

Commander

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A Plasey Teistre Alliance

What's new about the Commander NT40

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New equipment

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 AUS2.1 (742/17 1) provides enhanced logging capabilities for PRA, ISDN lines and supports the Hospitality Services option.

Integrated Remote Access Device

The Integrated Remote Access Device is part of the Commander NT ME. The IRAD allows support personnel to access the Norstar Commander NT system from a remote location for diagnostic purposes. The IRAD for release AUS2.1 and higher is enhanced to allow for faster access. An external RAD can also be installed.

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.

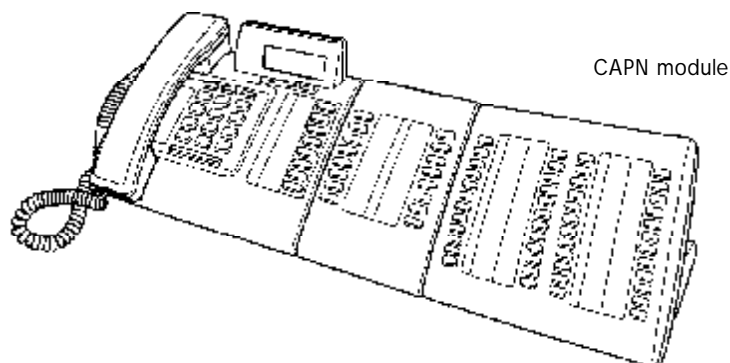
The M7100N cannot have a Handsfree/Mute key. You will find special instructions for the M7100N in some feature descriptions.

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.

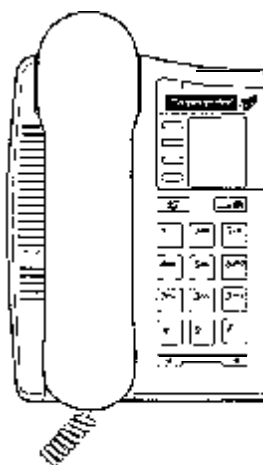
The CAPN is usually the Prime station and the Direct-Dial station for the lines and keystations it serves.



M7324N Keystation



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

M7000 Keystation







The M7000 Keystation (742/164) 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]	
[Fasturo]	
[Handsfree Mute]	

New features

System Profiles

There are three System Profiles that you can select when you install a Commander NT40. 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 system is powered up. The System Profile default for Commander NT systems is PROF B.

See “Selecting a System Profile” on page 144.

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 feature see “Programming Hospitality Services” on page 243.

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 183.

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 these three options see "Answer key" on page 205.

Enhanced features

DDI lines

Direct Dial Inward (DDI) allows 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 101 to 140 between the Commander NT40 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 169.

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.

Fax Switch

The Fax switch feature monitors incoming lines and automatically transfers calls to a fax when it hears fax tones. The Fax switch contains all of the required Fax tone detection and transfer abilities within the Commander NT40 system. To function the Fax switch feature requires the Auto Attendant be enabled. The Auto Attendant itself, requires to be enabled with Keycodes.

See "Programming Auto Attendant" on page 2 19 and "Programming Fax switch feature" on page 223.

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 (742073) includes all customer documentation as well as Commander NT Installation and Maintenance Manuals (both NT132 and NT40).

The Economy/M7 100N, Standard/M7208N, Advantage/M73 1 ON and Principal/M7324N Keystations now reflect the PBX template defaults.


The new Commander NT40 software AUS2.1 no longer supports:


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

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

	WARNING!
	<p>Only qualified service personnel should service or install this equipment.</p> <p>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.</p>

Markings

	N441REN=1.0
--	-------------

	WARNING!
	<p>EMC</p> <p>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.</p>

The Commander NT40 is a member of the Commander NT family. The Commander NT40 Main Equipment (ME) is comprised of the NT40 Compact (4x8) and the NT40 (8x16) and supports up to 16 lines and 24 Commander NT40 Keystations and peripherals when fully expanded.

The Commander NT40 is a permitted system under ACA permit A95/84G/0364, REN =1.0.

Port Definition

The Commander NT40 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:

- All ports on the CDR, RAD, Door Station 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:

- NT40 ports for analogue lines (including the Power Fail Telephone connections), BRA, I-SLTA.
- The analogue ports on the: CLI and SLTA.
- TCM stations, auxiliary ringer (AUX), paging system relay (PAGE Relay), and the serial port.

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

- NT40 ports for Music on Hold input (MOH) and Paging output (PAGE)

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.

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Installation and Maintenance Manual Commander@ NT40

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Commander[®] Care Online

Commander Care Online has been set up by PlesTel to help you install and maintain the Commander NT.

Help Desk

The Help Desk is staffed by personnel experienced in all areas of customer premises equipment. Call them during normal working hours for support on

- installation procedures
- programming problems
- fault issues
- detailing
- equipment compatibility
- modifications

The staff at Commander Care Online are keen to assist you, however, please read the documentation provided with the product carefully before calling.

Documentation suggestions

If you find any problems with the documentation for this Commander product, please tell us.

We want to know if you find any of the following problems:

- mistakes in the manual
- sections hard to understand
- difficulty in locating a subject

You can call the Help Desk to report a problem, or you can use the Suggestions form on the other side of this page.

How to contact Commander Care Online

Phone (ALL areas)

***FREECALL*™ 1800 809 881**

Fax

***FREECALL*™ 1800 044 113**

8:00 am to 7:00 pm (EST) Monday to Friday

<http://www.commander.com.au>

Suggestions about this Manual

The following form is provided for your suggestions. Please photocopy this page and fill it in. When completed, post it to us at:

**Commander Care Online
Locked Bag 5
Unley SA 5061**

OR

Fax the copy to: 1800 044 113

Name: _____

Company: _____

Address: _____

State: _____ **Postcode:** _____

Telephone: _____ **Fax:** _____

Manual: **Commander NT40 Installation and Maintenance Manual
Issue 02**

Suggestions: _____

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Commander NT40 specifications

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Section I: Installing the hardware

Planning the installation

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WARNING!

Only qualified service personnel should service or install this equipment.

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.

Installation overview

- mount the Main Equipment (ME)
- install the Software Cartridge
- install the analogue Line Cartridge(s)
- install the ISDN BRA Cartridge(s) (as required)
- install the appropriate cartridge:
 - Digital Station Cartridge to provide ports for eight additional Commander NT40 Keystations and peripherals
 - NT40 Services Cartridge to provide clocking support for the ISDN BRA Cartridge(s)
 - NT40 Services/Expansion Cartridge to provide ports for eight additional Commander NT40 Keystations and peripherals and to provide clocking support for the ISDN BRA Cartridge(s)

Tip ■ The Commander NT40 must be equipped with the NT40 Services Cartridge or the NT40 Services/ Expansion Cartridge to use ISDN BRA Cartridges.

- mount System Distribution Frame (SDF)
- connect the protective earth from the ME to the SDF earth
- connect cables between SDF and ME
- connect exchange lines to SDF
- complete the wiring
- install the door and filler faceplates
- install the power-fail telephone (if required)
- install the Commander NT Keystations
- install the ISDN terminal equipment
- install the optional equipment
- install the analogue telephone(s)

- 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 detail in the *Programming Record*
- ensure all keystation keys are properly labelled
- ensure 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.

Planning checklist

- Verify that you have all the equipment and supplies you need to install the system.
- Determine the location for the Main Equipment (ME), stations, and other equipment.
- Select the System Profile and template to be used in System Startup programming. See “Section II: System Programming” on page 121.
- Plan and record system programming details in the *Programming Record*.

location requirements

Environmental requirements

- clean, dry, and well-ventilated to allow free airflow
- mandatory clearance of 150 mm above and 100 mm below the ME. (It is recommended that the ME be installed at least 1 m above the floor.)
- the gap between the ME and the wall should be left completely clear to allow proper heat dissipation
- temperature between 0°C and 50°C
- humidity between 5% and 95%, non-condensing
- typically this equipment does not require a mains filter

Some types of electrical equipment, such as photocopiers or electrical motors, may emit unintended electromagnetic, radio-

frequency, or electrostatic interference. To ensure that Commander NT40 performance is not affected, it is recommended that the Main Equipment be located at least 2 to 4 metres from such equipment.

Electrical requirements

The Commander NT40 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, because these may have an adverse effect on the Commander NT40. It is recommended that the mains General Purpose Outlet (GPO) be separately fused at the mains distribution board and be located within 2 m of the ME.

Mains extension cords must not be used with the ME.



Commander NT40 mains wiring must connect to a 240 V a.c. mains General Purpose Outlet (GPO) with a Protective Earth.

This equipment incorporates a protective earth for protection from electrical shock and from high voltage surge protection through the 240 V a.c. mains General Purpose Outlet (GPO). The Main Equipment must be plugged into a standard AS31 12 mains General Purpose Outlet (GPO).

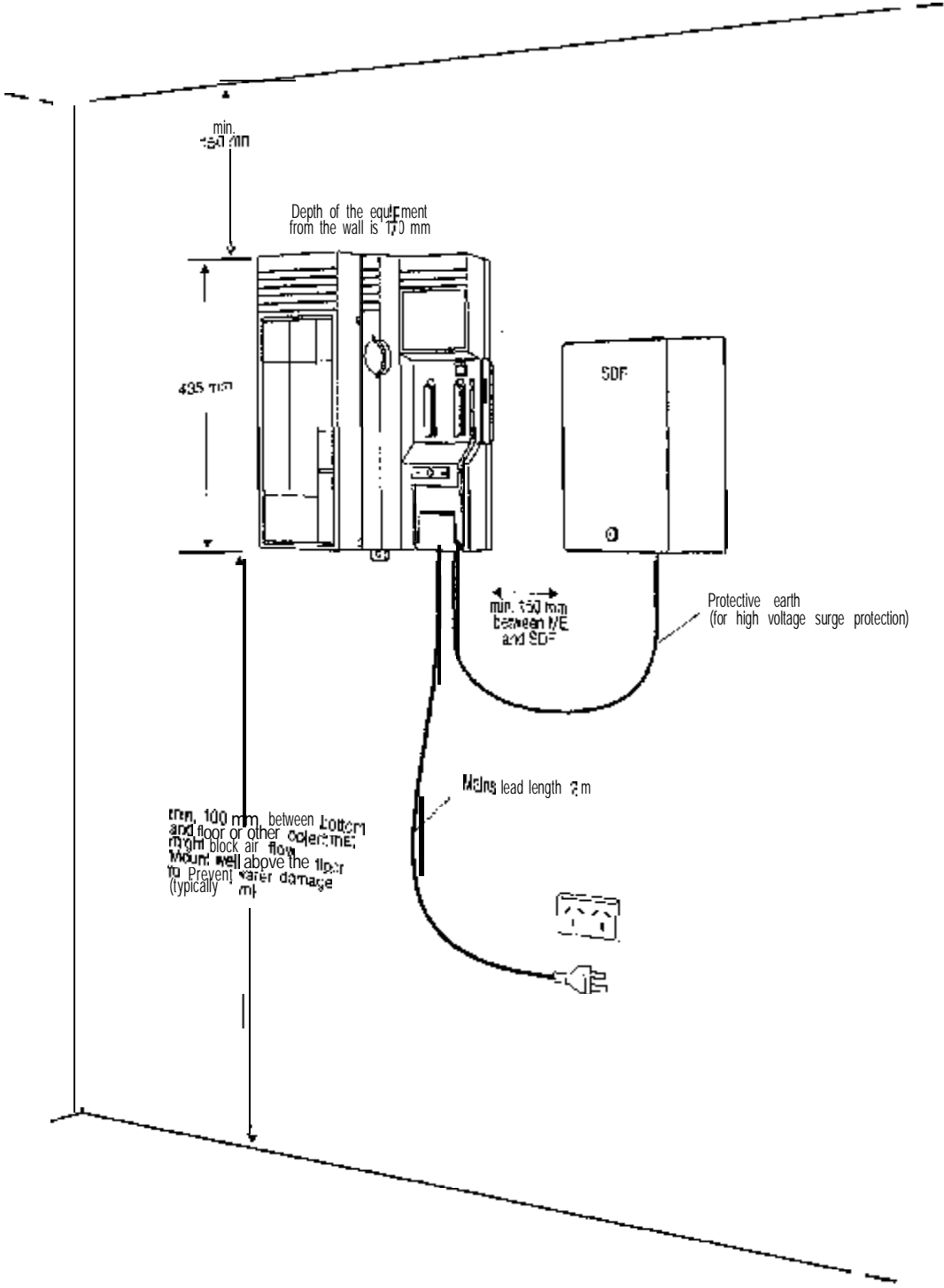
The exchange and station cabling must be disconnected from the equipment before the plug is removed from the mains General Purpose Outlet (GPO).



Do not modify supplied wiring.

To ensure the integrity of the earthed connection, do not modify the wiring supplied with the ME.

Location requirements



Station wiring requirements

All station wiring is classed as Telecommunications Network Voltage (TNV).



Use caution when connecting TCM cables. All TCM cabling is considered to be Telecommunications Network Voltage (TNV). It may contain hazardous voltages due to external fault conditions.

All 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 ohm
- one twisted pair for each station
- a Station Power Supply (SPS) to extend the loop up to 780 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

Required equipment and supplies

The following materials represent typical installation requirements

Commander NT equipment

- Main Equipment (ME)
- Commander NT40 Software Cartridge (Compact (742/162) or (742/161) Cartridge)
- Analogue Line Cartridge(s)
- ISDN BRA Cartridge(s)
- NT40 Services Cartridge (provides ISDN network synchronisation), to support ISDN BRA Cartridge
- Commander NT40 Keystations
- System Distribution Frame



Installing cartridges

If you are installing both an ISDN BRA Cartridge and an analogue Line Cartridge, place the ISDN BRA Cartridge in Slot 2 and the analogue Line Cartridge in Slot 1 so a power-fail telephone can be used.

Tip ■ Included in the Main Equipment carton is an in-line choke for use with the Integrated Single Line Telephone Adaptor. If you don't need the I-SLT Adaptor for this installation, just leave the choke taped to the inside of the

ME door for future use. See "Location Requirements" on page 58 for more details.

Expansion equipment

- Digital Station Cartridge (eight ports) or a NT40 Services/Expansion Cartridge if you have an ISDN BRA Cartridge. The ME supports up to 24 station ports with the Digital Station Cartridge or a NT40 Services/Expansion Cartridge.

Optional equipment

- Station Power Supply (SPS)
- Busy Lamp Field (BLF) Display (Advantage Keystation only)
- Direct Station Select (DSS) Console (Principal Keystation only)
- Central Answering Position (CAPN) Module (M7324N Keystation only)
- Single Line Telephone (SLT) Adaptor
- Call Detail Recorder (CDR) Unit
- TCM Isolator(s)
- ISDN terminal equipment
- power-fail telephone(s)
- external paging equipment
- external music source with Line Isolation Unit (LIU)
- Door Station
- VoiceMail (Voice Messaging Unit and Voice Messaging Application)

Power-fail option

Up to 1 power-fail single line telephones can be connected to systems with analogue Line Cartridges installed in the ME.

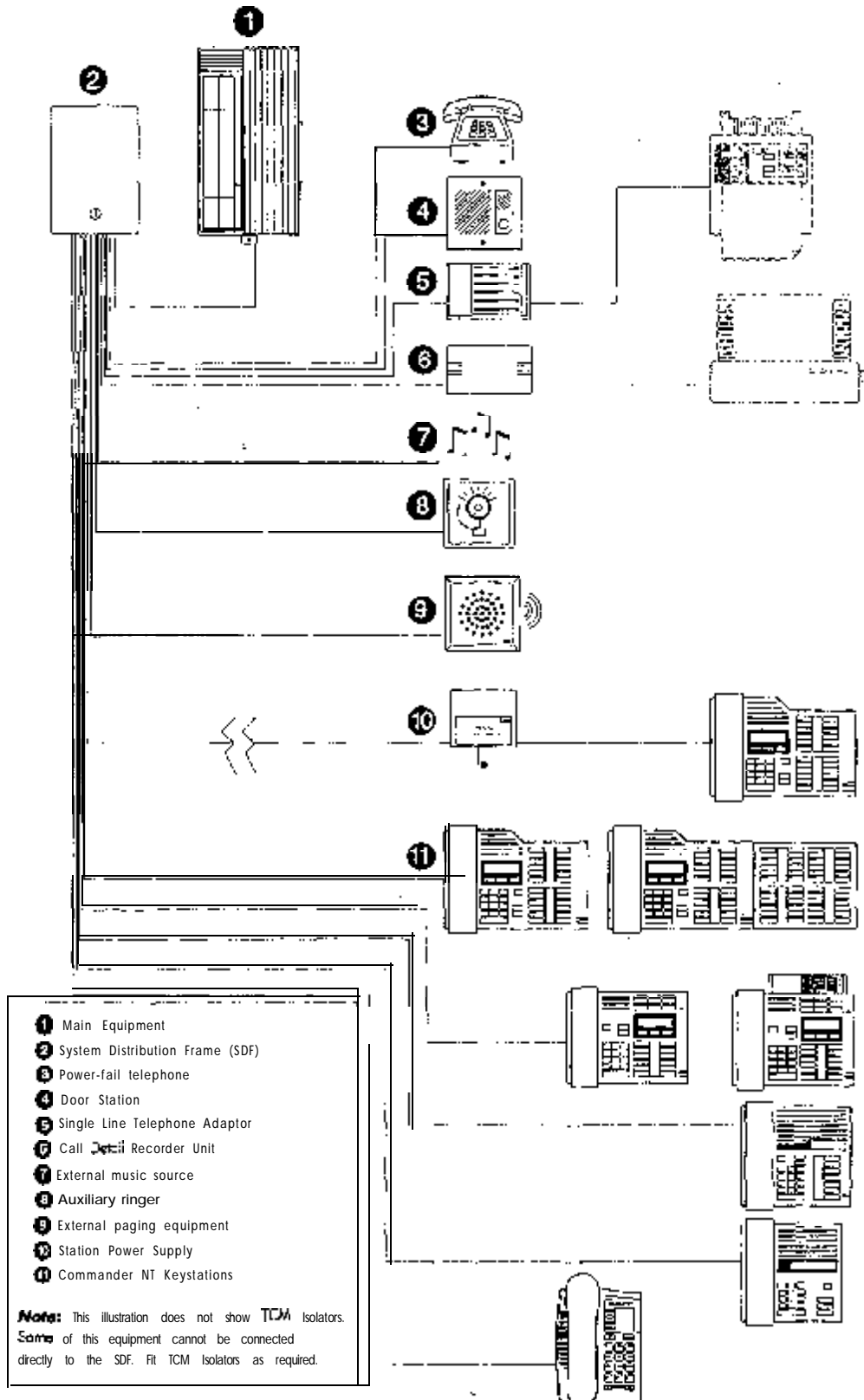
Battery back-up can be provided by the use of a suitable Uninterruptable Power Supply (UPS) system providing 240 V a.c. output.

We recommend use of a UPS on digital 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. See "Wiring a power-fail telephone" on page 54.

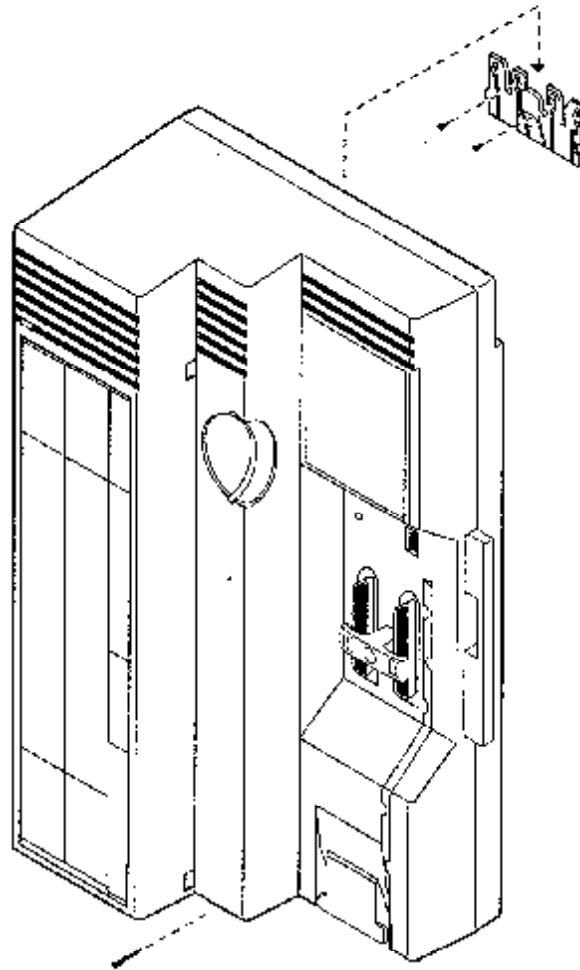
Commander NT40 overview



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Mounting the Main Equipment (ME)



DC NOT CONNECT
MANS POWER



Attach brackets to secure surface.

Fasten the ME mounting brackets and ME to a wall capable of supporting a 20 kg mass.

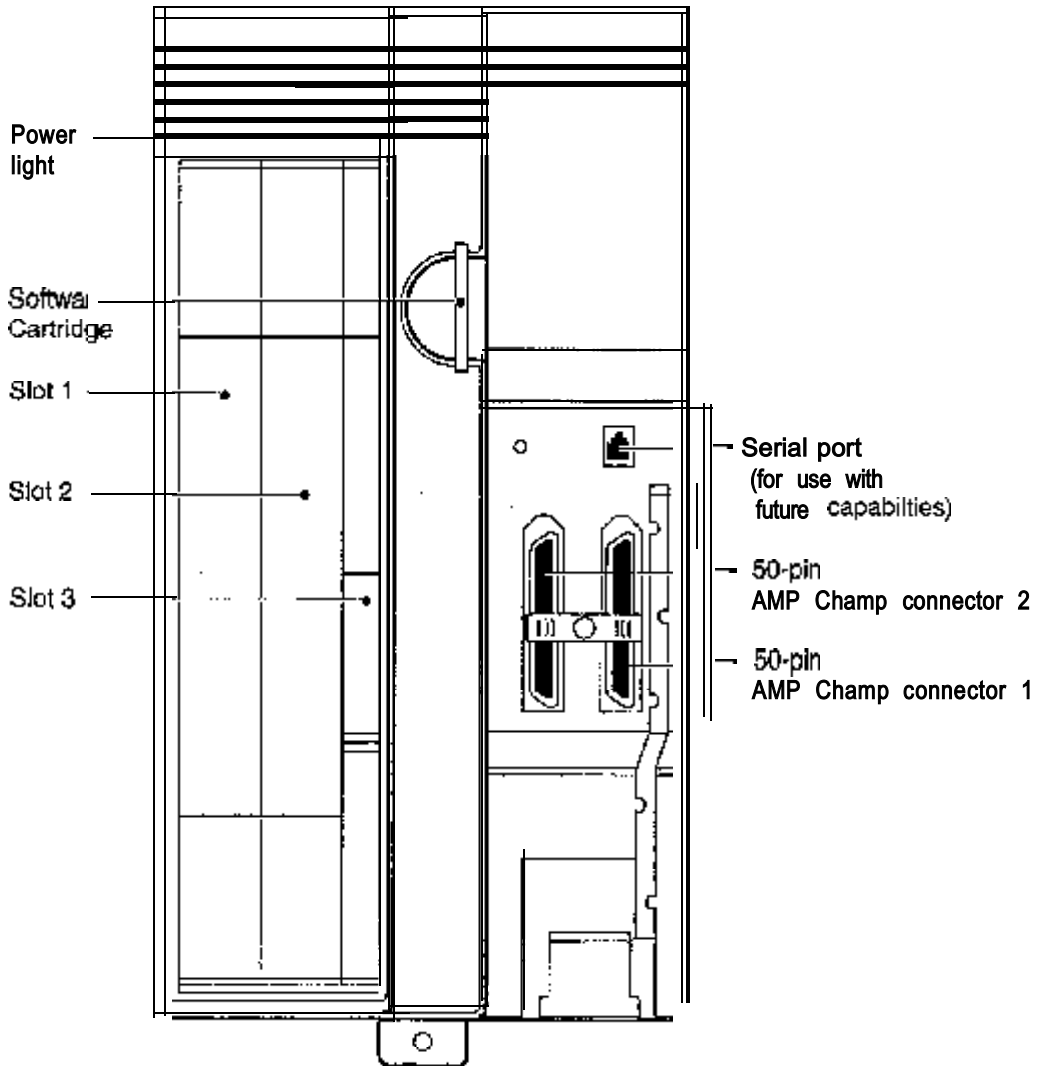


WARNING!

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 **117** for more information.

Installing the cartridges

ME slots and connectors

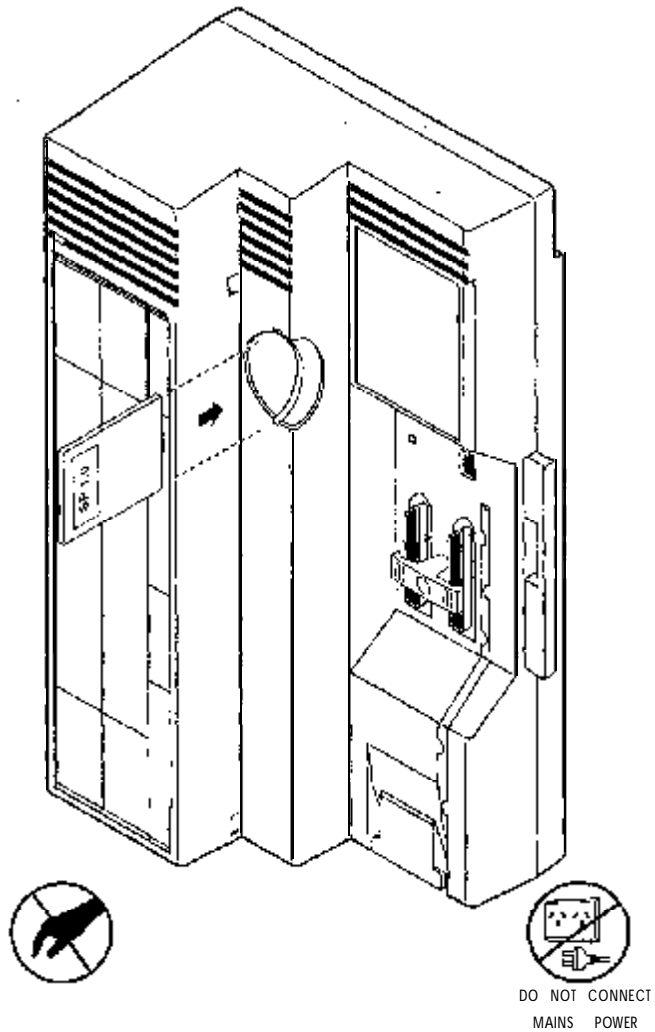


PCB is electrostatic-sensitive.

Do not touch the printed circuit board on a cartridge. It is an electrostatic-sensitive device. Handle by the plastic faceplate only.

1

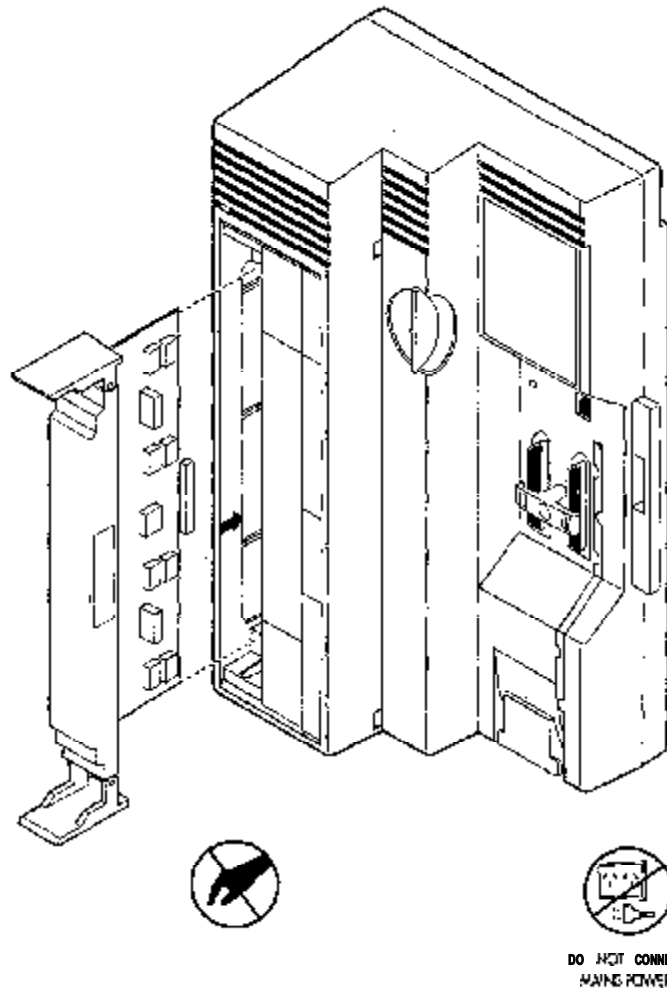
Installing the Software Cartridge



Insert Software Cartridge one way.

Insert the **Software** Cartridge so that the connector is properly aligned and the version label is visible after installation.

Installing an ISDN BRA Cartridge or analogue Line Cartridge

**Close clips simultaneously.**

It is important to centre and close the two clips on the cartridge simultaneously, or the cartridge may become misaligned in its slot, or with its connector.

Installing an **ISDN** BRA Cartridge or an analogue line Cartridge

1. Slide the Cartridge (an ISDN BRA Cartridge or an analogue Line Cartridge) into the appropriate slot, applying equal pressure at the top and bottom. (See the illustration.)

Tip - If you are installing both an analogue Line Cartridge and an ISDN BRA Cartridge, the analogue Line Cartridge should be placed in Slot 1 to ensure the functioning of the power-fail transfer relay.

2. Close the cartridge clips at the same time to keep the cartridge aligned with the connector.
3. Remove the filler faceplate from Slot 2 and Slot 3 (two pieces). Use a screwdriver at the bottom of each slot and prise the bottom edge out.
4. Snap the two parts of the faceplate apart and put back the filler faceplate in Slot 3 if a Digital Station Cartridge, NT40 Services/Expansion Cartridge or an NT40 Services Cartridge is not used.
5. Insert the second Line Cartridge, as described in steps 2 and 3.



Allow time for ISDN BRA Cartridges to initialise

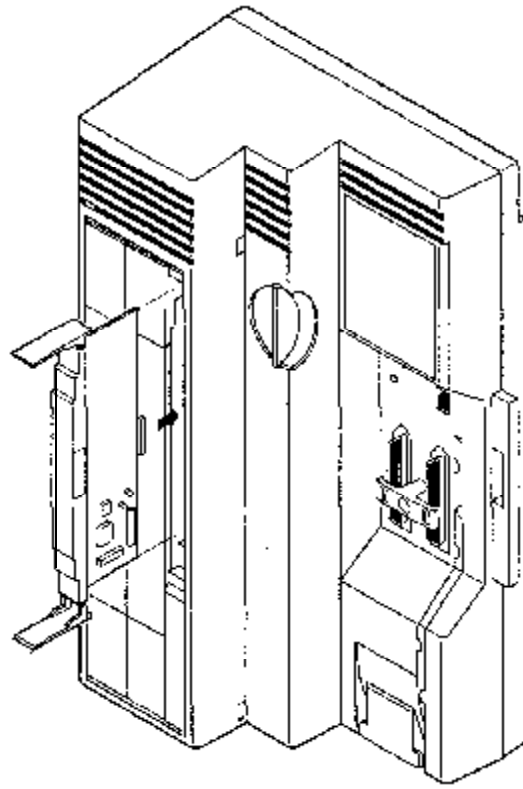
When ISDN BRA Cartridges initialise, the Commander NT40 system performance may appear slow until initialising is completed. The download will take between 5 to 10 minutes. ISDN downloading is performed when installing ISDN BRA Cartridges for the first time and also occurs when changing between different 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.

Installing the Digital Station Cartridge, NT40 Services or NT40 Services/Expansion Cartridge



DO NOT CONNECT
MAINS POWER


**Close clips simultaneously.**


It is important to centre and close the two clips on the cartridge simultaneously, or the cartridge may become misaligned in its slot, or with its connector.


Installing the Digital Station Cartridge, NT40 Services Cartridge or NT40 Services/Expansion Cartridge


1. Remove the filler faceplate from Slot 3 (and Slot 2 if there is no ISDN BRA Cartridge or analogue Line Cartridge), using a screwdriver to pry the bottom edge(s) out.
2. If required, snap the two parts of the faceplate apart and put back the filler faceplate in Slot 2.
3. Slide the Digital Station Cartridge, NT40 Services/Expansion Cartridge or an NT40 Services Cartridge into Slot 3, applying equal pressure at the top and bottom. (See the illustration.)


4. Close the cartridge clips at the same time to keep the cartridge aligned with the connector.

	ISDN BRA Cartridge clocking support. The Commander NT40 must be equipped with an NT40 Services Cartridge or an NT40 Services/Expansion Cartridge to use ISDN BRA Cartridges.
---	--


	Removing the Digital Station Cartridge, NT40 Services Cartridge, or NT40 Services/Expansion Cartridge causes a system cold start. If the NT40 Services Cartridge, NT40 Services/Expansion Cartridge or Digital Station Cartridge is installed and the system is powered up with the cartridge removed, the system will cold start.
---	--

	Different numbering scheme. The Commander NT40 uses different numbering schemes for the B1 and B2 station numbers, depending on when the Digital Station Cartridge or NT40 Services/Expansion Cartridge is added to the system.
--	---

	Alarm Station indicates a cold reset. An alarm indicating a cold reset will occur on the alarm station when the system size has been decreased.
---	---

	Filler faceplates must be in place. Empty slots pose an electrical hazard. For safety cover all empty slots with filler faceplates.
---	---

Installing an ISDN BRA Cartridge

	loop type selection of ISDN lines is limited to S or T.
---	--

The European Telecommunications Standards Institute (ETSI) Specification for ISDN Basic Rate Access (BRA) service has replaced the ACA TSO13 standard. The ACA TSO13 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 NT40 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.

Note: Contact Commander Care Online at 1800 809 881 for details of certified ISDN Terminal equipment.

An ISDN BRA Cartridge supports four individual loops. Each of the four loops can be used at the T, or S (User-Side S Bus) reference points.



Allow time for ISDN BRA Cartridges to initialise

When ISDN BRA Cartridges initialise, the Commander NT40 system performance may appear slow until initialising is completed. The download will take between 5 to 10 minutes. ISDN downloading is performed when installing ISDN BRA Cartridges for the first time and also occurs when changing between different software loads.

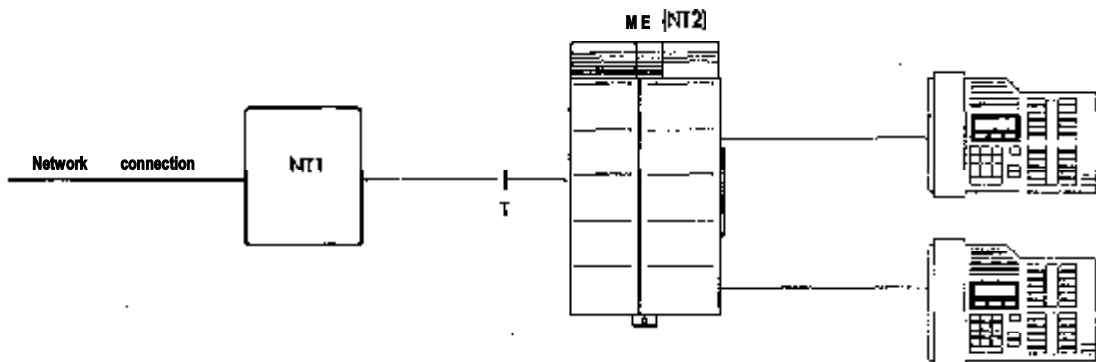


Allow time for clock synchronisation

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.

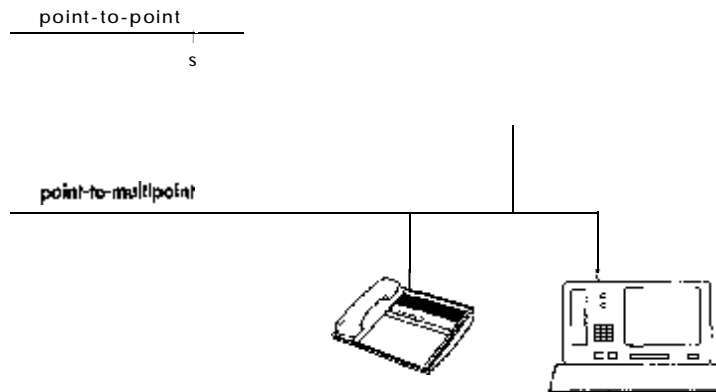
ISDN - T reference point

The T reference point provides a point to point digital connection between the network and the Commander NT40.



ISDN - S reference point

The S reference point provides either a point-to-point or point-to-multipoint digital connection between the Commander NT40 and the terminal equipment.



ISDN BRA Cartridges.

The ISDN BRA Cartridge does not provide protection from lightning surges on the telephone line. Protection is provided by the NT1, supplied by the telephone company. The ST interface must not be connected directly to exposed plant.

Note: Commander NT does not support an NT1 STAR configuration.

NT1 is provided by your network provider.

ISDN terminating resistors for T and S loops

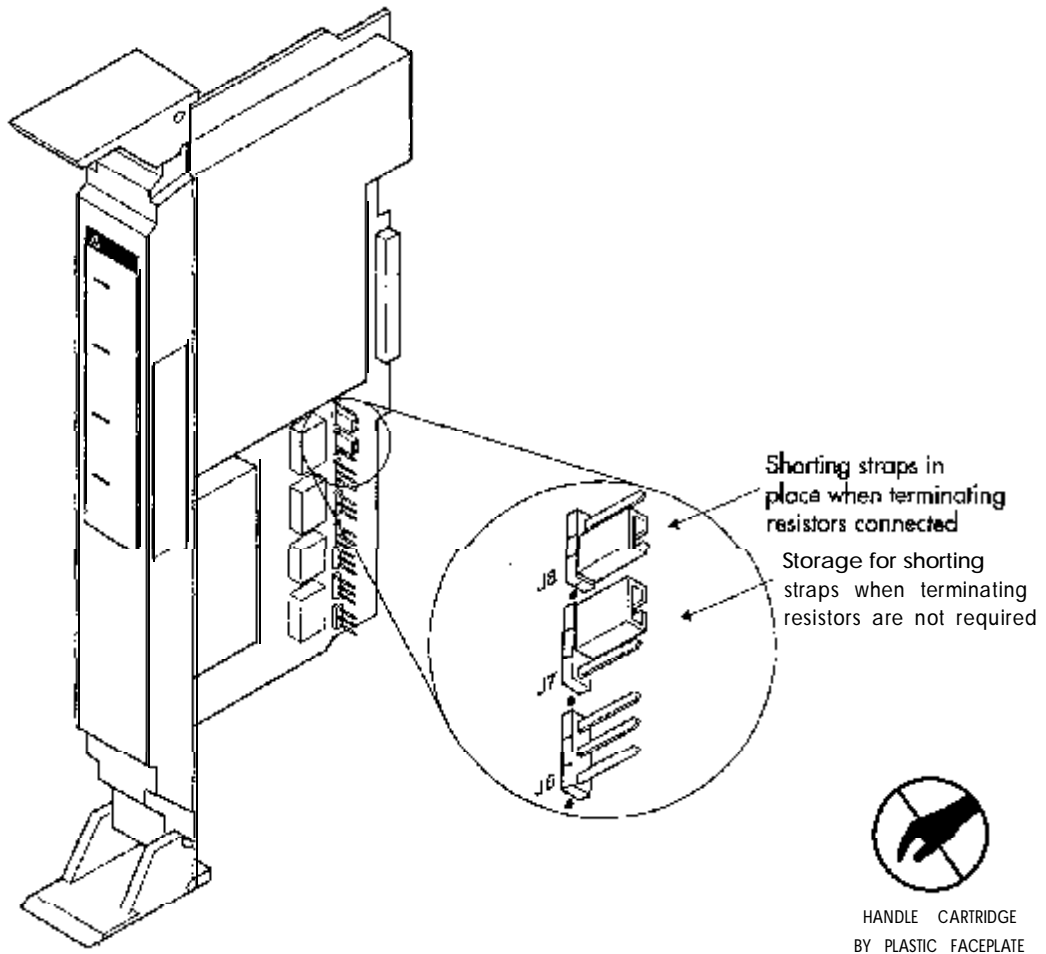
The standard ISDN user-network interface wiring configuration requires terminating resistors at each end of the loop, one at the NT 1 and one at the TE (or NT2).

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 ISDN BRA Cartridges



Allow time for the ISDN BRA cartridges to initialise

When ISDN BRA cartridges initialise, the Commander NT system performance may appear slow until initialising is complete. This will take 5 to 10 minutes. ISDN initialisation is performed when installing ISDN BRA cartridges for the first time and 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.

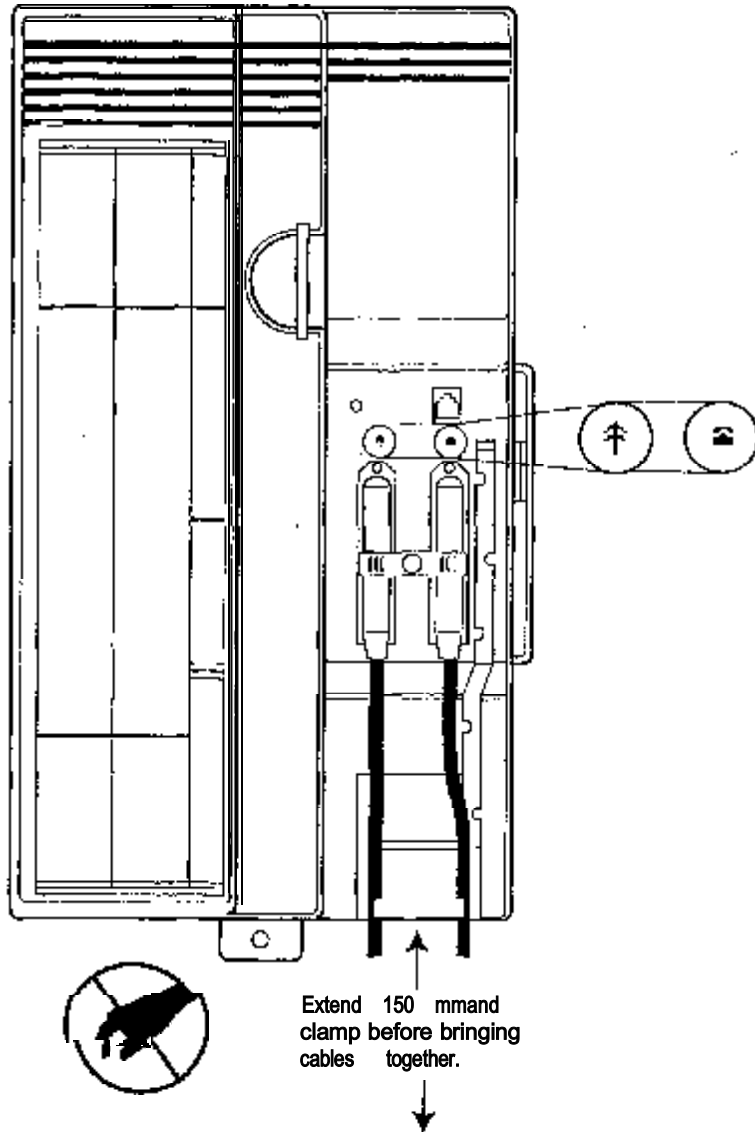
Terminating resistor shorting straps

Loop	RX and TX shorting straps
1	J3 and J4
2	J7 and J8
3	J1 and J2
4	J5 and J6

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

Connecting the wiring

Connecting the wiring for a Commander NT40

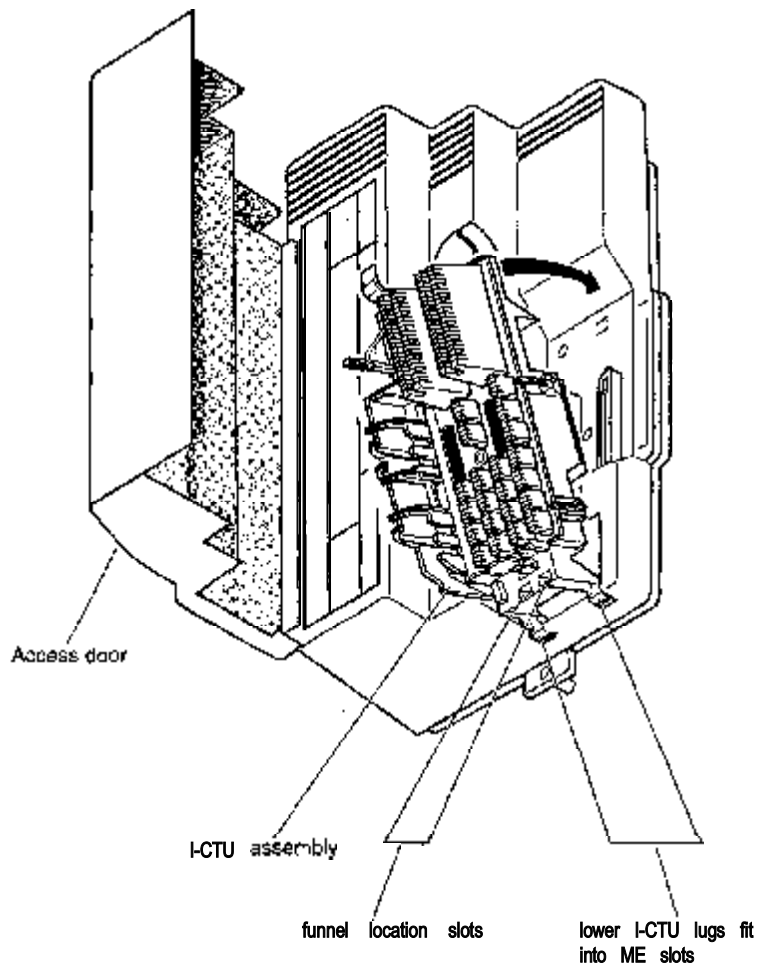


	Connect the mains lead before connecting cables.
	To ensure the system is properly earthed, connect the mains lead before connecting the 50 pin AMP Champ connectors.

Integrated Cable Termination Unit (I-CTU)

The Integrated Cable Termination Unit (I-CTU) replaces the System Distribution Frame (SDF). The I-CTU plugs directly into the Mains Equipment (ME) and connects to the keystations and peripherals.

I-CTU Installation



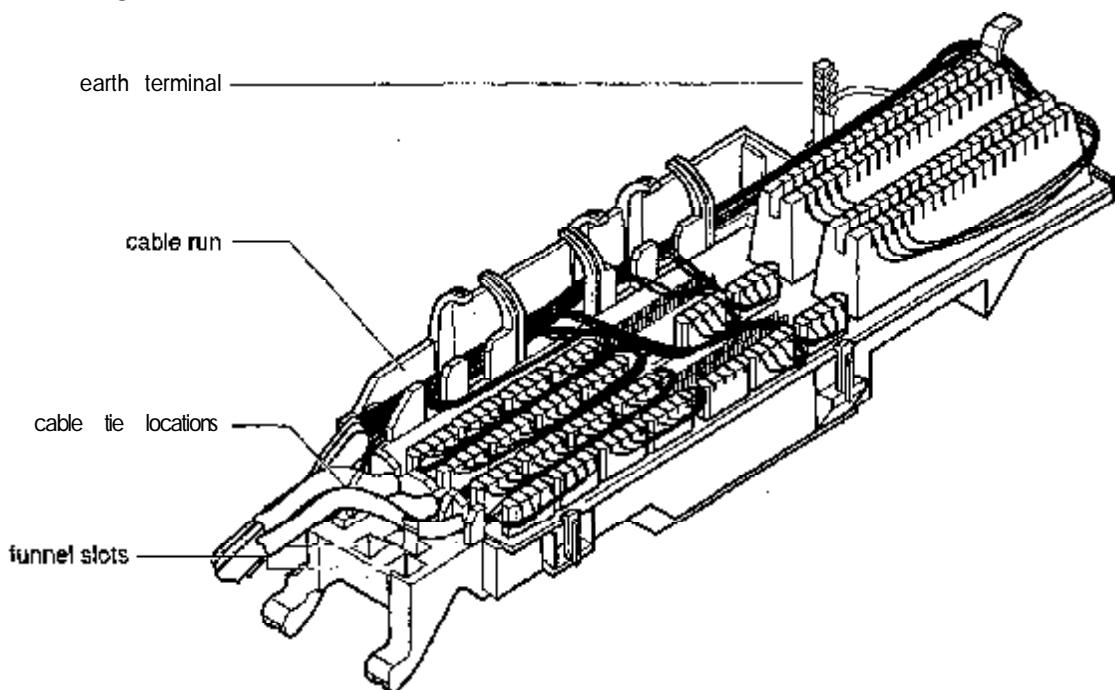
Installing the I-CTU

1. Secure the ME with the wall mount bracket.
2. Remove the access door.
3. Hold the I-CTU assembly at a 45° angle to the ME and slide the lower two lugs on its forward end into the two slots in the ME cover.
4. Push the I-CTU firmly back, ensuring the connectors are correctly located.

5. Secure the I-CTU to the ME with the two M5 screws provided. (See step 10)
6. Connect the protective earth lead to the earth terminal at the top of the I-CTU and the grounding wire to the Earth post.
7. Complete all termination wiring using cable terminator krone tool.
8. Secure wiring to the bracket moulding on the I-CTU assembly using cable ties.
9. Fit the funnel's two rectangular protrusions into the two rectangular funnel location slots in the I-CTU. The mains lead routes outside the conduit and into the funnel recess. (There are both left and right-hand recesses.)
10. Re-attach the access door. (In an existing installation, you will require a funnel kit, and a spare doorkit to replace the existing door; also, the shorter M5 X 25 screw must be removed from the I-CTU assembly.)

Connection the I-CTU wiring.

I-CTU wiring connections (1)

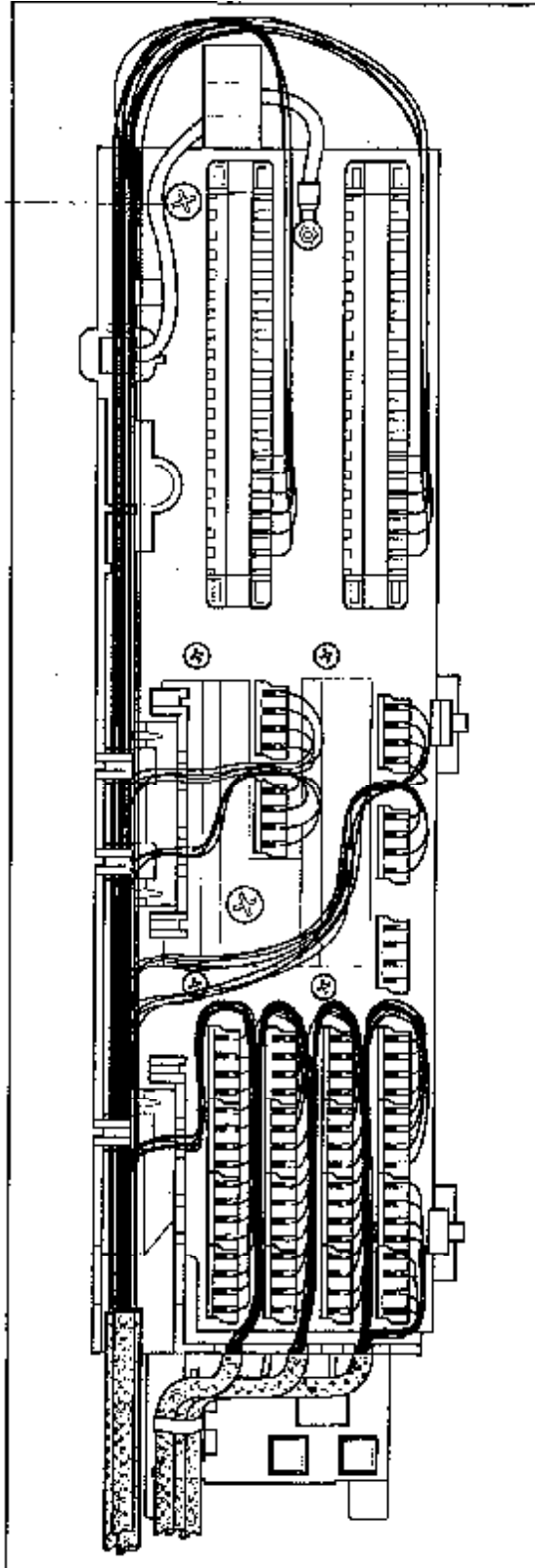


The wiring labels for the I-CTU are printed directly on the circuit board.

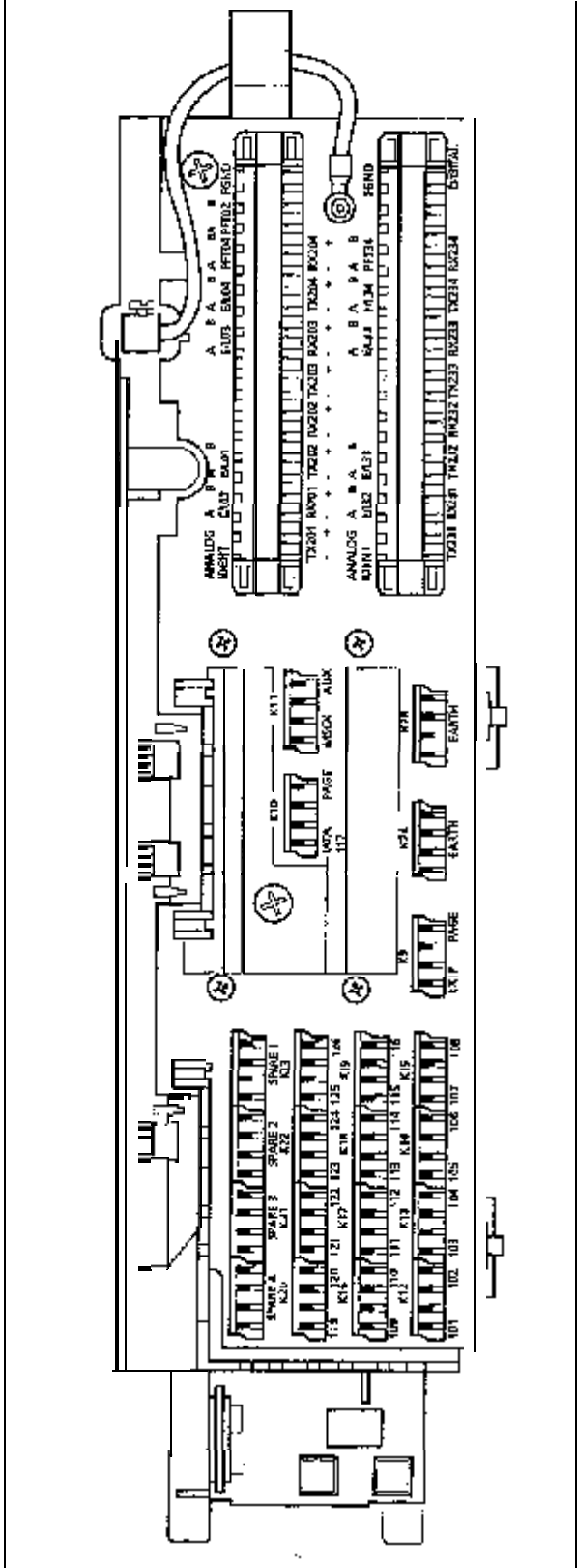
Note: The sequence and location of the connections on the I-CTU circuit board are different from those of the Box Connection System Distribution Frame (SDF).

I-CTU wiring connections (2)

This screw is not required for existing installations



I-CTU wiring connections (3)



Wiring charts

Port numbering on the wiring charts

The port number listed on the wiring charts is useful in tracking down faults during a Maintenance session where error codes appear on a Commander NT Keystation display. For more information see "Troubleshooting lines" on page 349.

Main Equipment (ME)

In the following charts, notice that the ME has two 50-pin AMP Champ connectors. The first handles keystations and the auxiliary ringer. The second connector handles lines, I-SLTA, music, page, and a power-fail telephone.

B1 and B2 station numbers

The Commander NT40 has a B 1 and a B2 channel for transmitting voice and data. Each station port on the ME has a B 1 station number and a B2 station number. Devices such as the Commander NT40 Economy/M7100N, Standard/M7208N, Advantage/M73 ION, and Principal/M7324N Keystations use only the B 1 station number. Other devices may need both B 1 and B2 channels, therefore requiring B 1 and B2 station numbers.

The Commander NT.40 uses different numbering schemes for the B 1 and B2 station numbers, depending on when a Digital Station Cartridge or NT40 Services/Expansion Cartridge is added to the system.

Commander NT40 Compact (742/1 62) Software Cartridge

To upgrade from the NT40 Compact (4x8), the software contained in the cartridge must be unlocked with Expansion keycodes. Refer to the latest Technical Bulletin for instructions to obtain these keycodes.

ME Wiring charts

ME numbering: Commander NT40 Compact (742/162 Software Cartridge (4x8)

Connector #	Device	Ports	B1 Stn #	B2 Stn #
ME (#1)	Stations	101-108	221-228	231-238
	I-SLT Adaptor	117	229	239
	IRAD-Str	118	230	240
ME (#2)	Lines 00 I-004	201-204	- -	- -

ME numbering: Commander NT40 Compact (742/ 162) Software Cartridge (4x8) expanded to (8x16)

Connector #	Device	Ports	B1 Stn #	B2 Stn #
ME (#1)	Stations	101-108	221-228	23 1-238
	I-SLT Adaptor	117	229	239
	IRAD-Str	118	230	240
	Stations	109-1 16	241-248	249-256
	ISDN terminals	- -	273-280	- -
ME (#2)	Analogue: Lines 001-004	201-204	- -	- -
	Lines 03 I-034	23 I-234	- -	- -
	BRA: Lines 001-008	201-204	- -	- -
	Lines 03 I-038	23 1-234	- -	- -

ME numbering: Commander NT40 Compact (742/ 162) Software Cartridge (4x8) expanded to (8x24)

Connector #	Device	Ports	B1 Stn #	B2 Stn #
ME (#1)	Stations	101-108	221-228	231-238
	I-SLT Adaptor	117	229	239
	IRAD-Str	118	230	240
	Stations	109-1 16	241-248	249-256
	Stations	119-126	257-264	265-272
	ISDN terminals	- -	273-280	- -
ME (#2)	Analogue: Lines 00 I-004	201-204	- -	- -
	Lines 03 I-034	23 I-234	- -	- -
	BRA: Lines 00 f-008	201-204	- -	- -
	Lines 03 I-038	23 I-234	- -	- -

Tip - The Commander NT40 Compact uses a different station numbering scheme for expanded Station Ports 109-1 16, I-SLT Adaptor Port 117 and

I-RAD station port 118. Station connections are polarity insensitive.
 Station ports 119 to 126 are available only when a Digital Station Cartridge
 or NT40 Services/Expansion Cartridge is installed.



System Distribution Frame (SDF) pair 25 AMP Champ.

The System Distribution Frame (SDF) pair 25 AMP Champ (pin numbers 25 and 50 on AMP Champ Connector 1 is a set of Auxiliary ringer control contacts (night bell contacts).

These are ~~low-voltage~~ low current contacts, and must not be used to ~~switch~~ ring directly.

Commander NT40 (742/ 161) Software Cartridge

ME numbering: Commander NT40 (742/161) system at installation

Connector #	Device	Ports	B1 Stn #	B2 Stn #
ME (#1)	Stations	101-116	221-236	239-254
	I-SLT Adaptor	117	237	255
	I-RAD-Stn	118	238	256
	ISDN terminals	- -	273-280	- -
ME (#2)	Analogue: Lines 001-004	201-204	-- --	-- --
	Lines 03 I-034	231-234	-- --	-- --
	BRA: Lines 00 I-008	201-204	-- --	-- --
	Lines 03 I-038	231-234	-- --	-- --

ME numbering: Commander NT40 (742/ 16 1) system expanded at installation

Connector #	Device	Ports	B1 Stn #	B2 Stn #
ME (#1)	Stations	101-116	221-236	247-262
	I-SLT Adaptor	117	237	263
	I-RAD-Stn	118	238	264
	Stations	119-126	239-246	265-272
	ISDN terminals	-- --	273-280	- -
ME (#2)	Analogue: Lines 001-004	201-204	-- --	-- --
	Lines 03 I-034	231-234	-- --	-- --
	BRA: Lines 00 I-008	201-204	-- --	-- --
	Lines 031-038	231-234	-- --	-- --

ME numbering: Commander NT40 (742/161) system expanded later

Connector #	Device	Ports	B1 Stn #	B2 Stn #
ME [#1]	Stations	101-116	221-236	239-254
	I-SLT Adaptor	117	237	255
	IRAD-Station	118	238	256
	Stations	119-126	257-264	265-272
	ISDN terminals	- -	273-280	-- --
ME [#2]	Analogue: Lines 00 I-004	201-204	-- --	-- --
	Lines 03 I-034	203 I-234	-- --	-- --
	BRA: Lines 001-008	201-204	-- --	-- --
	Lines 03 I-038	203 I-234	-- --	-- --

Tip - B1 and B2 station numbers reflect the default numbering scheme.

Station connections are polarity-insensitive. Station ports 119 to 126 are available only when a Digital Station Cartridge or NT40 Services/Expansion Cartridge is installed.



System Distribution Frame (SDF) pair 25 AMP Champ.

The System Distribution Frame (SDF) pair 25 AMP Champ (pin numbers 25 and 50 on AMP Champ Connector 1 is a set of Auxiliary ringer control contacts (night bell contacts).

These are **low-voltage**, low current contacts, and must not be used to **switch** ring directly.

Commander NT40 ME SDF wire allocation

Commander NT40 Compact (742/1 62) ME AMP Champ Connector 1 - Station and Auxiliary ringer wiring

SDF Pair #	AMP Champ Pin	Colour	AMP Champ Pin	Colour	Port	Description (Default)
1	1	BL	26	W	101	Stn 221
2	2	O	27	W	102	stn 222
3	3	G	28	W	103	Stn 223
4	4	BN	29	W	104	Stn 224
5	5	S	30	W	105	Stn 225
6	6	BL/W	31	W	106	Stn 226
7	7	BL/O	32	W	107	Stn 227
8	8	BL/G	33	W	108	Stn 228
9	9	BL/BN	34	W	109	Stn 241
10	10	BL/S	35	W	110	Stn 242
11	11	O/W	36	W	111	Stn 243
12	12	O/G	37	W	112	Stn 244
13	13	O/BN	38	W	113	Stn 245
14	14	O/S	39	W	114	Stn 246
15	15	G/W	40	W	115	Stn 247
16	16	G/BN	41	W	116	Stn 248
17	17	G/S	42	W	119	Stn 257
18	18	BN/W	43	W	120	Stn 258
19	19	BN/S	44	W	121	Stn 259
20	20	S/W	45	W	122	Stn 260
21	21	B	46	Y	123	Stn 261
22	22	O	47	Y	124	Stn 262
23	23	G	48	Y	125	Stn 263
24	24	BN	49	Y	126	Stn 264
25	25	S	50	Y	-	Auxiliary ringer

Commander NT40 (742/1 61) ME AMP Champ Connector 1 - Station and Auxillary ringer wiring

SDF Pair #	AMP Champ Pin	Colour	AMP Champ Pin	Colour	Port	Description (Default)
1	1	BL	26	W	101	stn 221
2	2	0	27	W	102	stn 222
3	3	G	28	W	103	Stn 223
4	4	BN	29	W	104	Stn 224
5	5	S	30	W	105	Stn 225
6	6	BL/W	31	W	106	Stn 226
7	7	BL/O	32	W	107	Stn 227
8	8	BL/G	33	W	108	Stn 228
9	9	BL/BN	34	W	109	Stn 229
10	10	BL/S	35	W	110	Stn 230
11	11	O/W	36	W	111	Stn 231
12	12	O/G	37	W	112	Stn 232
13	13	O/BN	38	W	113	Stn 233
14	14	O/S	39	W	114	Stn 234
15	15	G/W	40	W	115	Stn 235
16	16	G/BN	41	W	116	Stn 236
17	17	G/S	42	W	119	Stn 239 or 257
18	18	BN/W	43	W	120	Stn 240 or 258
19	19	BN/S	44	W	121	Stn 241 or 259
20	20	S/W	45	W	122	Stn 242 or 260
21	21	B	46	Y	123	Stn 243 or 261
22	22	0	47	Y	124	Stn 244 or 262
23	23	G	48	Y	125	Stn 245 or 263
24	24	BN	49	Y	126	Stn 246 or 264
25	25	S	50	Y		Auxillary ringer

Commander NT40 ME AMP Champ Connector 2 - ME external lines, I-SLT Adaptor, music, page and power-fail telephone wiring

SDF Pair #	AMP Champ Pin	Colour	AMP Champ Pin	Colour	Description			
					Port	Analogue	Port	ISDN access
1	1	BL	26	W	202	EXCH -ve +ve line 002	201	Tx -ve +ve (1)
2	2	0	27	W	201	EXCH -ve +ve line 001	201	Rx -ve +ve (1)
3	3	G	28	W	-	No connection or Power-fail tel see page 54	202	Tx -ve +ve (2)
4	4	BN	29	W	-	No connection or Power-fail tel see page 54	202	Rx -ve +ve (2)
5	5	S	30	W	-	No connection	203	Tx -ve +ve (3)
6	6	BL/W	31	W	203	EXCH -ve +ve line 003	203	Rx -ve +ve (3)
7	7	BL/O	32	W	204	EXCH -ve +ve line 004	204	Tx -ve +ve (4)
8	8	BL/G	33	W	-	No connection	204	Rx -ve +ve (4)
9	9	BL/BN	34	W	232	EXCH -ve +ve line 032	231	Tx -ve +ve [1]
10	10	BL/S	35	W	231	EXCH -ve +ve line 031	231	Rx -ve +ve (1)
11	11	O/W	36	W	-	No connection	232	Tx -ve +ve (2)
12	12	O/G	37	W	-	No connection	232	Rx -ve +ve (2)
13	13	O/BN	38	W	-	No connection	233	Tx -ve +ve (3)
14	14	O/S	39	W	233	EXCH -ve +ve line 033	233	Rx -ve +ve (3)
15	15	G/W	40	W	234	EXCH -ve +ve line 034	234	Tx -ve +ve (4)
16	16	G/BN	41	W	-	No connection	234	Rx -ve +ve (4)
17	17	G/S	42	W	-	Power-fail tel see page 54	-	No connection
18	18	BN/W	43	w	-	No connection	-	No connection
19	19	BN/S	44	w	-	No connection	-	No connection
20	20	s/w l-	45	W	117	I-SLTA Stn 237 or 229	-	I-SLTA Stn 237 or 229
21	21	B	46	Y	-	No connection	-	No connection
22	22	0	47	Y	-	No connection	-	No connection
23	23	G	48	Y	-	MOH & BGM audio input	-	MOH & BGM audio input

SDF Pair #	AMP Champ Pin	Colour	AMP Champ Pin	Colour	Description			
					Port	Analogue	Port	ISDN access
24	24	BN	49	Y		External Page Control	-	External Page Control
25	25	s	50	Y	-	External Page output	-	External Page output

Connector 1: 50-pin AMP Champ right connector on ME
Connector 2: 50-pin AMP Champ left connector on ME

SDF pairs 1-8 Line Cartridge Slot 1 on ME
SDF pairs 9-16 Line Cartridge Slot 2 on ME

For an explanation of port numbering, see "Port numbering on the wiring charts" on page 40.

Tip - Page A&B (paging audio output) and music A&B (BGM & MOH) must only be connected to an ACA permitted Line Isolation Unit (LIU).



Shock Hazard: line Isolation Unit(s) Required.
An external paging system requires the use of a Line Isolation Unit on the paging output pair. The paging relay contact (if used) also requires an LIU for use with auxiliary contacts.

Tip - Page A&B (contact closure) closes whenever an external page is made. This contact closure must only be connected to external equipment by means of a suitable ACA permitted LIU.



Shock Hazard: line Isolation Unit Required.
An external music source requires the use of a Line Isolation Unit.



System Distribution Frame (SDF) pair 25 AMP Champ.
The System Distribution Frame (SDF) pair 25 AMP Champ (pin numbers 25 and 50 on AMP Champ Connector 1 is a set of Auxiliary ringer control contacts (night bell contacts).

These are low-voltage, low current contacts, and must not be used to switch ring directly.

Tip - Power-fail is not available if an ISDN BRA Cartridge is located in Slot 1 on the ME. Power-fail is only available with an analogue Line Cartridge in Slot 1.

Protective earth lead

The Main Equipment has a flying lead to provide a protective earth for the lightning surge arrestors on the System Distribution Frame. This must be installed as shown when:

- Either exchange or station lines are connected to exposed plant;
- The Commander NT40 is connected to an uninterruptible power supply.



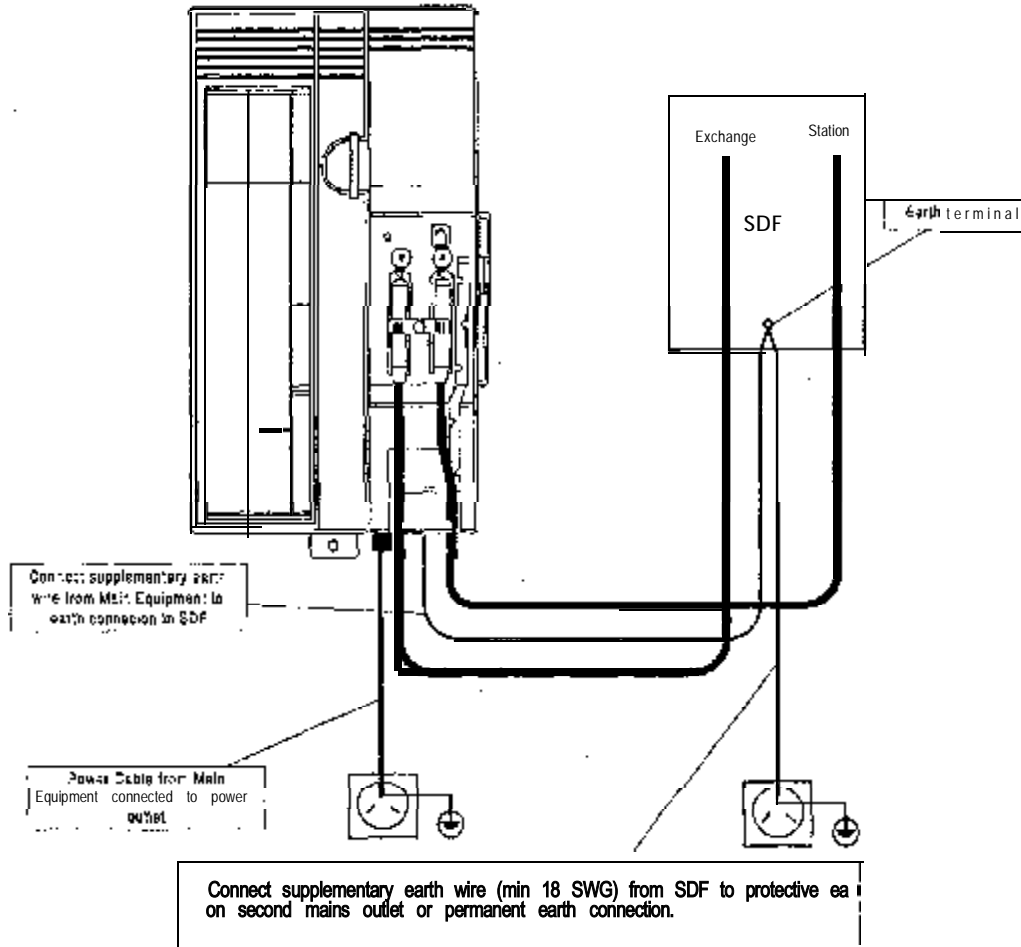
Potential Safety Hazard.

Potentially hazardous voltages from the telecommunications network could appear on the enclosure of the UPS if the mains plug on the UPS is accidentally removed while the ME is connected to the telecommunications network.

This procedure must be followed when the Commander NT40 is connected to an uninterruptible power supply (UPS). The protective earth lead provided with this equipment must be connected to the earth terminal of the SDF. The SDF must then be earthed to either a permanent earth, or to the earth pin of a separate earthed mains plug.

This ensures that the equipment is safe even if either the power cord on the ME or the UPS is accidentally disconnected while the telephone lines are connected to the ME.

Protective earth connection



Lightning Surge Arrestors (Gas arrestors)

If Lightning surge arrestors are required they must be fitted at the SDF to all Exchange and Station lines that are connected to exposed plant.

In order to comply with ACA requirements, the required gas arrestor for the SDF is the following:

location	Gas arrestor type	Serial/Item no.
SDF	10 circuit Krone magazine (500V)	537/136

CLASS Box connection

The Custom Local Area Signalling Services (CLASS) Box must be connected to port 108 only. After the system is expanded, the CLASS Box remains at port 108. CLASS Box (CLI-NT-A) is used when Call Line Identification (CLI) is required on NT40. For more information on Call Line Identification (CLI) see "Calling Line Identification Unit" on page 70.

Expanding from 16 stations to 24 stations



Only qualified persons should service the system.

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 other persons.

When expanding from 16 stations to 24 stations, the third slot in the ME is used for an 8-port Digital Station Cartridge or an NT40 Services/Expansion Cartridge (if using ISDN capabilities).



When expanding the system, Call Log information may be lost.

When the system restarts, Call Log information is not saved. Be sure to notify users if a system restart is planned so any log information can be written down first.

1. Verify that the *Programming Record* reflects current system programming and update it, if necessary, before continuing.



Different numbering scheme.

The Commander NT40 uses different numbering schemes for the B1 and B2 station numbers, depending on when the Digital Station Cartridge or the NT40 Services/Expansion Cartridge is added to the system.

2. Remove both 50-pin AMP Champ connectors.
3. Switch off power at the mains socket. If no switch is provided, disconnect the mains lead.



Commander NT40 mains wiring must connect to a 240 V a.c. mains socket with a Protective Earth.

This equipment incorporates a protective earth for high voltage surge protection through the 240 V a.c. mains socket. The Main Equipment must be plugged into a standard AS31 12 mains socket.

The exchange and station cabling must be disconnected from the equipment before the plug is removed from the mains socket.

4. Insert the Cartridge according to the instructions in “Installing the Digital Station Cartridge, NT40 Services Cartridge or NT40 Services/Expansion Cartridge” on page 29.



You can lose system programming

Once the system is operating with the Digital Station Cartridge or the NT40 Services/Expansion Cartridge, you risk losing all system programming if you remove the cartridge. If you downgrade the Commander NT40, you will also lose all of the system programming.



Replace door and filler faceplates before restoring power to the system.

For continued protection against risk of fire and electrical shock, ensure that all unpopulated cartridge slots are covered by filler faceplates and the connector field door is in place prior to powering up.

5. Switch on power at the mains socket or re-connect the mains lead.
6. Re-connect the 50-pin AMP Champ connectors.
The system will not recognise the new hardware until the expansion keycodes have been entered. For more information on expansion keycodes, see “Software Keys” on page 251.

Expanding an NT40 Compact Software Cartridge

To expand the NT.40 Compact, the software contained in the cartridge must be unlocked with Expansion keycodes. Refer to the latest Technical Bulletin for instructions to obtain these keycodes.

Expansion keycodes are required to expand the system beyond 4 lines and 8 keystations. Once you have entered the Expansion keycodes, the system supports up to 16 lines and 24 keystations. See “Entering Expansion keycodes” on page 252 for more information.

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 5 12 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 (UPS)



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

Wiring a power-fail telephone

Power-fail telephones are analogue single-line telephones that provide emergency service in case of power failure or when the Commander NT40 is disconnected from the mains.

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

If the ME is not equipped with an analogue Line Cartridge, no power-fail telephone connections are possible.

For correct System Distribution Frame (SDF) connections, see "Commander NT40 ME AMP Champ Connector 2 - ME external

lines, I-SLT Adaptor, music, page and power-fail telephone wiring” on page 46.

A. Power-fail telephone

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

Installing **SELV-rated** devices

Instructions in this manual for installing SELV-rated devices override any instructions supplied with the SELV-rated device.

Metallic circuits that run on overhead wiring or buried cable are defined as Telecommunications Network Voltage (TNV) type. The Commander NT digital TCM station ports are normally defined as Telecommunications Network Voltage (TNV) circuits. As such, they can support remote stations (located in another building). However, some devices are rated as Safe Extra Low Voltage (SELV). SELV-rated devices require the use of TCM Isolators, even when they are installed in the same building as the ME. Some also require a Station Power Supply (SPS).

Locate a TCM Isolator near its SELV-rated device, so that it will be obvious to service personnel that they belong together.

Use diagonal cutters to remove the release tab from the connectors on 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.

Devices that require TCM Isolators

SELV-rated devices	TCM Isolators and SPSs required	Remote Buildings
Remote Access Device (RAD) with PPS	1 TCM Isolator	N/A
Call Detail Recorder (CDR) unit	1 TCM Isolator	N/A
Door Station with Door Unlock Unit (DUU) . *	1 TCM Isolator + 1 SPS	1 TCM Isolator + 1 SPS
Voice Messaging Unit (VMU) with 1 or 2 ports	1 or 2 TCM isolators (1 per port)	N/A
Other SELV-rated device	1 TCM Isolator + 1 SPS	1 TCM Isolator + 1 SPS

* The Commander NT40 has an Integrated RAD, and therefore an external RAD is not normally required.

** Where a Door Station with DUU is located in a remote building, the TCM Isolator must be fitted in the remote building.

**Advantage Keystation must be modified.**

The Advantage Keystation requires modification to prevent shock hazard. For instructions, see "Modifying on Advantage Keystation" on page 92.

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

The Advantage Keystation with BLF Display requires modification to prevent shock hazard. For instructions, see "Busy Lamp Field Display" on page 93.

Powering

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 (268/125).

Installing the TCM Isolator

1. Locate the TCM Isolator near the SELV-rated peripheral.
2. Use a screwdriver to prise the cover off the TCM Isolator.
3. Use the supplied fasteners to mount the main body of the TCM Isolator on a non-conductive wall.
4. Strip 15 mm of the wire sheath off the TCM cables.
5. 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 TCM Isolator by keeping the flying leads as short as possible.



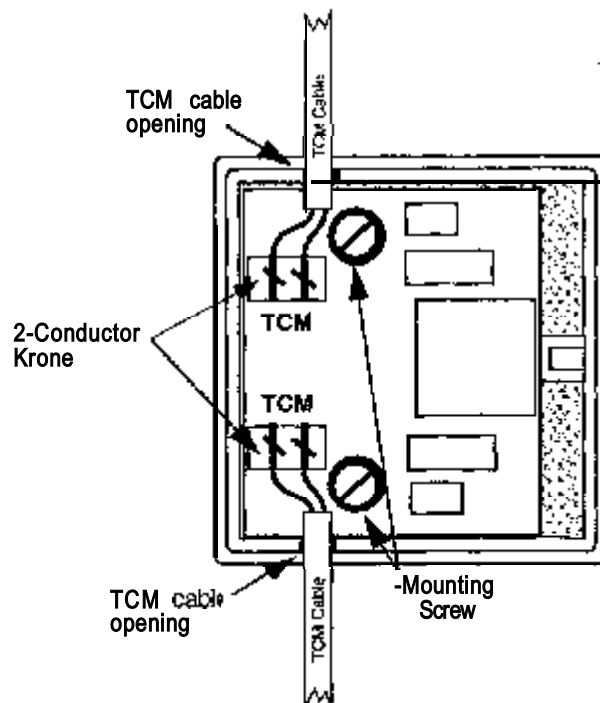
Use caution when connecting TCM cables.

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.



6. Outside the TCM Isolator, secure the TCM cables with standard cable fasteners to ensure that the cable is not easily pulled from the unit. Ensure that there is no bare wire and no slack.
7. Before installing the cover, use diagonal cutters 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 enable the plastic piece covering each opening to be easily snapped off.
8. Re-install the cover by snapping it in place.

9. When you connect the modular cord from the SELV-rated device to the modular socket, use diagonal cutters to remove the release tab from the connectors on each end of the modular cord.

Installing a device that uses the **I-SLT** Adaptor

The Commander NT40 has an Integrated Single Line Telephone (I-SLT) Adaptor which provides a connection for an analogue telecommunications device such as a modem, fax machine, answering machine, or single-line telephone.

The I-SLT Adaptor provides a reduced power analogue interface for devices. See “Integrated Single Line Telephone (I-SLT) Adaptor” on page 394 for detailed specifications.

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

location Requirements

The I-SLT Adaptor cannot be used as an outdoor extension (ODX) (Voicelink C). The maximum loop length is 900 m, using 0.5 mm twisted-pair cable.

Ideally, the I-SLT Adaptor wiring should not be shared by any other devices such as keystations, fax machines or analogue lines. If dedicated wiring is not possible, wire the I-SLT Adaptor with an I-SLT Adaptor choke to reduce electrical noise from the other devices.

Tip ■ It is not recommended for the I-SLT Adaptor to be used on backbone cabling to remote sites due to possible damage to the ME.

If the I-SLT Adaptor is not needed for this installation, leave the I-SLT Adaptor choke taped to the inside of the ME door, so that it will be available if it is needed later.

When dedicated wiring for the I-SLT Adaptor is possible

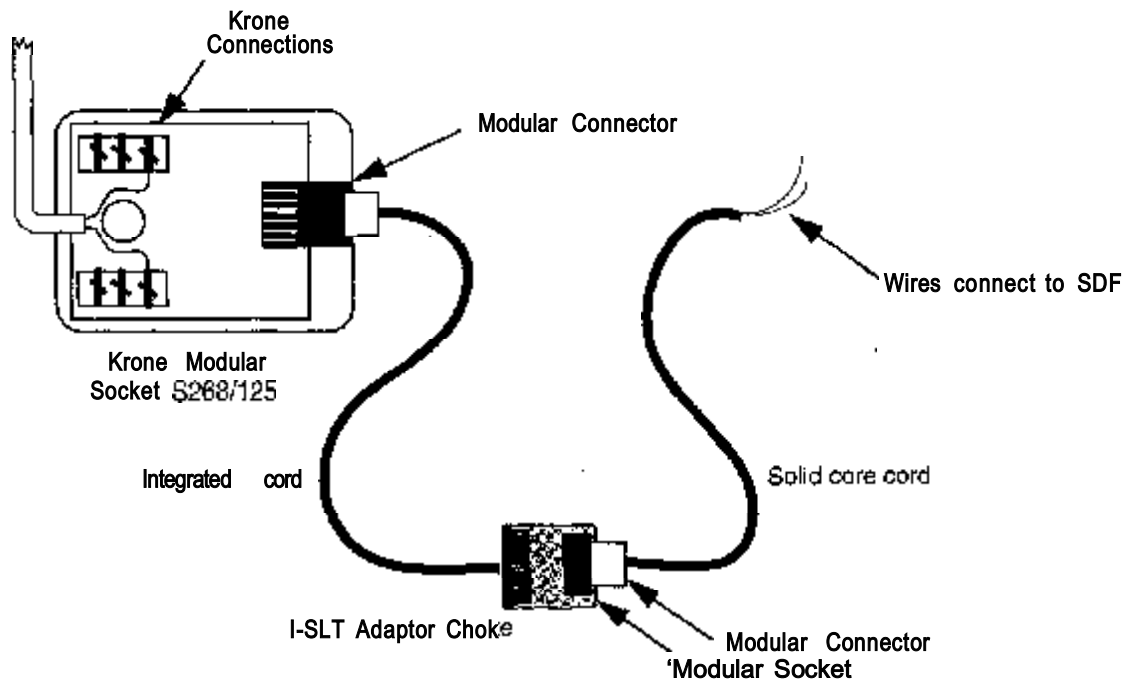
1. Wire a modular socket or equivalent to the I-SLT Adaptor pins on pair 20 on AMP Champ Connector 2. (See “Commander NT40 ME AMP Champ Connector 2 – ME external lines, I-SLT Adaptor, music, page and power-fail telephone wiring” on page 46 for the SDF pairs).
2. Connect the analogue device to the modular socket.
3. After the system has been powered on, verify proper operation.

When dedicated wiring for the I-SLT Adaptor is not possible

When dedicated wiring for the I-SLT Adaptor is not possible, you can use the I-SLT Adaptor choke supplied with the ME. The choke comes with an integrated cord and a solid core cord with a modular connector. Install the choke in series with the I-SLT Adaptor pair.

Locate the choke at the SDF end of the connection to allow the I-SLT Adaptor pair to be routed with existing distribution wiring. The following illustration shows a typical installation.

Wiring with an in-line choke



Installing a Single line Telephone Adaptor

If you wish to connect more than one analogue device to your Commander NT40 system, you can add external Single Line Telephone (SLT) Adaptors to provide the connections. An external SLT Adaptor can also be used as an Outdoor Extension (ODX).

Note that, unlike Commander NT40 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 General Purpose Outlet (GPO) for providing power through a plug-pack power supply (Peripheral Power Supply).

For Commander NT40 programming information on SLT settings, see "Settings for analogue equipment" on page 303.

location requirements

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.

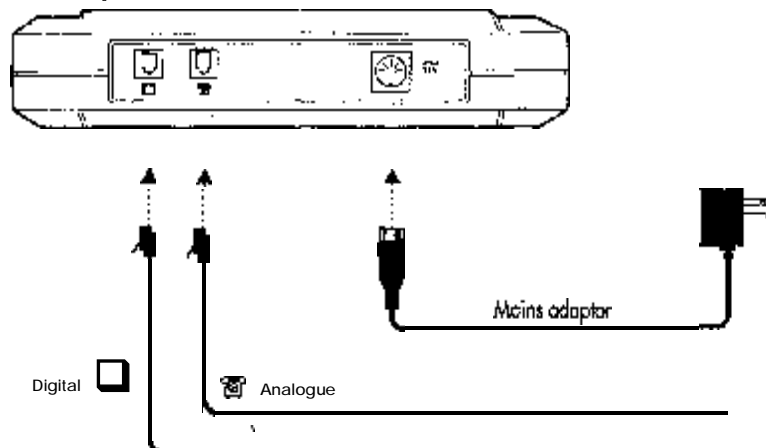
Installing the SLT Adaptor 742/57

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 2 1.5 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 connections



Connecting the SLT Adaptor to the Main Equipment (ME)

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 ME.
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.

Call Detail Recorder

The Call Detail Recorder (CDR) is a SELV rated device and requires a TCM Isolator to connect to the Commander NT ME. For more information about installing TCM Isolators see "Installing SELV-rated devices" on page 55.

The 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 via a TCM Isolator 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.

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.

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 adapter.

Parts checklist

To install the CDR unit, make sure you have:

- the DB25 serial connector (provided)
- TCM Isolator installed within 2 m of CDR
- 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 wall mount template (provided)



The CDR is not to be installed without the use of a TCM isolator. See "Installing SELV-rated devices" on page 55.

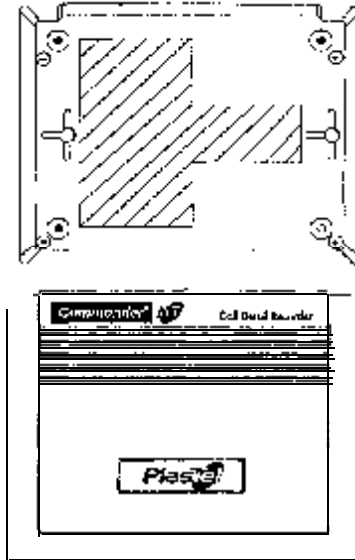
Mounting the unit

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

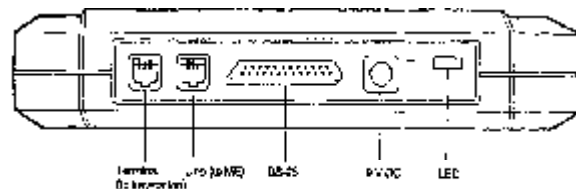
1. When using 0.5 mm wire, select a location within 790 m of the ME.
2. Allow 12.5 cm clearance for the line socket, RS-232 port socket and the mains supply connector.
3. Tape the paper wall mount template to the wall and make sure the template is plumb.
4. The marks on the template show where each of 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 (to ME) socket, using a line cord to a TCM Isolator providing connection to any 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 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 register.

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 3 = 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 = AC code 3 = Long dial.
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

f. 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 R19 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\$Rnn?	Read register nn.
AT\$Rnn=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 CDR Extended main menu:

1. Press . The display shows:

```

Call logging
NEXT QUIT
  
```

2. Enter the password: .

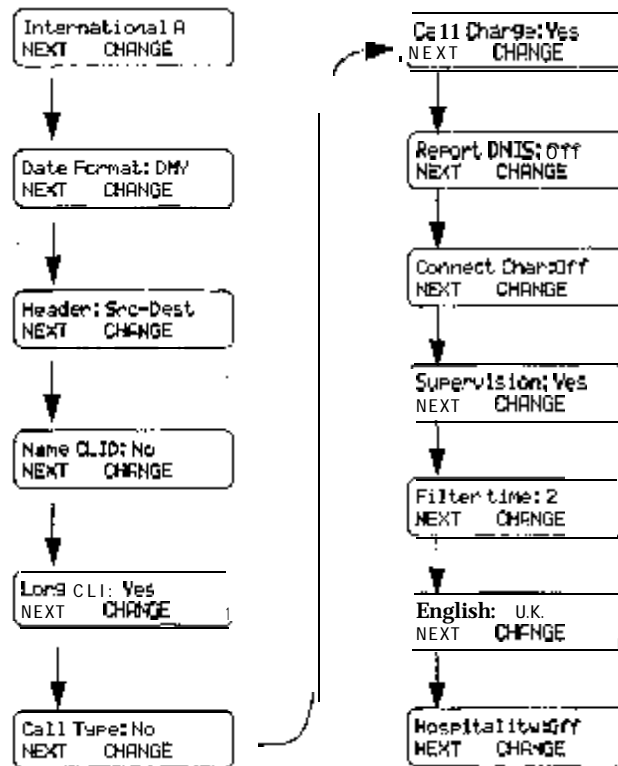
This procedure enables the Extended main menu which appears after the original Main menu.

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.
- **CLI Name:** 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 Area Signalling Services (CLASS) messaging channel from a local exchange to the Commander NT40 Main Equipment. When the CLI Unit is used, it provides calling line identification to designated keystations in the system.

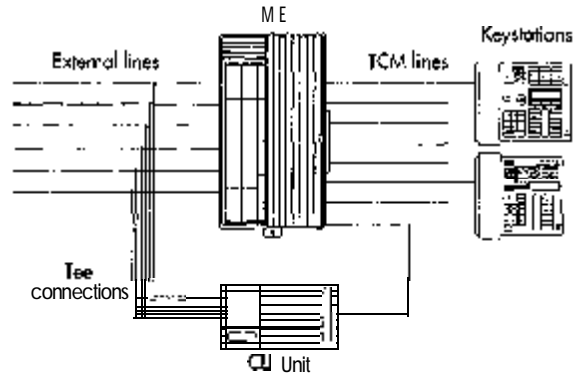


CLASS required.
The CLI Unit works only if the customer subscribes to CLASS services (if available) from their network provider.

The CLI Unit connects to the system using parallel connections on incoming exchange 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 NT40 ME.

Calling Line Identification Unit connections

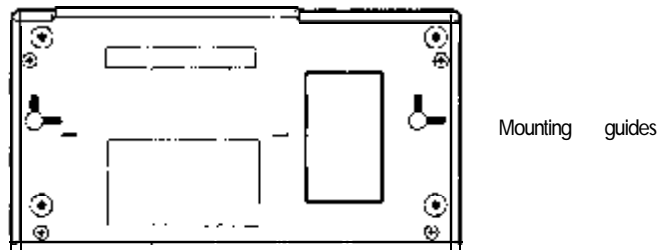


Mounting the CLI Unit

Mount the CLI Unit on a wall within 25 m of the ME. Allow 12.5 cm of clearance for the CLI Unit connectors.

1. Attach two 4 mm screws to the mounting surface, leaving 6 mm of each screw exposed. Ensure that they are vertically aligned and 21.5 cm 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 screws. The connectors should be on the upper edge of the unit.
3. Pull down on the CLI Unit, locking the screws in the mounting guides.

Mounting guides



Connecting the exchange 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



Observe parallel connection requirements

The parallel connections must be connected on the ME side of the Lightning Surge Arrestors.


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 #	CU pin #
1	001	52	1, 26 -ve, +ve
1	002	51	2, 27 -ve, +ve
1	003	56	3, 28 -ve, +ve
1	004	57	4, 29 -ve, +ve
1	031	60	5, 30 -ve, +ve
1	032	59	6, 31 -ve, +ve
1	033	64	7, 32 -ve, +ve
1	034	65	8, 33 -ve, +ve

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

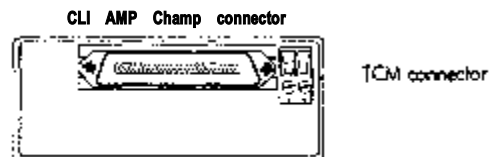
Connecting the TCM loop

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 into which hole.)
2. Tighten the screws on the TCM connector to hold the wire. Ensure that there is no bare wire.
3. Connect the other end of the twisted-pair cable to port 108. This cable must not be more than 25 m long.



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

TCM connector



Remote Access Device

The external Remote Access Device (RAD) is a SELV rated device and requires a TCM Isolator to connect to the Commander NT ME. For more information about installing a TCM Isolator see “Installing SELV-rated devices” on page 55.

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

The RAD:

- requires a TCM Isolator to connect to the ME
- 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



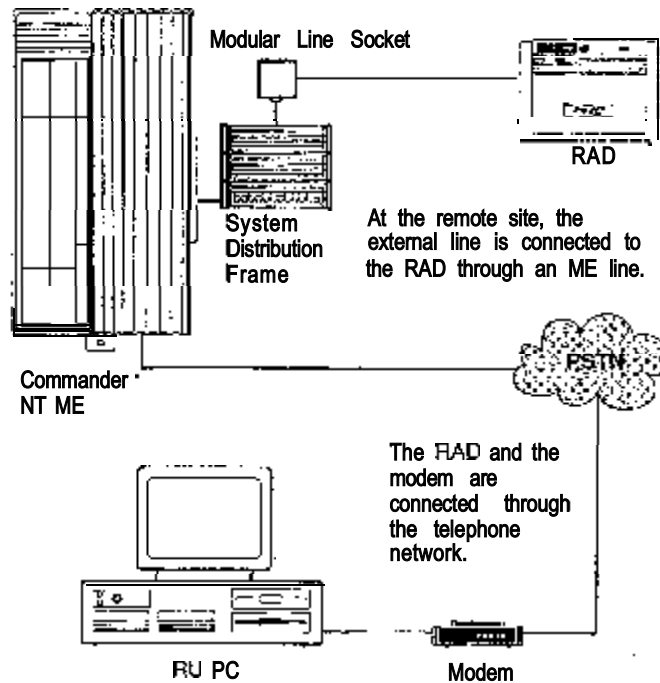
One less keystation

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

Only one RAD can be connected to a ME.

Note: The Commander NT40 has an Integrated Remote Access Device (IRAD) and therefore does not require an external RAD for remote access. An external RAD is necessary if you require a direct PC connection to the 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:

- a TCM Isolator
- 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.

15232 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

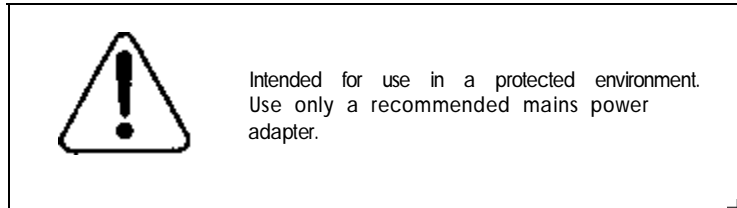
Connecting the RAD

When equipment and environment conditions have been verified, you can begin connecting the RAD through a TCM Isolator 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:

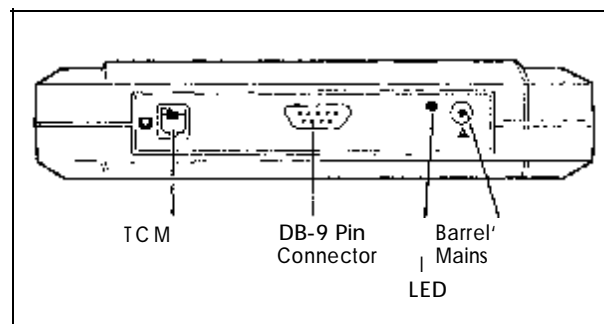
1. Plug the barrel connector of the peripheral power supply into the mains connector of the RAD and the other end into the wall socket. See the diagram, "ME connection" on page 76.



2. Check that the LED on the RAD unit is lit to confirm the mains connection.
3. Follow the procedure in "Installing SELV-rated devices" on page 55 to connect the RAD to a TCM Isolator. Then connect the TCM Isolator to the Commander NT ME.

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




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.

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

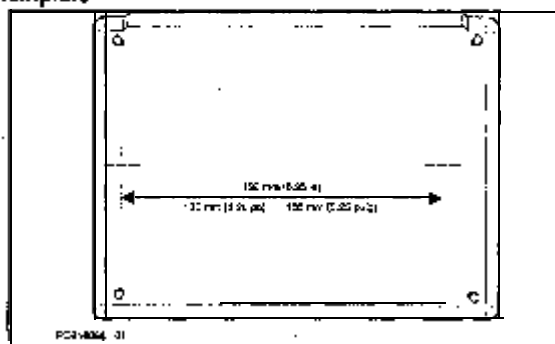


The RAD is a SELV device and must only be connected to the Commander NT ME through a TCM Isolator. See "Installing SELV-rated devices" on page 55.

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

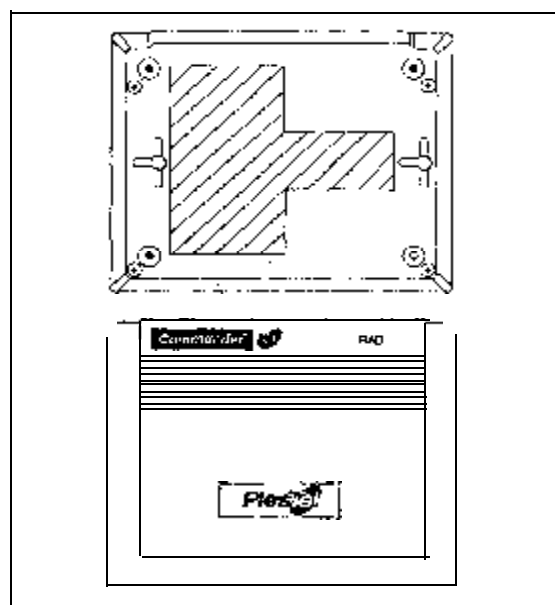
1. Attach the paper mounting template (included with the product) to the wall. Make sure the template is even with the wall.

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



- 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	none
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	3
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 50 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 **[F1s]** 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: **.**

Note: If this is a first time installation, we recommend the system ID number must be programmed to allow remote access. If this is *not* a first time installation, the display shows the last System ID entered.

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

Note: If you enter a wrong number, press **BACK** 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 **RADADM** in.

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 1 line:001**.
4. Press **CHNG**. The display reads: **Report 1 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 `RADAdmin`.

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 1 line:001`.
4. Press CHNG. The display reads: `Answer 1 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 **RTS** 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.)

WORK SITE		
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 4600 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. The music source can be any approved low-power device, such as a radio with a high-impedance earphone plug or equipment. Music on Hold and Background Music features use the same source.



Shock Hazard: line Isolation Unit Required.

An external music source requires the use of a Line Isolation Unit.

The recommended ME input level is 250 mV rms across an input impedance of 3.3 k ohm. However, up to 1.0 Vrms may be input.

1. Connect the music source's output to an ACA permitted Line Isolation Unit that then connects to SDF pair number 23 on AMP Champ Connector.2.

Tip - External Music on Hold volume is set by adjusting the level of volume at the Music Source.

External music source programming

Music for callers on Hold must be enabled through programming. For programming, see "On hold" on page 194.

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.**

Contact Commander Care Online at 1800 809 881 for details of approved auxiliary ringers.



Shock Hazard

The Auxiliary ringer must be ACA approved for use with TNV systems.

1. Follow the manufacturer's installation instructions.
2. Connect the Auxiliary ringer control circuit to System Distribution Frame (SDF) pair 25 AMP Champ (pin numbers 25 and 50 on AMP Champ Connector 1).

The pins in the chart provide a control contact. They do not provide ring current or d.c. voltage. The contact is capable of switching a maximum of 50 mA and a maximum voltage of 40 V d.c.

Auxiliary ringer programming

The Auxiliary ringer can be activated by setting an auxiliary ring for specific exchange lines, and for specific stations.

The Auxiliary ringer port is programmed in (StnsPeripheral, Capabilities, Flux, 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.

For details, see "Programming the Auxiliary ringer to ring for a line" on page 166.

External paging system

The paging system uses the speakers on Commander NT40 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 25 AMP Champ (25/50 on AMP Champ Connector 2) for audio output, and SDF pair number 24 AMP Champ (24/49 on AMP Champ Connector 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 (UU).

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

Station Power Supply



Incorrect wiring can damage ME.

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

Use a 26B/125 Krone 6x6 modular socket only. Do not use 600 series sockets.

The Station Power Supply (SPS) is a plug-top power supply that uses a standard 240 V a.c., 50 Hz mains General Purpose Outlet (GPO). It provides a 24 V d.c. supply for Direct Station Select (DSS) Consoles/Central Answering Position (CAPN) Modules and enables other devices to operate on longer station loops.

An SPS can provide power for up to three devices. All station types are considered one device, except for the DSS Console/CAPN Module which is considered to be one and a half devices. Thus, an SPS can power up to two DSS Consoles/CAPN Modules located on the same keystation.

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

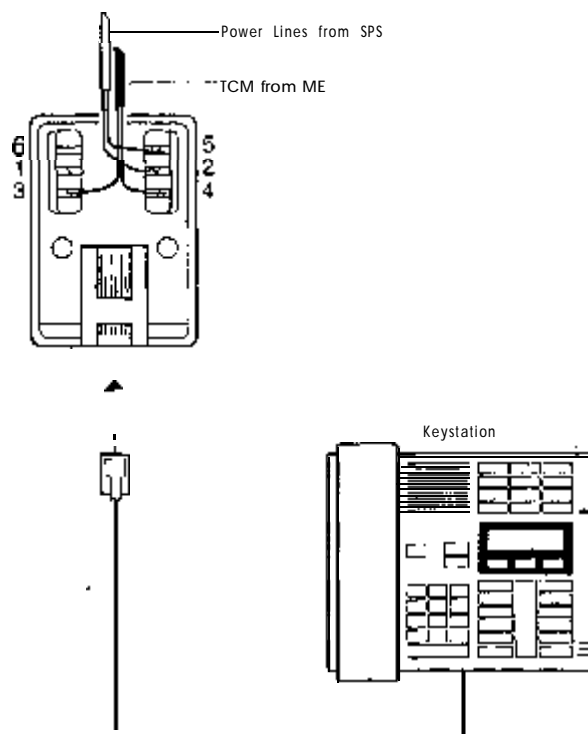
A Station Power Supply is required when the loop length between the ME and the device exceeds 300 m for 0.5 mm cable, or 185 m for 0.4 mm cable, which is equivalent to a loop resistance of 5 1 ohm.

The SPS housing requires approximately 55 mm of clearance beneath the 240 V a.c. mains General Purpose Outlet (GPO).

For Commander NT40 Keystations and Door Stations

For the 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 General Purpose Outlet (GPO) and test the station.

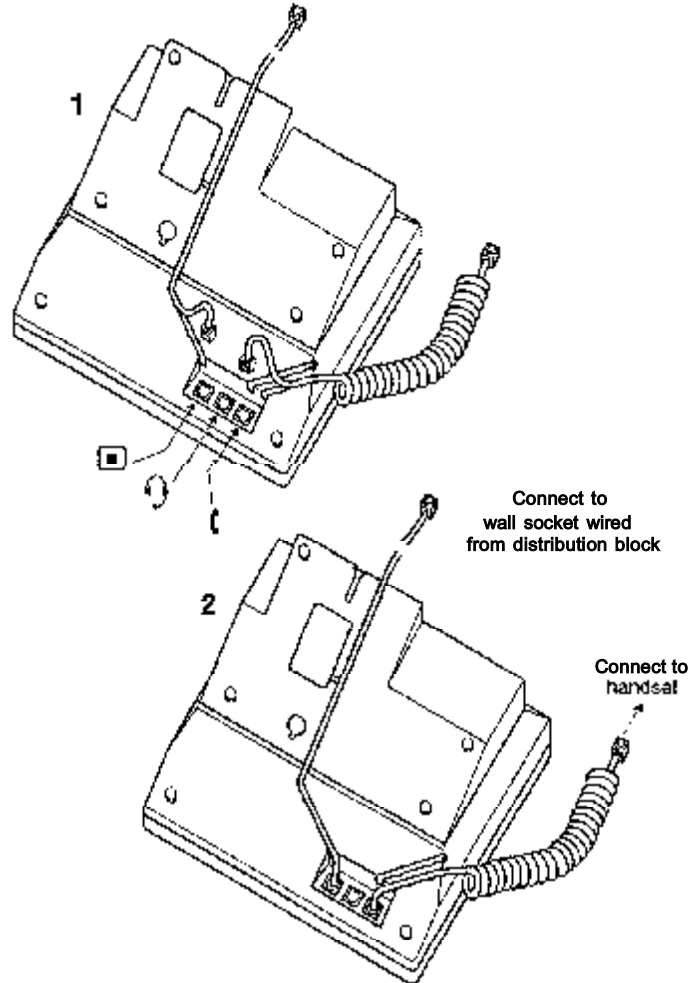
Station Power Supply connections to a keystation**For ISDN terminal equipment**

If an ISDN terminal requires supplemental powering, the customer should ensure an industry standard power supply is installed according to the instructions supplied with it.

Installing NT Keystations and related equipment

For instructions on installing and mounting the M7xxx series Keystations refer to page 90 and page 91.

Installing Commander NT40 Keystations



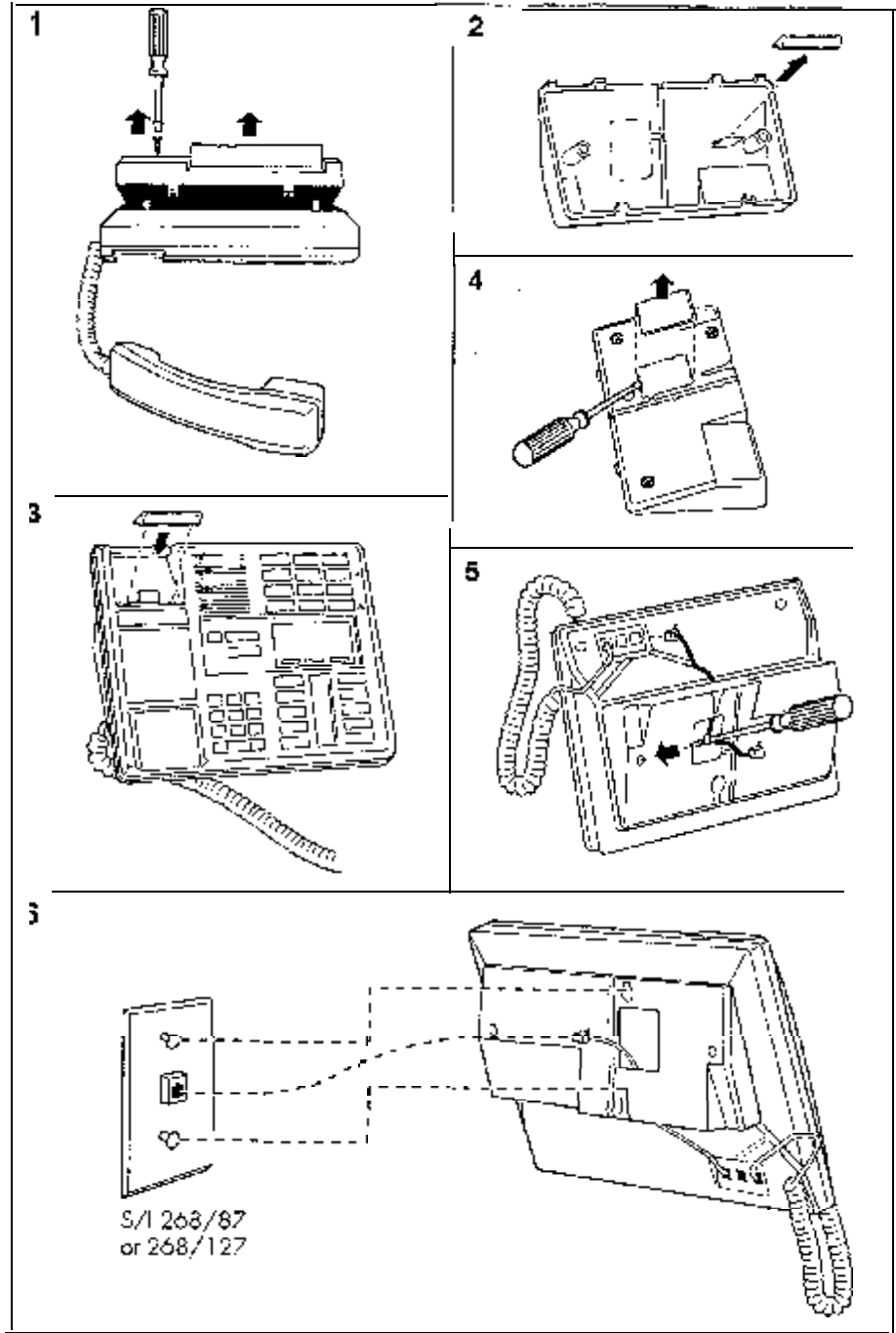
Commander NT40 line cords and plugs.

Commander NT40 Keystations are supplied with line cords terminating with a six way modular plug at both ends.

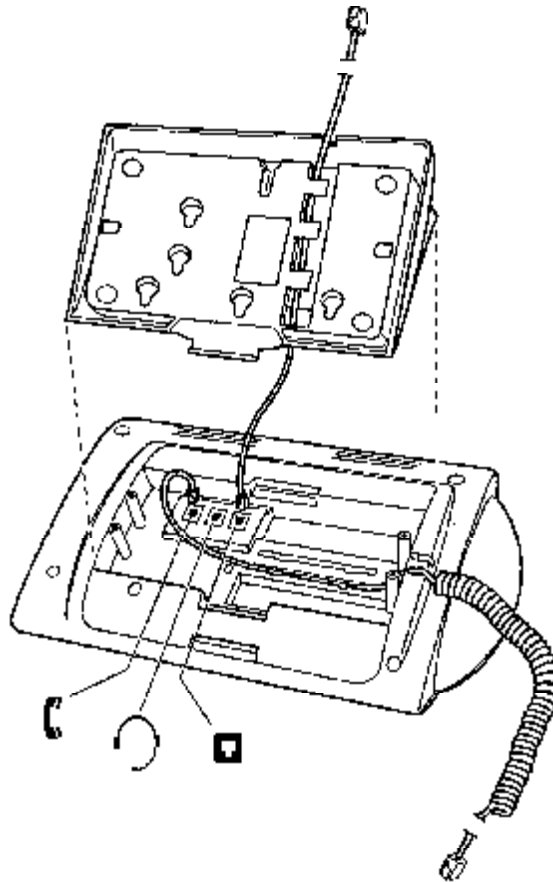
To connect to 600 series sockets, use Modular to 605 Adaptor, Serial/item 268/128.

To connect to an eight way modular plug, use an eight-way to six-way adaptor sleeve.

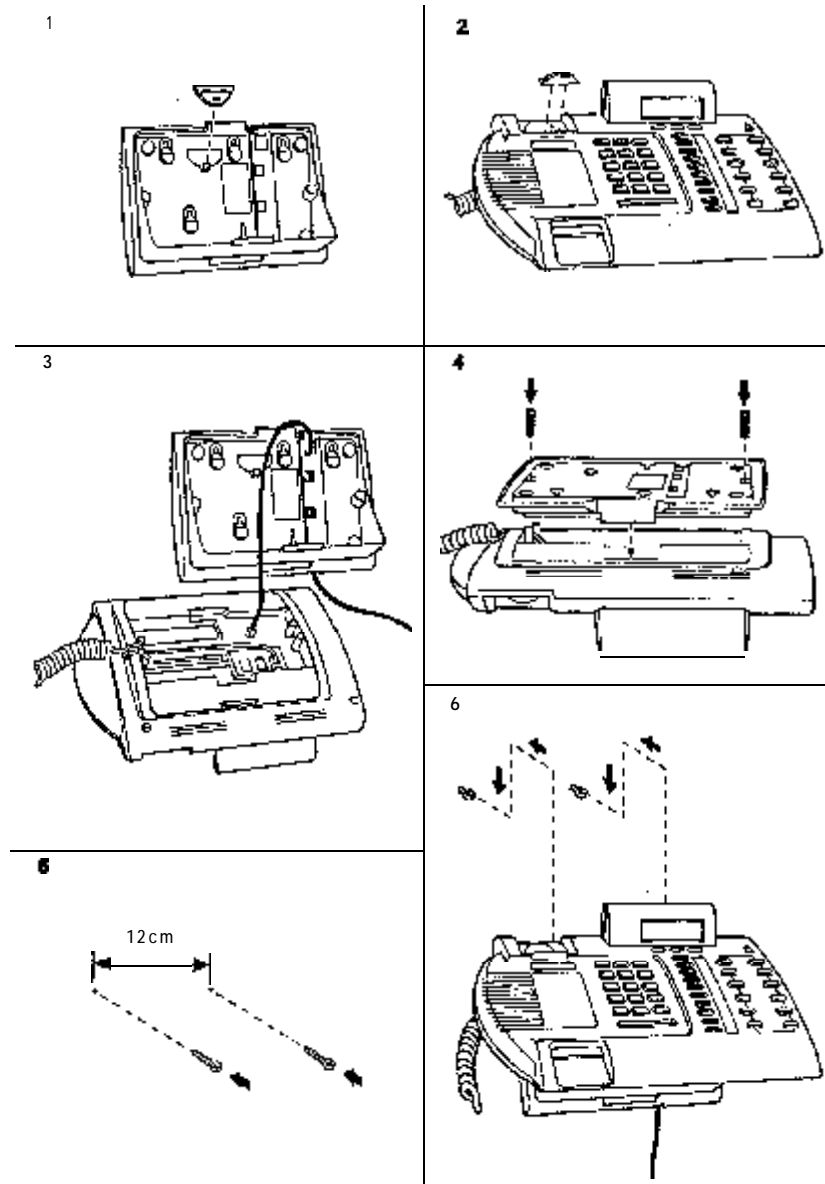
Mounting Commander NT40 Keystations on the wall



Installing the M7xxx series Keystations



Wall mounting the M7xxx series Keystations



Moving Commander NT40 Keystations

You can move a Commander NT Keystation to a new location within the Commander NT40 without losing its programmed settings. When Station Relocation is turned on in System programming, the station numbers, autodial settings, and personal speed dial codes remain with the keystation when it is unplugged. To move a keystation, simply unplug it and plug it in again at another location.

It may take up to 45 seconds for the ME to recognise the keystation. Station Relocation is turned off by default.



Relocate old stations before adding new stations.

Plug Commander NT40 Keystations in at their new locations so that they will retain their programmed settings. If a new keystation is plugged into the Commander NT40 before the old keystation is reconnected at a new location, the Commander NT40 transfers information from the old keystation to the new keystation, and the old keystation will no longer be recognised by the system.



Do not move a relocated keystation for three minutes.

The keystation must remain installed and connected in the new location for at least three minutes for the programming relocation to be complete. If you move the keystation again before the three-minute period, the keystation's programming may be lost.



Wait one minute before changing the station number of a relocated keystation.

After a keystation has been moved to a new location, it must be connected for one minute before you change its station number in System programming.



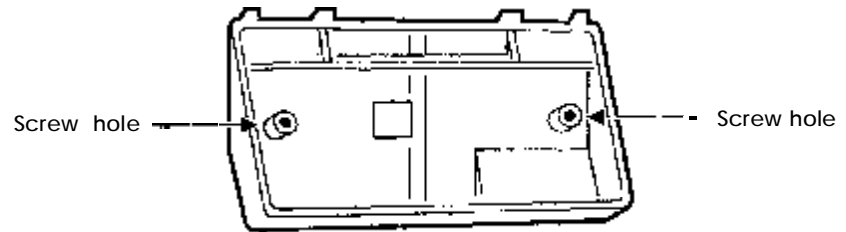
Move the TCM Isolator with a SELV-rated device.

If you move a SELV-rated device, the TCM Isolator must be moved with the device.

Modifying an Advantage Keystation

The Advantage Keystation requires 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 two holes meant for screws. 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, 3.5 mm x 1.34 mm self-tapping screw (normally supplied in the keycap bag) to securely attach the base to the station.

Advantage Keystation snap-off base**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.

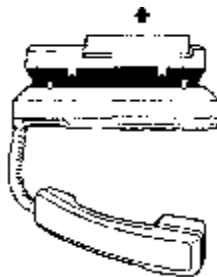
**Advantage Keystation with BLF (Busy lamp Field) must be modified**

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.

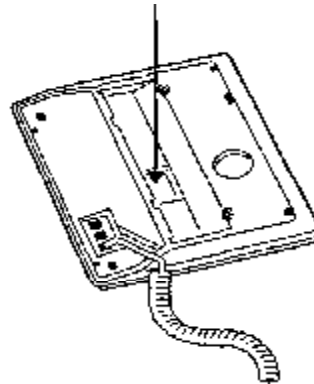
Note: If safety installation instructions are not included with your Busy Lamp Field (BLF) Display, follow the alternate instructions in "Alternate method of connecting a BLF Display" on page 95

Installing the BLF Display and BLF isolation plate

1. Unplug the Advantage Keystation and remove the base.



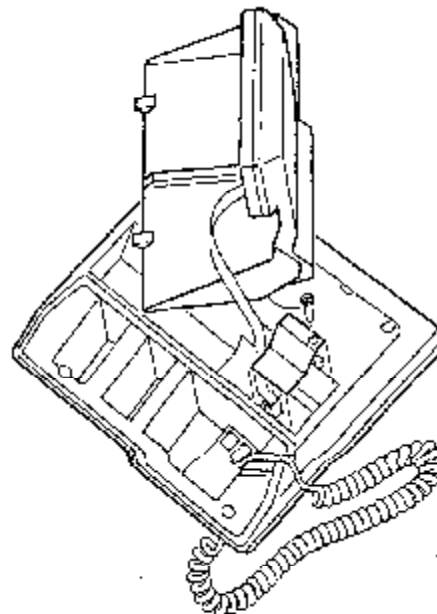
2. Locate the 10-pin connector on the bottom of the keystation and the ribbon cable on the BLF Display.



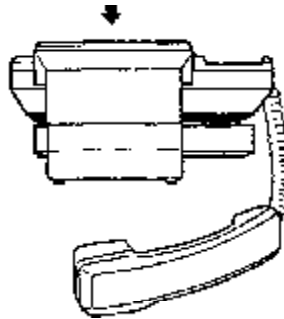
3. Connect the BLF ribbon cable to the 10-pin connector on the keystation.



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.

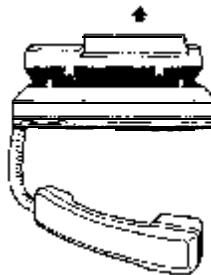


Alternate method of connecting a BLF Display

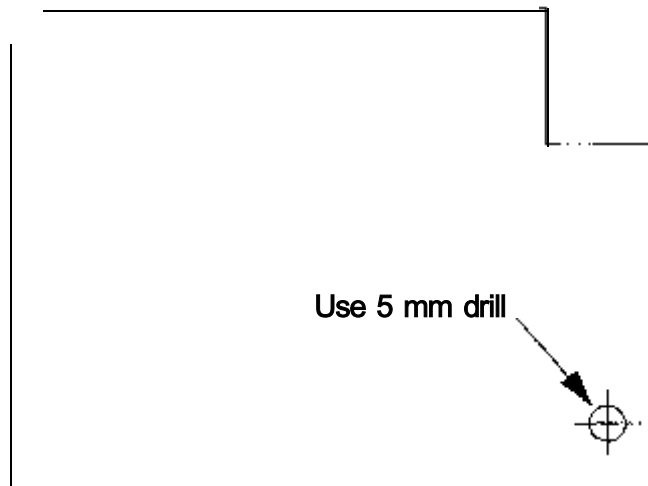
	BLF Display Safety Instructions Follow any Busy Lamp Field Display Safety Instructions supplied with the BLF Display.
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Installing the BLF Display using the template

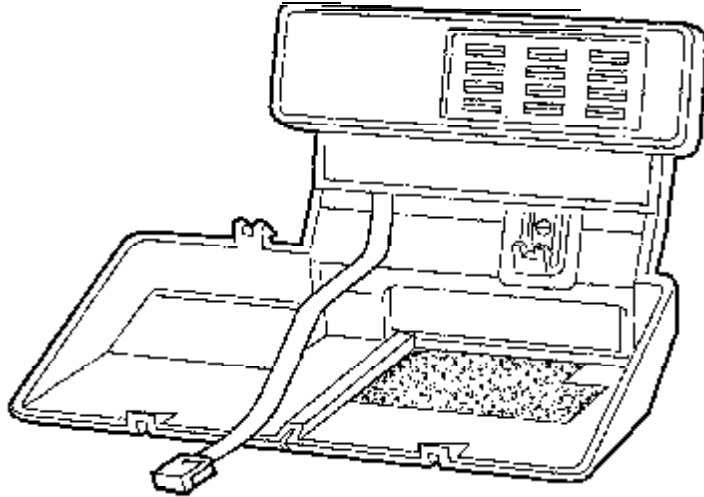
1. Unplug the Advantage Keystation and remove the base.



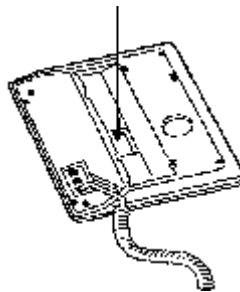
2. Photocopy this page and cut out the photocopy of this template.



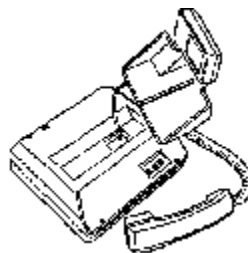
3. Line up the template as shown in the picture below and drill a hole for the screw, (see “Modifying an Advantage Keystation” on page 92).



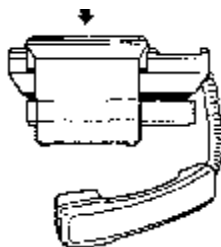
4. Locate the 10-pin connector on the bottom of the keystation and the ribbon cable on the BLF Display.



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



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



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

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 screw and/or a protective metal plate have been installed to prevent the BLF Display ribbon cable from being user accessible, remove the screw and/or the metal plate.
4. Disconnect the BLF Display ribbon cable from the bottom of the keystation.
5. Re-attach the original base to the keystation. See "Modifying an Advantage Keystation" on page 92.

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

The DSS Console/CAPN Module can 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.

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 268/1 25 Krone 6x6 modular socket only. Do not use 600 series sockets.

A Station Power Supply (SPS) is always required when installing a DSS Console/CAPN Module. For installation with a DSS Console/CAPN Module, the SPS cabling is polarity-sensitive.

1. Connect the negative lead (green) from the SPS to pins 5 and 6 of the keystation line socket.
2. Connect the positive lead from the SPS to pins 1 and 2 of the keystation line socket.
3. Plug the SPS into a working mains General Purpose Outlet (GPO).

Installing one DSS Console/CAPN Module

After you have installed the 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 Console/CAPN Module and the 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.

Tip - 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. When the indicators flash, you can initialise the DSS Console/CAPN Module. For procedures to

initialise the DSS Console/CAPN Module, see "Initialising a Direct Station Select (DSS) Console/Central Answering Position (CAPN) Module" on page 119.

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.

Tip - 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. When the indicators flash, you can initialise the DSS Console/CAPN Module. For procedures to initialise the DSS Console/CAPN Module, see "Initialising a Direct Station Select (DSS) Console/Central Answering Position (CAPN) Module" on page 119.

Keystation headset and amplifier

Contact Commander Care Online at
1800 809 88 1 for details of approved headsets.

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 the Commander NT40.

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 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 **[P15]** on their keystation.

Preparing for installation

Ensure 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 dBA

Ensure that 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.

Follow these five steps 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 the Commander NT40. 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, refer to the "Wiring charts" on page 40 or follow these steps:

1. Ensure that the Station Relocation feature is turned off.
2. Connect a socket and the 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 NT40 programming must be performed before wiring the Door Station. Startup defaults can cause the Door Station to automatically answer incoming calls that were not intended to be heard over the Door Station.

1. Enter Commander NT40 programming from an Advantage/M73 10N or Principal/M7324N Keystation by following these steps:

— Press **Feature** ***** ***** **C** **O** **N** **F** **G**.

— Enter the Installer password.

The default is **N** **S** **A** or **4** **6** **7** **8** **2** **5**.

2. Perform the following programming assignments. See “Section II: System Programming” on page 121 for details.

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

Capabilities

- Enable Handsfree.
- Enable Paging.
- Assign a page zone other than the one used for the Door Station chimes.
- Disable the Auxiliary ringer.
- Ensure that the Door Station does not Divert on Busy.
- Ensure that the Door Station does not Divert on No Answer.
- Ensure that DND on Busy is set to No for the Door Station.
- Ensure that Hotline is assigned None.

- Ensure that Call Station does not Divert on Busy.
- Ensure that all keystations receiving Door Station call chimes are included in the desired page zone, and that 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.

Line data

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

Names

- Assign a name to each Door Station (for example, Front, Gate).

Services

- Ensure that the Door Station is not a Control station.
- Ensure that the Door Station is not assigned as an Extra-dial station.
- Ensure that the Door Station is not assigned as a ringing station.

Direct-Dial

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

3. Exit Commander NT40 programming by pressing **[F13]** .



End programming before continuing.

The Door Station will not initialise if you do not exit Commander NT40 programming.

Wiring and mounting the Door Station

The Door Station can be mounted in a suitable recessed box for flush mounting, or it can be 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).



Shock Hazard: TCM Isolator required.

The Door Station is TNV but the Door Station with a Door Unlock Unit is SELV, and so requires an TCM Isolator.

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).
2. Remove the Door Station face-plate.
3. Attach gaskets and brackets.



Install a gasket to protect from moisture.

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

For surface mounting, verify the correct orientation of the gasket (if required), and thread the wires through the centre hole, then through the surface mount bracket. 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. Install an TCM Isolator. See “Installing the TCM Isolator” on page 56.
5. Run a 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 6 mm before inserting them in the TCM Connector screw terminals and tightening them.

6. 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

After you finish programming the Commander NT40 station port parameters and connecting the Door Station, you must specify parameters for the Door Station Chime type, Volume, and door opening control (if applicable).



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.

1. Press **Feature** **9** ***** **4** . The display reads **P 1 please wait momentarily**, then **Door Stn codes**.
2. Press **SHOW**. The display reads **F9XX**.
3. Press **ADMIN**. If the Door Station is not connected or fails, the display reads **F9XX: inactive**.

The display shows the station number of Door Station 1.

Tip - 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 memory.

4. Press **OK**. The display reads **Volume: medium**.
5. Press **OK** to accept the Volume level, or press **CHANGE** to select low or high, then press **OK**. The display reads **Ca 11: 221**.
6. Press **OK** to select the default station, or press **CHANGE** to enter another keystation number. This will be the keystation that rings when the Door Station Call key is pressed. The display reads **Ring time: 30s**.
7. 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 are presented after ringing the **Ca 11** 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 **Chime type: none**.

10. Press **OK** if no door opening control is required for this application. Refer to "Door opening control" on page 105 if door opening control is required.
11. Press **DONE** if no other Door Stations need to be programmed.
12. Press **QUIT** or **ESC** to end this session. Pressing **F13** at any time during the programming session will save any changes before quitting.

Programming the Door Station to ring 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 step 6 above and keystations 221,222 and 223 are being programmed to also ring when the Door Station is called.

1. Enter programming. Navigate to **Stns&Peripheral, Line access** for keystation 221. Add an Answer number for station 236.

Repeat this step for keystations 222 and 223.

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

2. Navigate to **Stns&Peripheral, Name** for keystation 236. Change the name of keystation 236 to **DOOR**. Now change the name of the Door Station to **FRONT**.

Keystations 221,222, and 223 will display **FRONT>DOOR** when the Door Station 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 provides convenient control of locked mechanisms, but is not intended for sole premises security. Power failure, device failure, wiring faults, and unauthorised equipment access can all contribute to a failed locked or unlocked situation.

The DUU screw 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 104, from step 10, proceed as follows:

1. Press **CHANGE** until the display reads DW. Press **OK**.
The display reads To OPEN dia 1: 6.
2. Press **OK** to accept the number, or press **CHANGE** to select a number from 0 to 9, * or #, then press **OK**.
3. Press **Exit** or **DONE**, then press **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 **Exit** 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

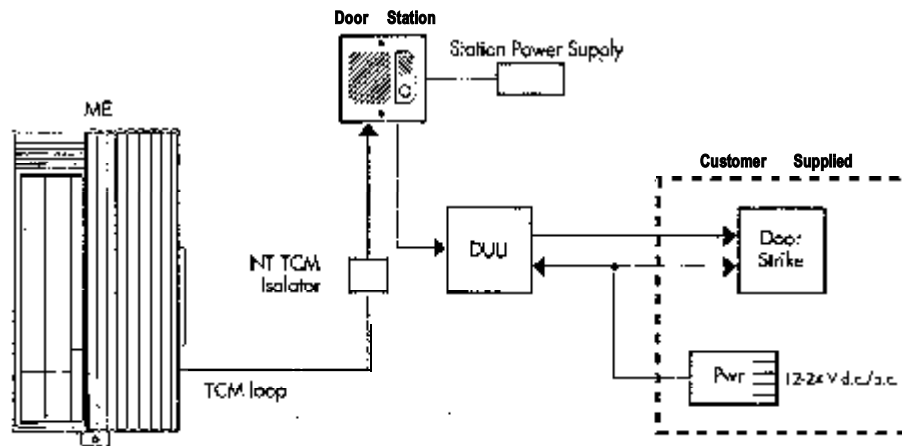
The Door Unlock Unit (DW) operates through a Door Station connected to the Commander NT40 ME.

The DW receives serial data from the Door Station. The data is compared to a dip-switch set code to activate a relay for operation of electric door release or gate mechanisms.

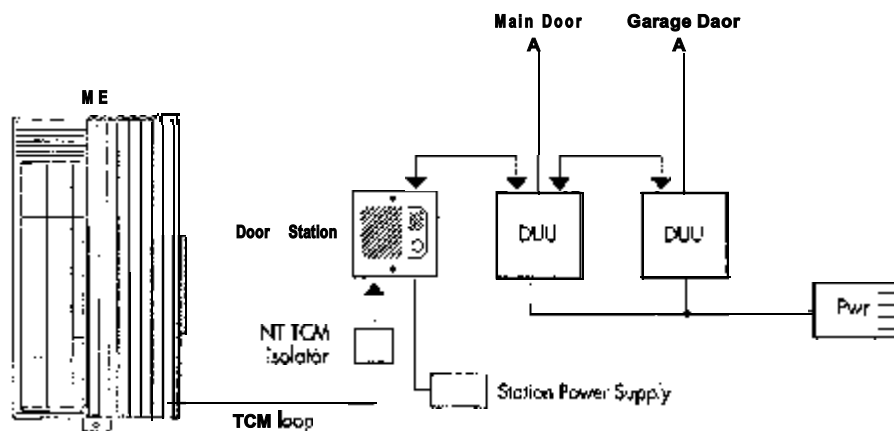
Check the following environment requirements:

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

Follow these three steps 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 top four positions of the DUU dip-switch correspond with the opening digit or display key defined in Door Station programming. Refer to the Dip-switch figure to determine dip-switch values.

Tip Both the Door Station and DUU are pre-set to 6.

To determine the display key or digit, and to ensure that the Door Station is programmed for DUU operation, refer to step 1 of "Door opening control" on page 105.

Part B

Ensure that the bottom four positions of the DUU dip-switch correspond with the desired relay activation time.

Tip - The DUU is pre-set to 3 seconds.

Dip-switch

Switch Positions	1 - 4 Code Select	5 - 8 Relay Timing
X=Closed (On) O=Open (Off)	0000 NA	0000 1/4 sec
	000X 1	000X 1
	00x0 2	00x0 2
	ooXX3	00XX 3 default
	0x00 4	0x00 4
	0X0X 5	0X0X 5
	0XX0 6 default	0XX0 6
	oXXX7	oXXX7
	X000 8	X000 8
	X00X 9	X00X 9
	X0X0 0	X0X0 10
	X0XX *	X0XX 11
	XX00#	Xx0012
	XXOX Call Answered	XXOX 13
	XXO Call Disconnect	XXO 14
	XXXX Call Key	XXXX 15

Step 2: Mounting the DUU

To mount a DUU, fasten the DUU to a wall using screws.

Step 3: Wiring the DUU

The DUU must be powered from a double insulated power supply approved to Australian Standard AS3260. The input range is from 12 to 24 V a.c. or d.c.

To wire the DUU:

1. Connect the power supply to terminals 1 and 2 (see the DUU wiring diagram).
2. The DUU relay switches power to the door release mechanism. One side of the power supply connects directly, while the other connects through the relay contacts.

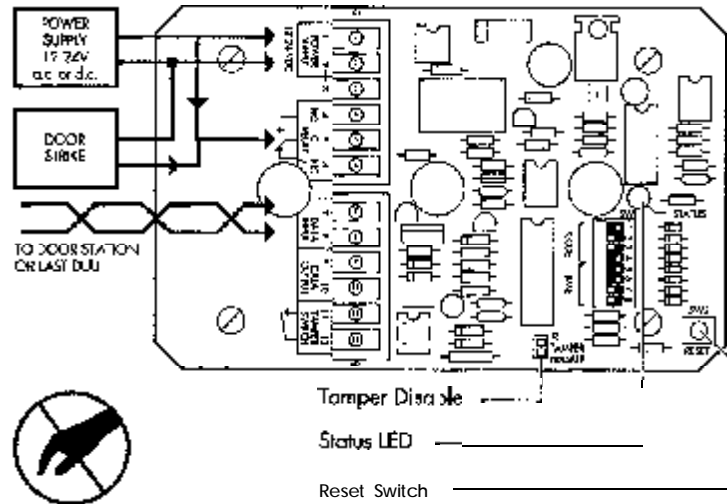
Connect the first door strike lead to terminal 2 and install a wire connecting terminal 1 to the relay common (terminal 5).

For normally de-energized door strikes, connect the second strike lead to the normally open relay contact (terminal 4).

For normally energized devices such as magnetic locks, connect the second lead to the normally closed contact (terminal 6).

For dry contact control applications such as electric gates or garage doors, no power supply is available to operate the DW. In this case, use a Station Power Supply or a suitable 12 to 24 V a.c. or d.c. source capable of supplying 60 mA.

DUU wiring diagram



3. Connect the DW to the Door Station.

Connect the DW data input terminals (7 and 8) to the Door Station DW terminals through up to 800 m of 0.5 mm twisted-pair wiring.

Tip - A single Door Station can control several doors or gates through multiple DUUs inter-connected to that Door Station. While the Door Station is on a call with a station, it reports all key presses at that station and then activates other DUUs.

For this type of application, each of the inter-connected DUUs should have its dip-switches set for a different dial pad code.

To connect multiple DUUs, connect the data input terminals (7 and 8) to the data output terminals (9 and 10) of the previous DW.

The Door Station reports all presses of its Call key to the DW. The DW can be programmed to open the door every time the Call key is pressed by setting dip-switches 1 to 4 to XXXX.

Testing

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 press the digit on the dial pad that corresponds to the dip-switch code on the DW.

The DUU should activate for the designated time, accompanied by a steady LED light.

TamperDetect

For security applications, a normally-closed security switch can detect the removal of a Door Station from its mount and automatically disable the DUU.

The tamper switch contacts must be continuously connected by either the internal tamper shunt or external wiring. Any break in the circuit disables the DUU until it is powered down and up or reset using the RESET switch.

The tamper switch contacts can be left disconnected if no tamper detect function is required and the internal tamper shunt is not removed.

The LED light flashes in bursts of three to indicate that the DUU is disabled as result of a break in the tamper circuit.

External Relay Unit

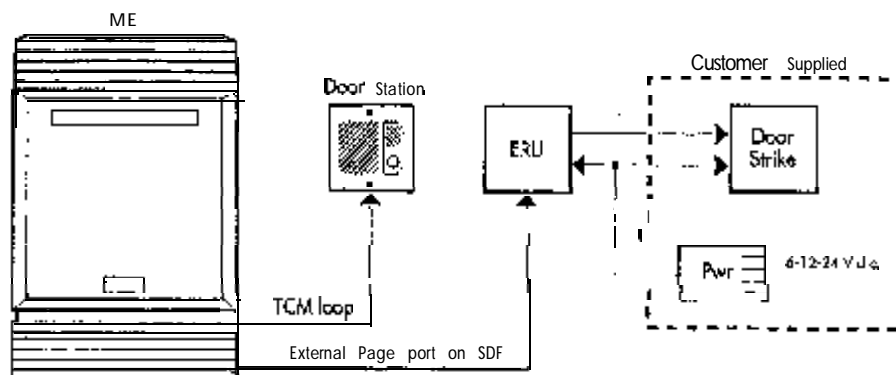
The External Relay Unit (ERU) provides slave relay contacts activated by the ME page relay for door opening control in conjunction with the Commander NT Door Station. The ERU is rated for higher contact current (2A) and isolates the ME from any damage that could be caused by wiring faults. For low current (less than 50 mA) control applications, the ERU is not necessary except as added protection.

Because the ERU connects to the ME page relay, only one ERU can be connected to the Commander NT.



Do not connect external paging equipment to the ME if an ERU is installed

If an ERU is connected to the ME page relay, any station accessing the external page feature will automatically open the door, thus external paging equipment should not be installed.

External Relay Unit overview**ERU Specifications:**

- Power supply: 6, 12 or 24 V d.c., or a Station Power Supply
- 25 mA d.c. coil operating current
- DPDT (2 form C) bifurcated contacts
- Maximum contact switching current: 2 A
- Maximum contact switching voltage: 30 V

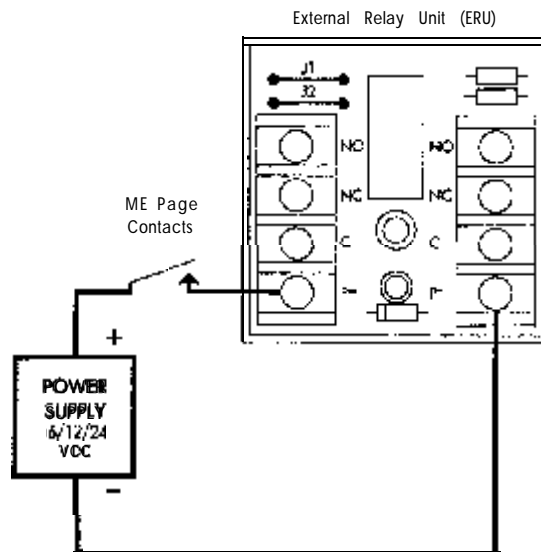
Installing the ERU

1. Mount the ERU beside the ME using the supplied wood fastener.
2. Connect the ERU to an external d.c. power supply. The power supply is the same used for door strike operation. No additional power is required. The power supply must be double insulated and approved to Australian Standard AS3260.

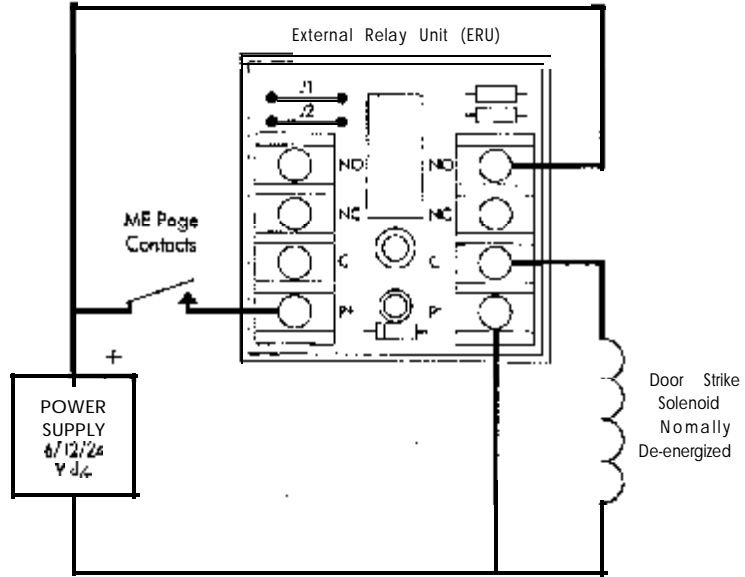
The ERU is wired for use with 6, 12, or 24 V d.c.

For 6 V operation, do not cut either strap on the ERU. For 12 V operation, cut the red strap. For 24 V operation, cut both the red and black straps.

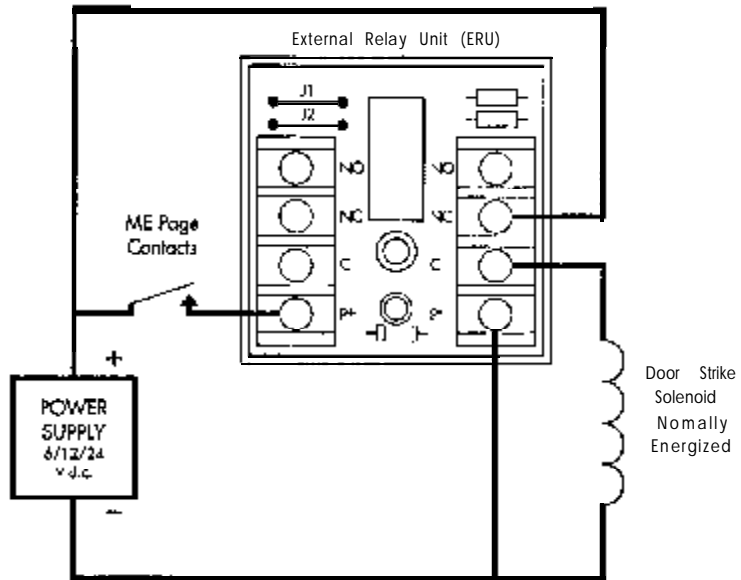
3. To activate the ERU when the ME page relay operates, connect the power supply as follows:



4. For normally de-energized door strike control, wire the ERU as follows:



5. For normally energized strike control, wire the ERU as follows:



ISDN equipment

Contact Commander Care Online at
1800 809 881 for details of certified ISDN Terminal equipment.

S loop wiring for ISDN terminals

The connections for S loop wiring are:

Pin	Polarity	Wire Color	Box Connection
1	+	white / orange	not used
2	-	orange / white	not used
3	+	white / green	RX
4	+	blue / white	TX
5	-	white / blue	TX
6	-	green / white	RX
7	-	white / brown	not used
8	+	brown / white	not used

T loop wiring for an ISDN BRA Cartridge

The RX and TX positions for T loop wiring to the Box Connection are different than S loop positions:

Pin	Polarity	Wire Colour	Box Connection
1	+	white / orange	not used
2		orange / white	not used
3	+	white / green	TX
4	+	blue / white	Rx
5		white / blue	Rx
6		green / white	TX
7		white / brown	not used
8	+	brown /white	not used

These terminations are for an RJ45 connector wired from the ME. The system can then be connected directly via a pin to pin fly led to the NT1. This connects the RX pair on one to the TX pair on the other.

The following illustration shows the pin arrangement for a standard ISDN plug and jack. Other pin arrangements are possible.

Pin numbering for network interface jack and plug



Powering up the system

- Check the mains General Purpose Outlet (GPO).....1 18
 - Battery back-up 1 18
 - Check that the power is on 1 18
- **Initialising** a Direct Station **Select (DSS) Console/Central** Answering Position (CAPN) Module 1 19

Check the mains General Purpose Outlet (GPO)



The mains General Purpose Outlet (GPO) 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 AS31 12 mains General Purpose Outlet (GPO).

Battery back-up

Battery back-up on the Commander NT40 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 NT40 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 Va.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 NT40 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.

Only a PlesTel approved UPS can be used. Details of suitable devices can be obtained from Commander Care Online at 1800 809 881.

Check that the power is on

After the power is supplied, the ME PSU will light up green. If an ISDN BRA Cartridge is installed, the LEDs on the faceplate of the cartridge will 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.

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 Main Equipment (ME)” on page 334.



Allow time for ISDN BRA Cartridges to initialise

When ISDN BRA Cartridges initialise, the Commander NT40 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.

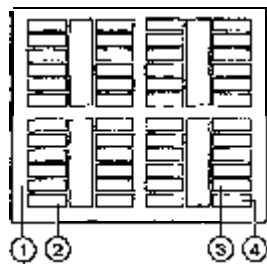
Initialising a Direct Station Select (DSS) Console/Central Answering Position (CAPN) Module

You must initialise each DSS Console/CAPN Module individually during the first ten seconds after connecting the Console, to establish default settings for the programmable memory keys. When a Console is initialised, it retains its programming even if you move it or connect a second DSS Console/CAPN Module to it.

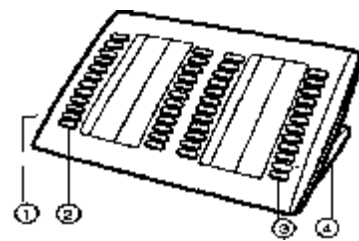
If the DSS Console/CAPN Module indicators have stopped flashing before it has been initialised, unplug the Console, then reconnect it. The indicators should turn on and then flash for 10 seconds.

Initialise a DSS Console/CAPN Module while the indicators are flashing. Simultaneously press the two keys on the lower left-hand side and the lower right-hand side of the DSS Console/CAPN Module.

Initialising a DSS Console/CAPN Module



DSS Console



CAPN Module

The indicators turn on one at a time in sequence, beginning at the lower right-hand corner of the module. The indicators then turn off.

After all the indicators turn off, the DSS Console/CAPN Module is initialised and ready to use.

Section II: System Programming

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

```

Startup
-----
Template: PBX, Square, Hybrid
Show str: 221

Sys & Peripheral
-----
show str:
Line group
line assignment
Show line:
Non-DDI line
001-008 & 031-038: Ring only, App-Ring, Appr only, Unassigned
DDI line (line 101 to 140)
01: Ring only, App-Ring, Appr only, Unassigned
Appearances: 1
Line pool: A, Y (P, C: N)
Prime line: None, Pool A, N/C
Intercom key: 2 (0 to 8)
Answer str:
Show str:
221: Unassigned, App-Ring, Appr only
Call #: None
Capabilities
Dialing: None
Dial delay: 6, 9, 12, 18, 30
Dial on busy
Dial to: None
DND on busy: 221: N, others: Y
Handfree: Auto, Std. None
HF answer: Y
Pickup grp: None, 1, 2, 3, 4, 5, 6, 7, 8, 9
Page zone: None, 1, 2, 3, 4, 5, 6
Paging: Y
D-Dial: None, 5m1
Priority call: N
Hotline: None, Invt, Excl
(IF Excl, UK prime line, Use line, Pool code, Use routing table)
Auto. ringer: N
Redirect ring: Y
Receive tones: N
SLTA settings
Answer frng: 3, 5, 7, 10
IF SLTA = PSL: 3
SLTA mode: Tone, Pulse
SLTA tones: N
Name: 221
User preferences
Model: Advantage
Key programming
[0 M7000 Keystation] 4 keys
(IF Economy) 1 key
(IF Standard) 8 keys
(IF Advantage) 10+24 keys
(IF Principal) 24 keys
Personal Spd:
Call log optnr: No answer, Unanswered by me, log all code,
No auto logging
Dialing optnr: Automatic dial, Radial, Standard dial
Display cntxt: 1, 2, 3, 4, 5, 6, 7, 8, 9
Ring type: 1, 2, 3, 4
Restrictions: [dial]
Rmtn filters (W-99)
show filter:
Rmtn Rt 00
No restrictions
Rmtn Rt 01
Restr: 01: 0
Deny: 0
Override 001: 013
Restr: 02: 1
Deny: 1
Override 001: 13
Override 002: 1800
Rmtn Rt 05
Restr: 01: 00
Deny: 00
    
```

```

no overrides
Restr: 02: 1
Deny: 1
Override 001: 13
Override 002: 11
Override 003: 1800
Rmtn Rt 06
Restr: 01: 0 [dial is a wildcard character]
Deny: 0
No overrides
Restr: 07: 99
No restrictions
SR restrictions
Normal fr: 02
Night: 11
Evening: 12
Lunch: 13
Mode 4: 00
Mode 5: 00
Mode 6: 00
Smlock: None, Partial, Full
Allow hold no: Y
Allow saved no: Y
Allow recall: Y
Allow redirect: Y
Line/ST: [ring]
Show line:
Normal: None
Night: None
Evening: None
Lunch: None
Mode 4: None
Mode 5: None
Mode 6: None
Network features
Call assignment
Show line:
Call ID: N
Call log str: N (Default for DDI: Y)
1st Display: Name, Number, Line
Auto called ID: N
log: [ring]
Loc: 0 Pool 230

ines
-----
Show lines:
Line data
BRA lines (001 to 008, 031 to 038)
Call type: BRA-A
Line type: Pool A, Pool B to C, Public, Private to:
Private: 221
Auto privacy: Y
App mode: Auto, Manual
IF App mode: Auto
Auto with DEAR: N
Auto ringer: Y
Full Auto hold: N
PSTN lines (001 to 004, 031 to 034)
Call type: PSTN
Line type: Pool A, Pool B to C, Public, Private to:
Dial mode: Tone, Pulse
Prime str: 221
Auto privacy: Y
Line mode: Unspr, ROI, ROA
Auto ringer: Y
Redial: 100, 600
Full Auto hold: N
Direct Dial Inward lines (101 to 140)
line type: Public, Private
Redial #: 5m1
IF busy: Busy Tone to prime
Prime str: None
Auto ringer: N
Network line #:
Restrictions: [ring]
Restr: 01: 00-99
Show filter:
Restr: 01: 00
    
```

```

No restrictions
Restm R1 01
Restm 01: 0
Deny: 0
Override 001: 013
Restm 02 1
Deny: 1
Override 001: 13
Override 002: 1800
Restm R1 05
Restm 01: 00
Deny: 00
No overrides
Restm 02: 1
Deny: 1
Override 001: 13
Override 002: 11
Override 003: 1300
Restm R1 06
Restm 01: • (•) is a wildcard character
Deny: •
No overrides
Restm R1 07-99
No restrictions
Line restm
Normal F1: 03
Night: 21
Evening: 22
Lunch: 23
Mode 4: 00
Mode 5: 00
Mode 6: 00
Remote restm
Normal F1: 04
Night: 31
Evening: 32
Lunch: 33
Mode 4: 00
Mode 5: 00
Mode 6: 00
Services
ringing service
Ringing groups (01-100)
Show group:
Ring grp: 01
show sh#_:
221: Assigned, all others: Unassigned
Mode Night
Service: Off, Auto, Manual
Line sm#_: Y
Extndu: 221
line settings
Show line_:
Ring grp: 01
Aux. ringer: N
Mode: Evening
Mode: Lunch
Mode: Mode 4
Mode: Mode 5
Mode: Mode 6
Restm service
Mode: Night
Service: Off, Auto, Manual
Mode: Evening
Mode: Lunch
Mode: Mode 4
Mode: Mode 5
Mode: Mode 6
Routing service
Routes: 000-999
Show route:
Re: 000
DialDur: No number (Max.24 digits)
Use Pool A, Pool Q
Dest coder
Show DestCode:
Normal: 000
    
```

```

Absolute All
Night None
Evening: None
Mode 4: None
Mode 5: None
Mode 6: None
Mode Night
Service: Off, Auto, Manual
Overlwn: N
Mode: Evening
Mode: Lunch
Mode: Mode 4
Mode: Mode 5
Mode: Mode 6
Common settings
Control sm
For lines
Show line_:
001: 221
For sm:
show sh#_:
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 time
Monday
Mode: Night
Start time: 17:00
Stop 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
sys speed dial
Speed dial #01-701 (Max: 24 digits)
Use prime line, Use line, Pool code, Use routing: 1
Display digits: Y
(r: Display digits=NINAME) Mar 16 characters
Byeget restm: N
PASSWORDS
COS passwd
Show passwd # (W-99)
COS passwd # 00
Prwd 00: None
User Pr: None (00 to 99)
Line Pr: None (00 to 99)
Remote pkg: None (00 to 15)
Call log passwd
show sh#_:
221: 221
log passwd: None
Program passwd
installer:
SysAdmin#: 727587
($APL:5)
SysAdmin: 23646
($CWL:4)
Basic: 22742
($BAS:1)
EAD passwd: 467825
Hospitality (Keycode):
Dial code: 4677
($HOSP)
Cod None
    
```

Time&Date
 Hour: 01
 Minutes: 01
 Year: 99
 Month: 01
 Day: 01

system prgming

Hunt groups
 Show group: _
 HConn: (station)
 Member: 404
 001: (station)
 Appr: eny, **Appr&Ring**, Ring only
 Line assignment
 Show line: _
 Line: Unassigned, Assigned
 Mode: Sequential, Cyclic, Broadcast
 Mini delay: 4, 9, 12, 15, 18, 21, 24, 27, 30
 If busy: **BusyTone**, Overflow, Queue
 C Timeout: 15, 30, 45, 60, 120, 180
 Overflow: (station)
 Name: HConn, [? characters]

change **Shift**
 Old shift: (Max. 7 digik)
 New shift: (Max. 7 digik)

Fault settings
 Backgrnd music: N
 On hold: Tones, Music, Silence
 Handset volume: uk rya volume, use en 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 revert: 20, 30, 45, 60, 90
 Network revert: 15, 30, 45, 60, 90, 120
 DRT to prime: Y
 DRT delay: 3, 5, 10, 15, 20, 25
 DX-CD: Tr/Cont: Y
 Held reminder: Y
 Revert delay: 30, 60, 90, 120, 150, 180
 Call transfer tone: Y
 Direct pickup: Y
 Page tone: Y
 Page timeout: 15, 30, 60, 120, 180, 300, 600, 2700
 Auto Time&Dab: Y
 Call log space
 Reset all logs?
 Max delay: 1000 (1000 to 7000 in 500 ms increments)
 Alarm: 221
 Swr reception: N
 Mag reply enh: N
 Any key: Basic, Enhanced, Extended

Direct-dial
 D-Dial 1: **Inter**, Local, None
 Inter-IP: 221, Extra-IP: 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
 Extnd code: 0, 3, 6, 7, 8, None
 Direct-dial: 3, 6, 7, 8, 9, None
 Auto #: None
 DSA #: None

Auto Attendant
 Auto attend: Off
 Attd sm: 221
 system **Answer**
 After: 2, 3, 4, 5, 6, 7, 8, 9, *0, 11, 12 rings
 Fax switch: **Off**

CCR
 After: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 rings
 CCR liner
 001: **Answer No**
 CCR groups
 Show group: _
 CCR grp: 1

Show Shift: _
 221: **Unassigned**
 Fax switch: **Off**
 Fax sm: **None**
 Remote access
 Remote access pkgs: **100-151**
 Show pkg: _
 Run pkg: **00**
 LinePool access
 Pool A: N
 Pool B to C: N
 Remote page: N
 Remote admin: N
 Remote monitor: N
 Remote line access
 Show line: _
 001: Run pkg 00
 BRAD
 Answer line: None
 After: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 rings
 Beep # length: 3, 4, 5, 6, 7
 Stop length: 3, 4, 5, 6, 7
 Reasons
 Tone: **Simple**, Detailed, None
 Initial speed: **Fast**, Slow
 Alarm Reporting: off
 Auto report: Off
 Phone CI: **None**
 Phone #2: **None**
 Use line: None
 Retry time: 15 (minutes)
 Num. retries: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
 Hospitality (Keycode):
 Room /desk info
 Show str: _
 Room #: _
 Adm. prod req'd: Y
 Call ratings
 Vocat: **00**
 Use RI: _
 Boric: 00
 Mid: 00
 Full: 00
 Service time
 Hour: **00**
 Minutes: 00
 Alarm
 Alarm attempts: 1, 2, 3, 4, 5
 Retry interval: 2, 4, 6, 8
 Alarm duration: 10, 15, 20, 30, 40, 50
 Time format: 12hr, 24hr

etwtk features

OWN blocking
 Tone: 1831
 Pulse: 1831

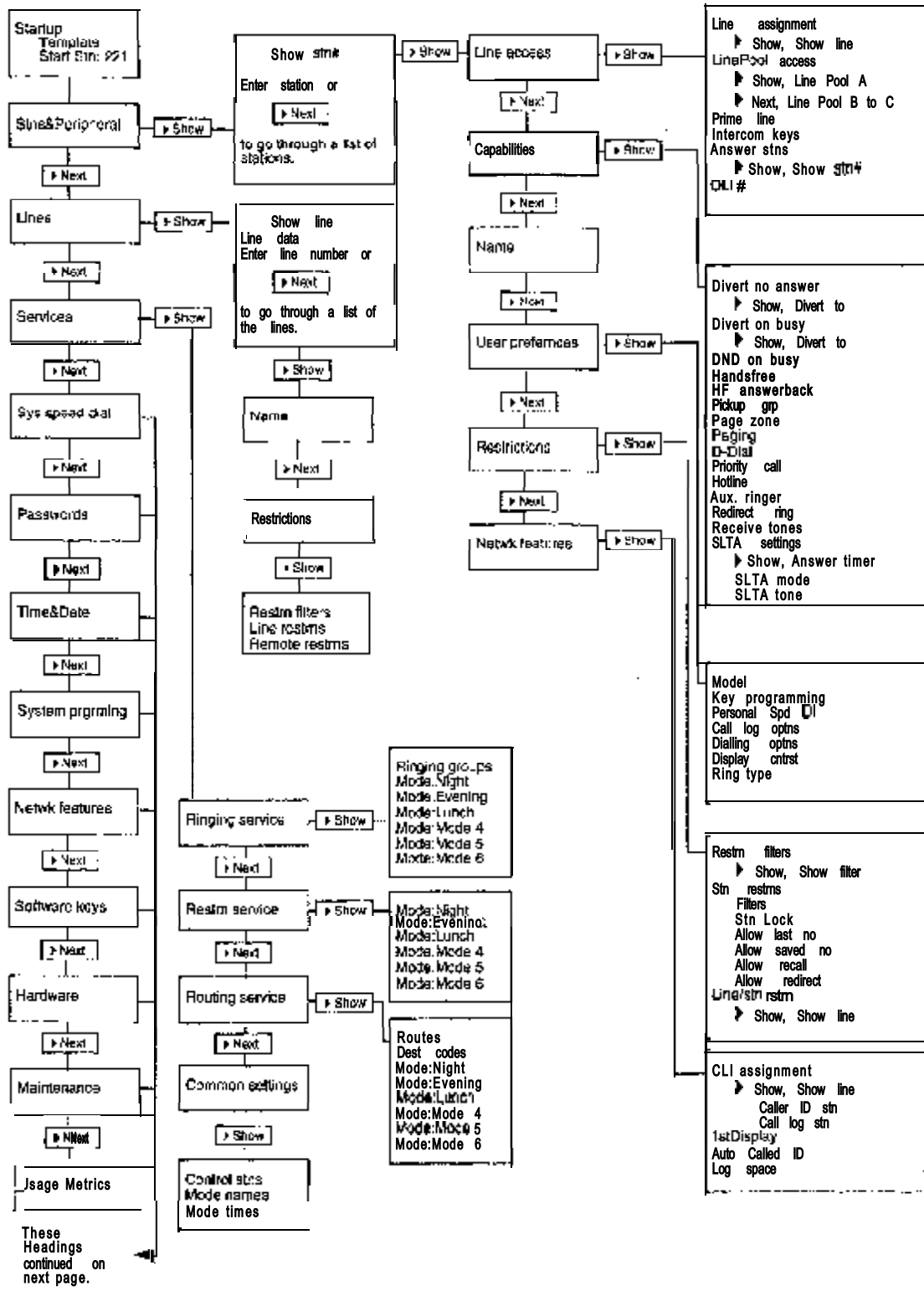
software keys

Symbol: (8 digik)
 Password keys
 Key 1: (8 digik)
 Key 2: (8 digik)
 Key 3: (8 digik)

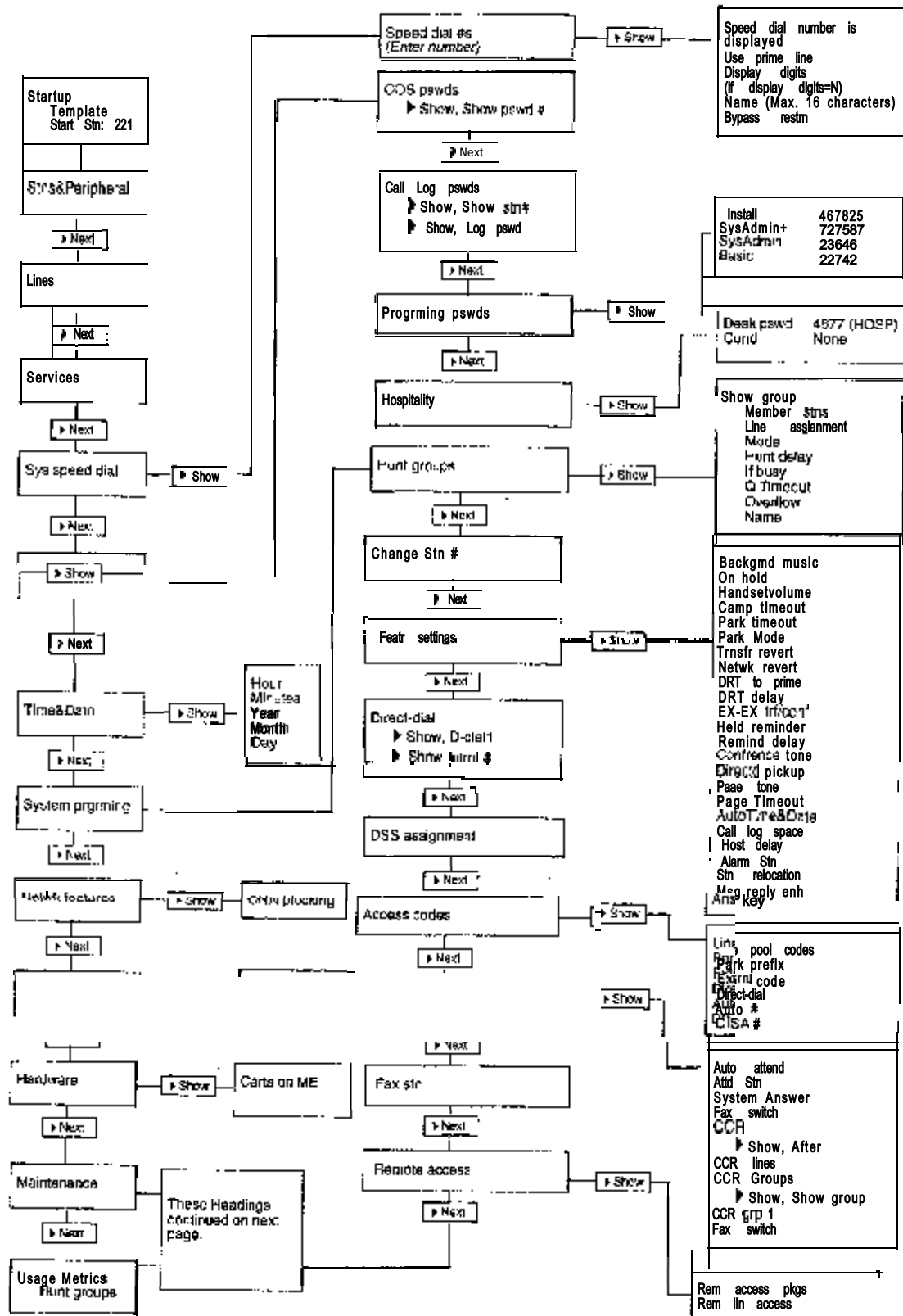
Hardware
 Show module
 Cols on ME
 LC1 - MF - PSTN, BRA-4
 LC2 - ME - PSTN, BRA-4
 (if Analogue line cartridge)
 If LC type: PSTN
 Line num: (LC1-Lines 001-004) (LC2-Lines 031-034)
 (if BRA-4 type)
 LC type: BRA-4
 loops: 201-204 (BRA-4 LC1), 221-234 (BRA-4 LC2)
 Line num: (LC1-Lines 001-004) (LC2-Lines 031-034)
 Type: S, T
 (if Type S) Sampling: Adaptive, Fixed
 Sm on loop
 Assign #:

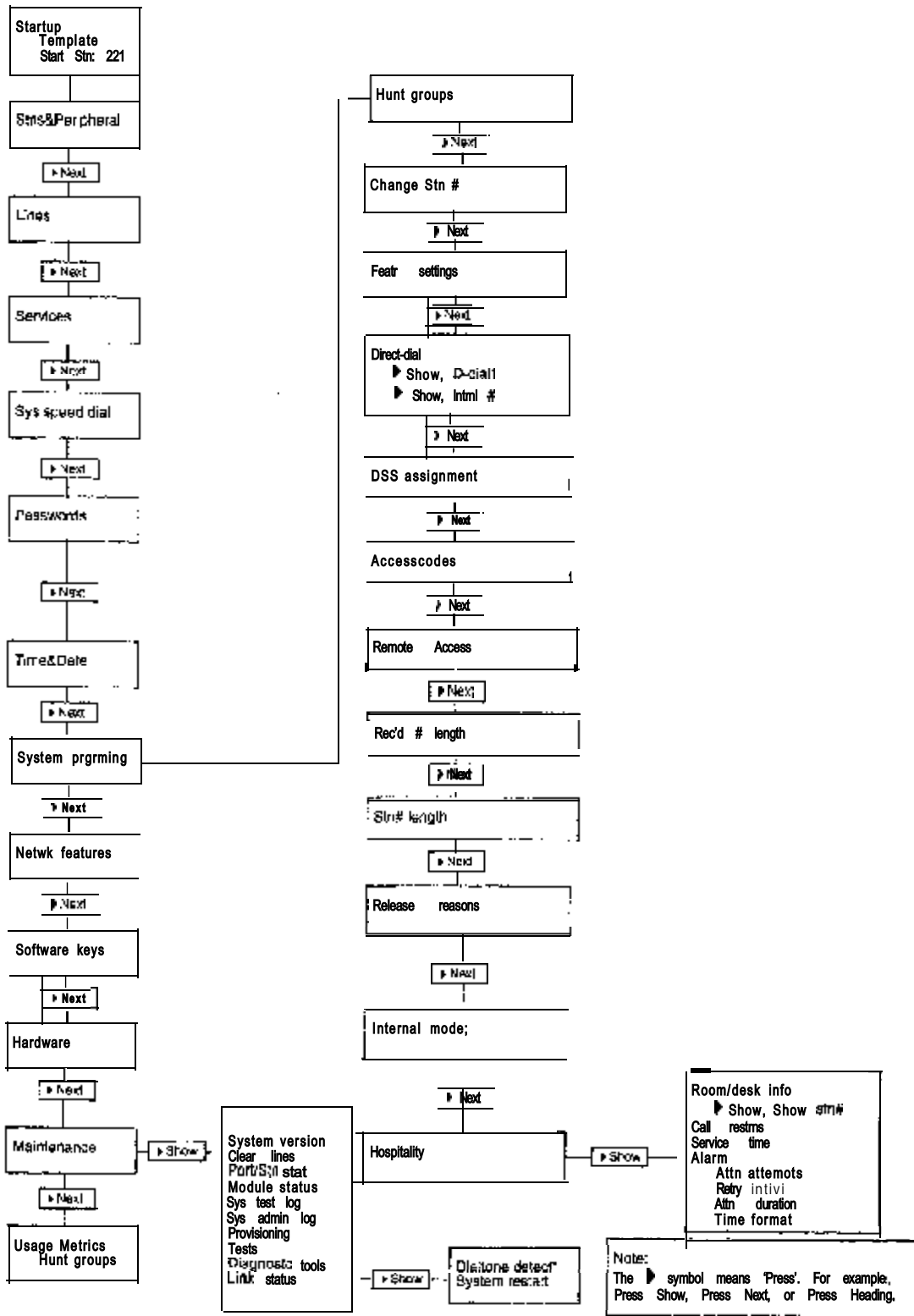
S w sh#: 297: Available Loop sh#:_ None
Maintenance
System version Clear liner Perf/Stat Module status System log Sys admin log Provisioning Test BERT-in test Loopback test Remote mont: Off Diagnostic tools Deploy detect Show tra: System restart Restart system?
Usage Metrics
Hunt groups show group: HG * metrics

Programming map



Note:
The ➤ symbol means 'Press'. For example, Press Show, Press Next, or Press Heading.





*Diagnose detect may not be available for your system.

Programming using the Installer password

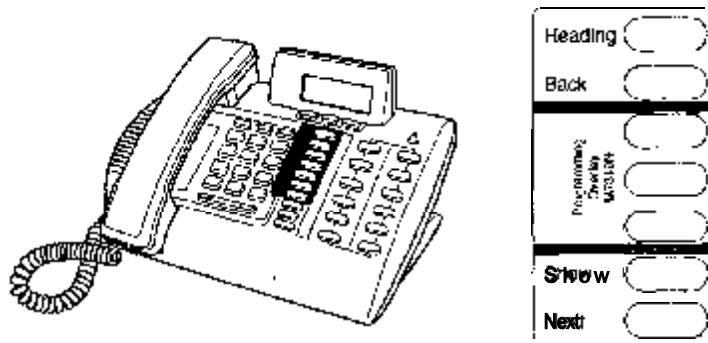
The following tables give an overview of the programming available using the Installer password.

Startup	Passwords	Netwk features
Template	COS pswds	ONN blocking
Start stn	Call log pswds	Software Keys
Sms&Peripheral	Progming pswds	SysID
Line access	TRAD	Password keys
Capabilities	Hospitality	Hardware,
Name	Time&Date	Carts on ME
User preferences	System prgming	Maintenance
Restrictions	Hunt groups	System version
Netwk features	Change Stn #	Clear lines
Lines	Featr settings	Port/Stn stat
Line data	Direct-dial	Module status
Name	DSS assignment	Sys test log
Restrictions	Access codes	Sys admin log
Services	Auto Attendant .	Provisioning
Ringing service	Fax stn	Tests
Restrn service	Remote access	Remote montr
Routing service	Rec'd # lengths	Diagnostic tools
Common settings	Stn# length	Usage Metrics
Sys speed dial	Release Reasons	Hunt groups
	Intrl modem	
	Alarm Reporting	
	Hospitality	

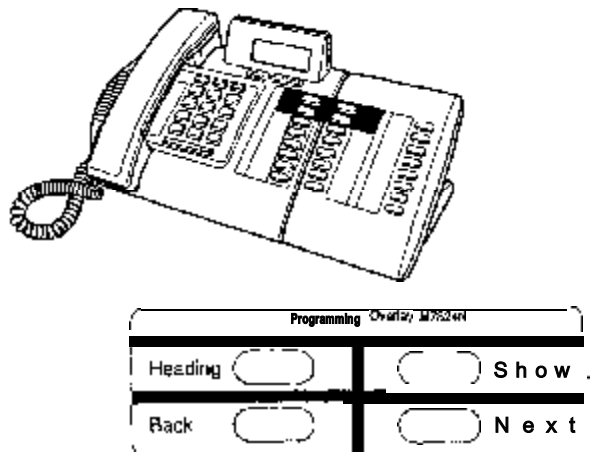
Using the programming overlay

Programming is done on an Advantage/M7310N or Principal/M7324N Keystation. The programming overlay is a paper template that you place over the keys on the keystation. You will find it included with the Customer CDROM or the M7310N and M7324N Keystation User Cards. The overlay tells you what the keys do during programming. 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 NT40 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.

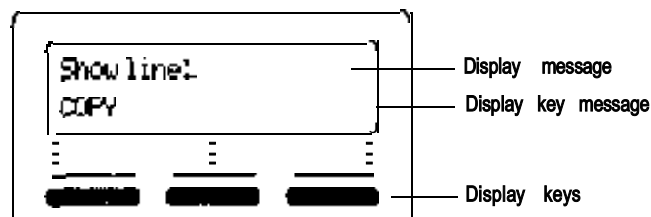
[Next] ▶

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 NT40 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
<u>CHANGE</u>	changes a programmable setting
<u>BACKSP.</u>	moves the cursor one space to the left (backspace) and deletes a character, enabling you to re-enter a number or letter
<u>COPY</u>	copies the settings of items like lines, stations, and filters to an item of the same type
<u>ADD</u>	allows you to add data
<u>QUIT</u>	allows you to quit a programming session
<u>END</u>	gives you the option to directly enter data
<u>SCAN</u>	generated search that displays a list of available settings such as lines and stations
<u>CANCEL</u>	cancels the previously invoked feature or programming setting
<u>RETRY</u>	used to re-enter preferred data or a setting
JOIN	used to join in on a call when, for example you are invoking the Transfer feature
<u>LIST</u>	displays the lowest value in a list of station numbers, lines, or other items
<u>VIEW</u>	displays the last part of a displayed message longer than 16 characters
>	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

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/M73 10N 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 str#:**.
5. Enter the number of the station you want to program or press **Next** to select the first one.
6. Press **[show]**.
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/M73 1 ON 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 **005 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 **SAPLUS: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 **[F8]** 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/M73 10N or Principal/M7324N Keystation.
2. Press **Feature** **[*]** **[*]** **[C]** **[O]** **[N]** **[E]** **[L]** **[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] [C] [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 `On ly 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/M73 1 ON 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: 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 `Network 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.

System Data which will be copied:	System data which will NOT be copied:
<p>line access</p> <ul style="list-style-type: none"> . Line assignment . Answer Stn #E (unless Answer key Stn # is same as station being copied to) . Line Pool access . Prime line designation . Number of Intercom keys . OLI <p>Restrictions</p> <ul style="list-style-type: none"> . Line/stn restrictions . Station restrictions <p>Capabilities</p> <ul style="list-style-type: none"> . Allow redirect . Divert No Answer (Stn # + delay + setting) . Divert Busy (Stn # + setting) . Priority calling . Paging . Redirect ring . Station lock . Auxiliary ringer . DND on Busy . Hotline . Handsfree answerback . Handsfree setting . Direct-dial group . Pickup group . Paging zone <p>Network features</p> <ul style="list-style-type: none"> . 1 stDisplay . Caller ID stn (Auto call info) . Call Log stn (Logging stn) 	<p>line access</p> <ul style="list-style-type: none"> . Private line appearances <p>Capabilities</p> <ul style="list-style-type: none"> . Station name . I-SLTA ringback detection setting <p>Network features</p> <ul style="list-style-type: none"> . Log password . Log space <p>DSS/CAPN assignment</p> <p>Direct-dial station designation</p> <p>Extra-dial station designation</p> <p>Service Mode ringing station designation</p> <p>Prime station designation for a line</p>

User data which will be copied:	User data which will be copied if destination station type is the same as the source station type:
<p>Personal speed dial entries</p> <p>Ring volume</p> <p>Ring type</p> <p>Calls log options (Auto logging)</p> <p>Display contrast</p> <p>Dialling options (Automatic dial, Predial and Standard dial)</p>	<p>External autodial key assignments</p> <p>Internal autodial key assignments</p> <p>Programmable key assignments</p>

Commander NT40 default key assignments

Default features are assigned automatically to the programmable keys on Commander NT40 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 the Economy/M7100N and 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/M7208N Keystation can have only seven Intercom keys if Handsfree is programmed.

Each keystation can have up to eight 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. Redial]	[Last no. Redial]	[Ext. no. Redial]
[Divert]	[Divert]	[Divert]
[Transfer]	[Transfer-J]	[Transfer]
[Conference]	[Conference]	[Conference]

Economy/M7100N Keystation

Square	Hybrid	PBX
[Transfer]	[Transfer]	[Transfer]

Standard/M7208N Keystation

Square	Hybrid	PBX
[Line]	[Line]	[Conference]
Line 2	Line pool	[Group k u p]
Line 3	Ext. no. Radial	[Last]
Line 4	[Speed]	[Speed Dial]
[Transfer]	[Transfer]	[Transfer-J]
[Intercom]	[Intercom]	[Intercom]
[Intercom]	[Intercom]	[Intercom]
Handfree	Handfree	Handfree

Advantage/M73 1 ON 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/M73 1 ON Keystation memory keys with indicators



Square	Hybrid*	PBX*
Line 1	[Line] (mm----J)	[Conference]
Line 2	Line pool	[Page General]
Line 3	Ext. no. Radial	[Last no. Radial]
Line 4	[Diverc]	[Diverc]
[Intercom]	[Intercom]	[Intercom]
[Intercom]	[Group Pickup]	[Group Pickup]
[Speed Dial]	[Speed]	[Speed Dial]
Handfree	Handfree	Handfree

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]	(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 Control
blank	DND	(blank)	[DND]	(blank)	DND
blank	Group Pickup	(blank)	[Group]	(blank)	Group Pickup
blank	Voice Call	(blank)	[Call]	(blank)	Voice Call
blank	Intercom	(blank)	[Intercom]	(blank)	Intercom
blank	Intercom	blank	Intercom	(blank)	Intercom
blank	Handshree M7324N	(blank)	Handshree M7324N	(blank)	Handshree M7324N

* Default key assignments for station 221 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]	
[Fs]	
Feature	Fx
Handshree M7324N	H/Mute

Applying key cap **labels**

Before you apply key labels, activate the Key Inquiry feature (Feature [*] 0) 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 NT40 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.

1. Press **Feature** **[*] [*] [P] [R] [O] [F] [I] [L] [E]** **[*] [*] [7] [7] [6] [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/M73 10N or Principal/M7324N Keystation.
2. Press **Feature** ***** ***** **S** **T** **A** **R** **T** **J** **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 **Fls**.

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 **Fls**. 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 **All low 100 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 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 **Tim&Date**).
5. If you install a BRA cartridge, program for the BRA loop type and set the Sampling rate (S-loops only) or the Protocol (T-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 PSTN 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 Program** ins 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 Program** 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 **Routing 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 Program** ins).
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 an 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 Prm* ins).
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.



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 BRA cartridges" on page 146, leaving out any BRA programming actions. If one of the LC slots on the ME is a BRA and the other is Loop, continue with steps 4 to 11 of "Programming checklist for a system with BRA cartridges" on page 146 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 * * C O N F I G . The display reads **Password:**
2. Enter the Installer password. The display reads **Strat&Peripheral.**
3. Press until the display reads **Time&Date.**
4. Press Hour:
5. Press **CHANGE**. If you don't want to change the hour, press .
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 . The display reads **Minutes:**
8. Press **CHANGE**. If you don't want to change the minutes, press .
9. Enter the minutes (00 to 59).
10. Press . The display reads **Year:**
11. Press **CHANGE**. If you don't want to change the year, press .
12. Enter the year (last two digits of the current year).
13. Press . The display reads **Months:**
14. Press **CHANGE**. If you don't want to change the month, press .
15. Enter the month (01 to 12).
16. Press . The display reads **Day :**
17. Press **CHANGE**. If you don't want to change the day, press .
18. Enter the day (01 to 31).
19. Press to exit or 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 NT40 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 NT40 ME supports analogue Line Cartridges and ISDN BRA Cartridges. Program the cartridge type for each slot to match the cartridge in that slot. The default setting is PSTN.

In Hardware you view and change the settings for the Line and ISDN BRA Cartridges installed in the ME.



Before Changing loop Type or Sampling

The ISDN BRA Cartridge must be disabled in Maintenance, Module Status before you can change these settings. You can change these settings if the cartridge has not yet been installed in the ME slot and re-enable the cartridge after changing the setting.

Programming for Cartridge 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]** until the display reads **Hardware**.
4. Press **[show]**. The display reads **LC1-ME:PSTN**. Press **CHANGE** to choose the appropriate cartridge. Choices are **PSTN** or **BRA-4**.

If you are setting the second cartridge on the ME, press **Next: _____**. The display reads **LC2-ME:**.

Tip - If your system is using an NT40 Compact software cartridge that has not been expanded, you will see only settings for **LC1-ME**

5. Press **Heading** until the display reads **Hardware**.
6. Press **Next: _____** until the display reads **Maintenance**.
7. Press **[Show-]**. The display reads **System version**.
8. Press **[Next]** until the display reads **Module status**.
9. Press **[Show]**. The display reads **Show module**.
10. Enter the module number you want. The display reads **ME (1):** or **Mod n:**.
11. Press **STATE**. The display reads **Disabled by user**.
12. Press **ENABLE**.
13. Press **[R.S.]** to exit.

Programming for the ISDN BRA loop type

	loop type selection of ISDN lines is limited to the default T or S.
	Allow time for ISDN BRA Cartridges to initialise When ISDN BRA Cartridges initialise, the Commander NT40 system performance may appear slow until initialising is completed. The download will take between 5 to 10 minutes. ISDN downloading 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.

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** **I** **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 reads **LU-ME**.
5. Press **Next**. The reads **LC type BRA-4**.
6. Press **Show**. The display reads **LOOPS: 201- 204**.
7. Press **Next**. The display reads **LOOP nnn**.
8. Press **[show]**. The display reads **Type: T**. To change the type setting, you press **CHANGE** and choose between **T** or **S**.
9. Press **[Als]** to exit or **[Next]** to continue programming.

Sampling

You need to set the Sampling rate only for S loops when providing a User-Side S Bus for an ISDN BRA Cartridge. The options are Fixed and Adaptive. The default setting is Adaptive.

1. Press **Feature** ***** ***** **C** **C** **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 `Hardware`.
4. Press `[Show]`. The display reads `LU-ME`.
5. Press `[Next]`. The display reads `LC type BRA-4`.
6. Press `[Show]`. The display reads `Loops: 201-204`.
7. Press `[Next]`. The display reads `Loop nnn`.
8. Press `[show]`. The display reads `TYPE: 5`.
9. Press `[Next]`. The display reads `Sampling:`.
10. Press `CHANGE` to select the sampling used by an S loop:
 - **Fixed:** if two or more ISDN terminals are being installed on the S loop and the length of the loop is less than 200 m (34 ohm of 0.5 mm cable), set the Sampling rate to Fixed.
 - **Adaptve:** if two or more ISDN terminals are being installed on the S loop and the length of the loop is greater than 200 m (34 ohm of 0.5 mm cable), set the Sampling rate to Adaptve.

If one ISDN terminal is being installed on the S loop, the length of the loop can be up to 800 m and the Sampling rate should be set to Adaptve.

Programming station numbers for ISDN terminals

ISDN terminal S loop preparation

If you have installed an S loop for a User-Side S Bus for ISDN terminals, you must assign a station number to the loop for the terminals to be able to make or receive calls:

- You can assign up to eight station numbers to one loop.
- Any given station number can be assigned to one loop only.
- You cannot assign a station number to a T loop.

Commander NT40 uses the station number assigned to the ISDN terminal as the terminal address to distinguish that terminal from other terminals.

The total range of station numbers available for ISDN terminals on S loops is 297-304 by default.

Although an ISDN S loop can support up to eight terminals, the loop has a limit of two B-channels. An ISDN data or voice terminal uses one B-channel for an incoming or outgoing call. An ISDN video terminal uses two B-channels for an incoming or outgoing call. If both B-channels are in use, other terminals on that loop will not be able to make or receive calls until a B-channel is available, or until both B-channels are available in the case of a video terminal.

Therefore, the number of terminals installed on an S loop must take into account whether the customer requires dedicated access for the terminals on that loop.

Note: Contact Commander Care Online at 1800 809 88 1 for details of certified ISDN Terminal equipment.

Multiple Subscriber Numbering (MSN)

Commander NT40 supports MSN on ISDN S loops. For MSN capability, assign an ISDN station number (default range 297-304) for each of the ISDN station number terminals on the loop, up to a maximum of eight.

Once an ISDN terminal is installed, program the terminal to recognise the station number assigned to it. The terminal must accept a terminal address of the same length as the system numbering plan (three to seven digits).

All ISDN terminals on the loop that have not been assigned a specific station number will ring for any internal or external call made to the S loop.

See the instructions accompanying the terminal for information on how to program it to recognise its assigned station number.



Single station numbering (no terminal address)

For single station numbering, assign only one Loop station number (default range 297-304) for the S loop.

All ISDN terminals on the loop that have not been assigned a specific station number will ring for any internal or external call made to the S loop.

Once an ISDN terminal is installed, program the terminal to recognise the Loop station number. The terminal must accept an

address of the same length as the system numbering plan (three to seven digits).

See the instructions accompanying the terminal for information on how to program it to recognise its assigned station number.



Sub-addressing

Commander NT40 supports sub-addressing on S loops. This allows you to have one ISDN station number for several ISDN terminals on the loop and a sub-address of that ISDN station number for each ISDN terminal.

Once an ISDN terminal is installed, program the terminal itself to recognise the sub-addressing number assigned to it.

See the instructions accompanying the terminal for information on how to program a sub-address.

Assigning or removing an ISDN station number

1. Press **Feature** ***** ***** **C** **C** **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 **LC1-ME:BRA-ST.**
Press **[Next]** if you are changing the setting for a loop on the second cartridge. The display reads **LC2-ME:BRA-ST.**
5. Press **[show]**. The display reads **LC type: BRA-ST.**
6. Press **[Next]** twice. The display reads **Loop.** If you are programming for another loop, press **[Next]** until the display reads the cartridge you want.
7. Press **[Show]**. The display reads **Type: S.**
8. Press **[Next]** twice. The display reads **Stns on LP.**
9. Press **[Show]**. The display reads **Assign Stns.**
10. Press **[show]**. The display reads **Show Stn#:**
11. Press **SCAN** or enter a station number. (You can also press **[Next]** to automatically display the first default ISDN station number. This is useful if the system numbering plan has been changed at Startup.
12. The display reads **Avail lab 1, Assigned** (assigned to this loop), ***LPRN*** (assigned as the default station of another loop), or **LPRN** (assigned to another loop).
13. Press **CHANGE** to assign the station to the loop or to remove it.
14. Press **[Pls]** to exit or **[Next]** to continue in programming.

Assigning or removing an ISDN loop station number

After one or more ISDN station numbers have been assigned to the S loop, a Loop station number can be assigned so that calls can be made from terminals with no terminal address on the loop.

Commander NT40 uses the Loop station number to distinguish the terminals on that loop from terminals installed on other loops.

The Loop station number associated with a call is also used by Commander NT40 as the Outgoing ID when a call is made from a terminal on that loop with no terminal address or station number. The Outgoing ID is the number that is displayed on all called terminals.

Choose one station number assigned to the S loop to be the Loop station number.

You can also set the Loop station number to None, if all the ISDN terminals on the loop have a station number and do not require a Loop station number. The default setting is 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 **Hardware**.
4. Press **[show]**. The display reads **LC1-ME:BRN-ST**. Press **Next** if you are changing the setting for a loop on the second cartridge. The display reads **LC2-ME:BRN-ST**.
5. Press **[show]**. The display reads **LC type:BRN-ST**.
6. Press **Next** twice. The display reads **Loop**. If you are programming for another loop, press **Next** until the display reads the cartridge you want.
7. Press **Show**. The display reads **Type S**.
8. Press **Next** twice. The display reads **Stns on LP**.
9. Press **Show**. The display reads **Assign Stns**.
10. Press **Next**. The display reads **Loop Stn:**.
11. Press **CHANGE** until the display shows the ISDN station number you want to assign, or until the display reads **None** if you do not want to assign a Loop station number.

Tip - The ISDN station number must be assigned to the S loop to be chosen as the Loop station number.
12. Press **[P's]** to exit or **Next** to continue in 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/M7 100N and M7000 Keystations 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 dialed 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
 * * L I 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 "Programming overview" on page 125, 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 3 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 dialed 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&Peripherals**.
3. Press **Next** . The display reads **Lines**.
4. Press **[show]**. The display reads **Show 1 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 1 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 C**, **Public**, and **Private** to:
Options for DDI lines are: **Public** and **Private** to:
10. Press **[F15]** to exit or **Next** to continue programming.

Note: Before a line pool can be used, you must assign Line Pool access to stations in Line Access under Stations&Peripherals. System-wide Line Pool access codes in Access Codes under System programming may also be required.

A station can be administered to search automatically for an idle line from several lines in a line pool. Assign a line pool as the prime line (in Line Access). When you lift the handset or press **Handset**, any one of the lines, if idle, will be selected by automatic outgoing line selection.

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 1 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 1 line`.
8. Press `[Next]` until the display reads `PrimeStn:`
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 `[P.s]` 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 and PSTN lines.

1. Press `Feature` `[*]` `[*]` `[C]` `[O]` `[]` `[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 1 line:`
5. Enter the line number. The display reads `Line nnn: Line nnn`.
6. Press `[Show]`. The display reads `Line dab`.
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 `[P.s]` to exit or `[Next]` to continue programming.

Answer mode

Calls on BRA and PSTN lines can be handled manually or automatically. The default for BRA and PSTN lines is **Manual**. The Answer mode setting appears on the display during programming for PSTN lines when the Line Mode setting is ROI.

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 BRA line that is set to Auto.

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 1 line:**.
5. Enter the line number. The display reads **Line num: Line num**.
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 **Pls** to exit or **Next** to continue programming.

Answer with DISA

The Answer with DISA setting specifies whether a line is answered with stuttered dial tone. A remote caller must enter a COS password to obtain system dial tone.

If set to No, the line is answered with system dial tone and a remote caller has the option to enter a COS password to override the existing Restriction filter.

This setting appears only when Answer mode is set to Auto. The default setting is No. As well, for Auto answer PSTN lines, Line Mode must be set to ROI.

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 1 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 with DISA:**
9. Press **CHANGE** to select the setting: Y (Yes) or-N (No).

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] [] [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 1 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 **[Ris]** 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 BRA 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 1 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 **[Fis]** 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][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 1 in:.
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 **[Fis]** 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][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 1 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 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 **[F5]** 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 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 1 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:FSTN`.
8. Press `[Next]` until the display reads `Recall :`.
9. Press `CHANGE` to select the setting: 100,600 milliseconds.
10. Press `[Fis]` to exit or `[Next]` to continue programming.

Programming for Direct Dial Inward (DDI) lines

Direct Dial Inward (DDI) allows 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 101 to 140 between the Commander NT40 ME and the stations are called DDI lines.

BRA lines must have *Answer Mode* programmed to *Auto* for DDI. Outgoing calls can also be made on auto-answer BRA 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 174).

If the DDI line is programmed to *Appr&Ring* or *Appr only*, then the station can have as many simultaneous DDI calls as there are DDI key appearances. If the DDI line is programmed to *Ring only* then the station can have as many simultaneous DDI calls as there are Intercom keys.

Number of appearances

The installer programs the number of appearances for each DDI line assigned to the station. 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 are free 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.

Automatically, the first DDI line (101) is assigned to the first Start station number of 5001, DDI line 102 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.

Received number

When the system automatically answers an incoming call on auto-answer ISDN BRA lines, it matches these digits to a Received number, and routes the call to the appropriate DDI line.

The installer programs the Received number length. 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.



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 101 to ring when the Commander NT receives the digits 34.

1. Press **Feature** ***** ***** **C** **O** **N** **F** **I** **G**. The display reads **Password:**
2. Enter the Installer password. The display reads **Stns&Peripherals**.
3. Press **Next**. The display reads **Lines**.
4. Press **[show]**. The display reads **Show 1 line:**
5. Enter the line number of a DDI line (101 to 140). The display reads **Line num: Line num**.
6. Press **[show]**. The display reads **Line Data**.
7. Press **Show**. The display reads **DDI 1 inc**.
8. Press **Next** until the display reads **R&d #:None**.
9. Press **CHANGE**. Enter a number (1 to 7 digits).
10. Press **[Fis]** to exit or **Next** to continue programming.

If busy

You can program a DDI line to return busy tone or route a call to the Prime station for the line, if all stations are busy.

When *If busy* is set to *Busy Tone*, the caller receives a busy tone.

When *If busy* is set *To Prime* the call is 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** **I** **G**. The display reads **Password:**

2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press **[Next _____]**. The display reads **Line-z**.
4. Press **[Show]**. The display reads **Show 1 line:**
5. Enter the line number of a DDI line (101 to 140). The display reads **Line nnn: Line nnn**.
6. Press **[Show _____]**, The display reads **Line Data**.
7. Press **(Show)**. The display reads **DDI 1 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 **[R&]** 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 (**@ND**) is turned on for a station, internal and network callers hear a busy tone. External callers are transferred to the Prime 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 hears busy tone. When **Zfbusy** is set to **Busy Tone** the call is routed to the Prime station if the DDI line feature is set to Prime station.

The **Zfbusy** feature is a line feature and **DND** is a station feature. The **If busy** feature is activated when a call cannot ring at any station in the system.

The following 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:				
If Prime is Yes	Ring-back, call goes to Prime	Ring-back, call goes to Prime	Busy Tone	Ring-back, call goes to Prime
If Prime is No	Busy Tone	Busy Tone	Busy Tone	Busy Tone

Note: DDI does not apply to ISDN lines that are programmed as manual answer lines.

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 or on an Answer key.

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
- Ping 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 101 to 140 is Unassigned.

Ensure that lines are assigned to an Economy/M7100N and M7000 Keystation ring; otherwise, you cannot detect incoming calls on the 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 **(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 **[show]**. The display reads **Show 1 ine:**.

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 **FN** 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 205.

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/M71 OON. and M7000 Keystation and SLT cannot have Answer keys

Since they have no memory keys with indicators, the Economy/M71 OON and M7000 Keystation and SLT cannot have any Answer keys. The system allows you to assign Answer stations to Economy/M71 OON and M7000 Keystation and SLT, but this does not create Answer keys. Calls for the monitored station do not ring at the Economy/M71 OON and M7000 Keystation or SLT.

Assigning a keystation to monitor another station

1. Press **Feature** * * **C D 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 APPr&Ring or APPr only.
11. Press [Ris] 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] [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 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 [Ris] to exit or [Heading] to continue programming.

Removing an Answer 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 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 **[show]**. The display reads **Show str#:**.
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 **[F1s]** to exit or **[Heading]** 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 NT40 can have three 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 **[Feature] [*] [*] [C] [O] [N] [F] [] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripherals**.
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]**. The display reads **LinePool access**.
8. Press **[show]**. The display reads **Line Pool A:**.
9. If you want to program access for a different line pool, press **[Next]** until the display reads that line pool.
10. Press **CHANGE** to toggle the setting.
11. Press **[F1s]** to exit or **[Next]** 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 prgming**.
4. Press **Show**. The display reads **Mute 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 R:**.
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 **Fls** 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 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 **Prime line:I/C**.

8. Press **CHANGE** to change the setting.
9. Press **[F:3]** 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 and M7000 Keystation or a telephone connected to a Single Line Telephone 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/M7 1 00N and M7 100 Keystation do 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] [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.
5. Press `[show]`. The display reads `Line access`.
6. Press `[Show]`. The display reads `Line assignment`.
7. Press `(Next)` until the display reads `Intercom keys:`.
8. Press `CHANGE` to change the setting.
9. Press `[Els]` to exit or `Next` to continue programming.

Originating Line Identification number

Outgoing calls on an ISDN line use an Originating Line Identification (OLI) number, which appears on the keystation display of the called party as part of the calling line identification (CLID). Commander NT allows you to program the OLI number for each station. The OLI number could be the Received number for the DDI line assigned to the stations, or it could be a different Received number if you wish calls to be returned to someone else's station. Ensure that the OLI numbers are in the same range as the received digits that come from the exchange.

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 station is the Received number for the assistant's station. Thus, a client viewing the CLID number on their keystation display sees the assistant's telephone number.

If the OLI number is set to None, then the CLID displayed at the called party's keystation is simply the network listed number (the number that is listed by the network). If the programmed OLI number is outside the allowed range, Commander NT. may insert a default number.

Note: OLI must be programmed for ONN blocking (Calling Line ID Restriction) `Feature [E] [f] [9]` to work with an ISDN line.

1. Press `Feature [E] [*] [*] [C] [O] [N] [F] [I] [9]`. 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. Press **CHANGE** and enter the number, up to 9 digits (FNN (area code and phone number) less the leading 0).
9. Press **RS** to exit or **Next** to continue programming.

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 NT supports up to 6 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 station number range for hunt groups is 315 to 320. The station numbers in this range cannot be members of a hunt 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 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 (01-06).
7. Press **[Show]**. The display reads **Member Stats:**.
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 **[F16]** 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] [*] [*] [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 (01-06).
7. Press **[Show]**. The display reads **Member Stats:**.
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 **[F16]** 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] [*] [*] [C] [O] [N] [E] [] [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 (01-06).
7. Press **[Show]**. The display reads **Member stats:**.
8. Press **[Next]**. The display reads **Line assignment**.
9. Press **[Show]**. The display reads **Show 1 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**.
HGrp means the line is assigned to another hunt group.
12. Press **[Fls]** 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 187). 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 (01-06).
7. Press **Show**. The display reads **Member stns:**.
8. Press **Next** until the display reads **Mods:**.
9. Press **CHANGE** to set the mode: **Sequential**, **Cyclic**, **Broadcast**.
10. Press **Pls** 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 (01-06).
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 **Pls** 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
 - 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** **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 (01-06).
 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 **Fls** 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** **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 (01-06).
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 (01-06).
7. Press **[Show]**. The display reads **Member stns:**.
8. Press **[Next]** until the display reads **Overflow:**.
9. Press **[Show]**. The display reads **Overflow:Hn**.
10. Press **CHANGE** to change the overflow position.
11. Enter the new overflow position.
12. Press **[Fis]** 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 (01-06).
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][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 **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 **H<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 **Abdn%:**.
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 **Overf 1:**.
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

- Change station numbers **192**

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 214.

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.

Remember that the start station is the lowest default station number.

Do not perform Startup again, or all previous programming will be erased.

1. Press **[Feature]**, **[*]**, **[*]**, **[C]**, **[C]**, **[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 **Unit 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.

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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 and the On Hold feature must be set to Music. The default setting for Background music is N (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 **Next** until the display reads **System PRGMIN9**.
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 **CHANGE** to choose Y (Yes) or N (No).
8. Press **AB** 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** ***** ***** **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 PRGMIN9**.
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 **AB** 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** ***** ***** **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 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 [Rs] to exit or [Next] to continue programming.

Note: This feature is not available on some older keystations.

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] [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 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 [Rs] 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** **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 **Park timeout:**.
8. Press **CHANGE** to change the setting.
9. Press **[Fis]** 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 10 1 to 109. The Economy/M7 1 OON and M7000 Keystations and SLT use only retrieval code 109.

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 109). If the last parked call was assigned 106, then the next one is assigned 107. If the last retrieval code was 108, then the next code is 101.

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 **Featr sett ings**.
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 **Rs** 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.][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 **Trnsfr revert:**.
8. Press **CHANGE** to choose **20, 30, 45, 60, 90** seconds.
9. Press **Rs** to exit or **Next** to continue programming.

Network revert

If you transfer a call to a external destination and the call is not answered, it comes back to you after a specified time. Network revert defines the time, in seconds, before a call is returned to your station.

Since the time required to transfer a call across the telephone network varies, you may need to experiment to achieve the correct setting.

Note: Depending on how the external call is routed, it may not always be possible for the system to return a transferred call.

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 **Feature settings**.
6. Press **[Show]**. The display reads **Background music**.
7. Press **[Next]** until the display reads **Network revert**.
8. Press **CHANGE** to choose 15, 30, 45, 60, or 90 seconds.
9. Press **[Fis]** 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 I G]**. The display reads **Password**.
2. Enter the Installer password. The display reads **System 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 **Feature 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 **[Fis]** 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 **Strs&Peripheral**.
3. Press [Next] until the display reads **System prgrms**.
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 **Strs&Peripheral**.
3. Press [Next] until the display reads **System prgrms**.
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] [] [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 **Conference tone:**.
8. Press **[CHANGE]** to choose Y (Yes) or N (No).
9. Press **[Fls]** 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] [] [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 **Directed pickup:**.
8. Press **[CHANGE]** to choose Y (Yes) or N (No).
9. Press **[Fls]** 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] [] [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 **Page tone:**.
8. Press **CHANGE** to choose Y (Yes) or N (No).
9. Press **[Ris]** 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 **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 **PageTimeout:**.
8. Press **CHANGE** to choose 15, 30, 60, 120, 180, 300, 600, 2700 seconds.
9. Press **[Ris]** to exit or **[Next]** to continue programming.

Automatic Time & Date

When an outgoing BRA 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 Tim&Date**.
8. Press **CHANGE** to choose Y (Yes) or N (No).
9. Press **[Fis]** 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 reallocate 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 250 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 reallocated under **Stns&Peripheral**.

Reallocating call log space may destroy call log data at keystations that lose space.

1. Press **Feature** **[*]** **[*]** **[C]** **[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 **Featn settings**.
6. Press **[show]**. The display reads **Background music:**.
7. Press **[Next]** until the display reads **Ca ll log space**.
8. Press **[Show]**. The display reads **Reset al l 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 reallocates Log space. Press **NQ** to reset the number of spaces allocated to each log.
11. Press **[Fis]** 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 **[F.s]** to exit or **[ii]** 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/M731 ON 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 **[F.s]** 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** ***** ***** **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 PRGM ins**.
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 **Esc** 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 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 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 **Msg 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

Programming Direct-dial

- D-Dial 208
- **Number** 208
- **Line selection..** 209

Direct-dial lets you dial a designated station with a single digit. Direct-dial stations can be inside the Commander NT40 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 NT40 system can have one designated Direct-dial station.

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]** **[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-Dial 1:**.
7. Use **[Show]** and **CHANGE** to select the setting: **Intrnl**, **Extrnl**, or **None**.
8. Press **[Fis]** 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]** **[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-Dial 1:**.
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 **[Fis]** 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 NT40 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]**, **[I]**, **[G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Strs&Peripheral**.
3. Press **[Next]** until the display reads **System forming**.
4. Press **[Show]**. The display reads **Hunt groups**.
5. Press **[Next]** until the display reads **Direct-dial 1**.
6. Press **[Show]**. The display reads **D-D dial 11 :Extern 1**.
7. Press **[Show-]**. The display reads **Extern1#:**.
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 1 line:** or **Pool code:** you will have to enter a specific line number or pool code.
12. Press **[Fis]** 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*.

Programming the DSS Console/CAPN Module

- Direct Station Select Console/Central Answering Position Module.. **2 12**

Direct Station Select Console/Central Answering Position Module

You can designate one station in the system as the Direct Station Select Console/Central Answering Position station. When a station is designated a 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 a DSS Console/CAPN Module can handle up to 60 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** ***** ***** **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 **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 **[Fis]** to exit or **[Next]** to continue programming.

Changing or deleting a Direct Station Select assignment

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 **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 **[Fis]** to exit or **[Next]** to continue programming.

Programming Access codes

- Line pool codes.....214
 - Park prefix.....215
- Exchange line access code.....215
 - Direct-dial #.....216
 - Auto number.....217
 - DISA number.....218

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 prgrming
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	S e r v i c e s

Line pool codes

This setting enables you to assign a Line Pool access code for each of the three line pools (A to C). 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** ***** ***** **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stris&Peripherals**.
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. Use [show], **CHANGE**, the dial pad, and **OK** to program the access code.
8. Press **Fls** 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** **D** **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 PROGRAM**.
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 w-&ix:**.
8. Press **CHANGE** to select the setting: 1 to 9, None, or 0.
9. Press **Fls** 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** **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 **Access codes**.
6. Press **(Show)**. The display reads **Line Pool code:**.
7. Press **(Next)** until the display reads **Extrnl code:**.
8. Use **CHANGE** to select the setting: 1 to 9, None, or 0.
9. Press **(Ris)** 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 that can be used to call a specific station called a Direct-dial station. 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 **N o n e**.

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 **[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 NT40 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 Prgrming**. 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 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 **[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 NT40, 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 Prgrming`. 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 [] [] 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 `[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 `[Pis]` to exit or `[Next]` to continue programming.

Programming Auto Attendant

• Auto Attend.....	220
• System Answer.....	221
• CCR.....	222

Two settings for Auto Attendant, Auto Attend and CCR lines, are programmed by the installer. See the “Auto Attendant” chapter in *the System Administration Manual* for information on programming other Auto Attendant features.

The auto attendant option must be purchased and unlocked with keycodes prior to initiating. See “Software Keys” on page 251.



Initiating a Program Session when the Auto Attendant Feature is enabled.

Do not use the Attendant station to initiate a programming session when the Auto Attendant feature is enabled.

If programming is entered from the attendant station:

- any new calls on the system will not ring on the attendant station and therefore will not answer the call.
- any existing call that has already been answered by the auto attendant will be placed on common hold once the greeting has been played and able to be retrieved from other stations.

You will be unable to enter programming from the attendant station with a call answered by the auto attendant or on common hold on the attendant station. The display on the keystation will show:

Release all Calls.

Once the programming session is terminated, all new calls will be available as normal.



Unanswered calls ring back to other stations.

When the Auto Attendant transfers a call to a station that isn't answered, the call rings back to the Auto Attendant and to all stations with a ringing appearance for that line.

Auto Attend

This setting makes the Auto Attendant features (System Answer and Custom Call Routing) available on the system. System Answer automatically responds to unanswered calls at the attendant station and puts them on hold until they can be retrieved. Custom Call Routing enables callers to direct their calls using pre-recorded prompts.

You cannot change this setting until you enter special codes under Software Keys. For more information, see “Software Keys” on page 251 to unlock this optional 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]** until the display reads **System Prgrming**.
4. Press **[show]**. The display reads **Hunt Groups**.
5. Press **[Next]** until the display reads **Auto Attendant**.
6. Press **[show]**. The display reads **Auto Attend:**.
7. Use **CHANGE** to toggle the setting: On or Off.

If a Voicemail auto attendant or Custom Call Routing device is used with the system, turn the setting to OFF.

The Auto Attendant on the Commander NT40 is designed to assist an operator with call handling. Due to Digital Signal Processing (DSP) resources, a maximum of three simultaneous System Answer and Custom Call Routing can be handled by the Auto Attendant. Any further calls will be ignored by the Auto Attendant until these resources become available.

There are several other activities on the Commander NT40 system that require DSP resources and if utilised, they can have an affect on the amount of simultaneous calls that the Auto Attendant can answer. These include the Internal Modem, Conferences and other Auto Attendant sessions. If it is important to the business that ALL calls be automatically answered, a more powerful off-core Auto Attendant application may be more appropriate.

For more information on Auto Attendant, refer to the *System Administration Manual*.

System Answer

The System Answer feature simplifies the job of answering calls by making sure all calls are answered within a set number of rings. When calls go unanswered at the station monitored by System Answer (called the attendant station), Commander NT40 answers the call and plays a greeting. It then puts the call on hold until someone can retrieve it.

If the caller knows the station number he or she wants to reach, or is using the Commander NT40 remote features, he or she can dial while the System Answer greeting is playing.

System Answer monitors all external calls that appear as a ringing line key on the attendant station, including DDI lines, Answer keys and external calls that have been transferred. After System Answer has played the greeting, the call will be put on hold at the same line indicator where it first appeared. The feature does not allow for answering calls from internal stations.

For more information on Auto Attendant, refer to the *System Administration Manual*.

CCR

Custom Call Routing (CCR) enables calls on certain lines (including DDI lines) to be directed to a station or group of stations according to a numbered menu offered to a caller. Custom Call Routing (CCR) will not answer calls if the Answer mode for a line is set to Auto. See “Answer mode” on page 164.

To choose what lines will be answered by CCR:

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 PRGM ins**.
4. Press **[show]**. The display reads **Hunt GROUPS**.
5. Press **[Next]** until the display reads **Auto Attendant**.
6. Press **[Show]**. The display reads **Auto Attendant**.
7. Press **[Next]** until the display reads **CCR**.
8. Press **[Show]**. The display reads **After 3 rings**.
9. Press **[Next]**. The display reads **CCR 1 lines**.
10. Press **[Show]** and enter the three digit line number.
11. Use **[CHANGE]** and **[Next]** to choose which lines will be answered by the CCR feature. The options are Yes or No. The default setting is No.

For other information about CCR settings, see the “Auto Attendant” chapter in the *System Administration Manual*.

Programming Fax switch feature

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 - Programming the Fax switch.....226

Note: The Auto Attendant feature must be unlocked by your installer with keycodes for the Fax switch feature to function. See “Software Keys” on page 25 1, for more information.

The Fax switch feature monitors incoming lines and automatically transfers calls to a fax when it hears fax tones. The Fax switch contains all of the required Fax tone detection and transfer abilities within the Commander NT40 system.

External devices between the PSTN and the Commander NT40 are not necessary, to monitor analogue and digital lines for Fax tones. If the Fax switch is configured, the Auto Attendant answers a call, the Fax switch feature turns on and monitors for fax calling tones.

The Fax switch feature allows for

- easy connection to the Commander NT40 system, through the I-SLT Adaptor port or through an SLT Adaptor connected to any TCM port.

Note: To prevent a Fax device from answering a line before the Auto Attendant answers, do not define the Appear and Ring or Ring settings for the SLT Adaptor.

- configuration of a system with just one incoming line, answered by an Auto Attendant, used for voice, data, and Fax services.
- Commander NT40 systems which have a mix of analogue and digital incoming lines. All of these line types, if answered by an Auto Attendant, can handle voice, data, and Fax services.
- configuration of a Hunt group that contains a collection of Fax devices. All Fax devices collected under one station number.

Note: Hunt group mode must be to either Cyclical or Sequential. The use of Broadcast mode is not recommended.

Fax detection

The Fax switch feature requires a Fax tone detector to listen to incoming lines. The Fax switch feature automatically transfer a call to a Fax machine when it hears Fax tones.

The Fax tone detector listens for the standard fax calling tone*. Fax machines emit fax calling tones to connect with another Fax machine or a device capable of handling Fax calls. The Fax tone detector listens for 0.5 seconds of the Fax frequency tone. Three seconds of silence (the absence of tone), followed by the detection of the Fax frequency tone again. The Fax detector requires up to seven seconds to determine if a call is a Fax call or not.

If the Fax tone detector detects a Fax call, the call is transferred to a Fax station number in the Commander NT40 system.

The Fax tone detector ceases to monitor for fax tones during a call when:

- there is no Fax call detection within the first seven seconds of a call, or
- a caller enters a Direct Inward Access (DIA) number.

The Fax tone detector can have one Fax station number programmed. If there is no Fax station number in the system, the Fax tone detector does not activate.

Note: A Fax tone detector cannot be used when a fast modem is in use.

(* Fax calling tones (CNG) as described in ITU-T T.30. The system will detect these Fax calling tones down to a level of -27 dBm.)

Auto Attendant interactions with the Fax switch feature

To enable the Fax switch feature and the Auto Attendant to manually answer lines after a predefined number of rings, define a Fax station number and turn the Fax switch On for either Auto Attendant feature (System Answer (SA) or a Custom Call Routing (CCR)).

When the Fax switch is enabled in a Commander NT40 system

- the first Auto Attendant answered call provides a playback channel, tone dialling and Fax tone monitoring capabilities
- a second Auto Attendant answered call (while the first one continues) provides only a playback channel and tone dialling monitoring capabilities.

When the Auto Attendant answers two calls, the system does not provide Fax tone detection to the second call. The Auto Attendant cannot answer a third call while the Auto Attendant is supporting the first two answered calls. When the first call no longer requires Auto Attendant support, the Auto Attendant provides Fax tone detection to the second call. The Auto Attendant can answer a third call providing playback channel and tone dialling monitoring capabilities.

When the Fax switch is enabled, the tone detector limit of three prevents the Auto Attendant from servicing three calls at once. The Auto Attendant can answer three lines when the Fax switch is Off.

The Auto Attendant has the necessary transfer capabilities required by the Fax switch. With an incoming Fax call, the call is transferred to the appropriate station number for the Fax machine.

The Fax switch monitors any line type answered by an Auto Attendant. The functionality a caller hears when the Auto Attendant answers, remain the same when the Fax switch is On. If a call is not

a Fax call, the system provides call handling (Auto Attendant) to the caller.

The length of time before a user enters the first digit must be at least seven seconds in length. The length of time includes the period of the Auto Attendant greeting and the time waiting, after the greeting finishes. Seven seconds is the maximum amount of time required by the Fax switch to determine if a Fax machine is calling. If a user starts to enter digits (for example, DIA) the Fax tone detector stops and a call is transferred.

Programming the Fax station number

To select a Fax 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 **Fax station**.
6. Press the **CHANGE** display key. Enter the station number you need the Fax switch feature to identify. The default is None.

The Fax switch identifies one station number and does not support the unique definition of a number of Fax devices. Through the use of the defined station number, a programmable option exist to create a collection of Fax devices. To support a collection of Fax devices

- use the Divert on Busy setting on a keystation.
- use the Hunt group functionality to collect all Fax devices under one station number.

Programming the Fax switch

System Answer

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 **Auto Attendant**.
6. Press **Show**. The display reads **Auto Attendant**.

7. Press [Next] until the display reads *System Answer*.
8. Press [Show]. The display reads *After:*.
9. Press [Next]. The display reads *Fax Switch:Off*.
10. Press the **CHANGE** display key. Select On or Off. The default is Off.

CCR

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 Programming*.
4. Press [Show]. The display reads *Hunt Groups*.
5. Press [Next] until the display reads *Auto Attendant*.
6. Press [Show]. The display reads *Auto Attend:*.
7. Press [Next] until the display reads *CCR*.
8. Press [Show]. The display reads *After:*.
9. Press [Next] until the display reads *Fax Switch:Off*.
10. Press the **CHANGE** display key. Select On or Off. The default is Off.

Because Custom Call Routing allows for more flexibility in automatically answering and transferring calls, CCR is best for the Fax detection setting. Custom Call Routing, different from System Answer, helps businesses that have no dedicated attendant answering calls.

Programming Remote access

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Remote access

Remote access packages enable you to control the remote use of Commander NT40 line pools and the paging feature. Packages are also used to control remote administration and monitoring of the system.

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, line pools, and remote administration. 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** ***** ***** **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 PROGRAMING**.
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 num**.
9. Press **[P:s]** to exit or **[Next** **]** to continue programming.

line Pool access

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 PROGRAMING**.
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 and **CHANGE**.
11. Press to select the Line Pool access setting for each pool: N (No) or Y (Yes).
12. Press to exit or to continue programming.

Remote page

1. Press * * **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press until the display reads **System prgrming**.
4. Press . The display reads **Hunt groups**.
5. Press until the display reads **Remote access**.
6. Press . The display reads **Rem access pkgs**.
7. Press . The display reads **SHOW PKG :**.
8. Use the dial pad to select the Remote access package you want to program.
9. Press . The display reads **LinePool access**.
10. Press . The display reads **Remote page:**.
11. Press **CHANGE** to select the Remote page setting: N (No) or Y (Yes).
12. Press to exit or to continue programming.

Remote administration

1. Press * * **C O N F I G**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Stns&Peripheral**.
3. Press until the display reads **System prgrming**.
4. Press . The display reads **Hunt groups**.
5. Press until the display reads **Remote access**.
6. Press . The display reads **Rem access pkgs**.
7. Press . The display reads **SHOW PKG:**.
8. Use the dial pad to select the Remote access package you want to program.
9. Press . The display reads **LinePool access**.
10. Press until the display reads **Remote admin:**.

11. press **CHANGE** to select the Remote administration setting: N (No) or Y (Yes).

Remote monitor

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 **Remote access**.
6. press **[Show]**. The display reads **Rem access pkgs**.
7. press **[Show]**. The display reads **Show Pkgs :**.
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]** until the display reads **Remote monitor:**.
11. press **CHANGE** to select the Remote monitor setting: N (No) or Y (Yes).

Remote line access

Enter the number of the line that will be accessible by remote users.

1001 Remote package

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 **Remote access**.
6. press **[Show]**. The display reads **Rem access pkgs**.
7. Press **[Next]**. The display reads **Rem 1 line access**.
8. Press **[show]**. The display reads **Show 1 line:**.
9. Press **[Next]**. The display reads **L001:Rem Pkgs 00**.
10. press **CHANGE** and enter the number of the Remote access package that will apply to remote use of the line.
11. Press **[Exit]** to exit or **[Next]** to continue programming.

Remote access Packages defaults

Parameter	Square	PBX	Hybrid
Package 00	Prohibits remote access to line pools, Page, remote monitoring and administration. Cannot be changed.		
Package 01 Line Pool access	Y for Pool A N for Pools B and C		
Remote page, administration, and monitoring	No		
Packages 02-15 Line pool access	N for Pools A to C		
Remote Page, administration and monitoring	N	o	

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 () : 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 NT40 to use Commander NT40 lines for calling out, the remote restrictions on the incoming line and line restrictions on the outgoing still apply.

Accessing the IRAD

Remote access capability for the Commander NT40 system is provided through a built-in remote access device. The IRAD functions in the same manner as an external RAD. However, because it is available to remote users, it cannot be accessed without a password.

To set up for access by a remote user, decide on the method that remote callers will use. Depending on the method selected, you have these programming options:

- If external users will call into the Commander NT.40 and be transferred to the IRAD, program one or more lines to auto-answer with DISA. Then program one or more COS passwords with a Remote package that permits remote administration, or remote monitoring, or both.
- If users from outside the office will be accessing the IRAD directly, at least one line on the system must be programmed to be answered by the IRAD.

Before the IRAD can be accessed directly by a remote user, you must assign it a line number to answer incoming calls.

Selecting a line

You can choose the line (001 to 008 and 031 to 038) the internal Remote Access Device (IRAD) uses to answer a remote personal computer. The IRAD answers the computer after a set number of rings. The default setting for Answer line is None and the default setting for the number of rings is 5.

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 **Remote access**.
6. Press **[show]**. The display reads **Rem access pkgs**.
7. Press **Next**. The display reads **Rem 1 line access**.
8. Press **Show**. The display reads **Show 1 line:**.
9. Press **Next**. The display reads **IRAD**.
10. Press **[Show]**. The display reads **Answer 1 line:**.
11. Press **CHANGE**. Enter the line the internal Remote Access Device (IRAD) will use to answer a remote personal computer. Enter 001 to 008, 031 to 038.
12. If you have entered a line, press **Next** to set the number of rings. The display reads **After:**.
13. Press **CHANGE** to select the setting: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12 rings.
14. Press **[Fis]** to exit or **[Next]** to continue programming.

Assigning a remote package to the line that the IRAD uses

Assign a remote package to the line the IRAD answers that will permit the level of access the remote user requires.

1. Press **Feature** **[*][*][C][O][N][F][I][G]**. The display reads **Password:**.

2. Enter the Installer password. The display reads
Stns&Periphara 1 .
3. Press **[Next:]** until the display reads System PRGMIN9.
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 1 line access.
8. Press **[show]**. The display reads Show 1 line:
9. Enter the line number assigned to the IRAD.
10. Press **CHANGE**. Enter the number of the remote package to be applied to the line that the IRAD uses.
11. Press **[F1s]** to exit or **[Next:]** to continue programming.

Dialling in to the IRAD

To connect to the IRAD, a remote user can

- call into the Commander NT40 system and be transferred by an attendant using **Feature [] [5] [1] [7]**.
- call into the Commander NT40 system, enter a COS password that permits Remote administration, and then enter **[*] [*] ([*] [*] R [A] [D])**.

IRAD password

When a remote personal computer is used for system programming the IRAD password is used at the computer to restrict unauthorised access to the Commander NT40 system.

The default password is the software's System ID. The IRAD password must be sixteen digits or less.

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 Passwords.
4. Press **[show]**. The display reads COS Pswds.
5. Press **[Next:]** until the display reads IRAD Pswd:.
6. Use **CHANGE**, the dial pad, and **OK** to program the IRAD password.

Received and station number length

- Changing the Received number length.....**238**
 - Changing the Station number length.....23 8
 - Release reasons.....**239**

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 169.



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 **[is]** 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 call?**

8. Press **YES**. The display reads **End of session**.

	<p>Data calls are dropped Commander NT data devices will drop calls if you change the station number length.</p>
---	--

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 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 **Release reasons:**.
6. Press **CHANGE** to choose **Simple**, **Detailed** or **None**.
7. Press **[Esc]** to exit or **Next** to continue programming.

Internal modem

- **Internal modem**242

Internal modem

The internal modem used for remote programming or monitoring can operate at two different speeds. The fast speed setting uses the V.32 bis modem standard, which supports baud rates of 4.8 kbit/s to 14.4 kbit/s. In some cases, network limitations may prevent the modem from connecting at the fast speed.

If you consistently have problems making calls to or from particular destinations, select the slow setting for the modem. The slow speed setting is designed for V.22 bis standard (2400 baud) and is much less likely to suffer from problems originating on the network. The default setting is **Fast**.

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 **Intnl modem**.
6. Press **CHANGE** to select the setting: **Fast**, **Slow**.



Changing the speed of the modem will cause the system to restart.

Programming Hospitality Services

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 - Room keystation 244
- Hospitality Services (HS) admin keystation..... 244
 - Hospitality passwords 244
 - Room desk information 245
 - Call restrictions 246
 - Service time 247
 - Alarm 247

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.

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 (for example check-in/check-out).

To gain access to Hospitality Services programming you must enter the Software Keys. See "Software Keys" on page 25 1, for more information.

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.

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 an analogue telephone connected to an SLT Adaptor.

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: **HOSP** (4677). To change the default Desk admin password:

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 **Passwords**.
4. Press **[show]**. The display reads **005 Pswds**.
5. Press **[Next]** until the display reads **Hospital ity**.
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** **S 7** . 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 I 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 **005 Pswds**.
5. Press **[Next]** until the display reads **Hospital ity**.
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, Economy/M7100N and 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&Peripherals**.
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 **[Show]**. The display reads **Show stn**.
8. Enter a room keystation number or press the **SCAN** or **END** display keys to find the room keystations defined in the system.
9. The display reads **nnnnn**. 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 **[Fils]** to exit or **[Next]** to continue programming.

Call restrictions

The **Call restrictions** 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] [L] [T]**. 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 [Fis] 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] [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 Hospital itr.
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 [Fis] 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 **[Esc]** to exit or **[Next]** to continue programming.

Network features

- **Call blocking (CLIR)** 250

ONN blocking (CLIR)

When activated, ONN blocking (Calling Line Identification Restriction (CLIR), Feature 819 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 #819.

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] [*] [*] [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 Netwk features.
4. Press [show]. The display reads ONN blocking:
5. Press [Show]. The display reads Tone: 831.
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 #.

Software Keys

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 - Entering Expansion keycodes.....252
 - Password Keys.....252

Enabling Auto Attendant and Hospitality Services

To enable the Auto Attendant and Hospitality Services features, the option must be unlocked with keycodes. Refer to the latest Technical Bulletin for instructions on how to obtain these keycodes.

Entering Expansion keycodes

To expand the NT40 Compact, 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.

Auto-Attendant and Hospitality Services keycodes and Expansion keycodes are different things. Expansion keycodes do not enable the Auto-Attendant or the Hospitality Services features.

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 `Software Keys`.
4. Press `[show]`. The display reads the `SysID:` followed by the unique System ID number.
5. Press `[Fils]` to exit or `[Next]` to continue programming.

Password Keys

Once you have received the codes record them in the *Programming Record*.

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 `Software Keys`.
4. Press `[Show]`. The display reads `SysID:` followed by the eight-digit System ID Number.
5. Press `[Next]`. The display reads `Password Keys`.

The Expansion, Auto Attendant and Hospitality Services keycodes are entered at this location. The system is able to determine by the keycodes entered which feature is to be unlocked.

6. Press `[show]` 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 NT40 system, activate the Auto Attendant or to 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

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 - Selecting a line.....256
- Setting the system to display a name instead of number.....257
- Setting whether this speed dial number will bypass restrictions.....25 8

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** **X** ***** **C** **C** **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 dia 1**.
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 **[F1s]** 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 1 line:** or **Pool code:**, or **Use routing tab 1:** you will have to enter a specific line number or pool code.
10. Press **[E]** 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 **[Eis]** to exit. If you choose N, press **[Next]** to set the name to be displayed. The display reads **Name: Sys Spd Dial nm.**
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 **[Eis]** 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] [L] [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 **[Eis]** 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.....260
 - Naming lines..260

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** **C** **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.
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 **[Fis]** 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** **C** **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 1 line!**.
5. Enter the line number.
6. Press **[Next]** until the display reads **Name**.
7. Press **[Show]**. The display shows the line number or current name.
8. Press **CHANGE**. Enter the characters of the name using the keystation dial pad.
9. Press **[Fils]** to exit or **[Next]** to continue programming.

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/M73 10N or Principal/M7324N Keystation.
2. Enter the station number of the keystation whose programming you want to check.
3. Use NEXT, HOME and BACK to navigate through the settings.

Setting divert

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 [4], 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 **(Feature) [4]** 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 **Feature [4] * [4] * [C] [O] [N] [E] [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 [Show]. 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 [Fis] to exit or [Next] to continue programming.

Cancelling Divert for an unanswered keystation

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 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 [Show]. The display reads `Divert to:`.
9. Press CHANGE. You can press CLR to change the destination back to None.
10. Press [Fis] 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] [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 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 **[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 **[F1]** to exit or **[Next]** to continue programming.

Cancelling Divert on busy

1. Press **[Feature] [*] [*] [C] [O] [N] [] [] [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 **[F1]** to exit or **[Next]** to continue programming.

Note: You can use the Do Not Disturb (Feature [8] [5]) 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 171.

Note: When using DND on busy with the Economy/M7100N or M7000 Keystation, 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 [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 str# :.
4. Enter the station number of the keystation you wish to program. The display reads nnnn: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] twice. The display reads DND on busy:.
9. Press CHANGE to choose Y (Yes) or N (No).
10. Press [His] to exit or [Next] to continue programming.

Programming Handfree

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 an Economy/M7100N and M7000 Keystation 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 answr**.
8. Press **Next** until the display reads **Handsfree:**.
9. Press **CHANGE** to choose Auto, Std, or None.
10. Press **Fls** 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 answr**.
8. Press **Next** until the display reads **HF answerback:**.
9. Press **CHANGE** to choose Y (Yes) or N (No).
10. Press **Fls** 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 4, and None. The default is None.

Keystations can be put into and taken out of any Pickup group. See “Call pickup directed” on page 200 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] [] [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 `Pickup gr#:`.
9. Press `CHANGE` to assign the keystation to Pickup Group 1, 2, 3, 4, or None.
10. Press `[F1s]` 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 NT40 Keystations that you want to group together for paging, regardless of their location.) The options for this setting are zones 1, 2, 3 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 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] [8] [6]`) to that person's keystation.

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 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 Page zone.
9. Press **CHANGE** to assign page zone 1, 2, 3 or None.
10. Press **[F1]** 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 answer.
8. Press **[Next]** until the display reads Paging:
9. Press **CHANGE** to choose Y (Yes) or N (No).
10. Press **[F1]** to exit or **[Next]** to continue programming.

Assigning keystations to a Direct-dial station

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 Stnl or None. By default all stations have access to the 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 . The display reads Capabilities.
7. Press . The display reads Divert no answer.
8. Press until the display reads D-Dia 1:
9. Press CHANGE to toggle the setting Stn1 or None.
10. Press to exit or 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 267. 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 : * * C O N F I G . 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 Capab i l i t i e s.
7. Press . The display reads Divert no answer.
8. Press until the display reads Priority call:
9. Press CHANGE to choose Y (Yes) or N (No).
10. Press to exit or 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 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 key station.

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** **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 Hot line.
9. Press **CHANGE** to select the type of call the hotline makes: **None**, **Intnl**, or **Extrl**.
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 Extrl#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 **[Fis]** 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 **[Hotline Nbr]** 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.

Programming the Auxiliary ringer to ring for a keystation

1. Press **[Feature]** ***** ***** **C** **O** **N** **F** **I** **G** **F** **I** **S**. 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 nnnnnnnn.
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 Aux. ringing.
9. Press CHANGE to choose Y (Yes) or N (No).
10. Press [Fis] to exit or [Next] to continue programming.

Activating Redirect Ring

As the Administrator, you may want to program the system to remind people when a line is being redirected. Redirect Ring alerts you with a brief ring when a call is redirected on one of its 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 [Show]. The display reads Show stn#:
4. Enter the station number of the keystation you wish to program.
The display reads nnn nnnn.
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 Redirect ring#:
9. Press CHANGE to select Y (Yes) or N (No).
10. Press [Fis] to exit or [Next] to continue programming.

How line redirection is different from Divert

Divert forwards all calls that arrive at a particular keystation to another keystation within the Commander NT system or an external destination. Line redirection redirects only the lines you specify, no matter which keystation they appear on, to a keystation outside the Commander NT system. Line redirection takes precedence over Divert.

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** | **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 answr**.
8. Press **Next** until the display reads **Receive tones**.
9. Press **CHANGE** to choose Y (Yes) or N (No).
10. Press **Exit** 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 By default affects all Stations	No restrictions	
03 By default affects all Lines	No restrictions	
04, 31, 32, 33 By default affects all external line redirection and Divert external calls	No restrictions	
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 **ANY**.
- 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 137.
- 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 294.

1. Press **[Feature] * * C O N F I G**. The display reads **P a s s w o r d : .**
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 **nnn:nnn.**

5. Press **[show]**. The display reads **Line access**.
6. Press **[Next]** until the display reads **Restrictions**.
7. Press **[show]**. The display reads **Restrnt 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 **[P.S]** to quit or **[Next]** to continue programming.

Assigning filters to a keystation (Stn restms)

Extension restrictions lets you assign a restriction filter to a station to prevent certain numbers from being dialled 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 **nnn:nnn**.
5. Press **[Show]**. The display reads **Line access**.
6. Press **[Next]** until the display reads **Restrictions**.
7. Press **[Show]**. The display reads **Restrnt filters**.
8. Press **[Next]**. The display reads **Stn restms**.
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 **[F5]** to quit or **[Next]** to continue programming.

Assigning filters to a line (line restrns)

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]** **[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 strn#:**.
4. Enter the station number 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 **Restrnt filters**.
8. Press **[Next]**. The display reads **Line restrns**.
9. Press **(Show)**. The display reads **Normal f 1 tr:**
10. Press **CHANGE**. The display reads **Use f lt:**.
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 **[F1s]** to quit or **[Next]** to continue programming.

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][O][N][F.] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Strn&Peripheral**.
3. Press **[Show]**. The display reads **Show strn#:**.
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 f i lters**.
8. Press **[Next]** until the display reads **Line/stn restrn**.

9. Press **[Show_____]**. The display reads **Show 1 line:**.
10. Enter the line number.
11. Press **[show]**. The display reads **Norma 1 f ltr:**.
12. Press **CHANGE**. The display reads **Use f ltr:**.
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 **[Fis]** 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 [*] [*] [C] [Q] [N] [F] [I] [G]**. The display reads **Password:**.
2. Enter the Installer password. The display reads **Strn%Peripheral**.
3. Press **[Show_____]**. The display reads **Show str#:**.
4. Enter the station number 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 **Restrnt 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 **[Fis]** 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** **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 **Passwords**.
4. Press **[show]**. The display reads **COS PWDS**.
5. Press **[Show]**. The display reads **SHOW PWD #:**.
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 **[E]** 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** **I** **G**. The display reads **Password:**.

2. Enter the Installer password. The display reads `Strs&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 f ltr:` and the current setting.
9. If you are changing the user filter, press `_CHANGE`. The display reads `User f ltr:`.
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 f ltr:` and the current filter assigned.
12. If you are changing the line filter, press `_CHANGE`. The display reads `Line f ltr:`.
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 `[Eis]` 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/M73 10N 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 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 want to program. The display reads **nnn nnnn**.
5. Press **[Show]**. The display reads **Line access**.
6. Press **[Next]** until the display reads **Restrictions**.
7. Press **[Show]**. The display reads **Restrn f filters**.
8. Press **[Next]**. The display reads **Stn restrns**.
9. Press **[Show]**. The display reads **Fi lters**.
10. Press **[Next]**. The display reads **StnLock:**.
- 11 Press **CHANGE** to select None, Partial, or Full.
12. Press **[F's]** 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 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 want to program. The display reads **nnn nnnn**.
5. Press **[Show]**. The display reads **Line access**.
6. Press **[Next]** until the display reads **Restrictions**.
7. Press **[Show]**. The display reads **Restrn f filters**.
8. Press **[Next]**. The display reads **Stn restrns**.
9. Press **[Show]**. The display reads **Fi lters**.
10. Press **[Next]** until the display reads **Allow last no:**.
11. Press **CHANGE** to choose Y (Yes) or N (No).
12. Press **[F's]** 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 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 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]**. The display reads **Stn restrns**.
9. Press **[show]**. The display reads **Fi l ters**.
10. Press **[Next]** until the display reads **Allow saved no:**.
11. Press **CHANGE** to choose Y (Yes) or N (No).
12. Press **[Pis]** to exit or **[Next]** to continue programming.

Preventing Recall

The default setting allows a station to use the Recall 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 **[Show]**. The display reads **Show stn#:**.
4. Enter the station number of the keystation 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 **Stn restrns**.
9. Press **[Show]**. The display reads **Filters**.
10. Press **[Next]** until the display reads **Al low recall :**.
11. Press **CHANGE** to choose Y (Yes) or N (No).
12. Press **[Pis]** to exit or **[Next]** 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 **Feature** ***** ***** **C** **D** **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 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 **Restrict filters**.
8. Press **[Next]** until the display reads **Stn restricts**.
9. Press **[Show]**. The display reads **Filters**.
10. Press **[Next]** until the display reads **ALLOW redirect:**
11. Press **CHANGE** to choose Y (Yes) or N (No).
12. Press **[Pls]** to exit or **[Next]** to continue programming.

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 `Feature` `*` `*` `C` `Q` `N` `F` `I` `G`. The display reads `Password:`.
2. Enter the Installer password. The display reads `Stns&Peripherals`.

3. Press **[Next]** until the display reads **Services**.
4. Press **[Show]**. The display reads **Ringing service**.
5. Press **[show]**. The display reads **Ringing 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 **[Fis]** 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 **Ringing service**.
5. Press **[Show]**. The display reads **Ringing 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 **[Heading]** to return to **Ring gr#: nnn**, or **[Fis]** 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 **Ringing service**.
5. Press **[show]**. The display reads **Ringing 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 1 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 **[Fis]** 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 **Stn&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 **[Fis]** 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 NT40 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.

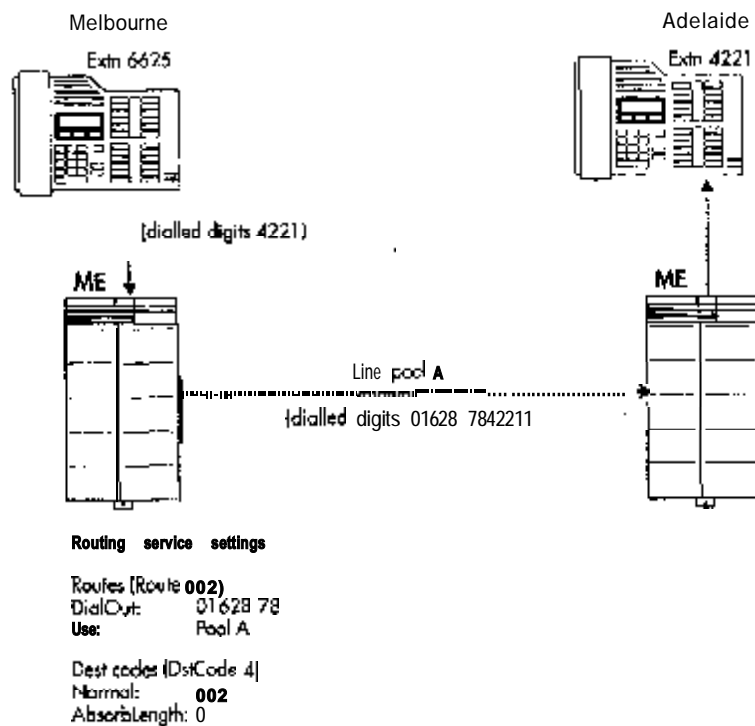
Under **Dest codes** you program the **Destination route** and **Absorb length**.

- **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 **Ring ins 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 **CANCEL** 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 **[Fis]** 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 **Ringins service**.
5. Press **[Next]** until the display reads **Routing service**.
6. Press **[show]**. The display reads **Routes**.
7. Press **(Show)**. The display reads **Show routes**.
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 **[Fis]** 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.

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	01622376254
0625	555	3	0162 237 6255
0626	555	3	0162 237 6256
0627	565	All	01731332211
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	0162237625.
0627	565	All	01731332211

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** **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 **Ringins 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 DstCode:**.
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 **[Fis]** 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** **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 **Ringins 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 DstCode:**.
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 **[Fis]** 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] Ringing service.

Feature [8] [7] [2] Turn on Restriction service.

Feature [8] [7] [2] Restriction service.

Feature [8] [7] [3] Turn on Routing service.

Feature [8] [7] [3] Routing service.

To turn on a service

From a Control station, enter the feature code to turn Ringing, Restriction, or Routing service on. If activating Restriction or Routing service. The display reads **Serv ices ON**.

To turn off a service

From a Control station, enter the feature code to turn Ringing, Restriction, or Routing service off. 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 1 lines**.
8. Press **[Show]** twice. The display reads **Show 1 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 **[Rls]** 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 **Ringin 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 1 lines**.
8. Press **[Next]**. The display reads **For stns**.
9. Press **[show]**. The display reads **Show stn#:**
10. Enter the station number. The display reads **nnn nnnn**. 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 **[Rls]** to exit or **[Next]** to continue programming.

Changing the name of a mode

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 **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 **[Pls]** 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] [O] [P] [Y] [] • I**. 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 **Rinsing service**.
5. Press **[Next]** until the display reads **Common settings**.
6. Press **[Show]**. The display reads **Control strs**.
7. Press **[Next]**. The display reads **Mode names**.
8. Press **[Next]** twice. 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 **[Pls]** to exit or **[Next]** to continue programming.

Settings for analogue equipment

- Setting the delay before the SLT answers.....304
 - Setting the delay for the I-SLT answers.....305
 - Changing the dial mode of an SLT Adaptor.....306
- Setting whether the SLT Adaptor should receive system tones.....306

Analogue equipment includes answering and fax machines as well as single line telephones. The Commander NT40 has a built-in device, the Integrated Single Line Telephone (I-SLT) Adaptor, to provide a connection for analogue equipment.

If you wish to connect more than one analogue device, you can do so using Single Line Telephone (SLT) Adaptors. The analogue device connects to the SLT Adaptor, which then connects to a socket that a Commander NT Keystation normally uses.

When a single line telephone is connected to the I-SLT or SLT Adaptor, it can access some Commander NT40 features such as Divert, Conference, Transfer, and Last Number Redial provided the analogue telephone supports tone dialling. Telephones connected to the I-SLT or SLT Adaptor cannot display the system time and date. For information on using Commander NT40 features through an I-SLT or SLT Adaptor, see the *SLT Adaptor User Card*.

Note that unlike Commander NT40 Keystations that retain an active call for a minute if unplugged from the socket, a device connected to an SLT Adaptor will immediately drop an active call if the SLT Adaptor is disconnected.

You can adjust the following settings for the I-SLT or SLT Adaptor:

- change the dial mode of the Adaptor to pulse or tone; the pulse setting does not have access to Commander NT40 features
- set whether the Adaptor should receive confirmation and error tones (only for analogue telephones rather than analogue devices such as faxes and answering machines)
- determine when the Commander NT40 transmits the dialed digits for an analogue device, by setting the Answer timer (SLT Adaptor) or by setting whether the system uses automatic ringback detection or the Answer time (I-SLT Adaptor)

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. For the I-SLT Adaptor, see “Setting the delay for the I-SLT answers” on page 305.

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 [F5] to exit or [Next] to continue programming.

Setting the delay for the I-SLT answers

To accommodate the device connected to the Integrated Single Line Telephone (SLT), you can 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. The timer ensures that the I-SLT Adaptor connects with the Exchange at the appropriate time.

For the I-SLT Adaptor (default Station 237 or Station 229 for NT40 Compact), the Commander NT40 uses a different default than for the SLT Adaptor.

For an SLT Adaptor, see "Setting the delay before the SLT answers" on page 304.

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 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 [F5] 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** **]** **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 **[Pls]** to exit or **Next** to continue programming.

Setting whether the SLT Adaptor should receive system tones

You must tell the system whether or not the device connected to the SLT Adaptor should receive confirmation and error tones. These tones inform a person of call progress, but only confuse a modem or fax machine.

- If the SLT Adaptor is connected to a telephone, set Tones to Y.
- If the SLT Adaptor is connected to any other device, set Tones to N.

The default is disabled (N).

1. Press **Feature** ***** ***** **C** **O** **N** **]** **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]** until the display reads SLTA tones:
11. Press **CHANGE** to choose Y (Yes) or N (No).
12. Press **[PS]** to exit or **[Next]** to continue programming.

Note: This setting does not interfere with intrusion and conference tones presented to a keystation connected to an SLT Adaptor. These tones are heard through the keystation handset regardless of the SLT Adaptor tones setting.

Network services

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- Caller ID station.....310
- Call log station.....311
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n

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.

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 **[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 **Network 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 **[F's]** to exit, or **[Next]** to continue in programming.

Caller ID station

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 **[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 **Network features**.
7. Press **[show]**. The display reads **CLI assignment**.
- 8 . Press **(Show)**. The display reads **Show 1 inc:**. Enter the number of the line you want to program with CLI settings for the station.
9. Press **[show]**. The display reads **Caller ID stn:**.
10. Press **[CHANGE]** to select the setting: N (No) or Y (Yes).
11. Press **[F's]** to exit or **[Next]** to continue in programming.

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** **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 **nnnnnn**.
5. Press **[show]**. The display reads **Line access**.
6. Press **[Next]** until the display reads **Network features**.
7. Press **[Show]**. The display reads **CLI assignment**.
8. Press **[Show]**. The display reads **Show 1 inc:**. Enter the number of the line you want to program with CLI settings for the station.
9. Press **[Show]**. The display reads **Caller ID stn:**.
10. Press **[Next]**. The display reads **Cal 1 log stn:**.
11. Press **CHANGE** to select the setting: N (No) or Y (Yes).
12. Press **[F1]** to exit or **[Next]** to continue in programming.

1 st Display

The Commander NT system allows stations to display call information. You specify the station number under **CLI stn** in Line data. The 1 st 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** ***** ***** **0** **0** **N** **F** **1** **6**. 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 **Cl I assignment**.
8. Press **[Next]**. The display reads **1stDisplay**.
9. Press **CHANGE** to choose Name, Numbr or Line.
10. Press **[R's]** 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 NT40 stations only. The Auto called ID (identification) momentarily shows the number of the called party on the display of a Commander NT40 station. *The default is No, the Auto called ID is not displayed.

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]** until the display reads **Nctwk features**.
7. Press **[Show]**. The display reads **Cl I assignment**.
8. Press **[Next]** until the display reads **Auto ca 1 led II:**.
9. Press **CHANGE** to choose N (No) or Y (Yes).
10. Press **[R's]** 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][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 str#:**.
4. Enter the station number of the keystation you wish to program. The displays reads **nnn:nnn**.

5. Press **[Show]**. The display reads **Line access**.
6. Press **[Next]** until the display reads **Network 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 **[F5]** 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 250. System-wide log space allocation is performed in Call log space under System programming.

Programming for ISDN terminals

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- Assigning a station number to the ISDN S loop.....3 19

Preliminary checks

The following programming information assumes that an ISDN BRA Cartridge has been properly installed in the ME and that the cart type has been set to BRA-4.

For information on installing the ISDN terminal, refer to the documentation that accompanies the terminal.

1. Verify that an ISDN BRA Cartridge has been installed in the ME.
2. Note the position of the ISDN BRA Cartridge.
3. Check the SDF wiring to determine if the ISDN terminal is to be plugged into loop 1, loop 2, loop 3 or loop 4 for the appropriate ISDN BRA Cartridge.
4. Determine the ISDN loop number (201-204 for cartridge 1 and 23 1-234 for cartridge 2).

Setting the ISDN loop type to S or T

ISDN loops can be configured as either type S or T. If ISDN terminals are being installed on a loop to provide a User-Side S Bus, the Loop type must be set to S.

See "Programming for the ISDN BRA loop type" on page 154 for the procedure to program the Loop type to S.



Before Changing loop Type or Sampling

The ISDN BRA Cartridge must be disabled in **Maintenance, Module Status** before you can change these settings. You can change these settings if the cartridge has not yet been installed in the ME slot and **re-enable** the cartridge after changing the setting.

To re-enable the cartridge see "Verifying that the ISDN BRA Cartridge is enabled" on page **318**.



Loop type selection of ISDN lines is limited to S and T.

Note: Contact Commander Care Online at 1800 809 88 1 for details of certified ISDN Terminal equipment.

Setting the Sampling rate for the loop



Before Changing Loop Type or Sampling

The ISDN BRA Cartridge must be disabled in Maintenance? Module Status before you can change these settings. You can change these settings if the cartridge has not yet been installed in the ME slot and re-enable the cartridge after changing the setting.

To re-enable the cartridge see "Verifying that the ISDN BRA Cartridge is enabled" on page 3 18.

You need to set the Sampling rate only for S loops when providing a User-Side S Bus for an ISDN BRA Cartridge. The options are Fixed and Adaptive. The default setting is Adaptive.

- **Fixed:** if two or more ISDN terminals are being installed on the S loop and the length of the loop is less than 200 m (34 ohm of 0.5 mm cable), set the Sampling rate to Fixed.
- **Adaptive:** if two or more ISDN terminals are being installed on the S loop and the length of the loop is greater than 800 m (134 ohm of 0.5 mm cable), set the Sampling rate to Adaptive.

If one ISDN terminal is being installed on the S loop, the length of the loop can be up to 800 m and the Sampling rate should be set to Adaptive.

See "Sampling" on page 154 for the procedure to program the sampling rate.

Verifying that the ISDN S loop is provisioned

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 Provisioning.
6. Press [Show]. The display reads LC1-ME:. If you are setting the second cartridge on the ME, press [Next]. The display reads LC2-ME:.
7. Press [show]. The display reads the first loop number on that Cartridge, followed by Provisioned or DeProvisioned. If you are provisioning another loop on the cartridge, press [Next] until the display shows the loop you want.
8. If the loop is de provisioned, press ADD to provision the loop. The display reads Updating state..

9. Press **[Heading]** until the display reads Maintenance. Continue programming with the Maintenance procedure below.

Note: When the ISDN loop is configured as type S, only the loop is provisioned, both lines associated with the loop are not provisioned.

Verifying that the ISDN BRA Cartridge is enabled

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 **Module Status**.
6. Press **[Show]**. The display reads **Show module:**.
7. Enter the module number (2). The display shows the cartridge inventory on the module.
8. Press **[STATE]**. The display shows the port status for the module.
9. Press **[DISABLE]**. The display reads **Disable at once?**
Press **[YES]**. The display shows the transient message **Updating state...**, followed by **Disabled by user**.
10. Press **[ENABLE]**. The display reads **Updating state**.
11. Wait approximately 5 minutes to allow the module to initialise. All the LEDs on the front of the ISDN BRA Cartridge will be flashing while the module is initialising. After the module has initialised, the LEDs on the front of the ISDN BRA Cartridge will no longer be flashing. The LED for the S loop will remain lit providing at least one ISDN station number terminal has established connection to the loop (if necessary, go off-hook on the ISDN station number terminal to establish a connection).
12. Press **[Fis]** to exit or **[Next]** to continue in programming.



Allow time for ISDN BRA Cartridges to initialise

When ISDN BRA Cartridges initialise, the Commander NT40 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.

Assigning a station number to the **ISDN S** loop

If you have installed an S loop when providing a User-Side S Bus, you must assign a station number to the loop for the terminals to be able to make or receive calls:

See “Programming station numbers for ISDN terminals” on page 155.

Section III: Testing, Troubleshooting and Maintenance

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 procedures 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

RS

 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 Main Equipment (ME)

1. Check that the mains lead from the ME is plugged into a working a.c. mains General Purpose Outlet (GPO).
2. If a.c. power is present and the indicator light on the ME is off, replace the fuse in the ME (see “Replacing a fuse” on page 335).




Disconnect system tails before power

Always disconnect the cables before unplugging the power source to ensure that the system is properly earthed.

Restore power before plugging in the cables.

3. Remove AMP Champ connectors.
4. Power down the ME by unplugging it.
5. Unplug the mains lead from the ME.
6. Pinch the tabs on the fuse drawer and remove it from the ME.
7. Remove the fuse from the left-hand compartment (not the one labelled “spare fuse”) and discard it.

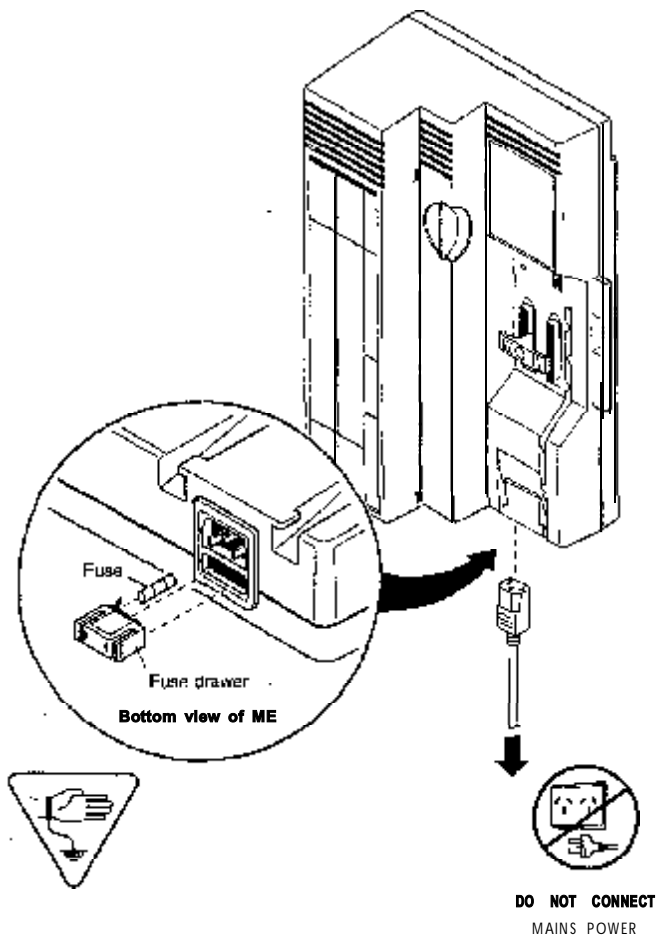
8. Insert the new fuse into the left-hand compartment.



Replace with the same type of fuse.
 For continued protection against risk of fire, replace only with the same type and rating of fuse (250 V, 6.3 A).

9. Replace the fuse drawer in the ME and restore power to the system.

Replacing a fuse



Power Bar mains leads

1. Check that the mains lead from the ME or Power Bar is plugged into a working AC mains General Purpose Outlet (GPO).

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.

50-pin connectors

Ensure that the 50-pin connectors on the ME are plugged in and fastened securely. Refer to "Connecting the wiring" on page 35.

Internal wiring

1. Check that the station loop resistance does not exceed 59 Ω on 0.5 mm wire.
2. If the loop length is greater than 300 m, ensure that a Station Power Supply (SPS) is in place and functional.

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 the Auto Attendant feature. For more information see "Software Keys" on page 25 1.

1. Unplug the ME mains lead from the ME.
2. Remove the Software Cartridge, the analogue Line Cartridge(s) and the ISDN BRA Cartridge(s) (as applicable).
3. 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.
4. Gently lift the ME from underneath to free it from the mounting bracket.
5. Slide a new ME onto the mounting bracket.
6. Replace the Software Cartridge, the analogue Line Cartridge(s) and the ISDN BRA Cartridge(s) (as applicable), as described in "Installing the cartridges" on page 25.
7. Reconnect all of the cabling.
8. Reprogram the system.

Troubleshooting Cartridges

Check first for user configuration problems, then wiring and programming errors, before replacing Commander NT40 equipment.

Analogue line Cartridge

1. Check that the cartridge is properly inserted in the ME.
2. Run a Maintenance session to ensure that the cartridge is not disabled. 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 a.c. power is present and the LED indicator on the ME is off, see “Troubleshooting the Main Equipment (ME)” on page 334.

For information on replacing components, see “Installing the central equipment” on page 23. .



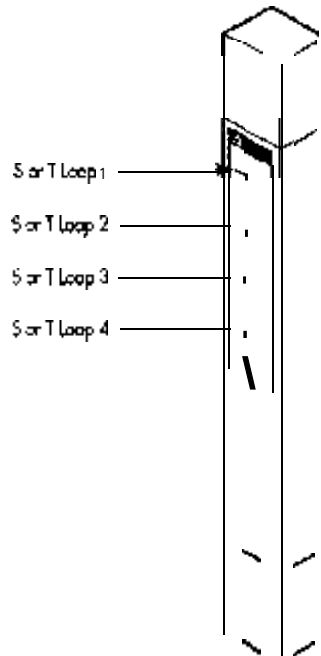
Don't power up the ME while a NT40 Services/Expansion or a Digital Station Cartridge is removed

Re-applying the mains after a cartridge has been removed resets the system programming to defaults. To retain system programming, NT40 Services/Expansion or Digital Station Cartridge must be replaced by another one.

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. See “Programming for the type of Line/BRA Cartridges in the ME” on page 152.

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 ME.

Troubleshooting the I-SLT Adaptor

The problems listed here focus on trouble with the I-SLT Adaptor and the analogue device connected to it.

Calls do not ring (and caller does not receive busy tone)

1. Verify that the ringer of the attached analogue device is turned on.
2. Check the ringer volume.
3. Verify that calls can be answered even when the device does not ring.
4. Replace the analogue device with a single-line analogue telephone and check for ringing.
5. Check for ringing at the wiring connection block using a single-line analogue telephone.
6. Check wiring from the System Distribution Frame (SDF) to the attached analogue device.
7. Check the requirements of the analogue device to see if it is compatible with the I-SLT Adaptor specifications. See “Integrated Single Line Telephone (I-SLT) Adaptor” on page 394.

I-SLT Adaptor is always busy

1. Remove the attached analogue device from the I-SLT Adaptor cable and make a call to the I-SLT Adaptor from a Commander NT Keystation. If the line is not busy, the analogue device may be faulty. If the line is busy, check the wiring.
2. Ensure that the analogue device is not faulty by connecting it directly to an exchange line and verifying that it functions correctly.
3. Check the internal wiring at the modular socket and the System Distribution Frame. The I-SLT Adaptor port should have about 3.1 V d.c. across the connection when the single-line analogue device is disconnected.
4. Check the requirements of the analogue device to see if it is compatible with the I-SLT Adaptor specifications. See “Integrated Single Line Telephone (I-SLT) Adaptor” on page 394.
5. Run a maintenance session to ensure the I-SLT Adaptor is not disabled. See “Troubleshooting lines” on page 349.

Calls cannot be answered (or dial tone is not present when making calls)

1. Check that the I-SLT Adaptor connections have been connected correctly.
2. Replace the analogue device with a single-line analogue telephone and check for dial tone.

3. Ensure that the analogue device is not faulty by connecting it directly to an exchange line and checking for dial tone.
4. Check that the I-SLT Adaptor is not busy by making a call to it from a Commander NT Keystation. If it is busy, remove the analogue device and check for busy.
5. Check the internal wiring at the modular socket and the System Distribution Frame. The I-SLT Adaptor port should have about 31 V d.c. across the connection when the keystation is disconnected. The voltage should drop when the single line analogue device is connected and a call is attempted.
6. Check the requirements of the analogue device to see if it is compatible with the I-SLT Adaptor specifications. See “Integrated Single Line Telephone (I-SLT) Adaptor” on page 394.

Calls cannot be made (but dial tone is present)

1. Ensure that the analogue device is not faulty by connecting it directly to an exchange line and making a call.
2. Ensure that the dialled number is not restricted by call restrictions.
3. Check if the ME is detecting dialling by listening to the dial tone. Dial the first digit of a station number and check that dial tone is removed. If you still hear dial tone, the ME is not detecting the dialled digit.
4. Determine if the problem is associated with the wiring by connecting the analogue device directly to the modular socket or the SDF of the ME. If calls can be made with this connection, the problem may be with the internal wiring.
5. Check the internal wiring at the modular socket and the distribution cross-connect. The I-SLT Adaptor port should have about 31 V d.c. across the connection when the keystation is disconnected. The voltage should drop when the analogue telephone is connected and a call is attempted.
6. Check the requirements of the analogue device to see if it is compatible with the I-SLT Adaptor specifications. See “Integrated Single Line Telephone (I-SLT) Adaptor” on page 394.

Troubleshooting an SLT Adaptor

The problems listed here focus on trouble with an SLT Adaptor and the analogue device connected to it.

1. Check that the SLT power supply is properly connected to a working mains General Purpose Outlet (GPO).
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 an Auxiliary ringer

1. If the auxiliary ringer is used for Service Modes (Night, Evening, or Lunch mode), ensure that Service is activated on the Control station.
2. Check the wiring between the auxiliary ringer generator and the ringing device. Refer to the "Commander NT40 ME AMP Champ Connector 2 - ME external lines, I-SLT Adaptor, music, page and power-fail telephone wiring" on page 46.
3. Check the wiring between the auxiliary ringer generator and the System Distribution Frame.

Auxiliary ringer wiring

Feature	Pin	SDF pair
Auxiliary ring (Make)	50	25
Auxiliary ring (Common)	25	25

4. Ensure that the auxiliary ring contacts are operating properly by checking with an ohmmeter across the auxiliary ringer pin contacts. Refer to the “Commander NT40 ME AMP Champ Connector 2 – ME external lines, I-SLT Adaptor, music, page and power-fail telephone wiring” on page 46.
5. Check that the auxiliary ringer been programmed properly.

The maximum current carrying capability of the Commander NT40 auxiliary relay contacts is 50 mA d.c. They are designed to operate with the auxiliary ringer generator, or equivalent.

Troubleshooting the Direct Station Select Console/Central Answering Position Module

1. If you cannot monitor the status of a Commander NT Keystation from the Direct Station Select (DSS) Console/Central Answering Position (CAPN) Module, check that an internal autodial key has been programmed for the station.
2. If you can only send four messages from the DSS Console/CAPN Module (rather than 30), check in System programming that the station has been assigned as a DSS Console/CAPN Module.
3. If lines are not automatically assigned to keys on the DSS Console/CAPN Module, check in System programming that the station has been assigned as a DSS Console/CAPN Module.

Troubleshooting the Call Detail Recorder

Problem

The CDR will not respond to the feature code.

Solution

Make sure you are using a 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.

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 CDR System Administration Manual*.

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) 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) 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 Stn & Aux AMP Champ connector 2, SDF Pair 48.
7. Check the wiring from the connection pins on the System Distribution Frame.

Troubleshooting External paging

1. Use the Key Inquiry feature (Feature) to verify the feature of a programmable memory key.
2. Check the wiring between the SDF and the LIU, and the LIU and the paging amplifier. See the “Commander NT40 ME AMP Champ Connector 2 – ME external lines, I-SLT Adaptor, music, page and power-fail telephone wiring” on page 46 for more information on connections.
3. Check the wiring from the System Distribution Frame to the LIU, and between the LIU and the external pager.
4. Test external paging (Feature) to ensure that it is operational. The nominal output signal from the Commander NT40 ME is 775 mV RMS across 600 ohms.

Troubleshooting the Internal Remote Access Device

To test or troubleshoot the IRAD, call Commander Care Online at 1800 809 881.

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 300 m of 0.5 mm twisted-pair wire. With a SPS installed, the distance can be increased to 790 m.
2. After connecting the Door Station to the ME station port, allow up to four minutes for initialisation.
3. Check that the Commander NT40 port connecting the Door Station is properly configured. See "Door Station and related equipment" on page 99 for more information.
4. If your Door Station does not cause ringing at the Call keystation when the Call button 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 that at least one keystation is assigned to the selected page zone, and not in use during this test

Check that the Commander NT40 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 to a different port and configure Commander NT40 for the Door Station. If the problem persists, the Door Station is likely at fault.

For more information about the Door Station, contact Commander Care Online at 1800 809 88 1.

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 86.

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 56.



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 **Featr settings** in **System Programs**).

Station Relocation should always be turned N (Off) at the end of a maintenance visit.

**SHADOW

(Feature) [*][*][S][H][A][D][O][W] (7 4 2 3 6 9) allows you to link with another keystation for diagnostic purposes. With this 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. If both keystations are idle for 30 minutes the feature exits.

Keystation faulty

1. If more than one keystation is affected, see “Troubleshooting the Main Equipment (ME)” on page 334.
2. Check for dial tone.
3. Check the handset cord connections.
4. Check the line cord connections.

5. Check the display. If the display is unreadable, ensure that the display contrast adjustment (Feature [] [*] [7]) is set correctly.
6. Ensure that the 50-pin connectors at the ME is plugged in and terminated correctly at the System Distribution Frame.
7. Ensure that the station wiring connections at the System Distribution Frame are at the appropriate pins.
8. If the problem persists, replace the keystation with a known working Commander NT Keystation. A Commander NT40 station port should have between 15 and 26 V d.c. across the connection 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 [i] 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 Cartridges, if installed.
7. Ensure that the 25-pair cable is properly connected to the ME and the System Distribution Frame.
8. 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.

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 337).
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/M73 10N 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 .

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 **Feature settings** in **System Programming**).

Station Relocation should always be turned N (Off) at the end of a maintenance visit.

Troubleshooting an ISDN terminal

1. Check that the terminal has been installed correctly according to the manufacturer's documentation and is certified to connect to a Commander NT40 ISDN S loop.
2. Check that the terminal is wired correctly. "S loop wiring for ISDN terminals" on page 114.
3. Check if the terminal requires phantom power feed. Verify that power is being provided on the S loop.
4. If the device is installed as an MSN terminal, follow the manufacturer's documentation to verify that the device has been programmed to recognise its assigned station number. Check that the ISDN station number is properly configured. "Assigning or removing an ISDN station number" on page 158. If the device is installed as a non-MSN terminal, check to see if an Lp Stn# has been assigned to this loop.
5. If sub-addressing is being used on the loop, refer to the manufacturer's documentation for the device to verify that the terminal has been programmed to recognise its assigned sub-address.
6. Check the programming settings for the ISDN BRA Cartridge and S loop. See "ISDN BRA Cartridge" on page 337.

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 (`*Featur[0]`).
2. Press `[Feature] [*] [*] [C] [C] [N] [F] [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 `[show]`. The display reads `System Version`.
6. Press `[Next]` until the display reads `Clear Lines`.
7. Press `[Show]`. 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 `[Next]` 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 `[File]` to exit or `[Next]` to continue programming.

Troubleshooting for external or remote users

Remote feature code gets no response

Problem

A Commander NT40 user calls in remotely to the Commander NT40 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 NT40.
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.

Dialed 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 is 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 programming.

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] [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 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] [I] [G]**. The display reads **Pas5wm-d:**.
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 **[Rls]** 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/Stat Status. To place Analogue or ISDN lines in or out of service, enable or disable the appropriate Line Cartridge in Module Status.

Port/Stat 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 (B 1 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 (Anabgue)

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`. The display reads `Port/Stat stat`.
6. Press `[show]`. The display reads `Show Port: ..`
7. Enter the port number of the device, or press `Stat` 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 B 1 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 B2.
10. Press Fl's to exit or (Next) to continue programming.

Sample device identification display



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



DSS Console/CAPN Module attached to a Principal/M7324N Keystation



Busy Lamp Field Display



Single Line Telephone Adaptor



Remote Access Device



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.



The device is being disabled.

How the device state is shown on the display



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 **[R/s]** to exit or **[Next]** to continue programming.

Sample device identification display



This display indicates that T-Loop 201 on a BRA cartridge occupies port 201.



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:LPrn.
8. Press **VERS**. The display reads Pnn:Hardware.
9. Press **VERS**. The display reads LPrn: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: L Prtcl.
13. Press **VERS** to see the version of the loop's protocol.
14. Press **[R.S]** to exit or **[Next]** to continue programming.

What you can do with Module Status

Use Module Status to:

- look at the inventory of modules inside the Main Equipment (ME)
- see if the ME contains ISDN BRA 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 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 B 1 and B2 channels. This may increase the number of devices indicated on the module inventory display.

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 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.

If you are checking module 1, the display shows how many stations are connected to the ME.

If you are checking module 2, the display shows how many Line Cartridges are connected to the ME.

Checking the number of cartridges connected to a module

Start at the module inventory display, which shows the number of Line Cartridges connected to the module that you chose (for example, Mod 1:2 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 1 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



There are three devices in use that are connected to the module or cartridge.



There are two ports in use that are connected to the module or cartridge.



There are four lines in use that are connected to the module or cartridge.



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.

How the module or cartridge state is shown on the display



The module or cartridge has been disabled by the system because it is faulty or because there is a test running.



Press **YES**. 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 1 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] [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 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] [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 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, [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 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**, **[Fis]** 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**, **[Rls]** or **Next** to continue programming.

Erasing the log

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 **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**, **[Rls]** 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 101-124) has been removed. The link cable was disconnected from the ME. There is an internal ME fault.
Alarm:33	Part or all of the system memory has been corrupted.	The current NT40 Software Cartridge version is not compatible with the previous. Fibre port skrinkage has occurred.
Alarm:37 ABBCDD	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:52 XY	A Line Cartridge has been disconnected	Line Cartridge on module X has been disconnected.
Alarm:61 XV	Administered line type is incompatible	The inserted Line Cartridge does not match the line type programmed for that slot.
Alarm:62 XY	Unsupported Auto-answer setting (Loop Start TCs)	Trunk Cartridge X on fibre port 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 codes

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 NT40 Services Cartridge or NT40 Services/Expansion Cartridge is present.
"X" = fibre port numbers, "Y" = Trunk Cartridge number (numbered from left to right) and "Z" = Trunk port number		

Alarm troubleshooting

Refer to the previous table before following these procedures.

Alarm: 10

1. Check if a device is connected to the ME and 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 any devices are connected to the ME, check all wiring associated with the devices.
4. See "Troubleshooting the Main Equipment (ME)" on page 334.

Alarm: 33

1. Ensure mains are properly connected to the ME.
2. Ensure that the proper version of the NT40 Software Cartridge is inserted in the ME.
3. Ensure the proper procedures were followed when upgrading the Software Cartridge.
4. See "Troubleshooting the Main Equipment (ME)" on page 334.

Alarm: 37ABBCDD

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: 51

1. Check all connections between the cartridge and the ME.
2. Check to see if there is a cartridge in the ME.
3. Follow the procedures in "Troubleshooting Cartridges" on page 337.

4. Refer to the information on Line Modules in “What you can do with Module Status” on page 362.

Alarm: 52-X-Y

1. Check all connections to the analogue Line Cartridge.
2. Check that the proper analogue Line Cartridge is inserted in the appropriate slot of the ME.
3. Remove and re-install the analogue Line Cartridge.
4. If the alarm persists, replace the analogue Line Cartridge with another analogue Line Cartridge of the same type.

Alarm: 61-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.

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: 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

Ensure a NT40 Services/Expansion or NT40 Services Cartridge is installed in the ME.

Alarm: 75

Check the connection to your ISDN service provider.

Event messages

Event messages appear as items in the System Administration Log or System Test 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.

Consult the following list of event numbers to see if the event caused the Commander NT to restart automatically.

Significant event messages

Event message	The event message is recorded when..
EVT210-YYYZ 54	Loopback test YYY on Line Cartridge Z has been started.
EVT211-YYYZ 54	Loopback test YYY on Line Cartridge Z has been stopped.
E'JT220-3546 54	The System Administration Log was cleared at stn 3546.
E'JT221-3546 54	The System Test Log was cleared at stn 3546.
EVT222-3546 55	Stn 3546 entered the debugging facility that is password protected.
EVT255 59	The administered line type is incompatible for the Line Cartridge present at that slot.
E'JT260-302 58	The ME took the exchange line on port 302 out of service because no current was detected.
EVT261-302 51	The exchange line on port 302 was returned to service after current was detected (see EVT260).
EVT268-07 58	Dialling filter 07 lost data due to a fault in the system memory. All administered dialling filters must be reprogrammed.
EUT269-3546 58	The line/stn filter for the stn 3546 lost data due to a fault in the system memory.
EVT299 51	The system was turned on after a power failure.
EVT343 54	The 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/RO 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 54	A reset has occurred in the ISDN BRA Cartridge. Obtain the BRA traceback for the cartridge that reset.
EVT371 54	The system's clock control server is in freerun mode as opposed to clocking off a primary or secondary source. Ensure an NT40 Services or NT40 Services/Expansion Cartridge is installed.
EVT372 54	Indicates a change in clock tracking on an ISDN BRA loop.
EUT373 55	The ME restart diagnostic tool has been activated.

Event message	The event message is recorded when.. .
EVT400 59	System Startup was performed using Feature * * S T A F I U P .
EVT407 52	There are no more codes for speed dial numbers .
EVT408 52	There are no more memory for Speed Dial codes.
EVT412-3546 55	The Installer password was changed at stn 3546.
EVT413-3546 53	The Administration password was changed at stn 3546 .
EVT414-3546 55	An invalid installer password was entered at stn 3546.
EVT415-3546 53	An invalid customer password was entered at stn 3546.
EVT416-3546 54	System Configuration was performed using Feature * * C E N F I G .
EVT417-3546 52	System Administration was performed using Feature * * A D M I N .
EVT418 57	A station change was successful.
EVT419 52	The time and/or date was changed.
EVT421 58	A station change failed.
EVT422-3546 56	A station length change was requested at stn 3546.
EVT423-3546 56	An individual station change was requested at stn 3546.
EVT441 52	A timeout occurred while waiting for ANI or DNIS digits to be received.
EVT442 55	A timeout occurred while waiting for ANI or DNIS digits to be received.
EVT453 54	Someone entering * * 0 N E L G .
EVT454 55	Invalid password entered.
NT458 54	Call-by-call NVRAM data is corrupt.
EVT459 59	DN length has been changed to less than 3 digits.
EVT688 54	The data driver has received a bad data event.
EVT689 54	The data driver could not allocate a new index.
EVT690 54	No response to the ME within 10 seconds of being sent an initialisation message.
NT691 54	No response to the ME within 3 seconds.

Event message	The event message is recorded when...
EVT692 54	A bad parameter value has been received in a stimulus message from the data device.
EVT693 53	Old data to be discarded has been detected.
EVT694 54	RADAR flow control has received a bad stimulus message from an off-core application.
EVT695 54	Attached set denied request for a B-channel.
EVT696 52	Corrupt CLI length.
EVT697 52	An asynchronous data report generated by ethernet module.
EVT698 58	Incorrect software key entered.
EVT799-000506 57	A call processing error on the fourth BRA loop; see "Event message 799" on page 374.
EVT822 58	Alarm code 63 is sent because there are no DTMF receivers for an incoming call.

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.
0 3	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.
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.
06	Internal software error. Cannot seize central office (CO) line on a BRA connection.
09	Cannot get VTERM (virtual terminal) from the Vterm Server.
oc	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
133-134	Yes
135-136	No
137	Yes
138-150	No
151	No
152	No
160-164	No
170-173	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
441-442	No
453-454	No
.....	..
600-602	...
603-613	No
614	...
615-629	No
630	...

Event message	System restart
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
631-646	No
800-802	No
803	Yes
804-807	No
806	N
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 NT40 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 NT40 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 NT40 ISDN connection.

ISDN network messages

Prompt	Category of error
UnallocNum 1	Normal Event
Nwk Unavail 1 2	Normal Event
Nwk Unavail 3	Normal Event
Call Cleared 6	Normal Event

Prompt	Category of error
Ntwk 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
Ntwk Unavail 27	Normal Event
Invalid Num 28	Normal Event
Call Cleared 29	Normal Event
Signal Error 38	Normal Event
Call Cleared 31	Normal Event
Ntwk Unavail 34	Network Congested
Ntwk Unavail 38	Network Congested
Ntwk Unavail 41	Network Congested
Ntwk Unavail 42	Network Congested
Call Cleat-cd 43	Network Congested
Ntwk Unavail 44	Network Congested
Ntwk Unavail 47	Network Congested
Ntwk Unavail 49	Service or Option Not Available
Call Cleared 50	Service or Option Not Available
Call Cleared 57	Service or Option Not Available
Call Cleared 5s	Service or Option Not Available
Call Cleared 63	Service or Option Not Available
Call Cleared 45	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

Prompt	Category of error
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	Intetworking

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 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][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 **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 of press **[Next]** until the display shows the module you want.
7. press **[show]**. The display reads **Carts on ME**.
8. Press **[Show]**. The display reads **LCn on ME**.

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 Provisiond**. (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 **Busw: 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 **[Es]** 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 **Strs&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 of press **[Next]** until the display shows the module you want.
7. Press **[show]**. The display reads **Carts on ME**.
8. Press **[Show]**. The display reads **LCn on HE**.

To view another cartridge on the module, press **[Next]** until the display shows the cartridge you want.

9. Press . The display reads `LP201:Provisiond.` (If you are deprovisioning a loop on another cartridge, the Lp number will be different.)
10. Press to provision the loop. The display momentarily reads `Updating state..` followed by `LP 201:Provisiond.`
11. Press .The display reads `LOO 1 :DeProvisnd.`
12. Press to provision the line. The display momentarily reads `Updating state..` followed by `LOO1 :Provisiond.`
13. Press .The display reads `LP002:DeProvisnd.`
14. Press to provision the line. The display momentarily reads `Updating state..` followed by `LP002:Provisiond.`
15. Press until you return to `LP 201 :Provisiond.`
16. Press to view settings for the next loop number.
17. Press to exit or to continue programming.

BERT Tests

The Commander NT40 enables you to run one test to verify the integrity of the installation wiring. The Bit Error Rate Test (BERT) may help to detect problems caused by wiring faults such as opens, shorts, split pair, crosstalk, low resistance, and foreign battery.

You can run the BERT to check the quality of the path for voice or data. You can also run the test continuously until an error occurs. You can stop the test if you need more information about errors or if the problem is sporadic.

The test can only be run on one keystation at a time. You cannot run a BERT on the keystation that you are using for the Maintenance session. Ensure that there is a Commander NT Keystation connected for the station number you wish to test.

BERT Tests are started and stopped in Maintenance programming under the heading `Tests.`

Note: Do not run a BERT on the I-SLT Adaptor, ISDN terminal equipment, or on any other peripheral device.

Starting a Bit Error Rate Test for voice or data

1. Press . The display reads `Passw crd?`.
2. Enter the Installer password. The display reads `Stns&Peripheral.`
3. Press until the display reads `Maintenance.`
4. Press . The display reads `System Version.`
5. Press until the display reads `Tests.`

6. Press **[Show]**. The display reads **BERT stn tests**.
7. Press **[Show]** again. The display reads **Show stn:**
8. Enter the station number for the keystation you wish to test. The display briefly shows **Checking state..** and then shows **Disable at once?**
9. Press **YES**. The display briefly shows **Disabled by user** and then shows **Test:Voice path**.
10. Press **[Next]** if you want to run the test on the Data path.
11. Press **START** to begin the test. The display reads **Bert running**. When the test is finished, the display reads the test name followed by **PASS** or **FAIL**.
12. Press **TEST**, then repeat this step if you wish to test the keystation again.
O R
Press **DONE** to return to **Show stn:**. The keystation that was tested is automatically re-enabled.

Stopping a Bit Error Rate Test for voice or data











1. Press **CANCEL**. The display reads **Test canceled** and returns to **Show stn:**. The keystation that was tested is automatically re-enabled.

Starting and stopping a continuous Bit Error Rate Test

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 **Tests**.
6. Press **[Show]** . The display reads **BERT stn tests**.
7. Press **[show]** . The display reads **Show stn:**
8. Enter the station number for the keystation you wish to test. The display briefly shows **Check in9 stats..** and then shows **Disable at once?**
9. Press **YES**. The display briefly shows **Disabled by user** and then shows **Test:Voice path**.
10. Press **[Next]** twice. The display reads **Test:Continuous**.
11. Press **START** to begin the test. The display reads the bit error rate, updating every two seconds.
12. Press **STOP** to end the test. The display shows the last bit error rate.

13. Press **TEST**, then repeat steps 13 and 14 if you wish to continue testing.
 OR
 Press **DONE** to return to Show **stat**. The keystation just tested is automatically re-enabled.

How the Bit Error Rate Test status is shown on the display

Display	State  device
	You have entered the station number for the keystation you are using to run the Maintenance session.
	The data, voice, or continuous test has stopped because it is out of sync. Either the error rate is very high, or the keystation at that station number has been removed.
	A BERT is already running on the keystation at station number 223.
	The resource in the ME is busy with another feature.
	No keystation is connected for that station number.
	The continuous test has stopped because the bit error rate is more than 1 in 10^3 for a 2-second interval during the test.
	The data path test is complete and shows more than 1 error in 10^7 transmitted bits.
	The data path test is complete and shows no more than 1 error in 10^7 transmitted bits.
	The voice path test is complete and shows more than 1 error in 10^5 transmitted bits.

Display	State of device
	The voice path test is complete and shows no more than 1 error in 10^5 transmitted bits.
	The bit error rate for the keystation at station number 223 is less than 1 in 10^{10} .
	The bit error rate for the keystation at station number 223 is 1 in 10^5 .

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 loopback test is running, the “in Service” LED on the ISDN BRA Cartridge flashes.

You can test more than one loop on an ISDN BRA Cartridge and more than one cartridge at the same time.



Pick an appropriate time to run tests

Do not run the loopback tests while ports are being disabled or during the first two minutes after a System Startup. If you do, the tests may stop running with ports still disabled. To recover from this, unplug the ME from the mains, then plug it in again.

The loopback tests may disrupt service. Do not run this test when many people are using the Commander NT.

Calls on all ISDN lines on the cartridge drop when a loopback test is invoked. Page people using the system to tell them that a system test is about to begin and calls will be disconnected.

Running a loopback test on an ISDN BRA Cartridge

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 Vers ion.**

5. Press **[Next]** until the display reads **Tests**.
6. Press **[show]**. The display reads **BERT sin tests**.
7. Press **[Nex.]**. The display reads **Loopback Tests**.
8. Press **[show]**. The display reads **Show module:**. Enter the module where the card is located of press **[Next]** until the display shows the module you want.
9. Press **[show]**. The display reads **Carts on ME**.
10. Press **[Show]**. The display reads **LCn on ME**.

To view another cartridge on the module, press **[Next]** until the display shows the cartridge you want.

11. Press **[Show]**. If there is an Analogue Cartridge in the slot, the display reads **Needs digital LC**. If there is an ISDN BRA Cartridge with T or S loops, the display reads **Loop 201**.
12. Press **[Next]** until the display shows the loop you want to test.
13. Press **[Show]**. The display reads **Par load loopback**. (Only one loopback test is available for ISDN BRA Cartridges.) If the loop has not been provisioned the display reads **Unequipped**.
14. Press **START** to begin the test. The display reads the test name followed by **Par load running**. Press **STOP** to terminate the test.
15. If you wish to initiate a loopback test on a second cartridge, proceed from step 7 above otherwise, press **[Fls]** to exit or **[Next]** to continue programming.

Appendix

Commander NT40 specifications

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Service tone cadences

Tone	Cadence (seconds)
Dial tone	continuous
Busy	0.375 on / 0.375 off
Number unobtainable tone	2.5 s on / 500 ms off
intrusion tone	800 ms
Tone on hold {held party}	200 ms on, 200 ms off, 200 ms on, 30 s off
(hold revert)	200 ms on, 200 ms off, 200 ms on, 86 s off
Expensive route	0.3 on / 0.3 off (3 bursts)
Overflow	0.100 on / 0.100 off
Ringback	0.75 on / 0.75 off
Confirmation	1 .0 on / 1 .0 off (3 bursts followed by no tone)
Recall	1 .0 on / 1 .0 off (3 bursts followed by steady tone)
Tone on conference	800 ms

Power specifications

Characteristic	ME
Voltage V a.c. (nominal)	240
Current A rms (max)	1.9
Frequency Hz (nominal)	50
Crest factor	4.0
Fuse	250 V, 6.3 A

Keystation loop specifications

Characteristic	Value
Loop resistance	64 ohm (185 m of 0.4 mm wire)
Loop length	300 m without station auxiliary power supply 790 m with station auxiliary power supply (0.5 mm wire)
Minimum voltage at keystation	11 V d.c.

Characteristic	Value
Current at keystation (idle)	45 mA nominal
Current at keystation (active)	80 mA maximum

Electrical requirements

Characteristic	Spec/Value
Electrostatic discharge (applied to ME, keystations, and connectors)	IEC 801.2, level 3, at 8KV for direct and indirect ESD
Electrical Fast Transient	IEC 801.4, level 3
Radiated and conducted emissions	The system shall comply with AS3548, Class A when installed according to the guidelines in the Installation and Maintenance Manual.

Environmental requirements

Characteristic	Spec/Value
Operating temperature range	0°C to 50°C AS1 099.2, Tests Ad and Bd
Storage temperature range	-50°C to 70°C AS1 099.2, Tests Ab and Bb
Humidity	5% to 95% (non-condensing) AS1 099.2, Tests Db and Ca

Single line Telephone Adaptor (742/57)

Characteristic	Spec/Value
Battery voltage	-48 V d.c. $\pm 10\%$
Maximum loop resistance	1300 ohms
Minimum loop current	Configurable thresholds of 6, 9, 12 or 18 mA
Current limit	Configurable thresholds of 23, 30, 40, 50, 55, 65, 75 or 85 mA
Ring voltage at T/R	Programmable values of 65, 70, 75 or 80 V rms $\pm 10\%$
Maximum ringing load	REN of 3
Ringing frequency	Configurable values of 20, 25 or 50 Hz ± 1 Hz
Ring trip time limit	125 ms

Integrated Single line Telephone (I-SLT) Adaptor

Characteristic	Spec/Value
Battery voltage	-32 V d.c. $\pm 10\%$
Maximum loop resistance	266 ohms
Minimum loop current	18mA
Current limit	38 mA
Ring voltage at T/R	50 V rms
Maximum ringing load	REN of 3
Ring frequency	50 Hz
Ring trip time limit	150 ms

ISDN network synchronization

Characteristic	Spec/Value
Free run clock accuracy	± 32 ppm
Network synchronized clock accuracy	± 5 ppm

Commander NT40 Serial/Item list

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 - Documents399
 - **Sales** Material.....400
 - **Sales** Material.....400
- Miscellaneous Items - **Serial** as shown.....40 1

Main Equipment - Serial 742 (unless shown otherwise)

Item	Code	Description	Remarks
116	SC40 -NT-B	Commander NT40 Main Equipment	Accommodates 16 stations and up to 2 line /ISDN BRA Cartridges
161	SWC-NT-IO-A	Software Cartridge NT40	Required with each Main Equipment. AUS 2.1 software supports Hospitality Services option, enhanced Auto Attendant and Fax Switch.
162	SWC-NTJOC-A	Software Cartridge NT40 Compact	Accommodates 4 lines and 8 keystations, required to use expansion keycodes to expand the system to 8 lines and 16 keystations. Supports AUS 2.1 software.
130	SWE-NT-A	Software Expansion Keycodes	Software keycodes required to expand the system to 8 lines and 16 keystations
163	SWA-NT-HOSP-A	Hospitality Services Keycodes	Software keycodes to activate the Hospitality Services group of feature
174	SWA-NT-AA-A	Auto Attendant Keycodes	Software keycodes to activate Auto Attendant functionality on the system
118	DSC-NT-A	Digital Station Cartridge	Provides 8 ports for additional stations
136	SVEC40 -NT-A	NT40 Services/Expansion Cartridge	Provides 8 ports for additional stations with clocking for ISDN capability
119	LC-NT-B	Analogue Line Cartridge with Line Supervision	Accommodates four lines
10	LC-NT-A	Analogue Line Cartridge	Accommodates four lines
11	BRAC-NT-A	ISDN BRA Cartridge	Accommodates four Microlinks (eight channels)
135	SVC40 -NT-A	NT40 Services Cartridge	Required for clocking when one or more ISDN BRA Cartridges are installed unless the NT40 Services/Expansion Cartridge is installed
65	SCA-NT-A	SDF Cable Assembly	50 wire cable terminated with AMP Champ connector at each end, ivory colored and 8 m long
742/184	ME-NT-IO-A	Main Equipment NT40 V2.9	New door to fit ICTU Replaces 742/116

Stations

Item	Code	Description	Remarks
742/ 191	TSG-NT-M71 OON-A	M71 OON Keystation	Dolphin grey
742/ 192	TSG-NT-M7208N-A	M7208N Keystation	Dolphin grey
742/ 193	TSG-NT-M73 1 ON-A	M73 1 ON Keystation	Dolphin grey
742/ 194	TSG-NT-M7324N-A	M7324N Keystation	Dolphin grey
742- 195	CAPNG-NT-A	CAPN Module	Dolphin grey
742/ 196	TSB-NT-M71 OON-A	M71 OON Keystation	Black
742/ 197	TSB-NT-M7208N-A	M7208N Keystation	Black
742/ 198	TSB-NT-M73 1 ON-A	M73 1 ON Keystation	Black
742/ 199	TSB-NT-M7324N-A	M7324N Keystation	Black
742/ 200	CAPNB-NT-A	CAPN Module	Black
742/ 201	n / a	Handset	Grey Spare part * for all (M7324N, M731 ON, M7208N, and M71 OON) keystations.
742/ 202	n/a	Handset cord	Grey Spare part * for all (M7324N, M731 ON, M7208N, and M71 OON) keystations.
742/ 203	n / a	Handset	Black Spare part * for all (M7324N, M731 ON, M7208N, and M71 OON) keystations.
742/ 204	n / a	Handset cord	Black Spare part * for all (M7324N, M731 ON, M7208N, and M71 OON) keystations.
742/ 205	n / a	Telephone line cord (4.2m)	Spare part * for all (M7324N, M731 ON, M7208N, and M71 OON) keystations.
742/ 206	n / a	CAPN Line cord (4.2m)	Spare part * for M7324N keystation.
742/ 207	n / a	CAPN Extension Line Cord (.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.

Item	Code	Description	Remarks
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.
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 300 m 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.
169	HSP-NT-M7000-A	M7000 Handset -spare	Spare part
170	HSC-NT-M7000-A	M7000 Handset cord -spare	Spare part
69	CL3-NT-A	Line Cord - 3 m	Spare part for all keystations
70	CL42-NT-A	Line Cord - 4.2 m	Spare part for all keystations
73	DC 18-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

Item	Code	Description	Remarks
81	FLL-NT-A	Feature label lens	Spare part

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	Upissue required to support Hospitality Services option.
23	CLI-NT-A	CLI Unit	For use where Calling Line Identification is provided on an analogue line
27	DS-NT-A	Door Station	
28	DUU-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 an SLT Adaptor
57	SLTA-NT-B	SLT Adaptor	Provides interface to Single Line (analogue) Telephone. Includes Peripheral Power Supply. (supersedes 742 / 2 1)
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	
742/ 185	ICTU-NT-A	ICTU	
742/ 186	FUN-NT-A	Funnel	

Documents

From AUS2.1 all documentation is also available on CD ROM.

Item	Code	Description	Remarks
123	DOC-NT-PRIO-A	Programming Record NT40	Used for detailing system prior to installation, if required
122	DOC-NT-CDIO-A	Customer Documentation Pack NT40	Comprises System Administration Manual, Programming Record and SLT Adaptor User Card.
120	DOC-NT-IM40-A	Installation and Maintenance Manual NT40	Required by Technical staff

Item	Code	Description	Remarks
37	DOC-NT-KFC-B	Keystation Feature Card	Spare part supplied with every keystation
40	DOC-NT-SLTA-A	SLT Adaptor User Card	Spare part supplied with the SLT Adaptor
41	DOC-NT-DSS-B	DSS 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.
		M71 OON Keystation User Card	Spare part Supplied with M71 OON Keystation.
		M7208N Keystation User Card	Spare part Supplied with M7208N Keystation.
		M731 ON Keystation User Card	Spare part Supplied with M731 ON 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
54	DOC-NT-CDR-B	CDR System Administration Manual	Spare part supplied with CDR unit
172	DOC-NT-CDC-A	Customer Documentation NT40	Customer Documentation CD ROM (all documents except Installation and Maintenance Manuals).
173	DOC-NT-CDT-A	Technical Documentation NT40	Technical Documentation CD ROM (all documents including Installation and Maintenance Manuals).

Sales Material

Item	Code	Description	Remarks
55	DOC-NT-PIG	Commander NT Product Information Guide	Sales Support Information
60	DOC-NT-PL-K	Product Leaflet - keystations/Options	

Item	Code	Description	Remarks
61	DOC-NT-PL-VM	Product Leaflet ▪ Voice Mail	
64	DOC-NT-PL-MM	Product Leaflet ▪ Major Markets	
126	DOC-NT-PB-40/132	Commander NT40/132 Product Brochure	

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	163	SWA-NT-HOSP-A	Hospitality Services Keycode	
742	174	SWA-NT-M - A	Auto Attendant Keycode	Replaces 742/ 125
742	130	SWE-NT-A	NT40 Compact Expansion Key code	Upgrades Compact to NT40

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