB-NT-A	CAPN	Black
742/201	n/a	Handset (grey)	Spare part - for all (M7324N, M7310N, M7208N, and M7100N) keystations.
742/202	n/a	Handset cord (grey)	Spare part - for all (M7324N, M7310N, M7208N, and M7100N) keystations.
742/203	n/a	Handset (black)	Spare part - for all (M7324N, M7310N, M7208N, and M7100N) keystations.
742/204	n/a	Handset cord (black)	Spare part - for all (M7324N, M7310N, M7208N, and M7100N) keystations.
742/205	n/a	Telephone line cord (4.2m)	Spare part - for all (M7324N, M7310N, M7208N, and M7100N) keystations.
742/206	n/a	CAPN Line cord (4.2m)	Spare part - for M7324N keystation.
742/207	n/a	CAPN Extension Line Card (0.8m)	Spare part - Connects the CAPN Console to the M7324N Keystation or second CAPN.
15	TS-NT-E-B	Economy Keystation	New product code denotes PBX template.
164	TS-NT-M7000-A	M7000 Keystation	Commonly used with Hospitality Services option.
16	TS-NT-S-B	Standard Keystation	New product code denotes PBX template.
17	TS-NT-A-B	Advantage Keystation	New product code denotes PBX template.
18	TS-NT-P-B	Principal Keystation	New product code denotes PBX template.

Item	Code	Description	Remarks
19	DSS-NT-A	DSS Console	Operates in conjunction with a Principal Keystation only.
20	BLF-NT-A	BLF Display	Connects to an Advantage Keystation.
30	SPS-NT-A	Station Power Supply	Used to power DSS Consoles and for stations located more than 300m from the Main Equipment.
67	HS-NT-A	Handset	Spare part - for all Principal, Advantage, Standard, Economy, and M7000 keystations.
68	HSC-NT-A	Handset Cord	Spare part - for all Principal, Advantage, Standard, Economy, and M7000 keystations.
69	CL3-NT-A	Line Cord - 3 m	Spare part - for all Principal, Advantage, Standard, Economy, and M7000 keystations.
70	CL42-NT-A	Line Cord - 4.2 m	Spare part - for all Principal, Advantage, Standard, Economy, and M7000 keystations.
73	DC18-NT-A	DSS Line Cord - 1.8 m	Spare part - Replaces standard line cord.
74	DC45-NT-A	DSS Line Cord - 0.45 m	Spare part - Connects the DSS Console to the Principal Keystation or second DSS.
75	KCKS-NT-A	Key Cap Kit - Standard	Spare part
76	KCKA-NT-A	Key Cap Kit - Advantage	Spare part
77	KCKP-NT-A	Key Cap Kit - Principal	Spare part
78	KLA-NT-A	Key Labels for Economy, Standard and Advantage Keystations.	Spare part
79	KLP-NT-A	Key Labels for Principal Keystation and DSS Console.	Spare part
80	FL-NT-A	Feature Label	Spare part - Fits on the keystation under the handset.
81	FLL-NT-A	Feature Label Lens	Spare part
169	HSP-NT-M7000-A	Handset	Spare part for M7000 Keystation.
170	HSC-NT-M7000-A	Handset cord	Spare part for M7000 Keystation.

## Peripherals

Item	Code	Description	Remarks
21	SLTA-NT-A	SLT Adaptor	Provides interface to Single Line (analogue) Telephone. Includes Peripheral Power Supply.
22	CDR-NT-A	CDR Unit	Provides call detail records output.
171	PER-NT-CDR-A	CDR Unit	Upgrade required to support Hospitality Services option.
23	CU-NT-A	CU Unit	For use where Calling Line Identification is provided on an analogue line.
24	RAD-NT-A	Remote Access Device	Supplied with every system. Used for remote access by PlesTel support personnel. Includes Peripheral Power Supply.
577/29		Digital modem	For connection to the user side s bus.
27	DS-NT-A	Door Station	
28	DUL-NT-A	Door Unlock Unit	Operates in conjunction with Door Station.
29	ERU-NT-A	External Relay Unit	For use with external paging contacts.
31	PPS-NT-A	Peripheral Power Supply	Spare part for Remote Access Device and SLT Adaptor.
159	PPS-MT-B	Peripheral Power Supply 9 volt	
57	SLTA-NT-B	SLT Adaptor	Provides interface to Single Line (analogue) Telephone. Includes Peripheral Power Supply. [supersedes 742 / 21]
72	CLSC-NT-A	Line Cord, solid conductor - 2.1 m	Spare part for the SLT Adaptor.
124	TCMI-NT-A	Commander NT TCM Isolator	
132	ASM-NT-A	Analogue Station Module	
133	ASM-NT-MW-A	Analogue Station Module with message wait indication	



## Documents

From AUS2.1 all documentation is also available on CD ROM.

Item	Code	Description	Remarks
32	DOC-NT-SOF-132	System Order Form	Used by sales staff.
33	DOC-NT-PR132-A	Programming Record NT132	Used for detailing system prior to installation, if required.
34	DOC-NT-DP132-A	Customer Documentation Pack NT132	Comprises binder; System Administration Manual; Programming Record; Receptionist's Cards and the Secretary's Cards.
35	DOC-NT-IM132-A	Installation and Maintenance Manual NT132	Required by Technical staff.
36	DOC-NT-SAM132-A	System Administration Manual NT132	Spare part - Contains customer level system information.
37	DOC-NT-KFC-B	Keystation Feature Card	Spare part - Supplied with every Keystation.
38	DOC-NT-RC132-A	Receptionist's Card	Spare part
39	DOC-NT-SC132-A	Secretary's Card	Spare part
40	DOC-NT-SLTA-A	SLT Adaptor User Card	Spare part - Supplied with the SLT Adaptor.
41	DOC-NT-DSS-B	DSS Console User Card	Spare part - Supplied with the DSS Console.
42	DOC-NT-UCE-A	Economy Keystation User Card	Spare part - Supplied with Economy Keystation.
43	DOC-NT-UCS-A	Standard Keystation User Card	Spare part - Supplied with Standard Keystation.
44	DOC-NT-UCA-A	Advantage Keystation User Card	Spare part - Supplied with Advantage Keystation.
45	DOC-NT-UCP-A	Principal Keystation User Card	Spare part - Supplied with Principal Keystation.
165	DOC-NT-UCM7000-A	M7000 Keystation User Card	Spare part - Supplied with M7000 Keystation.
		M7100N Keystation User Card	Spare part - Supplied with M7100N Keystation.
		M7208N Keystation User Card	Spare part - Supplied with M7208N Keystation.
		M7310N Keystation User Card	Spare part - Supplied with M7310N Keystation.
		M7324N Keystation User Card	Spare part - Supplied with M7324N Keystation.
		CAPN User Card	Spare part - Supplied with CAPN Module.
52	DOC-NT-BLF-B	BLF Display User Card	Spare part - Supplied with BLF Display.

Item	Code	Description	Remarks
53	DOC-NT-DSTN-B	Door Station User Card	Spare part - Supplied with Door Station.
54	DOC-NT-CDR-B	CDR System Administration Manual	Spare part - Supplied with CDR Unit.
55	DOC-NT-PIG	Commander NT Product Information Guide	Sales Support Information.
172	DOC-NT-CDC-A	Customer Documentation NT132 & NT40	Customer Documentation CD ROM (all documents except Installation and Maintenance Manuals).
173	DOC-NT-CDT-A	Technical Documentation NT132 & NT40	Technical Documentation CD ROM (all documents including Installation and Maintenance Manuals).

## Sales Material

Item	Code	Description	Remarks
58	DOC-NT-PB	Commander NT Product Brochure	
59	DOC-NT-P	Commander NT Poster	
60	DOC-NT-PL-K	Product Leaflet - Keystations/Options	
61	DOC-NT-PL-VM	Product Leaflet - Voice Mail	
62	DOC-NT-PL-NT132	Product Leaflet - Key System NT132	
64	DOC-NT-PL-MM	Product Leaflet - Major Markets	

## Miscellaneous Items - Serial as shown

Serial	Item	Code	Description	Remarks
537	103		Frame - 27 way Profil	SDF
537	19		Frame Cover - jumperable	For SDF
537	95		Module - Profil	For SDF
537	45		Jumper Ring Assembly	For SDF
537	101		Gas Arrestor Module (350V)	10 cct Krone magazine equipped with arrestors - For MDF use.
537	136		Gas Arrestor Module (500V)	10 cct Krone magazine equipped with arrestors - For SDF use.
742	66	GAM-NT-A	CMDR NT Gas Arrestor Module	
742	65	SCA-NT-A	SDF Cable Assembly	50 wire cable terminated with AMP "Champ" connector at each end - Grey, 8 m.
268	128		Modular to 605 Adaptor	
742	158	SWO-NT- PRA	PRA Keycodes, one keycode per 10 channels	
742	163	SWA-NT- HOSP-A	Hospitality Services Keycode	

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