Meridian SuperNode

Meridian SL-100 M3900 Meridian Digital Telephones

Reference Guide

NØRTEL
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Meridian SuperNode

Meridian SL-100 M3900 Meridian Digital Telephones

Reference Guide

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About this document

When to use this document

This guide provides feature, expansion module, and specification information for the M3900 Series Meridian Digital Telephones.

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the next software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but rereleased in the same software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in *Master Index of Publications, 555-4001-001*.

This document is written for all DMS-100 Family offices. More than one version of this document may exist. To determine whether you have the latest version of this document and how documentation for your product is organized, check the release information in *Product Documentation Directory, 297-8991-001*.

References in this document

The following documents are referred to in this document:

- Service Order Reference Manual
- Customer Data Schema Reference Manual

What precautionary messages mean

The types of precautionary messages used in NT documents include attention boxes and danger, warning, and caution messages.

An attention box identifies information that is necessary for the proper performance of a procedure or task or the correct interpretation of information or data. Danger, warning, and caution messages indicate possible risks.

Examples of the precautionary messages follow.

ATTENTION - Information needed to perform a task

ATTENTION

If the unused DS-3 ports are not deprovisioned before a DS-1/VT Mapper is installed, the DS-1 traffic will not be carried through the DS-1/VT Mapper, even though the DS-1/VT Mapper is properly provisioned.

DANGER - Possibility of personal injury

DANGER
Risk of electrocution
Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed. The inverter contains high-voltage lines. Until the fuses are removed, the high-voltage lines are active, and you risk being electrocuted.

WARNING - Possibility of equipment damage

WARNING
Damage to the backplane connector pins
Align the card before seating it, to avoid bending the backplane connector pins. Use light thumb pressure to align the card with the connectors. Next, use the levers on the card to seat the card into the connectors.

CAUTION - Possibility of service interruption or degradation

> **CAUTION**
> **Possible loss of service**
> Before continuing, confirm that you are removing the card from the inactive unit of the peripheral module. Subscriber service will be lost if you remove a card from the active unit.

How commands, parameters, and responses are represented

Commands, parameters, and responses in this document conform to the following conventions.

Input prompt (>)

An input prompt (>) indicates that the information that follows is a command:

```
>BSY
```

Commands and fixed parameters

Commands and fixed parameters that are entered at a MAP terminal are shown in uppercase letters:

```
>BSY CTRL
```

Variables

Variables are shown in lowercase letters:

```
>BSY  CTRL  ctrl_no
```

The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

Responses

Responses correspond to the MAP display and are shown in a different type:

```
FP 3 Busy CTRL 0: Command request has been submitted.

FP 3 Busy CTRL 0: Command passed.
```

1 M3900 series general description

This document describes the M3900 Series Meridian Digital Telephones. It describes the installation and administration of the M3900 Series sets. The M3900 sets provide integrated voice and data communication. The M3900 sets communicate with the Meridian SL-100 switch through digital transmission over standard twisted-pair wiring.

General features

The five models of the M3900 series telephones include the M3901, M3902, M3903, M3904 and M3905. Each of the M3900 sets have specific characteristics and support features using the following keys:

- fixed feature

- programmable line/feature (self-labeled)

- programmable feature (self-labeled)

- context sensitive softkeys

Minimum firmware requirements

The M3900 Release 3 telephone sets (M3902, M3903, and M3904) supported on the MSL-100 switch require that the latest Release 3 firmware be downloaded.

- Meridian M3900 Telephone Availability

  — Release 2 Telephones: 2Q, 2001

  — Release 3 Telephones: 4Q, 2001

The Display-based Expansion Module (DBA), and the Key-based Expansion Module (KBA) also require a minimum firmware release as follows:

- DBA release 6 of NTMN67AA or later

- KBA release 2 of NTMN37BA or later

Programmable line/feature keys (self-labeled)

The programmable line/feature keys (self-labeled) are located at the left and right sides of the upper section of the display area on the M3903, M3904, and

M3905 telephone sets. The user changes the LCD label of these keys (except the primary directory number key) to meet their business needs.

The M3903 and M3904 sets provide two layers of functionality using these keys. The user accesses two Lines/Features per key. For example, the M3904 provides the user with 12 lines/features that are accessible on the six keys. The M3905 provides one layer of keys with 8 line/feature keys.

Programmable Feature keys (self-labeled)

Programmable feature keys (self-labeled) are the three keys located below the lower portion of the display area on the M3902 Meridian Digital Telephone set.

Context sensitive softkeys

The M3903, M3904, and M3905 have four softkeys immediately below the display. Only the features that are configured for the telephone set display on the soft labels above the keys. For example, features like transfer and conference may be accessed during a call but not Forward because that feature is not needed during a call. The following describes the functions or features accessed by these keys:

- features configured for the telephone set

- phone status like on-hook, off-hook, or on a call

- if the options list, directory/log, or applications are in use

One-button Feature Access keys

The following enhancements are for Personal Directory, Corporate Directory, Call Log, and Redial List with the M3900 Release 3 firmware and MSL15 or later software. It reduces the number of key strokes allowing users to start a directory search through the dial pad without pressing the Select softkey:

- The user can press the Directory/Log key and start a directory search through the dial pad without pressing the Select softkey. Searches can now be made with three letters rather than only one.

- Instead of needing two key strokes with Corporate Directory, the use presses the Applications keys and types in letters using the dial pad to begin a search.

- Call Log and Redial List may be datafilled as either context sensitive soft-keys or programmable feature keys.

Pause in Dialing Strings

With M3900 Release 3 firmware, this enhancement provides the user with the ability to enter a 1.5 second delay in the dialing sequence on an external line for applications like answering machines, IVR systems, auto attendant, etc., when programming or editing their Personal Directory or Redial List. A new

softkey labeled Pause is being added to the M3903, M3904, and M3905 telephone sets. The pause character is two parallel bars (‖) that display in the dialing display. Additional pauses may be inserted (4 pauses = 4 X 1.5 sec. = 6 sec. delay.) This enhancement is not currently supported when using the PC utility.

Call Forward Enhancements

With M3900 Release 3 firmware and MSL15 or later software, this enhancement allows the user to press the Forward key, enter the number, and press the Done softkey to edit s call forward number. The Cancel key may be presses to cancel the change.

Special Character Handling

With M3900 Release 3 firmware, this enhancement provides the ability to enter special characters, like those on a PC keyboard for the ASCII character set, to the personal directory, feature key labels, etc. The Special Character set contains up to 130 characters. In the edit mode, navigation keys access the special characters,

Password Clear

With M3900 Release 3 firmware, this enhancement allows the administrative personnel to clear and reset the Directory/Call Log password. The password is turned off by using Password Clear.

Full Icon Support

With M3900 Release 3 firmware, this enhancement allows the M3902, M3902, and M3905 telephone sets to use the icons with I-Ringing, I-Active, U-Active, I-Hold, and U-Hold.

M3900 series features Meridian digital desktop flash download

Flash download provides the capability to download a new firmware version from the MSL-100 switch to the Meridian digital telephones in the following situations:

- to support a new language
- to add new text prompts and soft-labels for feature and soft keys
- to add new firmware-based applications
- to support new signaling messages for server-based applications
- to fix customer reported problems

Optivity Telephony Manager for Meridian SL-100, 2.0

The Optivity Telephony Manager for MSL-100 product, version 2.0 or greater, initiates all flash download commands including:

- the ability to query current firmware version residing on the Meridian digital telephones

- the ability to initiate flash download on MeridianM3900-series digital telephones on a set by set basis (downloads can be scheduled for a series of phones; scheduling canbe set for any range of time on any date.)

- the ability to initiate flash download for all Meridian digital telephones configured on an IPE peripheral equipped with an extended peripheral equipment controller (EXPEC), NT7D07BA or later vintage.

- the ability to keep track of download progress as well as manage the correlation of firmware files for the different sets

- the ability to log download failures and provide a record of downloads completed as well as those failed.

- the ability to abort a download gracefully

Note 1: The flash download mechanism requires OTM for MSL-100 2.0 or greater.

Note 2: The Meridian digital telephones require an IPE equipped with an EXPEC, NT7D07BA or later version.

Interactions and restrictions

During the download process, the Meridian digital telephones are in an inoperable state. The sets display a message on their displays indicating that a download is in progress. If a download fails, a message is displayed indicating that maintenance is required.

In cases where there is an IPE equipped with an EXPEC and both the Meridian digital telephones (M3900 series) and M2000 series sets coexist, the M2000 sets continue to operate during the flash download process.

Meridian Digital Group Listening (GLISTEN) and password protection

Use the GLISTEN feature to activate the loudspeaker on the set when the handset is in use. A group of people can listen to the audio but only the handset transmits audio to the far end. Group listening differs from handsfree in that only the loudspeaker, and not the handsfree microphone, is enabled and the handset is off-hook and its audio paths are on.

The GLISTEN feature is only available when enabled, and when assigned to the set through SERVORD. When this feature is not available, it does not show up in the options menu lists. In addition, because handsfree and group listening

cannot be in activation at the same time, the group listening enable feature is not in the options list if there is an active call with handsfree enabled.

In order to use the GLISTEN feature, the user must first enable the feature by using the Options mode.

When the feature is enabled, the handsfree key is used to turn the speaker on or off. To turn off the speaker, the user must press the Handsfree key a second time. The speaker only turns on if the handset is off-hook. The speaker automatically turns off when the handset is placed on-hook.

To activate handsfree when group listening is in use, the user must press and hold the Handsfree key, place the handset on-hook, and release the handsfree key. Alternately, the user can place the call on hold by pressing the hold key, place the handset on-hook, followed by pressing the DN key that has the held call.

   Note: Handsfree must be enabled for group listening to be enabled

Interactions

GLISTEN is assignable to M3902, M3903, and M3904 sets using SERVORD commands NEW, NEWACD, ADD, and EST. The SERVORD CHF command can be used to toggle the status of the option to an existing set previously listed.

When the options are provisioned through SERVORD, the user can access the GLISTEN feature with the options key.

Data schema

Table IVDINV has set refinements added with GLISTEN as a boolean field. Refer to the *Commercial Systems Data Schema Reference Manual* for more information.

Password reset

The M3903, M3904, and M3905 sets provide password reset capability to directories that can be password protected.

The M3903 set uses password reset for the call log/redial fixed feature key. The call log/redial key allows access to the call log and the redial list.

The M3904 set uses password reset for the directory/log fixed feature key. The directory/log key allows access to set-based applications, such as personal directory, call log and redial list.

The switch administrator performs password reset using the command interpreter (CI) command, RESETPWD. If a user forgets the password, the RESETPWD command resets the password for all directories. When Password

Reset is performed on a terminal with password protection enabled, the user enters the new password to gain access to a list.

After performing password reset on a terminal with password protection disabled, the user enters the new password the next time password protection is enabled. The switch administrator uses RESETPWD to assign the new password.

Desktop directory number download

The Meridian digital telephones display the DN associated with a DN key or the feature assigned to a feature key on a display area next to each of their keys. This display area eliminates the need for paper labels. The directory download occurs as new DNs are provisioned on the set and as new features are added to the set.

Limitations and restrictions

DN download and feature key labeling only apply to Meridian digital telephones equipped with a display. The M3902, M3903, M3904, M3905, and the DBA use this function but the M3901 set does not.

The M3902 set has a 2 x 24 character display and the keys for DN and features have enough space for seven characters for both DN and features.

The M3903 set has a 3 x 24 character display and the keys for feature keys are limited to ten characters.

The M3904 set has a 5 x 24 character display and the keys for features are limited to ten characters.

The M3905 set has a 4 x 24 display and the keys for features are limited to ten characters.

The M3904 and M3905 sets support a maximum of two KBAs or one DBA. A set that has at least one KBA cannot have a DBA and vice versa.

Interactions

The ATA functions with the Meridian digital telephones.

Data schema

Refer to the *Commercial Systems Customer Data Schema Reference Manual* for more information.

Service orders

Two new options are being introduced with M3900 Release 3 firmware and MSL15 software, RDLL (Redial List) and CLLG (Call Log.) For detailed

examples of adding the Meridian digital telephones using SERVORD, refer to the *Commercial Systems Service Order Reference Manual*.

2 Feature keys

Fixed feature keys

The M3900 Series Meridian Digital Telephone sets have feature keys that are pre-labeled with the assigned feature. These keys appear on the telephone with text or icon labels. Telephone icon key labels are available in specific markets areas. Those with an * are optional key caps available with the M3905. Table 2-1 shows the keys, text, and icons.

Table 2-1 Feature key text and icon labels (Sheet 1 of 5)

Feature Key	Text label	Icon label
Activity Key* (M3905 only)	Activity	
Answer Agent* (M3905 only)	Ans Agent	
Answer Emergency* (M3905 only)	Ans Emerg	
Application	Applications	
Apps (M3905 only)	Apps	
Call Agent *	Call Agent	

Table 2-1 Feature key text and icon labels (Sheet 2 of 5)

Feature Key	Text label	Icon label
Call Log (M3903 only)	Call Log	
Call Supervisor (M3905 only)	Supervisor	
Copy	Copy	
Dir|Log (M3905 only)	Dir|Log	
Directory/Log	Directory/Log	
Display Queue* (M3905 only)	Dsply Queue	
DN line	Line	
Emergency (M3905 only)	Emergency	
Feature Key (M3901 only)	Feature	
Goodbye	Goodbye	

Table 2-1 Feature key text and icon labels (Sheet 3 of 5)

Feature Key	Text label	Icon label
Handsfree		
Headset	Headset	
Hold	Hold	
InCalls (M3905 only)	In - Calls	
Make Busy (M3905 only)	Make Busy	
Message	Message	
Mute	Mute	
Navigation		
Navigation		
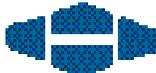
Table 2-1 Feature key text and icon labels (Sheet 4 of 5)

Feature Key	Text label	Icon label
Navigation		
Navigation		
Navigation		
Navigation		
Not Ready (M3905 only)	Not Ready	
Observe Agent* (M3905 only)	Obv Agent	
Options	Options	
Quit	Quit	
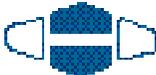
Table 2-1 Feature key text and icon labels (Sheet 5 of 5)

Feature Key	Text label	Icon label
Shift	⬆ *Shift*	⬆
Transfer (M3902)	*Transfer*	V
Volume	◀ᵢ ◀◍	◀ᵢ ◀◍

Note: Icon key labels are available in specific market areas.

3 Feature codes and abbreviations

The following table shows the DN Download feature codes and abbreviations.

Table 3-1 Feature codes and abbreviations (Sheet 1 of 4)

Feature	7 character display	10 character display	Feature description
AAB	AutoAB	AutoAns	AUTO ANSWERBACK KEY
ACD DN	Line*	N/A	ACD MIS
ACD HOLD	ACDHld	ACDHold	ACD MIS
ACDNR	NotRdy	NotReady	ACD NOT READY KEY
ASL	AgtStat	AgentStat	ACD AGENT STATUS LAMP
AUD	ADial	AutoDial	AUTOMATIC DIALING
AUL	AutoLn	AutoLn	AUTOMATIC LINE
AUTODISP	AutDsp	Autodisp	AUTO DISPLAY FEATURE
BC	Bcap	BearerCap	BEARER CAPABILITY
BCLID	BCLID	BCLID	BCLID FEATURE
BLF	BLF	BLF	BUSY LAMP FIELD
BLK**	**	**	BLANK KEY
CAG	Cagent	CallAgent	ACD CALL AGENT KEY
CFB	CFB	CFB	SEPARATE KEYLIST FOR CFB
CFD	CFD	CFD	SEPARATE KEYLIST FOR CFD
CFDVT	CFDTmr	CFDVarTimr	CFD VARIABLE TIMER
CFTOD	CFTOD	CFTOD	CALL FORWARD TIME OF DAY
CFUIF	CFUIF	CFUIF	SEPARATE KEYLIST CFUIF
CFW	CFWD	Forward	CALL FORWARDING
CIF	CIntFw	ConIntrFlw	CONTROLLED INTERFLOW
CLI	CLI	CallLineID	CALLING LINE IDENTIFY
CLSUP	Calsupv	Callsupvsr	ACD CALL SUPERVISOR
CNF	Conf	Conference	4 TO 30 WAY CONFERENCE

Table 3-1 Feature codes and abbreviations (Sheet 2 of 4)

Feature	7 character display	10 character display	Feature description
COT	COT	CustOrigTr	Customer Originated Trace
COT	COT	COT	COT FEATURE KEY ACCESS
CPK	Park	Park	CALL PARK
CPU	Pickup	Pickup	CALL PICKUP
CTD	CTD	TollDenied	CARRIER TOLL DENIED
CTR	Xfer	Transfer	CALL TRANSFER
CWD	CWD	CWD	CWD KEY
CWT	Cwait	CallWait	CALL WAITING
DASK	DspAgt	DisplayAgt	ACD DISP AGENTS
DCPK	DCPark	DirectPark	DIRECTED CALL PARK
DDN	Line*	N/A	DATA DN (AUDITS ONLY)
DIN	Dnylnc	DenyIncCal	DENIED INCOMING
DMCT	DMCT	DMCT	DMCT FEATURE
DND	DND	DontDistrb	DO NOT DISTURB
DQS	DispQ	DisplayQue	ACD DISPLAY QUEUE STATUS
DQT	DspQTh	DispQTh	DISPLAY-QUEUE THRESHOLD
DRING	Dring	DistRing	DISTINCTIVE RINGING
DTMK	DTMK	DTMK	DATA TERMINAL MODE KEY
EBO	BsyOvd	ExeBusyOvd	EXECUTIVE BUSY OVERRIDE
ECM	ECM	ECM	COMPUCALL ECM FEATURE
EMK	Emrgcy	Emergency	ACD EMERGENCY KEY
EMW	EMsgWt	ExeMsgWait	EXECUTIVE MSG WAITING
FAA	FAA	FAA	ACD FAA
FXR	FxXfer	FastXfer	FAST TRANSFER
GIAC	GIAC	GIAC	Group Intercom All Calls
GIC	GplCom	GpIntercom	GROUP INTERCOM
ICM	IntCom	Intercom	INTERCOM
INSPECT	Inspct	Inspect	INSPECT KEY
JOIN	Join	Join	CALL JOIN
KSF	ShrtHnt	ShortHunt	KEY-SET SHORT HUNT
KSMOH	MusHld	MusicHold	KEY SET MUSIC ON HOLD
LOB	LOB	LOBCode	LINE OF BUSINESS CODE

Table 3-1 Feature codes and abbreviations (Sheet 3 of 4)

Feature	7 character display	10 character display	Feature description
LPIC	LPIC	PrimILC	PRIMARY INTERLATA CARRIER
MBK	MkBusy	MakeBusy	MAKE BUSY KEY
MBSCAMP	CampOn	CampOn	MBS CAMP ON KEY
MCH	MsHold	MalcsHold	MALICIOUS CALL HOLD
MSB	MSB	MakeSetBsy	MAKE SET BUSY
MSMWI	MSMWI	MSMWI	MULTIPLE SET MESSAGE WAITING INDICATION
MWQRY	MWQry	MWQuery	Message Query
MWT	MsgWt	Message	MSG WAIT KEY
NFA	NFA	NFA	SAID ON MBS FEATURE
NGTSRVCE	NgtSvc	NightSvc	ACD NIGHT SERVICE KEY
OBS	Observ	Observe	ACD OBSERVE AGENT KEY
OLS	OLS	OrigLneSel	ORIGINATING LINE SELECT
PBL	Line*	Line*	PRIVATE BUSINESS LINE
PIC	PIC	PrimaryILC	PRIMARY INTERLATA CARRIER
PRL	PriRls	PrivacyRls	PRIVACY RELEASE
QBS	QryBsy	QueryBusy	QUERY BUSY STATION
QCK	Qconf	QuickConf	QUICK CONFERENCE KEY
RAG	RgAgn	RingAgain	RING AGAIN
RMB	RMBusy	RandomBusy	RANDOM MAKE BUSY
RSUS	RqSupn	ReqSuspnsn	REQUESTED _SUSPENSION
SACB	SACB	SubsrBlock	SUBSCR CALL BLOCK
SCA	SCA	SelAccept	SELECTIVE CALL ACCEPT
SCF	SCFWD	SelForward	SELECTIVE CALL FORWARD
SCL	SpCall	SpCallUser	SPEED CALLING
SCMP	SerCmp	SeriesCmp	SERIES COMPLETION
SCRJ	SCRJct	SelReject	SELECTIVE CALL REJECTION
SCS	SpCall	SpCallUser	SPEED CALLING
SCU	SpCall	SpCallUser	SPEED CALLING USER
SDN	Line*	Line*	DIRECTORY NUMBER
SDY	LStudy	LineStudy	AT&T LINE STUDY
SEC	ScCode	SecureCode	SECURITY CODE
SLQLG	SLQLG	SLQLG	SINGLE LINE QUEUEING

Table 3-1 Feature codes and abbreviations (Sheet 4 of 4)

Feature	7 character display	10 character display	Feature description
SLU	SLU	SLU	SUBSCRIBER LINE USAGE
SMDI	SmpMsg	SimplfyMsg	SIMPLIFIED MESSAGE
SOR	SOR	StatOrigR	STATION ORIG RESTRICTIONS
SPB	SpBill	SpecBill#	SPECIAL BILLING CODE
SSAC	SSAC	StanAuth#	STATION-SPEC. AUTH CODES
StopHnt	SHU	StopHunt	STOP HUNT
SUPR	Supvsr	Supervisor	SUPERVISOR FEATURE
TLS	TLS	TermLneSel	TERMINATING LINE SELECT
TRKDISP	TrkDsp	TrkMemDisp	TRUNK MEMBER DISPLAY
TWC	3WC	3waycall	3-WAY CALLING
TWCPUB	TWCPUB	TWCPUB	TWCPUB LINE OPTION
UCDLG	UCDLog	UCDLogin	UCD LOGIN KEY
UCDSD	UCDSD	UCDSDPoint	UCD SD POINT FEATURE
WML	WarmLn	WarmLine	MDC/RES WARM LINE-NC0011

Note 1: Line is displayed if the DN download fails. The user can manually enter the DN if this occurs. ** - The display remains blank for unconfigured keys.

Note 2: If a feature is not on the DN Download list and is not assigned to a programmable feature key, then the key appears blank. If a feature is not on the list but is assigned to a programmable line/feature key, then a user can change the label using the Options list.

4 M3901 telephone set

M3901 feature description

The M3901 set has feature key activation. It takes only two keystrokes to activate a feature. For example, press the Feature key and a keypad number to activate a feature. The following key combinations can be activated:

- the main feature key
- the five feature key numbers

Characteristics

Figure 4-1 illustrates the M3901 set. The M3901 set has the following features:

- one line directory number (DN) capability
- five programmable features
- feature activation and message waiting/incoming call status indicator LED
- amplified headset support
- Line, Feature, Hold, Goodbye, and Volume UP/DOWN fixed keys

Note: The M3901 set does not support ACD.

Figure 4-1 M3901 telephone set
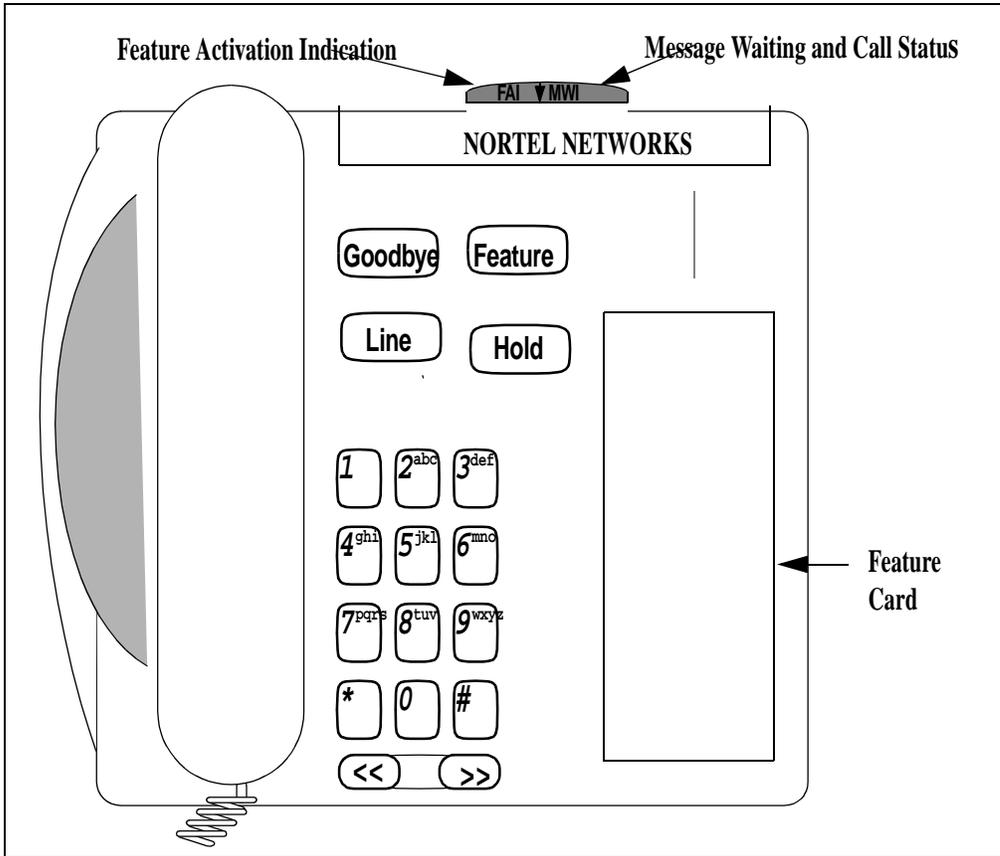
Feature card

The feature card enumerates the set directory and indicates the key sequence
for feature activation. Figure 4-2 shows an example of the feature card.

Figure 4-2 Feature card example
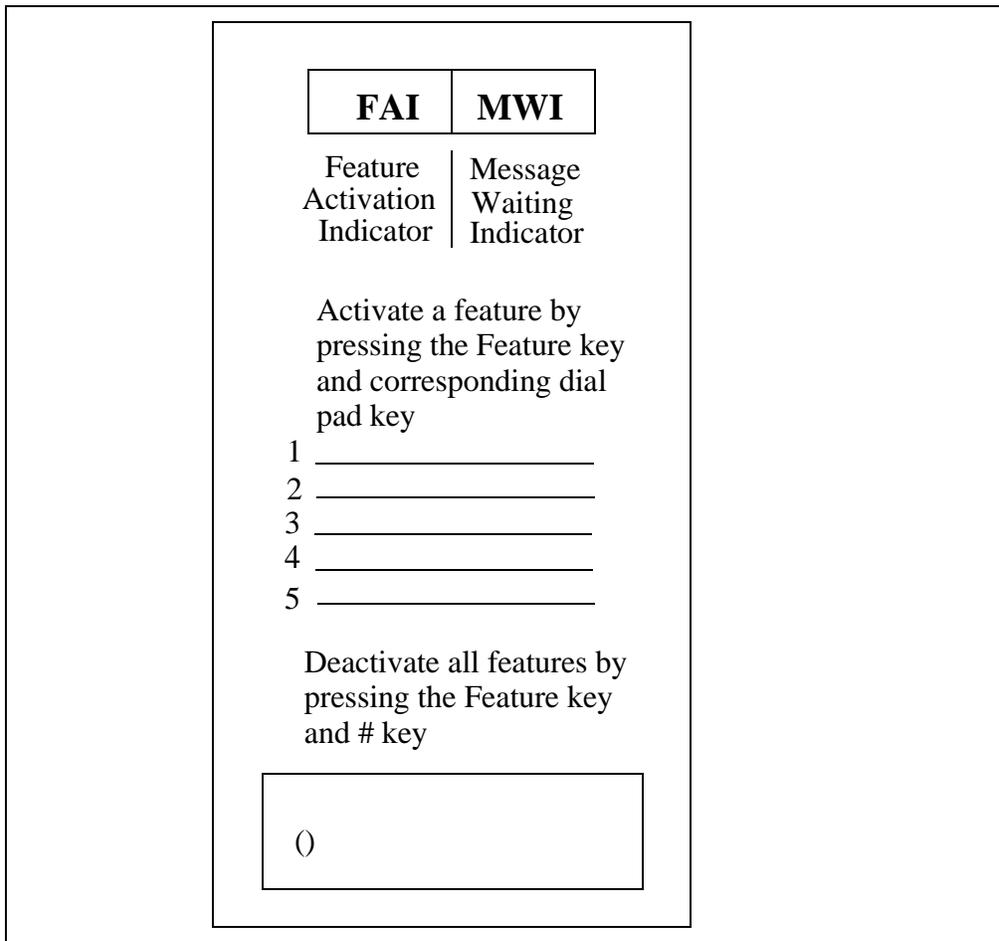
Message Waiting and Call Status Indicator (MWI)

The MWI LED lights to show a message is waiting. This indicator visually alerts that a call is holding. The LED flashes to indicate an incoming call. It winks when a call is holding.

Feature Activation Indicator (FAI)

The Feature Activation Indicator LED indicator displays the status of all five programmable features (key numbers 2-6). The Feature Activation Indicator LED is located on the left side of the MWI. The MWI and Feature Activation Indicator LED use the same lens with a separating wall. The Feature Activation Indicator LED turns off when all five programmable keys turn off. The LED winks when any one of the five keys wink. The Feature Activation Indicator LED turns on when any of the five keys turns on.

Line key

Use the Line key for on-hook dialing or to take a call off hold. Access the DN by taking the handset off-hook or by pressing the Line key. The DN must be assigned to key 1.

Goodbye key

Use the Goodbye key to terminate an active call.

Hold key

Use the Hold key to put an active call on hold. Press the Line key to take a call off hold. The MWI LED winks as a reminder that the call is on hold.

Compatible features

Refer to the *Service Order Reference Manual* for additional information.

M3901 key configuration

Table 4-1 shows the M3901 set key configurations. Nortel Networks does not support the M3901 as a Call Center DN. The M3901 telephone firmware controls the Volume Control Bar, the Hold, and Goodbye keys.

Table 4-1 M3901 key configuration

Description	Key Number
key 1	Line (directory number) See Note 1.
key 2	Feature
key 3	Feature
key 4	Feature
key 5	Feature
key 6	Feature (See Note 2)
#	Deactivate all features
other	Illegal or not defined

Note 1: Configure key 1 as primary DN

Note 2: Configure keys 2-6 with any feature not requiring a display

Note 3: The M3901 telephone firmware controls the Volume Control Bar, the Hold Key, and the Goodbye Key.

5 M3902 telephone set

M3902 feature description

The following list shows the M3902 set features:

- one-line directory number (DN)
- three programmable feature keys (self-labeled)
- three fixed feature keys for Message, Transfer, and Options

    Note: Although the Message and Transfer keys are permanently labeled, they are not restricted to those features.

- fixed keys for:
    — Hold
    — Goodbye
    — Mute (with LED)
    — volume UP/DOWN
    — Handsfree (with LED)
    — navigation keys (up, down, left, and right)
- 2 lines by 31 character display area
- on-hook dialing
- support for an amplified headset
- one accessory port
- handsfree calling option with LED

Figure 5-1 illustrates the M3902 telephone set.

**Figure 5-1 Figure
M3902 telephone set**
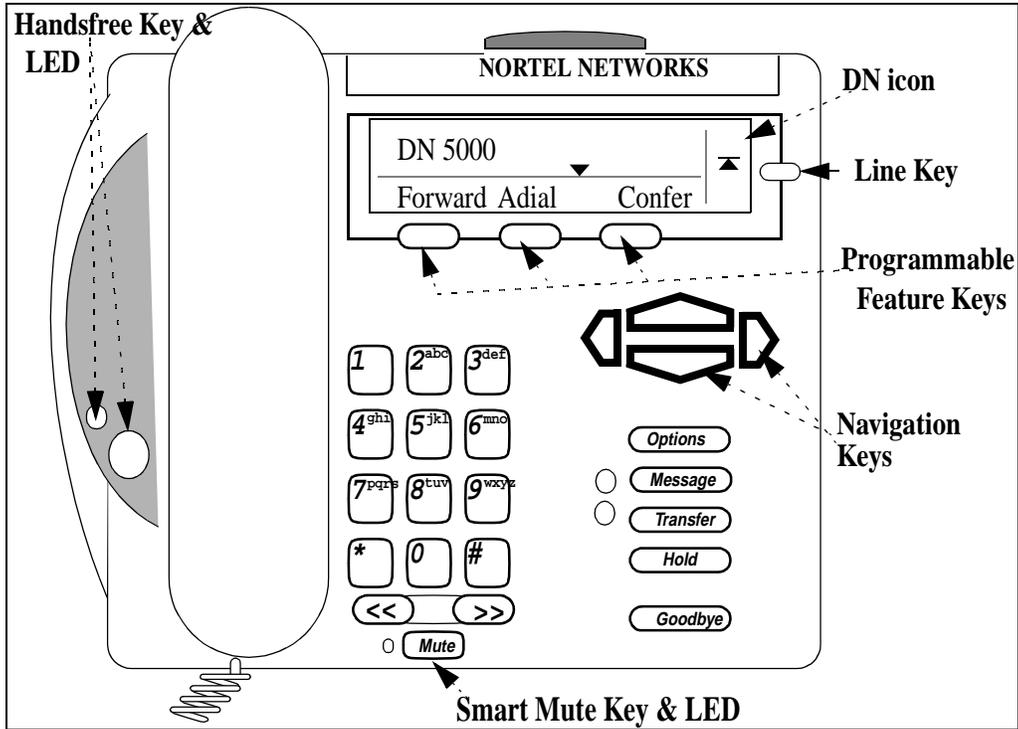
The following table describes the key numbers and their locations.

Table 5-1 Key numbers

key number	description
key 1	Line key (DN line must go on key 1)
key 2	labeled Forward
key 3	labeled Auto Dial (Adial)
key 4	labeled conference (Confer)
key 5	transfer key
key 6	message waiting key

Note: DN or DN features cannot be assigned to keys 2-6.

Message waiting indicator (MWI)

The MWI indicates that a message is waiting to be heard. This LED also flashes when the set is ringing. If the set is ringing when someone is leaving a message, the LED flashes until the set stops ringing.

Display

The display has two 31-character lines. The top display line shows information like DN, the number of user presses when the set is in use, and time and date. When the information exceeds 31-characters, a scroll icon appears and the rest of the display may be seen by scrolling.

The second line displays the feature key labels for the three programmable self-labeled keys. Each feature label consists of up to seven characters. The first character is an icon displaying the status of the feature. When the set is in Options mode, the top line displays related prompts and the bottom line displays key labels. There are six icon indicators showing various options and set status. Table shows examples of these icons and their descriptions.

Table 5-2 M3902 icon indicators (Sheet 1 of 2)

Icon	Description
▼	down - indicating there is more data to display
▲	up - indicating there is more data to display
◀	left - indicating there is more data to display
▶	right - indicating there is more data to display

Table 5-2 M3902 icon indicators (Sheet 2 of 2)

Icon	Description
	DN/line icon
	Feature icon

Navigation keys

When the scroll icon displays, use the UP and DOWN keys to scroll the top display line. Use the UP, DOWN, LEFT, and RIGHT keys for other functions, depending on the active application and Options mode status.

Self-labeled programmable feature keys

The use of the self-labeled programmable feature keys varies, depending on the different states of operation. In Options mode, they access programming options of the set. In other modes, they are dedicated self-labeled programmable feature keys with a corresponding display label. These three keys must be datafilled using Service Order (SERVORD) as option keys 2-4.

Options key

Pressing the Options key activates Options mode. To exit the Options mode, press the Options key a second time or press the Quit soft key. Exiting Options mode by using the Options key causes the current action to be canceled and takes the user one level up in the options list. While in Options mode, the Line, Goodbye, and Hold keys can still be used to process calls, but the display shows only options mode information. Options mode shows an introduction screen listing the number of available options and instructions for navigating the list of options. Use the navigation keys to scroll through the Options mode list.

The Options key provides access to the following set parameters:

- language — select the language in which to display information from English, Spanish, French, German, Swedish, Norwegian, Finnish, Italian, Brazilian, Portuguese, and Japanese

- change Feature key label — change the feature labels from the default value

- screen contrast — adjust the LCD contrast

- volume adjustment— adjust the default volume level on the ringer, buzzer, speaker, and handset

- ring type— select a ring type from a list of available tones

- call timer enable — calls are automatically timed and the timer displays for 10 seconds after call disconnect

- date/time format — choose the time and date format to display when the phone is idle

- key click enable— provides audible feedback when using the dial pad (no feedback is given when the option is off)

- display diagnostics — provides a self-diagnostic test for the disply

- group listening control — activates and deactivates group listening

Options key cannot be assigned to a DN or feature key.

Goodbye key

The Goodbye key terminates an active call.

Hold key

The Hold key places an active call on hold. The feature key label of the held line displays an icon that shows that the call is on hold. Press the Line key to return to the call that is on hold.

Line key

Access the DN by pressing the Line key or taking the handset off-hook. Use the Line key for on-hook dialing or to take the call off hold. The DN must be assigned to key 1.

Handsfree/group listen key and indicator

Press the Handsfree key to use the speaker with built-in microphone instead of a handset/headset. In handsfree mode, the handsfree indicator lights. Switch back to the handset/headset at any time during the call by taking the handset off-hook or using Options mode.

In group listening mode, a group listen icon appears. Refer to the *Service Order Reference Manual* for Group Listen functionality.

Mute key and indicator

Pressing the Mute key to mute the voice transmit path. While in handsfree mode, the microphone is muted. When in mute mode, the mute indicator flashes. To turn the voice transmit path on again, press the Mute key a second time.

Transfer key and indicator

The Transfer key is a fixed feature key that corresponds to feature/option key 5. This key must be programmed using SERVORD commands. Although it is permanently labeled as Transfer, it doesn't have to be datafilled as such. The LED for this key indicates the status of the feature. The indicator states are ON, OFF, FLASH, and WINK. A SERVORD message displays a message stating that Transfer is the recommended feature for this key.

Message key

The Message key is a fixed feature key that corresponds to feature/option key 6. This key must be programmed using SERVORD. Although it is permanently labeled as Message, it doesn't have to be datafilled as such. A SERVORD message displays stating that Message is the recommended feature for this key. In order to access voice mail without a message waiting, Nortel Networks recommends assigning Message to key 1 and Autodial to the Message key (key 6.) The Autodial key should be programmed with the voice mail system DN.

Compatible features

Refer to the *Service Order Reference Manual.*

6 M3903 enhanced telephone

M3903 general description

The following list shows the M3903 telephone set features:

- four directory numbers (DN) with three line display
    - two programmable line/feature (self-labeled) keys, each with two layers, providing up to four line/feature keys
    - four context sensitive softkeys to access context-sensitive softkey features
    - five fixed-feature/application keys including options, message, call log, applications, and a shift key
- fixed keys for the following functions:
    - hold
    - goodbye
    - mute (with LED)
    - volume UP/DOWN
    - headset (with LED)
    - handsfree (with LED)
    - navigation keys (up, down, left and right)
- copy and quit keys for applications and features
- handsfree calling with LED
- 3 line X 24 character display area
- call log (including redial list)
- on hook dialing
- two accessory ports

- direct connect headset port
- refined corporate directory search using the Resume key appearing on the following screens:
  — List View
  — Card View
  — No Matches Found

The following illustration shows the M3903 set and its characteristics.

Figure 6-1 M3903 telephone set
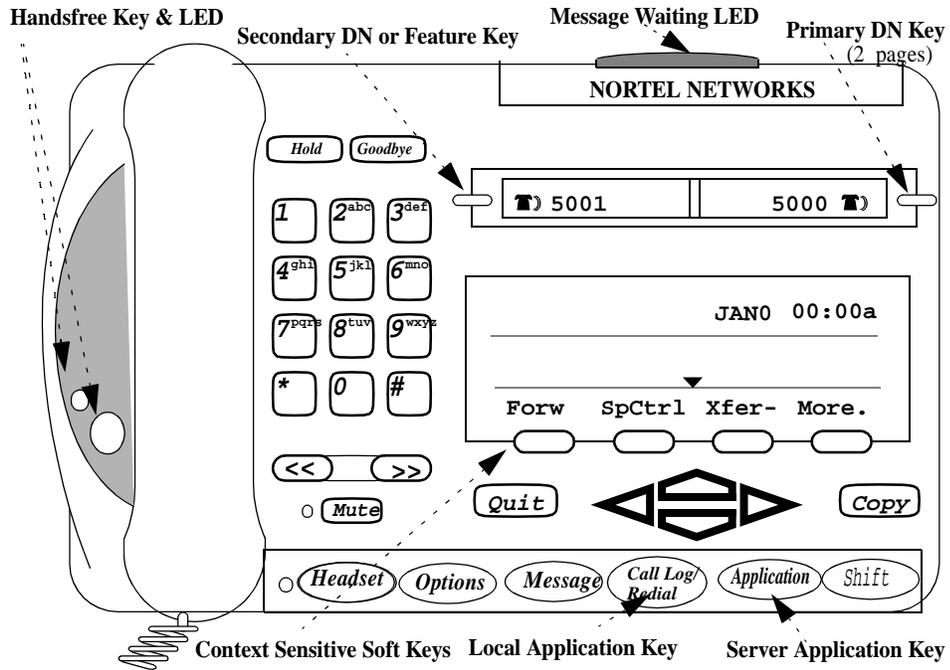
Note: All of the features currently labeled on the context-sensitive soft keys are for label referencing purposes. These features do not appear at the same time. It depends on the state (context) of the set.

Table 6-1 shows the key numbers and locations for the M3903 set illustrated in figure 6-1.

Table 6-1   Key numbers

Key number	Location
key 1	labeled as Prime DN (shown as 5000)
key 2	labeled as second Line/Feature (shown as 5001)
key 3	labeled as Prime DN, accessed by using the Shift key (shown as 5000)
key 4	labeled as second Line/Feature, accessed by using the Shift key (shown as 5001)
keys 5-16	blocked
key 17	key labeled as Message
key 18	Transfer (CXR)
key 19	6-party Conference (CNFC06)
key 20	Call Forward (CFU)
key 21	Ring Again (RAG)
key 22	Call Park (CPK)
key 23	Call Pick-up (CPU)
key 24	configure as: speed call short (SCS), long (SCL), or user (SCU)
key 25	Privacy release (PRL)
key 26-27	null
key 28	Callers List
key 29	Redial List
key 30-32	null

Note: Keys 18-25 are the keys labeled as the four context-sensitive soft keys.

Message Waiting and Call Status Indicator (MWI)

The MWI LED lights to show a message is waiting. This indicator visually alerts that a call is holding. The LED flashes to indicate an incoming call. It winks when a call is holding.

Info line

The Info display line is 24 characters long. It displays information such as in use DN, user key presses, and time and date.

Text line

The 24 characters text display line shows information about the incoming call, such as calling party name, calling party DN, and call redirection. If this information exceeds 24 characters, a scroll icon appears and allows the user to view the second line of display by using the navigation keys.

Label line

The 24 character display line shows the context sensitive softkey labels. Each feature label is up to seven characters.

Navigation keys

When the scroll icon displays, the up and down keys scroll the top display line. The up, down, left, and right keys are used for other functions, depending on the active application and options mode status.

Options key

Press the options key to activate. Press a second time or press the Quit soft key to exit the options mode, which also cancels the current action. Press the Done soft key for the current action to take effect and move one level up in the options list. While in options mode, the Line, Goodbye, and Hold keys can still be used to process calls but the display shows only options mode information. Options mode consists of an introduction screen that lists the number of available options and instructions for navigating the list of options. Use the navigation keys to scroll through the options mode list. The options key allows access to the following set parameters:

- language — select the language to display information from English, Spanish, French, German, Swedish, Norwegian, Finnish, Italian, Brazilian Portuguese, and Japanese

- Change Feature Key Label — change the feature labels from their default values

- screen contrast — adjust the contrast on the LCD

- volume adjustment — adjust the default volume level on the ringer, buzzer, speaker, and handset

- ring type — select a ring type from a list of available tones

- call Log options — log all answered and unanswered calls or to log only unanswered calls in the callers list

- group listening control — activate and deactivate group listening

- call timer enable — automatically time all calls and display the time for 10 seconds after the call disconnects
- date/time format — choose the time and date format to display when the phone is idle
- key click enable — provide audible feedback when using the dial pad (no feedback is given when the option is off)
- on-hook default path — open the voice path automatically to headset or handsfree
- display diagnostics — provide a display self diagnostic test
- group listening control — activate and deactivate group listening

The options key cannot be assigned to a DN or feature key.

Goodbye key

The goodbye key terminates an active call.

Hold key

Press the hold key to place an active call on hold. An icon displays that indicated the call is on hold. Press the line key return to the call on hold.

Handsfree/group listen key and indicator

Press the handsfree key to use the speaker (with built-in microphone) instead of the handset/headset. The handsfree indicator lights when the mode is on. Take the handset off-hook or use options mode to switch back to the handset/headset at any time during the call. Refer to the *Service Order Reference Manual* for Group Listen functionality.

Mute key and indicator

Press the mute key to mute the call. The microphone is muted in handsfree mode and the indicator flashes. Press the key a second time to talk.

Prime DN key

Take the handset off-hook or press the DN key to access the DN. Press the SN key for on-hook dialing or to take a call off hold. This is a self-labeled key that displays the DN assigned to key 1. This key is also key 3 used for DNs and features. Press the shift key to access key 3. The prime DN key may only be used as a DN key.

2nd line/feature key

This key can be used as a second DN or as feature key 2. This is a self-labeled key that displays the DN or feature assigned to the key. This key is also key 4 for DNs and features. Press the shift key to access key 4. The second DN/Feature key may be used as a DN or feature key.

Headset with LED

Activate this key for headset use. The LED lights when the set is in headset mode.

Message key

This is a fixed feature key that corresponds to feature/option key 17. This key must be programmed using SERVORD. Although it is permanently labeled as message, it does not have to be datafilled as such. In order to access voice mail without a message waiting, Nortel Networks recommends assigning message to key 1 and autodial to the message key (key 17.) The autodial key should be programmed with the voice mail system DN.

Quit key

Use the quit key for applications and features.

Call log

Use call log key to look at the call log and redial list using the navigation keys, or with M3900 Release 3 firmware and MSL15 software Call Log and Redial may be assigned as a context-sensitive key or programmable line/feature key. There are 10 call log entries and five outgoing entries through the redial list.

Application key

Use this key to connect to applications located on a remote server and to access the corporate directory application.

Shift key

Use the shift key to page between the two layers of line/feature keys.

Copy key

Use the copy key for applications and features.

Context-sensitive soft keys

Assign up to ten features on the four soft keys. The features must be assigned to specific keys. The following list contains the features and their key numbers:

- key 18 - transfer
- key 19 - conference
- key 20 - call forward
- key 21 - ring again
- key 22 - call park
- key 23 - call pickup

- key 24 - speed call user (SCU), speed call short (SCS), or speed call long (SCL)
- key 25 - privacy release
- key 28 - Callers List
- key 29 - Redial List

Note: Keys 26-27 and 30-32 are reserved for future use. Keys 5-16 are not usable for the M3903 set. There are no definitions for these keys.

Local set feature displays date and time when the terminal is idle.

Compatible features

Refer to the *Service Order Reference Manual.*

7 M3904 professional telephone

M3904 feature description

The following list shows the M3904 features:

- 12 DNs with a five-line display
- six self-labeled programmable line/feature keys with a second page of keys for a total of 12
- four context sensitive softkeys used to access context sensitive softkey features
- fixed feature/application keys include
    — message
    — options
    — directory/log (call log/redial)
    — applications
    — shift:
- fixed keys include:
    — hold
    — goodbye
    — mute (with LED)
    — volume UP/DOWN
    — headset (with LED)
    — handsfree/group listen (with LED)
- navigation keys (up, down, left and right)
- copy and quit keys for applications and features
- handsfree calling with LED
- 5 line by 24 character display
- personal directory

- Call Log (Includes Redial List)
- On-hook Dialing
- 2 accessory ports
- Free Duplex Handsfree Accessory
- Direct Connect Headset port
- refined corporate directory search using the Resume key appearing on the following screens:
    — List View
    — Card View
    — No Matches Found

Figure 7-1 illustrates the M3904 set and its characteristics.

Figure 7-1 M3904 Telephone
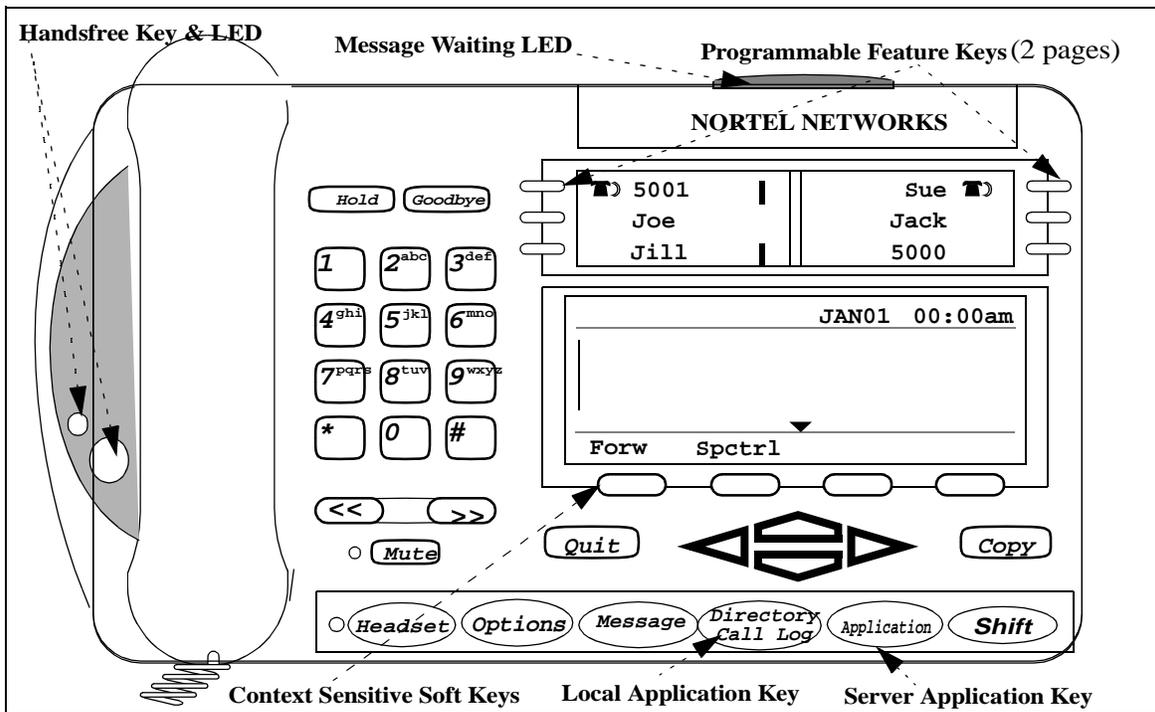
Table 7-1 shows the key numbers and locations for the M3904 set.

Table 7-1 M3904 key numbers and locations **(Sheet 1 of 2)**

Key Number	Location
Key 1	labeled as Prime DN (shown as 5000)
key 2	labeled as key 2; second line or feature (shown as Jack)
key 3	labeled as key 3; line or feature (shown as Sue)
key 4	labeled as key 4; line or feature (shown as Jill)
key 5	labeled as key 5; line or feature (shown as Joe)
key 6	labeled as key 6; line or feature (shown as 5001)
key 7	labeled as key 7; line or feature; (shown as 5000) (Note)
key 8	labeled as key 8; line or feature; (shown as Jack) (Note)
key 9	labeled as key 9; line or feature; (shown as Sue) (Note)
key 10	labeled as key 10; line or feature; (shown as Jill) (Note)
key 11	labeled as key 11; line or feature; (shown as Joe) (Note)
key 12	labeled as key 12; line or feature; (shown as 5001) (Note)
keys 13-16	Blocked
key 17	labeled as Message (MWT)
key 18	Transfer (CXR)
key 19	6-party Conference (CNF C06)
key 20	Call Forward (CFU)
key 21	Ring Again (RAG)
key 22	Call Park (PRK)
key 23	Call Pick-up (CPU)
key 24	Speed Call; short (SCS), long (SCL), or user (SCU)

Table 7-1 M3904 key numbers and locations **(Sheet 2 of 2)**

Key Number	Location
key 25	Privacy Release (PRL)
keys 26-37	NULL
key 28	Callers List
key 29	Redial List
key 30-32	NULL

Note: The shift key is used to access keys 7 through 12.

Message Waiting Indicator (MWI)

The MWI LED indicates that a message has been left and flashes when the set is ringing. If the set is ringing when someone is leaving a message, the LED flashes until the set stops ringing.

Layered self-labeled programmable line/feature keys

Six self-labeled programmable line/feature keys with two layers make a total of 12 line/feature keys. View six lines/features at a time using the shift key to toggle between the two layer/pages of DNs. Key 1 must be datafilled as a DN key. Keys 2-12 can be datafilled as either DNs or features.

Shift key

Use the shift key to access the second layer of line/feature keys mentioned in the previous paragraph.

Context-sensitive soft keys

Assign up to ten features to the four soft keys. The features must be assigned to specific keys.

Note: Keys 26-27 and 30-32 are reserved for future use. Keys 13-16 are unusable for the M3904 set. There are no definitions for these keys.

Info line

The Info display line is 24 characters long. It displays information like time and date.

Text line

Display information about incoming calls such as Calling Party Name, Calling Party DN, and Call Redirection on the 3 x 24 character lines. A scroll icon activates to alert the user to use the navigation keys to view the remaining information if the information exceeds 3 x 24 character lines.

Label line

Shows the context sensitive softkey labels on the 24 character display line. Each feature label is up to seven characters with the an icon displaying the status of the feature.

Navigation keys

Use the up and down keys to scroll the display line when the icon displays. The up, down, left, and right keys are also used for other functions, depending on the active application and options mode status.

Options key

Activate the options mode by pressing the key. Press it again or press the quit softkey to exit the mode. Exiting the options mode by using the options key cancels the current action and goes one level up in the options list. While in options mode, use the line, goodbye, and hold keys to process calls, but the display shows only options mode information. Options mode consists of an introduction screen listing the number of available options and instructions for navigating the list of options. Use the navigation keys to scroll through the options mode list.

- language — select the language to display information from English, Spanish, French, German, Swedish, Norwegian, Finnish, Italian, Brazilian Portuguese, and Japanese

- Change Feature Key Label — change the feature labels from their default values

- screen contrast — adjust the contrast on the LCD

- volume adjustment — adjust the default volume level on the ringer, buzzer, speaker, and handset

- ring type — select a ring type from a list of available tones

- call Log options — log all answered and unanswered calls or to log only unanswered calls in the callers list

- live dial pad — enable or disable the live dial pad feature to automatically dial out and turn on handsfree when pressing a dial pad or soft-labeled key. If this feature is disabled, the terminal is in the regular predial mode. This feature is local to the terminal.

- preferred name match — enable or disable the preferred name match feature to match the phone number of incoming and outgoing calls with one listed in the users personal directory. If a match is found, the default call display information from the PBX (for an incoming call) is replaced with the personal directory stored information (as edited and stored by the user). Format of the number must match the personal directory entry exactly.

- area code set-up — allows the user to enter area codes or prefixes to be used by the callers list. If this option is enabled, the callers list shows local numbers withoug the area code or internal numbers as extensions.

  Note: the area code data is stored in the callers list record, and it is displayed in brackets after the number.

- call timer enable — automatically time all calls and display the time for 10 seconds after the call disconnects

- date/time format — choose the time and date format to display when the phone is idle

- key click enable — provide audible feedback when using the dial pad (no feedback is given when the option is off)

- headset port on call — enable or disable the call in progress indication feature. This feature requires a lamp-type accessory to be connected to the headset port of the terminal, which is signaled by the terminal while a call is in progress. The terminal turns on the accessory lamp while calls are in progress, and turns the lamp off once the call is terminated.

- headset port external alerter — enable or disable the external alerter feature. This feature depends on connecting an external alerter to the headset port of the terminal. If enabled, the terminal signals the external alerter when the PBX has turned alerting on. Both the on call and external alerter features may be enabled simultaneously.

  Note: This feature is reserved for future third party equipment.

- call indicator light — allows the user to turn on or off the call indicator light.

- on-hook default path — open the voice path automatically to headset or handsfree

- display diagnostics — provide a display self diagnostic test

- group listening control — activate and deactivate group listening

Goodbye key

Use the goodbye key to terminate an active call.

Hold key

Press the hold key to place an active call on hold. The feature key label of the held line displays an icon showing the call is on hold. Press the line key to return to the call on hold.

Handsfree/group listen key and indicator

Press the handsfree key to use the speaker (with built-in microphone) instead of the handset/headset. The handsfree LED lights when in handsfree mode. Use the options mode or take the handset off-hook to return switch back to the handset/headset at any time during the call. In group listening mode, the handsfree indicator flashes. Refer to the *Service Order Reference Manual* for Group Listen functionality.

Mute key and indicator

Press the mute key to mute the voice transmit path. While in handsfree mode, the microphone is muted. When in mute mode, the mute indicator flashes. To turn the voice transmit path on again, the user can press the mute key a second time.

Headset with LED

Press this key to activate headset mode. The LED alerts the user that the set is in headset mode.

Message key

This is a fixed feature key that corresponds to feature/option key 17. This key must be programmed using SERVORD commands. Although it is permanently labeled as message, it does not have to be datafilled as such. In order to access voice mail without a message waiting, Nortel Networks recommends assigning message to key 1 and autodial to the message key (key 17.) The autodial key should be programmed with the voice mail system DN.

Quit key

Press the quit key to cancel actions and for applications and features.

Directory/log key

The following directories are optionally password protected. The directories accessible by this key are:

- personal directory with a maximum of 100 entries
- call log with a maximum of 100
- redial list with a maximum of 20 entries

Application key

Use this key to connect to applications located on a remote server.

Note: This key is used to access the corporate directory application.

Copy key

Use the copy key for applications and features.

Key-based Access Expansion Module (KBA) and Display-based Access Expansion Module (DBA)

The M3904 set supports two KBAs or one DBA.

Refer to the Hardware chapter of this document for more detailed information.

Compatible features

Refer to the *Service Order Reference Manual*.

8 M3905 ACD telephone

M3905 Automatic Call Distribution (ACD) telephone feature description

The following list shows the M3905 ACD telephone features:

- eight programmable line/feature keys (self-labeled) with a four line display, giving the user access to eight line/feature keys

- four context-sensitive soft keys used to access the context-sensitive features mentioned in the M3903 section of this document

- six fixed feature/application keys for ACD features supervisor, emergency, not ready, make busy, in calls, and headset

- fixed keys include:

  — hold

  — goodbye

  — mute (with LED)

  — volume UP/DOWN

  — headset (with LED)

  — supervisor observe (with LED)

- navigation keys (up, down, left and right)

- copy and quit keys for applications and features

- application optional

- four line by 24 character display

- handset optional

- 2 accessory ports

- supervisor observe key with LED

- supervisor headset observe port

- supports amplified/unamplified headset
- refined corporate directory search using the Resume key appearing on the following screens:
  - List View
  - Card View
  - No Matches Found

Figure 8-1 shows the M3905 set and its characteristics.

Figure 8-1 M3905 Telephone Set
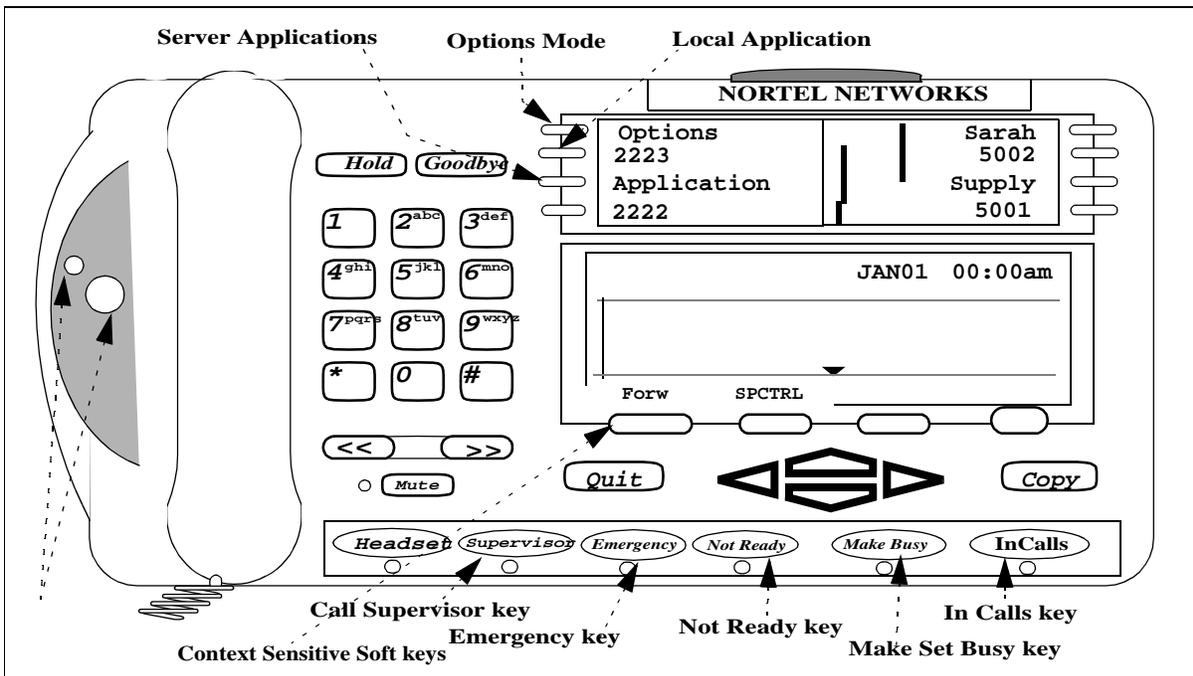
Note: You can configure four of the bottom six Fixed Feature keys (Make Busy, Not Ready, Supervisor and Emergency) to feature keys that suit the business needs of the Call Center user.

M3905 key configuration

The following illustration shows the key numbers and locations for the M3905 set.

The following table contains the key configurations for the M3905.

Table 8-1 M3905 key configuration (Sheet 1 of 2)

key Number	Description
key 1	bottom right self-labeled programmable key (shown as DN5001)
key 2	above key 1; line or feature (shown as Supply)
key 3	above 2 (shown as 5002)
key 4	above 3; line or feature (shown as Sarah)
key 5	bottom left self-labeled programmable key; line or feature (shown as 2222)
key 6	above key 5 line, feature, or application (shown as Applications)
key 7	above key 6; line or feature
key 8	above key 7 (shown as Options key)
keys 9-12	Configure as one of the following:
	AEMK = Answer Emergency
	CLSUP = Call Supervisor
	EMK = Emergency
	MSB = Make Set Busy
	ACDNR = Not Ready
	LOB = Line of Business
	DQS = Display Queue Status (with supervisor or agent telephones)
	OBS = Observe agent
	CAG = Call Agent key
	MSQS = Multistage Queue Status
	AAK = Answer Agent
key 17	recommended as MWK but is not a default feature key since it can be used as a context-sensitive soft key
key 18	CRX (Call Transfer) key
key 19	CNF C06 (6-port Conference)
key 20	CFU (Call Forward)
key 21	RGA (Ring Again)
key 22	PRK (Call Park)
key 23	CPU (Call Pick-up)
key 24	Configure as one of the following speed call services:
	SCS = Speed Call Short
	SCL = Speed Call Long
	SCU = Speed Call User
key 25	PRL (Privacy Release)

Table 8-1 M3905 key configuration (Sheet 2 of 2)

key Number	Description
keys 26-27	NULL
key 28	Callers List
key 29	Redial List
key 30-32	NULL

Message Waiting Indicator (MWI)

The MWI indicates that a message has been left. This LED also flashes when the set is ringing. If simultaneously the set is ringing and a message is left, the LED flashes until the set stops ringing.

Handset (optional)

The handset is optional for this set.

Eight self-labeled programmable line/feature keys

The M3905 set has eight self-labeled programmable keys on which DNs or features can be datafilled. key 1 must be datafilled as a DN. The remaining keys, 2 through 7 can be datafilled as DNs or features. If applications are configured, key 6 can be used to access those applications.

Context-sensitive soft keys

Assign up to ten features to the four soft keys. The features must be assigned to specific keys.

Note: Keys 26-27 and 30-32 are reserved for future use. Keys 13-16 are unusable for the M3905 set. There are no definitions for these keys.

Application key

This key is used to connect to applications located on a remote server. The applications key is optional for key 6.

Note: This key will be used to access the corporate directory application.

Navigation keys

When the scroll icon is displayed, the up and down keys scroll the top display line. Use the up, down, right, and left keys for other functions, depending on the active application and options mode status.

Options key

Press the options key to activate. Press a second time or press the Quit soft key to exit the options mode, which also cancels the current action. Press the Done

soft key for the current action to take effect and move one level up in the options list. While in options mode, the Line, Goodbye, and Hold keys can still be used to process calls but the display shows only options mode information. Options mode consists of an introduction screen that lists the number of available options and instructions for navigating the list of options. Use the navigation keys to scroll through the options mode list. The options key allows access to the following set parameters:

- language — select the language to display information from English, Spanish, French, German, Swedish, Norwegian, Finnish, Italian, Brazilian Portuguese, and Japanese

- change feature key label — change the feature labels from their default values

- screen contrast — adjust the contrast on the LCD

- volume adjustment — adjust the default volume level on the ringer, buzzer, speaker, and handset

- ring type — select a ring type from a list of available tones

- call Log options — log all answered and unanswered calls or to log only unanswered calls in the callers list

- live dial pad — enable or disable the live dial pad feature to automatically dial out and turn on handsfree when pressing a dial pad or soft-labeled key. If this feature is disabled, the terminal is in the regular predial mode. This feature is local to the terminal.

- preferred name match — enable or disable the preferred name match feature to match the phone number of incoming and outgoing calls with one listed in the users personal directory. If a match is found, the default call display information from the PBX (for an incoming call) is replaced with the personal directory stored information (as edited and stored by the user). Format of the number must match the personal directory entry exactly.

- area code set-up — allows the user to enter area codes of prefixes to be used by the callers list. If this option is enabled, the callers list shows local numbers without the area code or internal numbers as extensions.

- call timer enable — automatically time all calls and display the time for 10 seconds after the call disconnects

- date/time format — choose the time and date format to display when the phone is idle

- key click enable — provide audible feedback when using the dial pad (no feedback is given when the option is off)

- headset type — open the voice path automatically to headset or handsfree

- headset port on call — enable or disable the call in progress indication feature. This feature requires a lamp-type accessory to be connected to the headset port of the terminal, which is signaled by the terminal while a call is in progress. The terminal turns on the accessory lamp while calls are in progress, and turns the lamp off once the call is terminated.

- headset port external alerter— enable or disable the external alerter feature. This feature depends on connecting an external alerter to the headset port of the terminal. If enabled, the terminal signals the external alerter when the PBX has turned alerting on. Both the on call and external alerter features may be enabled simultaneously.

  Note: This feature is reserved for future third party equipment.

- call indicator light — allows the user to turn on of or off the call indicator light

- display diagnostics — provide a display self diagnostic test

The options key cannot be assigned to a DN or feature key.

Goodbye key

The Goodbye key can be used to terminate an active call.

Hold key

A user can place an active call on hold by pressing the Hold key. The feature key label of the held line displays an icon that shows that the call is on hold. A user can return to the call that is on hold by pressing the Line key for which the call is on hold.

Mute key and indicator

By pressing the Mute key, the user can mute the voice transmit path. While in handsfree mode, the microphone is muted. When in mute mode, the mute indicator flashes. To turn the voice transmit path on again, the user can press the Mute key a second time.

Headset with LED

This key activates the set for headset use. The LED alerts the user that the set is in headset mode.

Quit key

The quit key is used for applications and features.

Directory/log key

These keys are permanently labeled as such but are not restricted to these features. The following list shows key number to feature mapping:

- personal directory with a maximum of 100 entries
- call log with a maximum of 100
- redial list with a maximum of 20 entries

Copy key

The copy key is used for applications and features.

Call supervisor, emergency, not ready, make busy, and incalls keys

These keys are permanently labeled as such but are not restricted to these features. The following list shows key number to feature mapping:

- key 9 - make busy
- key 10 - not ready
- key 11 - emergency
- key 12 - supervisor call

The incalls key is paired with key 1.

Optional key caps

Optional key caps are available with the M3905 set and can be configured as the following:

- call agent
- observe agent
- answer emergency
- answer agent
- activity (for LOB codes)
- display queue(for MSQS or display queue status)

Message key

Key 17 is called the message key but it is not restricted to that feature. This key appears with the context sensitive softkeys. In order to access voice mail without a message waiting, Nortel Networks recommends assigning message to key 1 and autodial to the message key (key 17.) The autodial key should be programmed with the voice mail system DN.

Key-based access expansion module (KBA) and display-based access expansion module (DBA) support

The M3905 set supports one or two key-based KBAs or one DBA.

Compatible features

Refer to the *Service Order Reference Manual.*

9 Hardware options

Table 9-1 lists optional hardware available for each telephone set.

Table 9-1 Optional hardware accessories

Optional hardware available	M3901	M3902	M3903	M3904	M3905
Accessory Connection Module (ACM)	NA	Supports	Supports	Supports	Supports
Alternate key caps	NA	NA	NA	NA	Supports
Amplified Headset Accessory connected through Handset Jack	Supports	Supports	Supports	Supports	Supports
Analog Terminal Adapter (ATA)	NA	Supports	Supports	Supports	Supports
Display-based Expansion Module (DBA)	NA	NA	NA	Supports	Supports
External alerter/recorder interface	NA	Supports	Supports	Supports	Supports
Handset	Standard	Standard	Standard	Standard	Optional
Key-based Expansion Module (KBA)	NA	NA	NA	Supports	Supports
Non-amplified Headset Accessory connected through Headset Jack	NA	NA	Supports	Supports	Supports
Personal Direct PC Utility	NA	NA	NA	Supports	Supports
Full Duplex Handsfree Accessory	NA	NA	NA	Rel. 3 Supports	NA

Handset option for the M3905 Automatic Call Distribution (ACD) Telephone

The M3905 set supports a non-amplified headset using the headset jack, an amplified headset using the handset jack, or an optional handset. The handset can be added to the M3905 set by removing the front plate of the telephone. A handset kit is optionally available for the M3905 set.

Alternate key caps for the M3905

The M3905 Call Center Telephone provides an alternate key cap kit to customize the telephone. Use the Key Cap Tool with the M3905 set to remove the four middle programmable keys and replace them with alternate keys. The alternate key caps include: answer emergency, answer agent, activity code key, call agent, observe agent, and display queue.

Headset options

The M3901, M3902, M3904, and M3905 sets support an amplified headset when the headset connects to the handset jack.

The M3903, M3904 and M3905 sets have a dedicated headset jack which supports a non-amplified headset. The M3903, M3904 and M3905 have a headset fixed feature key to turn the headset on and off.

The following list shows headsets that have been tested with the M3900 series sets:

- Non-amplified (to be used with Headset Key)

  — CPC# A0779338 Liberation 3-in-1 Direct Connect Headset (Unamplified)

    Note: For use with the M3903, M3904, and M3905 sets. Plugs directly into the headset port. Includes three wearing styles: flexible boom, noise-cancelling mic, widescreen and leatherette ear cushion.

- Amplified (connected though the Handset Jack) - Recommended for M3901 and M3902 sets; may be used with M3903, M3904, and M3905 sets.

  — Wireless Amplified Headset

  — Liberation MPA I and II

    Note: MPA I is no longer offered by Nortel Networks. However, some customers have it and use it with the M3900 series sets.

  — Plantronics Polaris

    Note: The headsets are not offered by Nortel Networks, but the Plantronics may be obtained through Plantronics Polaris. The Liberation is available through GN Netcom, Inc.

Accessories

Meridian External Alerter and Recording Interface (MEARI)

The MEARI provides a remote ringer device installed in a location separate from the telephone. The MEARI provides access to a standard, off-the-shelf remote ringer, call status relay, audio recorder or visual indicator.

Program the MEARI interface to activate a ringer (or light) when the telephone rings, or activate a recorder when the telephone is in use. The MEARI requires an Accessory Connection Module (ACM).

MEARI connects to any M3900 set except the M3901 set, which has no accessory dock. In order to use the MEARI accessory, the telephone must be equipped with the M3900 series ACM and power supply (purchased separately).

The MEARI provides relay contact outputs for both ringing and call status (off-hook condition) for activation of third party peripheral products such as loud ringers or call-in-progress indicators. Additionally, the MEARI provides an audio output connection to voice recording equipment (as permitted by law).

The audio output level from the MEARI varies with handset, headset, or handsfree. Levels vary between local and remote speech, and between users. For this reason, voice recorders with automatic level control (ALC) circuitry provide the best quality recordings and uniform recorded speech level. This is especially true for recording handsfree conversations which can provide the greatest range of speech level. The MEARI provides the following features:

- ring relay contact
- call status (off-hook) relay contact
- record audio

Since all three output signals operate independently, the MEARI can be used for more than one purpose, such as loud ringing, call in progress indication, and recording.

The MEARI does not require any software or system configuation.

The MEARI can be installed in the small dock of a M3902, M3903, M3904, or M3905 series set. Three output connectors are provided on the back of the MEARI cartridge. There is no need to disconnect the power supply from the telephone prior to insertion or extraction of the MEARI cartridge.

Analog Terminal Adapter (ATA)

The ATA connects an analog device such as a fax machine or modem to the telephone. This allows simultaneous use of the telephone and the analog device. The ATA is available for the M3902, M3903, M3904 and the M3905 models, and it requires an Accessory Connection Module.

Accessory Connection Module (ACM)

The ACM is an optional hardware module that installs into the telephone footstand. The ACM provides a port(s) to connect to the accessory cartridge interface.

The M3902 set has one accessory port. The M3903, M3904, and M3905 have two accessory ports. The plug-in cartridge allows the M3900 series sets to use the following accessories:

- ATA
- external alerter and recording interface
- personal directory PC utility (M3904 and M3905)
- full duplex handsfree cartridge (M3900 Rel. 3)

Note: The M3901 set does not support the ACM.

Key-based Access Expansion Module (KBA)

The KBA has 22 keys which can be used as additional keys to the physical and self-labeled programmable feature keys on the M3900 series sets. These additional keys can be used as DN or feature keys. The sets and modules attach in such a way as they look and feel like one integrated unit. The M3904 and M3905 sets use the KBA.

There are 32 keys on the M3904 and M3905 sets. The M3904 and M3905 sets support one or two KBAs with 22 keys each. With one KBA, the key numbers are from 1 to 54 with the first key mapping to key number 33. With two KBAs, the key numbers are from 1 to 76, with the first key on the second KBA mapping to Key 55.

Note: A KBA cannot be combined with the Display-based Expansion Module (DBA). A KBA can only be used with the M3904 and M3905 sets and is provisioned through SERVORD commands.

Figure 9-1 shows the KBA.

Figure 9-1 Key-based expansion module accessory
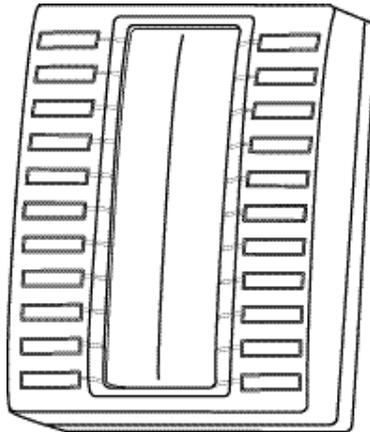
553-8971

Display-based Expansion Module

The DBA is an optional add-on module for the M3904 and M3905 sets exclusively. The module attaches to a Meridian digital set to increase the number of programmable feature keys on the set by 24 for a total of 56 keys. The DBA has keys 33-56 supporting up to 3 layers of 8 programmable feature keys. It has eight self-labeled keys with the feature labels next to the key. A paging fixed-key allows switching between the 3 layers of self-programmable feature keys. The labels change according to the features programmed for the

next logical set of feature keys shifting through the display. Visual indicator shows which page (or layer) of self-labeled programmable feature keys is in use.

   Note: The first key of the DBA maps to Key 33.

Use SERVORD commands provision the DBA as a line option. Once a DBA has been added to a set, feature/DNs may be assigned to the extra keys. The MSL-100 switch uses a key map to download the DBA key assignments to the set. The DBA firmware handles the self-key labeling. The self-key label can be up to 10 characters in length

   Note: Only one DBA can be added onto a either an M3904 or M3905 set only.A DBA cannot be combined with a KBA.

Figure 9-2 shows the DBA.

Figure 9-2 DBA expansion module
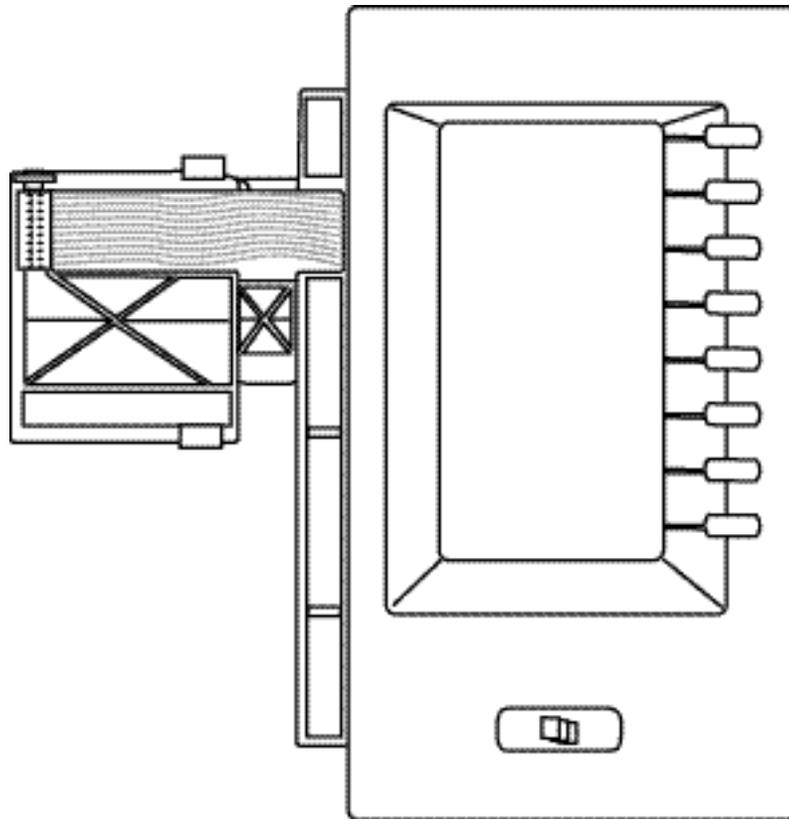
553-9623

Personal directory PC utility
The personal directory PC utility provides a faster, easier way to create or modify a personal directory. Enter names and numbers into a personal directory file on a PC. Download the file directly from the PC to the M3905 telephone. Upload a directory from the M3905 set to a PC to modify the directory.

How the personal directory PC utility interfaces with the ACM
The PC and the M3904 set connect through a cartridge inserted into the telephone's ACM. The interface cartridge connects to the PC serial port through a serial cable. The personal directory PC utility requires an ACM installed in the telephone.

   Note: Purchase the serial cable for the PC connection separately.

Telephone wall mount kit
The telephone wall mount bracket kit contains a one piece wall mount plate that attaches the M3903, M3904, and M3905 telephone to the wall. The wall mount kit is available from your local Nortel Networks distributor. The M3901 and M3902 have built in wall mount brackets.

Full Duplex Handsfree Accessory
The Full Duplex Handsfree Accessory is a cartridge accessory that provides full duplex handsfree capability for the M3904 Release 3 (NTMN35GA or later) telephone set. The cartridge is inserted into the M3904's ACM

10 Installation

How to install the M3900 series Meridian digital telephones

The following procedure explains how to install the M3900 series Meridian digital telephones.

Note: The station ringer test is not supported on the M3900 series sets.

Procedure 10-1
Installing the M3900 Series Meridian Digital Telephones

1   Complete the wiring and cross-connections (loop power).

2   Connect the telephone to the connecting block.

3   Place the telephone upright on the desk in the normal operating position.

4   Perform the normal acceptance procedures.

5   Supply the user with a quick reference guide.

CAUTION

Before handling internal telephone components, you must discharge static electricity from your hands and tools by touching any grounded metal surface or conductor.

Telephone positions

Changing the telephone position

Your M3903, M3904 and M3905 Meridian Digital Telephones have several different height selections for the desktop positions. The following procedure shows how to change the telephone position.

Procedure 10-2 Changing the telephone position

1   Press the bar at the top back side of the telephone.

2   With the position bar pressed in, raise or lower the telephone to the desired angle or height.

> ***Note:*** The M3903 and M3904 can be wall mounted.

3   Release the bar to lock the telephone in the desired position.

Changing the telephone angle

The M3901 and M3902 Meridian digital telephones have three different angled height desktop positions.

Procedure 10-3   Changing the telephone angle

1   Move the top of the footstand away from the telephone base (it has a snap connection).

2   Place the footstand in the desired position and snap the top of the footstand back into place.

Wall mounting the telephone

The telephone wall mount bracket kit contains a one piece wall mount plate to attach the telephone to the wall using the following procedure.

Procedure 10-4 Wall mounting the telephone

1   Place the wall mount bracket against the wall and mark the spot to insert the screws.

> ***Note:*** The M3901 and M3902 have built-in wall mount brackets.

2   Screw the five screws in and leave about 3 1/2 mm (1/8 inch) between the head of the screw and wall.

3   Remove the footstand from the telephone by sliding the footstand down (using the plastic hinges) about 7 mm (1/4 inch).

4   Swing the footstand away from the telephone base and remove the telephone.

5   Attach the wall mount bracket onto the back of the telephone by placing the telephone at the top edge of the wall mount bracket and sliding the telephone into place.

6   Mount the wall mount bracket, that is attached to the telephone, onto the screws located on the wall.

Headset Consideration

Test the headset with the telephone before using. In a noisy environment, an amplified headset is an option. When the amplified headset is used, there are two choices of volume control: the rocker control on the telephone and the switch on the headset. The user should adjust the telephone volume before adjusting the headset volume. To provide the best communication with the least amount of distortion, the amplifier should have a higher setting than the telephone volume control.

Refer to your distributor for the latest product bulletin from Nortel Networks recommending headset types for use with the M3900 Series Digital Telephone.

How to install the Accessory Connection Module (ACM)

The following steps explain how to install the ACM.

Procedure 10-5 Installing the ACM

1	Disconnect the line card from the telephone base before installing the ACM.
2	Slide the footstand down (using the plastic hinges) about a quarter of an inch and swing the footstand away from the telephone base.
3	Snap the ACM into the rectangular opening on the back of the telephone.
4	Connect the ACM cable to the back of the telephone.
5	Put the ACM attached ribbon cable into the track running down the back of the telephone base.
6	Put the hard plastic cable cover over the ACM ribbon cable.
7	Snap the ACM plastic cable cover into place.
8	Place the footstand on the hinges.
9	Swing the footstand back into place.
10	Snap the footstand into a non-movable position.
11	Return the telephone to an upright position.

Installing the ACM into the footstand

There is a cut out on the base of the footstand which displays the ACM connector ports. When ready to attach an accessory, insert the appropriate cartridge into the port slot. There is one accessory port available on the M3902. There are two accessory ports available on the M3903, M3904 and M3905.

The following illustration shows the installation of the ACM into the telephone footstand.

Figure 10-1 ACM Module
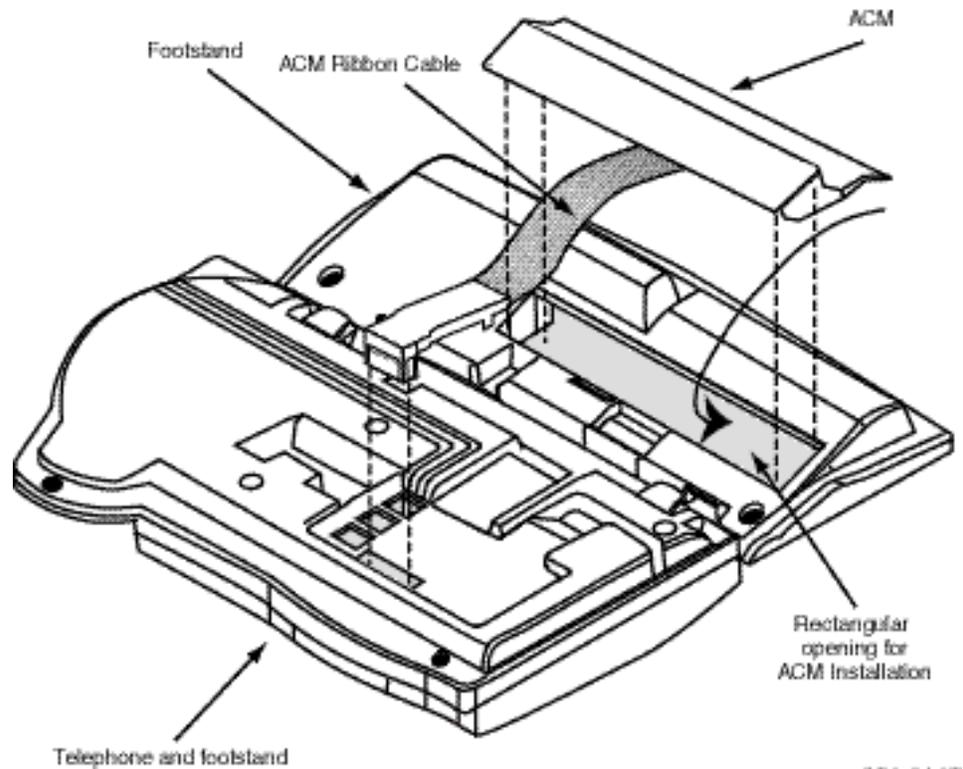
Note 1: The accessories you attach to the telephone must be compatible. The M3900 Series Meridian Digital Telephone accessory compatibility table shows the available options.

Note 2: A wall transformer is required to power any accessory cartridges. The transformer does not come with the ACM unit. Contact your Nortel Networks distributor to order the ACM compatible wall transformer.

Accessory keying

There are two accessory ports on the back of the terminal footstand. Each port supports one cartridge accessory.

You cannot use two accessories that require the same port type at the same time. For example, you cannot use two accessories that require a serial port connection at the same time.

The shape and size of the plug in the accessory cartridge prevents the user from accidently connecting incompatible accessories. To check the compatibility of accessories, see Table 10-1 before buying optional hardware.

Table 10-1   Compatibility of accessories

	ATA	Key-based expansion unit	Personal directory PC utility	External alerter and recording interface	Display expansion module	Full Duplex Handsfree
ATA	na	yes	yes	yes	yes	yes
Key expansion unit (2)	yes	na	yes	yes	no	yes
Personal directory PC utility	yes	yes	na	yes	yes	yes
External alerter and recording interface	yes	yes	yes	na	yes	yes*
Display expansion module (1)	yes	no	yes	yes	na	yes
Full Duplex 4F	yes	yes	yes	yes*	yes	NA

Note: * FDHF works with the MEARI external alerter functionality, however, FDHF does not work with MEARI when a recording device is connected.

How to Install the Analog Terminal Adapter (ATA)

The following procedure describes how to install and use the ATA with your M3900 series set.

The ATA allows an off-the-shelf analog device (FAX, modem, or analog telephone (500/2500)) to work simultaneously with your M3902, M3903, M3904, or M3905 Meridian Digital Telephone. The ATA is not supported by the M3901 telephone.

Install the ACM into your M3900 Series Meridian Digital Telephone (refer to the ACM Installation) before you install your ATA. The ACM provides

connection capabilities between the M3902, M3903, M3904, and M3905 telephones and the ATA.

Procedure 10-6 Installing the ATA

1   Disconnect the line cord from the telephone before installing the ATA.

2   Insert the ATA accessory cartridge into the ACM. The latch should be at the top.

3   Connect the commercial device you have selected to use, either your FAX machine, modem, or analog (500/2500) telephone, to the connection on your ATA cartridge interface.

4   Plug the transformer into the electrical outlet (use only the transformer designed for your ACM accessories).

   Note: The wall transformer for M3900 accessories is NTMN80AA (CPC A0779713) 110v Wall Transformer (M3900 series). It attaches between the telephone line cord and the telephone walljack.

5   Connect the Adapter plug, attached to your transformer, into the wall jack.

6   Connect the six conductor line cord from the telephone to the Adapter jack attached to your ACM accessory transformer.

7   Reconnect the line cord back to the telephone base.

Figure 10-2 shows the connections for the ATA.

Figure 10-2 ATA connections
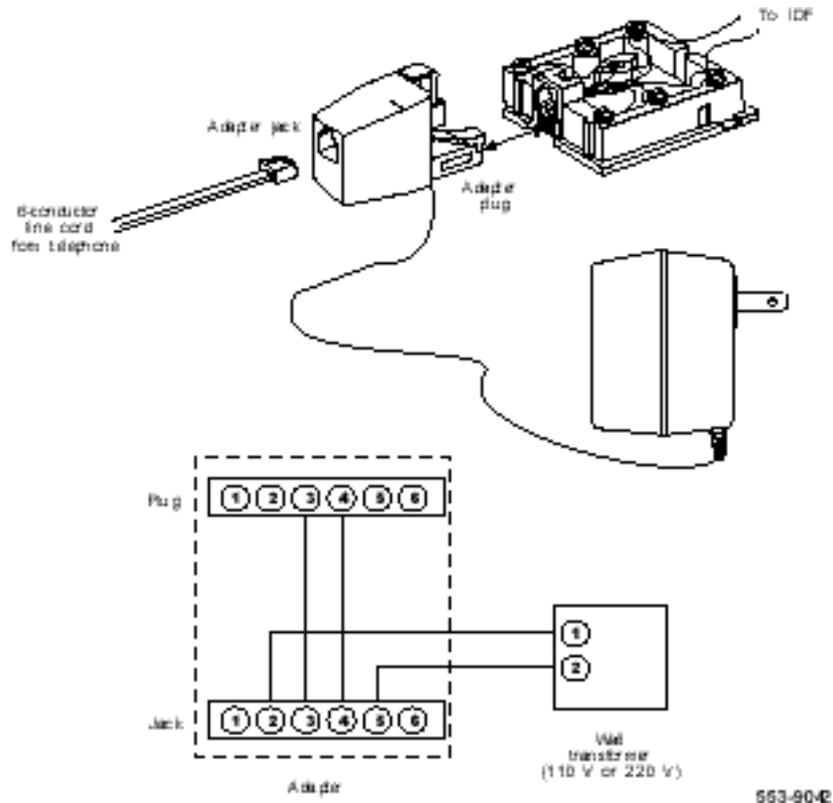
Refer to the manufacturer's documentation for complete installation and configuration instructions for your external analog device (FAX machine, modem, or 500/2500 telephone).

Note: The ATA supports connections to POTS services only. Features such as Message Waiting, Switchhook Flash/Link, Transfer, Conference, and CLASS type services are not supported on the attached device.

A red LED status light located on the ATA indicates the status of the ATA.

*   **Flashing red** indicates that the ATA is operating normally. For more troubleshooting guidelines, refer to the user documentation that came with your analog device.

*   **Solid red** indicates that the ATA is not operating normally.

*   **Red light** off indicates that there is no power going to the ATA or the unit is not operating correctly. Check the power connections to the ATA.

Flexible voice and data capabilities allow you to have continuous use of both the Meridian Digital Telephone and the attached analog device. Your system administrator configures the flexible voice and data capabilities for your

telephone on the system equipment. Contact your system administrator for more information about flexible voice and data capability.

When there is a power failure to the ATA, the Analog Device does not store or keep information (e.g., outgoing FAX from your FAX machine). You must send the information again when power returns.

The following table shows prompts and responses when configuring the ATA.

Table 10-2 ATA configuration

Prompt	Response	Description
SO	NEW	Establish service for unassigned telephone lines
LCC	ATA	Analog terminal adapter line class code
Ringtype, group, subgroup, NCOS, SNPA, key, ringing	Follow normal administration procedures for a M3901 class telephone for these prompts	The prompts will require datafill specified by the customer site.
LEN_OR_LTID	A B C D	A= IPE column, B- IPE shelf, C= IPE card slot, D = IPE odd port
OPTKEY	$	There are no options available for the ATA

How to install the Meridian External Alerter and Recording Interface (MEARI)

The MEARI can be installed in the small dock of a M3902, M3903, M3904 or M3905 set. Three output connectors are provided on the back of the MEARI cartridge as shown in the following figure. There is no need to disconnect the power supply from the telephone prior to insertion or extraction of the MEARI cartridge. Figure 10-3 shows the MEARI ooutput connectors.

Figure 10-3 MEARI output connectors
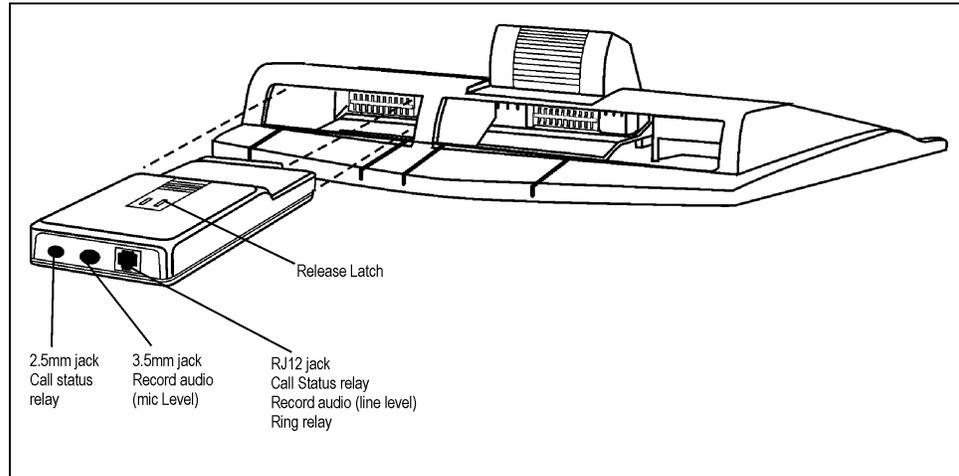
The following procedure describes how to install the MEARI.

Procedure 10-7 Installing the MEARI

1	The RJ12 modular connector provides access to all three output signals and is intended for wiring connection to remotely located equipment (not on the desktop). Connections are as follows:

Table 10-3

Position	Wire color	Function
3, 4 center pair	Green, Red	Call status relay contact
2, 5 2nd pair	Black, Yellow	Record audio (line level)
1, 6 3rd pair	White, Blue	Ring relay contact

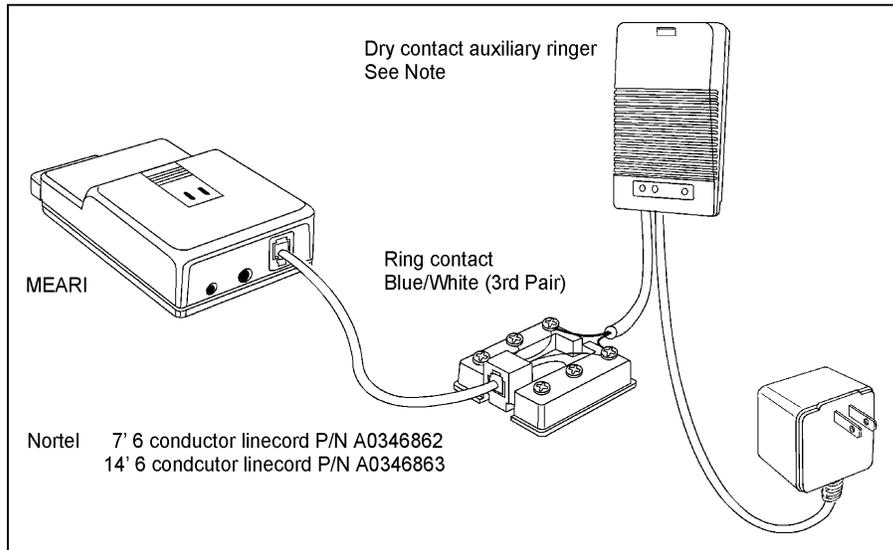> ***Note:*** No wiring connected to the MEARI is permitted to go outside a building for safety purposes.

2	The center round connector is a 3.5 mm audio jack that provides the record audio signal between tip and sleeve at a reduced level for connection to the mic input of a desktop voice recorder.

3	The smaller round connector is a 2.5 mm jack that provides the call status relay contacts between tip and sleeve for activation of a desktop voice recorder or connection to a call in progress indicator lamp.

Loud ringer connected to the MEARI

The following figure shows an illustration of the loud ringer.

Note: Dry contact auxiliary ringer such as Algo Communication Products Ltd's 1825P Duet Plug or equivalent.

Figure 10-4 Loud ringer connected to the MEARI through the RJ12 jack

Dry contact auxiliary ringer
See Note

MEARI

Ring contact
Blue/White (3rd Pair)

Nortel   7' 6 conductor linecord P/N A0346862
         14' 6 condcutor linecord P/N A0346863

MEARI desktop recording device

The following illustration shows the MEARI desktop voice recording device.

Figure 10-5 MEARI desktop voice recording device


Mic Input
(See Page 3 regarding
automatic level control)

Voice Recorder

MEARI

Tape Recorder

3.5mm jack provides audio
at microphone level

Remote Input Call Status
(Optional, not required for VOX or manual
operation)
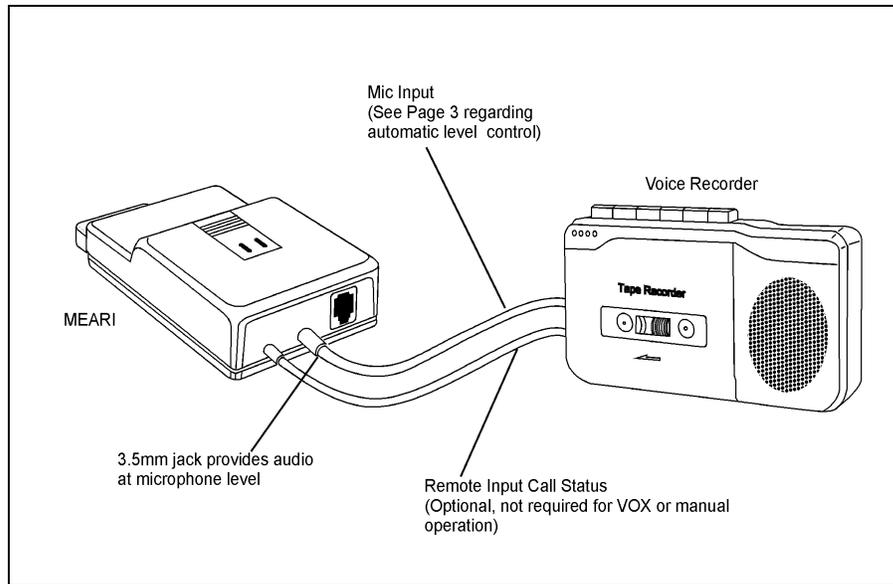
Note: The Mic Input reference to page 3 in

the figure is not correct. Please see the MEARI information regarding automatic level control.

MEARI call in progress indicator

The following figures shows an illustration of the MEARI call in progress indicator.

**Figure 10-6 MEARI call in progress indicator**
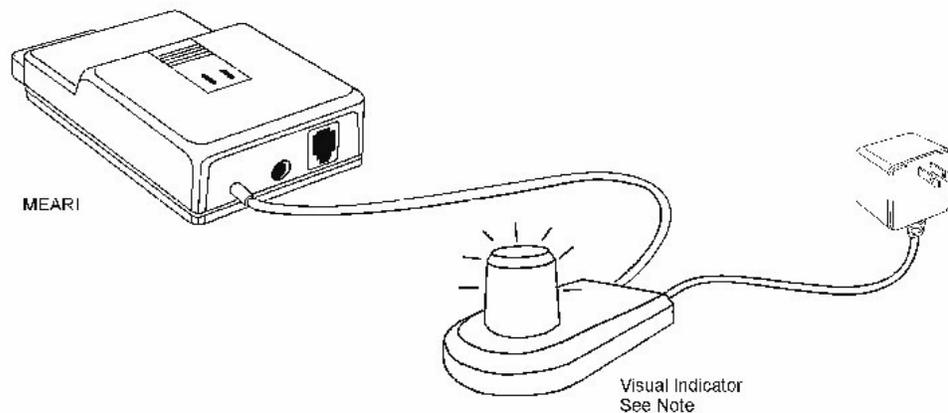
Note: Equipment such as Algo Communication Products Ltd. 1126P Strobe Light or 1127P Digital Visual Alerter (shown) or equivalent product.

Remote voice recording using call status

The following figure shows an illustration of remote voice recording using call status.

Figure 10-7 Remote voice recording using call status
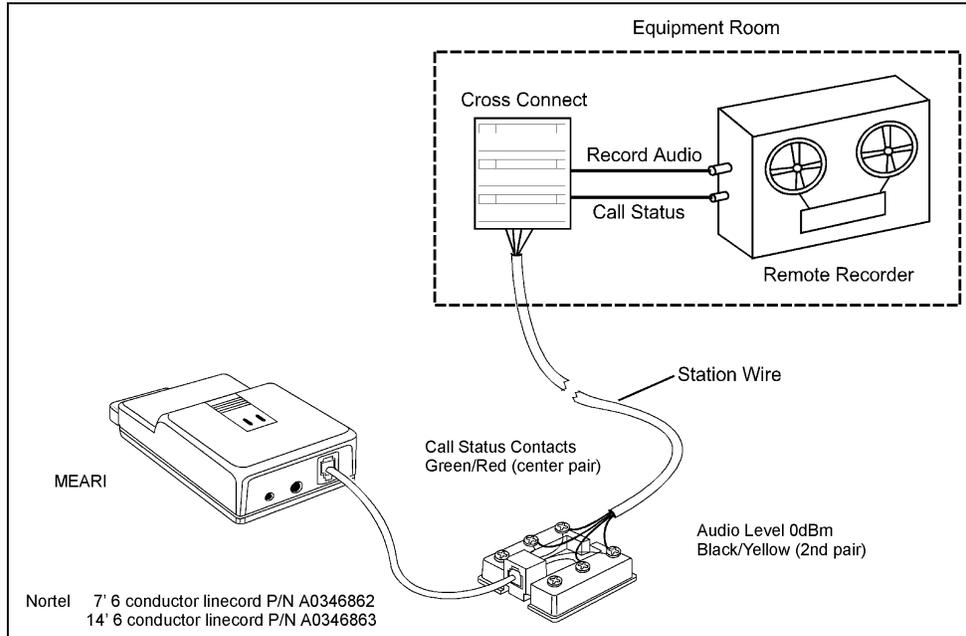
Troubleshooting

The following procedure provides some troubleshooting examples for the
MEARI.

Procedure 10-8 Troubleshooting for the MEARI

1   Ensure that the ACM power supply is connected to the telephone and
plugged into a working AC outlet.

2   Ensure that the MEARI is completely inserted and the release latch is
engaged.

3   If using the RJ12 jack, ensure that the modular cord contains six wires. If
using the 2.5mm or 3.5mm jacks, ensure that the plugs are fully inserted

Configure the Meridian SL-100 switch for the KBA

The following table shows an example of the commands used to configure the MSL-100 switch for the KBA in SERVORD.

**Table 10-4 SERVORD configuration for the KBA**

Prompt	Response	Description
ADO		
LEN or DN	x...x	LEN or DN
		X...X = Line or DN number
OPTKEY	1	Option Key
Option	KBA	Key-based Expansion Module Accessory
KBA_COUNT	1-2	Number of KBAs
		1 = KBA
		2 = two KBAs

For more detailed SERVORD information, refer to the Commercial Systems Service Order Reference Manual.

How to install the Key-based Expansion Module Accessory (KBA)

Procedure 10-9 describes how to install the KBA for the M3900 series sets. The KBA provides 22 additional line/feature keys for the M3904 and M3905 sets. Add up to 2 KBAs to provide a total of 44 additional line/feature keys.

Figure 10-8 Key-based Expansion Module Accessory
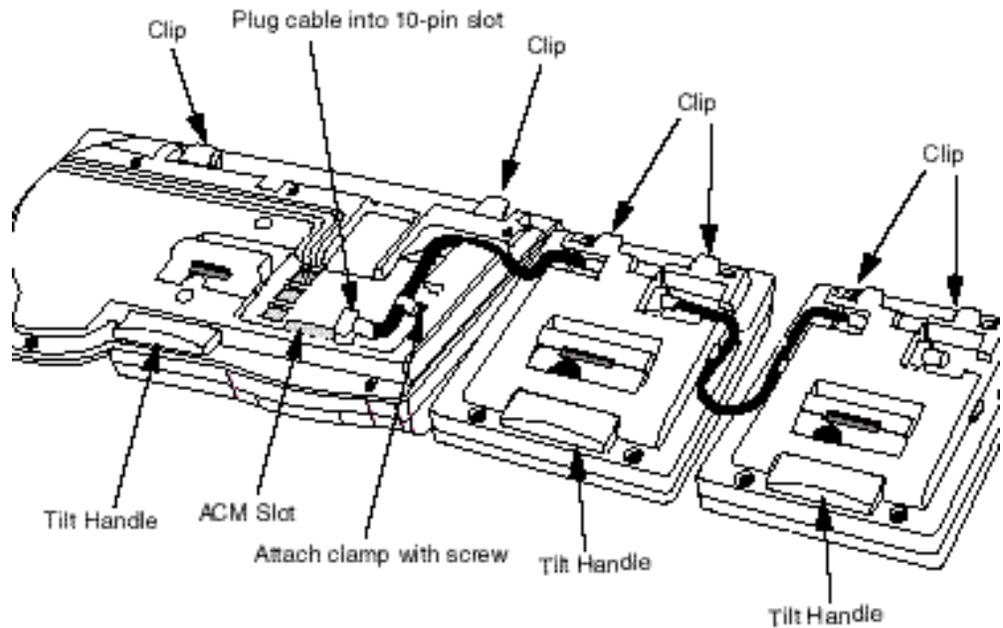
Procedure 10-9 Installing the Key-based Expansion Module Accessory

1   While depressing the telephone tilt handle, pull the telephone away from the footstand until it clears the final stop. Gently pull the footstand off the clips.

   Note: If an ACM is installed, leave the ACM cable plugged into the telephone, and swing the front edge of the footstand under the ACM cable to access the 10-pin slot.

2   Place the telephone and the Module face down on a non-abrasive surface, and align them.

3   Plug the cable from the Module into the 10-pin connection port on the telephone.

4   Wrap the clamp (provided) around the cable, and screw the clamp into the back of the telephone with a 3x8mm screw (provided).

5   Thread the cable through the opening in the side of the telephone.

6   Insert the clips on the telephone into the hinges on the footstand, then press on the front of the footstand until it snaps into place.

7   While squeezing the telephone tilt handle, swing the footstand into the desired position.

8   Insert the clips on the Module into the hinges on the Module footstand, then while squeezing the Module tilt handle, swing the footstand into the desired position.

9   Hook the Module footstand into the telephone footstand, and carefully turn the new assembly upright.

Procedure 10-10 describes how to install a second KBA for the M3900 series sets. Add up to 2 KBAs to provide a total of 44 additional line/feature keys.

Procedure 10-10 Installing the Key-based Expansion Module Accessory

1   Place the telephone and the two Modules face down on a non-abrasive surface.

2   Plug the cable from the second Module into the 10-pin slot on the first Module.

3   Thread the cable through the routing clips on both Modules, as shown above

4   Insert the clips on the second Module into the hinges on the second Module footstand, then while squeezing the Module tilt handle, swing the footstand into the desired position.

5   Hook the second Module footstand into the first Module footstand, and turn the new assembly upright.

M3900 Series KBA Installation Sheet

Configure the MSL-100 for the Key-based Expansion Module Accessory.

Table 10-5
Configure in Servord

Prompt	Response	Description
ADO		
Line	x..x	Line or DN.
		x..x = Line or DN number.
OPTKEY	1	Option Key
OPTION	KBA	Key-based Expansion Module Accessory.
KBA_COUNT	1-2	Number of KBAs.
		1 - KBA.
		2 - two KBAs
Note: Each Kay-based Expansion Module provides 22 additional Line/Feature Keys. These additional keys are configured in Servord. Key numbers associated with the first Key-based Expansion Module are 33 through 54. Key numbers for the second Key-based Expansion Module are 55 through 76.		

How to install the Display-based Expansion Module Accessory (DBA)

The DBA has eight programmable Line/Feature (self-labeled) keys with three layers. The DBA gives you a total of 24 programmable Line/Feature keys, keys 33-56. The DBA shows only eight of these features at one time. Use the Shift key to scroll to each key layer. The following procedure describes how to install the DBA. The self-labeled field is 10 characters in length.

Procedure 10-11 Installing the DBA

1   While depressing the telephone title handle, pull the telephone away from the footstand until it clears the final stop.

2   Gently pull the footstand off the clips

3   Place the telephone and the DBA face down of a non-abrasive surface and align them

4   Lower the module into place and insert the 10-pin plug on the module into the 10-pin slot on the telephone.

5   Push gently until they snap into place.

6   Insert the clips on the telephone into the hinges on the footstand, then press the front of the footstand until it snaps into place.

7   While depressing the telephone title handle, swing the footstand into the desired position, then release the handle.

8   Carefully turn the new assembly upright.

Configure the MSL-100 switch for the DBA

The following table shows an example of the MSL-100 configuration for the DBA.

Table 10-6 Configure for the DBA

Prompt	Response	Description
ADO		
LEN or DN	x...x	LEN or DN
		x...x = Line or DN number
OPTKEY	1	Option Key
OPTION	DBA	Display-based Expansion Module Accessory

Note: Keys associated with the DBA are 33-56. DBA must be provisioned on Key 1 of the M3904 and M3905 sets.

For more detailed SERVORD information, refer to the Commercial Systems Service Order Reference Manual.

How to install the Personal Directory PC Utility

The Personal Directory PC Utility provides a faster, easier way to create or modify a personal directory. Users can enter names and numbers into a Personal Directory file on their PC. Users can download (program) the file directly from the PC to the M3904 or M3905 set. Users can also upload (read) a directory from the M3904 or M3905 set to a PC and modify the directory.

How the Personal Directory PC Utility interfaces with the ACM

The Personal Computer and the M3904 or M3905 Meridian Digital Telephone connect through a cartridge inserted into the telephone's Accessory Connection Module (ACM). The interface cartridge connects to the PC serial port through a serial cable. The Personal Directory PC Utility requires that you have an ACM installed in your telephone. (See the Accessory Connection Module Installation Guide for more information.)

The user supplies the serial cable for the PC connection. The following procedure describes how to set up the Personal Directory PC Utility interface.

Procedure 10-12 Setting up the Personal Directory PC Utility interface

1   Insert the Interface cartridge into the ACM. The latch must be at the top.

2   Connect the Personal computer to the M3904 or M3905 telephone through a RS-232-C serial interface cable.

Table 10-7 RS-232-C pin to function description

Pin	Function	Description
2	TX	Transmit
3	RX	Receive
RTS	4	Request to Send
5	CTS	Clear to Send
6	DSR	Data Set Ready
20	DTR	Data Terminal Ready
7	SG	Single Ground Signal

Note: The user supplies the serial cable for the PC connection. One end of the cable must be a DB25 pin connector the other end must match your computer serial port connection.

Install the Personal Directory PC Utility

The following procedure describes how to install the Personal Directory PC Utility software.

Procedure 10-13 Installing the Personal Directory PC Utility

1   Close all open applications before installing the Personal Directory PC Utility.

2   Insert the Personal Directory PC Utility disk into drive A.

3   Click on Start.

4   Select Run.

5   Enter a:\setup.

6   Click on OK. The Nortel Networks logo screen appears while the installation utility loads.

7   The Welcome screen appears. Click on Next to continue installation.

8   If you agree to the terms of the Software License Agreement, click Yes.

9   Continue to click on Next until the installation is complete.

10   When asked, remove the disk from drive A.

11   Click on Finish.

> ***Note:*** You must restart your PC to access the Personal Directory PC Utility.

How to open the Personal Directory PC Utility

The following procedure explains how to open the Personal Directory PC Utility.

Procedure 10-14 Opening the Personal Directory PC Utility

1   Opening the Personal Directory PC Utility

2   Click on start.

3   Select Programs.

4   Select either the default folder, Meridian Desktop Evolution Personal Directory PC Utility, or the folder into which you installed the software.

5   Select PC Utility.

How to select a Personal Directory PC Utility port

The following procedure shows how to select a port.

**Procedure 10-15 Selecting a Personal Directory PC Utility port**

1   Click on Phone.

2   Click on Set port. The pull-down menu shows available PC ports:

•   Com1

•   Com2

Note: The program selects the same port each time until you change it.

The Personal Directory PC Utility interface

The following illustration shows the Personal Directory PC Utility interface.

Figure 10-9 Personal Directory PC Utility interface
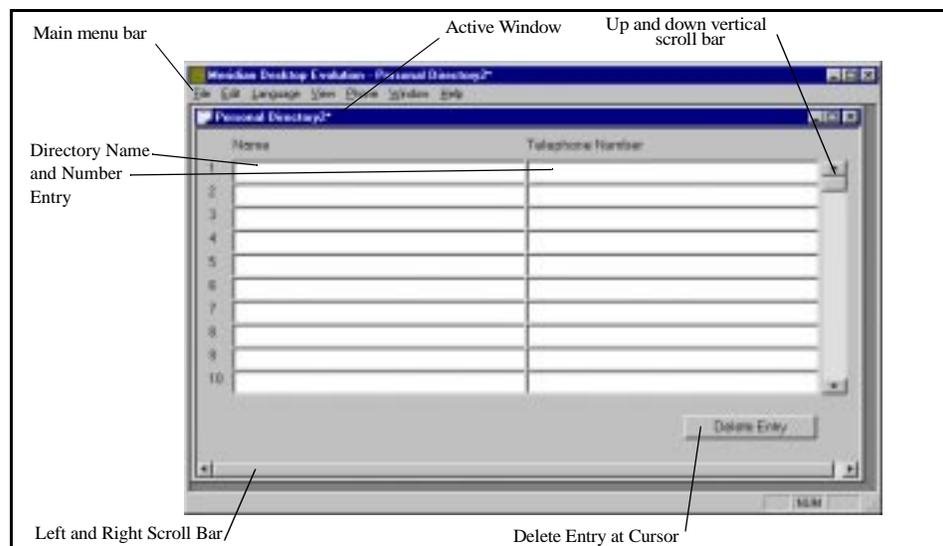
How to navigate within the Personal Directory PC Utility window

There are three methods by which users can navigate within the Personal Directory PC Utility window:

•   Press the Tab key to move from cell to cell and to move to a new entry row (an entry includes a name and a telephone number).

•   Use the up and down arrows on the keyboard to move within the active window.

•   Use the vertical scroll bar to move within the active window.

Personal Directory PC Utility entry and file standards

A Personal Directory PC Utility entry can have:

- Up to 24 characters for the telephone number.

- Up to 24 characters for the name.

Each Personal Directory file can have a maximum of 100 entries (an entry is one line).

Currently the PC Utility does not support 31 characters.

Personal Directory PC Utility terms

The terms are as follows:

- To copy the directory from the telephone to the PC = Read (upload)

- To install a directory from the PC to the telephone = Program (download)

Online help

The following procedure shows how to use the Personal Directory PC Utility Online help.

Procedure 10-16 Using Online help

1   Click on Help on the Main Menu bar.
2   Click on Index and select a help topic.

How to create a Personal Directory

The following procedure shows how to create a Personal Directory.

Procedure 10-17 Creating a Personal Directory

1   Open the Personal Directory PC Utility. Result:

     The program opens with the default "Personal Directory" window. The cursor insertion point is in the name field on the first line.
2   Type a name.
3   Press the Tab key to move to the Telephone Number section.
4   Type a telephone number.
5   Press the Tab key to move to the next line.
6   Continue to enter names and telephone numbers.

Save or export the directory before downloading it to the M3904 or M3905 set to prevent the loss of data.

How to modify a Personal Directory

The following procedure shows how to modify a personal directory.

Procedure 10-18 Modifying a Personal Directory

1	Upload the directory you want to modify into an active window in the Personal Directory PC Utility.
2	Select Phone on the Main Menu bar.
3	Click on Read. Follow screen prompts until directory appears.

Or, open an existing Personal Directory file into the active window:

Procedure 10-19 Open an existing file into the open window

1	Click on File on Main Menu bar.
2	Click on Open or Import. Select the file you want to modify.
	Note: The Import command allows you to open a comma-delimited text file created using an application other than the Personal Directory PC Utility.
3	Click on Save As or Export, to create a backup file.

How to add names and telephone numbers

The following procedure describes how to add names and telephone numbers.

Procedure 10-20 Adding names and telephone numbers

1	Position the cursor on any empty line.
2	Type a name.
3	Press the Tab key.
4	Type a telephone number.
5	Press the Tab key to continue to add new names and telephone numbers.

How to delete a character or a single digit

The following procedure shows how to delete a character or a single digit.

Procedure 10-21 Deleting a character or a single digit

1	Position the cursor to the right of the character or number you want to delete.
2	Press the Backspace key.

or

Procedure 10-22 Alternate delete function

1	Highlight the character or number.
2	Click on Edit on the Main Menu bar and click on Cut to delete.

How to delete a directory entry

The following procedure shows how to delete a directory entry.

Procedure 10-23 Deleting a directory entry

1	Position the cursor anywhere within the entry that you want to delete.
2	Click on the Delete Entry bar on the bottom right of the data entry screen to delete the line.

Note: The Personal Directory PC Utility only allows you to delete one entry at a time.

How to cut or copy and paste between Personal Directories

The following procedure shows how to cut or copy and paste between Personal Directories

Procedure 10-24 Cutting or copying and pasting between Personal Directories

1	Open two or more Personal Directory files.
2	Highlight the name or telephone number you want to copy or cut.
3	Click on Edit on the Main Menu bar.
4	Click on Cut, or click on Copy.
5	Activate the second Personal Directory window.
6	Position the cursor on an empty line.
7	Click on Edit on the Main Menu bar.
8	Click on Paste.

How to Save or Export the Personal Directory file

The following procedure shows how to save or export the Personal Directory file.

Procedure 10-25 Saving or Exporting the Personal Directory file

1	Click on File on the Main Menu bar.

2   Click on Save As or Export.

> ***Note:*** Export creates a comma-delimited text file.

3   Define a destination for the Personal Directory file.

4   Enter a file name for the directory.

5   Click on OK to save.

How to Program (download) the Personal Directory

The following procedure shows how to Program (download) the Personal Directory.

**Procedure 10-26 Programming (downloading) the Personal Directory**

1   Check to ensure that the connection between the ACM Serial Port Cartridge and the PC serial port is secure.

2   Click on Phone on the Main Menu bar.

3   Click on Program.

4   The Personal Directory PC Utility cautions that you are about to replace the existing directory on the telephone. Click on Yes to continue.

5   A window opens that displays the status of the download.

How to install the handset option for the M3905 Call Center Telephone

The Handset Kit is a hardware option for the M3905 Call Center Telephone. The handset does not accompany the M3905. The handset can be added the the M3905 by removing the front plate of the telephone.

> *Note:* Nortel Networks recommends that a system administrator complete this installation.

Figure 10-10 Front view removal of the hook switch cover
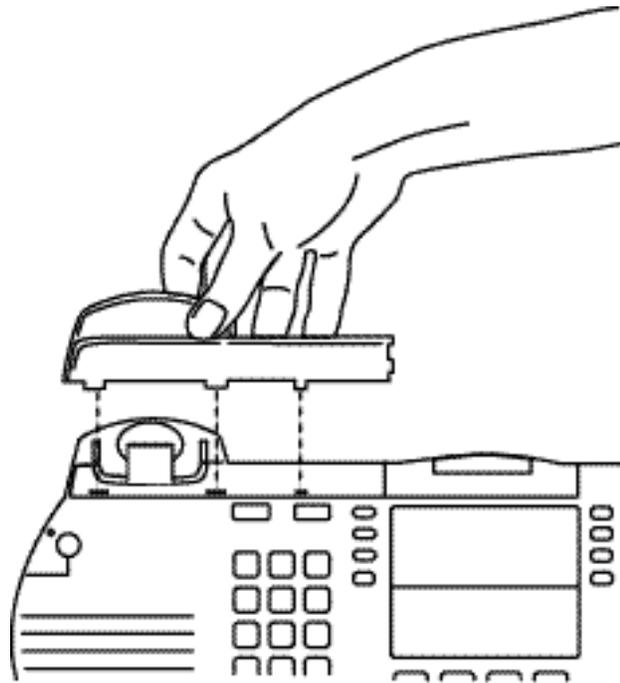
553-9047

Figure 10-11 Rear view removal of the hook switch cover

553-9068
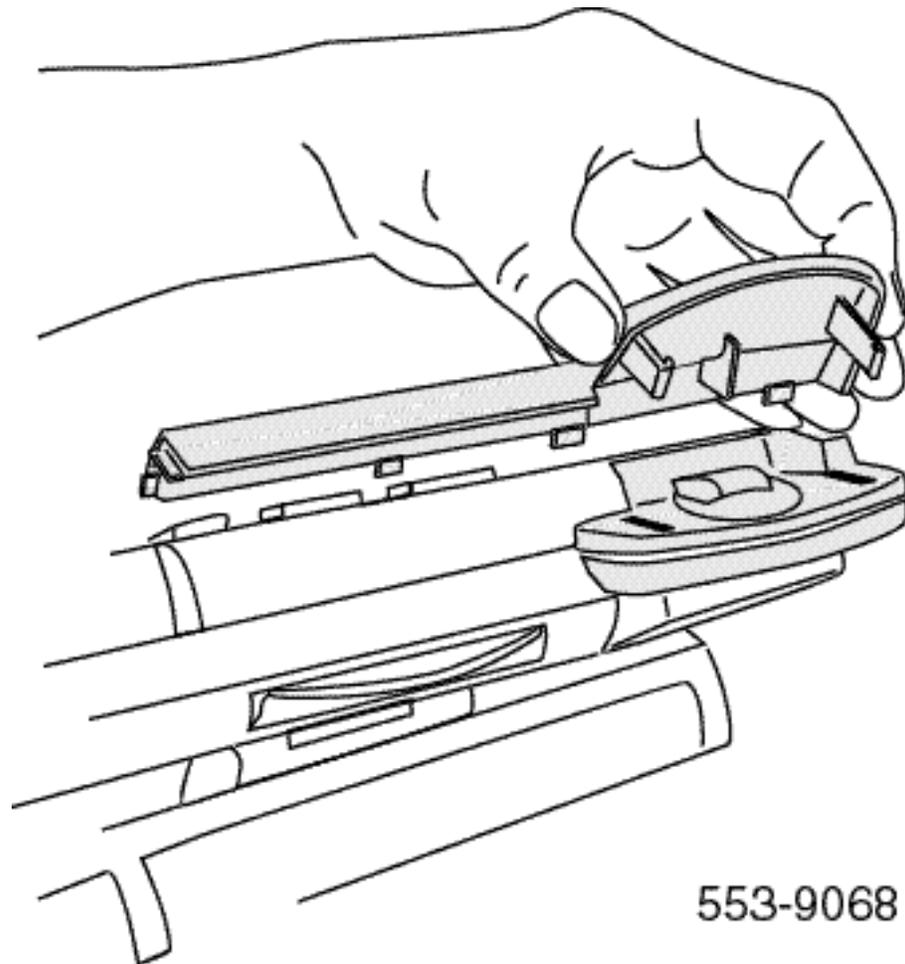
There are five tabs and two hidden snaps on the Hook Switch cover. There are two tabs along the right tab tree along the bottom edge (front view.) To remove the cover, the hidden snaps must be released (rear view.)
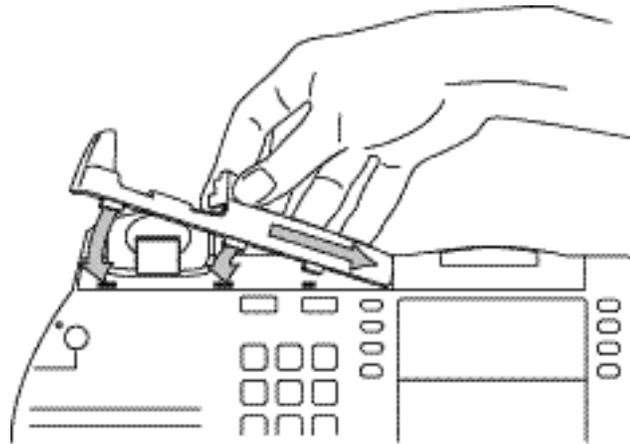
Procedure 10-27 Removal of the Hook Switch Cover

1   Ease the cover to the left and pull on the left side to release the left snap.

2   While holding the left snap out, ease the cover to the right and pull on the right side to release the right snap.

3   Carefully maneuver the cover out from the three bottom slots and rotate the cover to release the two side tabs.

Installation of the cradle

The following procedure shows how to install the cradle.

Figure 10-12 How to install the cradle

553-9048

Procedure 10-28 How to install the cradle

1	Hold the cradle in the same position as when you removed the Hook Switch Cover, move the cradle to the right to place the tab into the slot.
2	Ease the other tabs on the bottom edge of the cradle into the slots.
3	When all tabs are in the proper position, secure the cradle into place by pushing straight downward.

How to install alternate key caps for the M3905

Use the Key Extractor Tool with the M3905 Call Center Telephone to remove the programmable keys and replace them with alternate keys customizing your telephone to fit your need.

Figure 10-13 How to install the alternate key caps

As shown in the above figure, place the tips of the tool into the slots at the right and left of the key, grip tightly and pull straight upward.

Procedure 10-29 Installing key caps

1	Fit the two small elastomer posts in to two slots on the underside on the keys and firmly press downward.
2	The key releases immediately after applying pressure.

Note: If the key does not release, remove it. Attempt the installation again, making sure that the posts and the slots are properly aligned.

How to Install the Full Duplex Handsfree Accessory on the M3904

This procedure describes how to install and use the Full Duplex Handsfree (FDHF) Cartridge (NTMN72AA) with your M3904 Release 3 Meridian Digital Telephone (NTMN34GA). Install an Accessory Connection Module (ACM) (NTMN71AA) into your M3904 Release 3 Meridian Digital Telephone (NTMN34GA) before you install your FDHF cartridge. Please refer to the ACM Installation sheet. The ACM provides connection capabilities between the M3904 telephone and the FDHF cartridge.

The FDHF cartridge allows simultaneous two-way communication during a handsfree telephone call.

Procedure 10-30 How to connect the FDHF Cartridge

1   Check that your telephone is an M3904 Release III set (NTMN34GA) by looking at the label on the back. If it is, please continue to step 2. If it is not, the FDHF cartridge is not compatible with your telephone. Please contact you network administrator for more information.

2   Insert the FDHF cartridge into the ACM. The latch should be at the top.

3   Plug the wall transformer into an electrical outlet (use only the transformer designed for your ACM accessories). The following transformers are approved for use with the FDHF cartridge:

   •   110V wall transformer (NTMN80AA)

   •   220V wall transformer (NTMN80BA)

   •   EU 230V wall transformer (NTHC08AA)

   •   UK 230V wall transformer (NTHC09AA)

4   Disconnect the telephone line cord from the telephone wall jack (see figure below)

5   Connect the Adapter plug, attached to your transformer, to the telephone wall jack.

6   Connect the telephone line cord to the wall transformer adapter jack

7   Verify that the FDFH cartridge is working properly. The cartridge is operating properly when the red LED on the cartridge is flashing and when 18 segments are displayed on the volume bar during handsfree volume adjustment. Half-duplex displays only 12 segments

Figure 10-14 Connecting the FDHF Cartridge
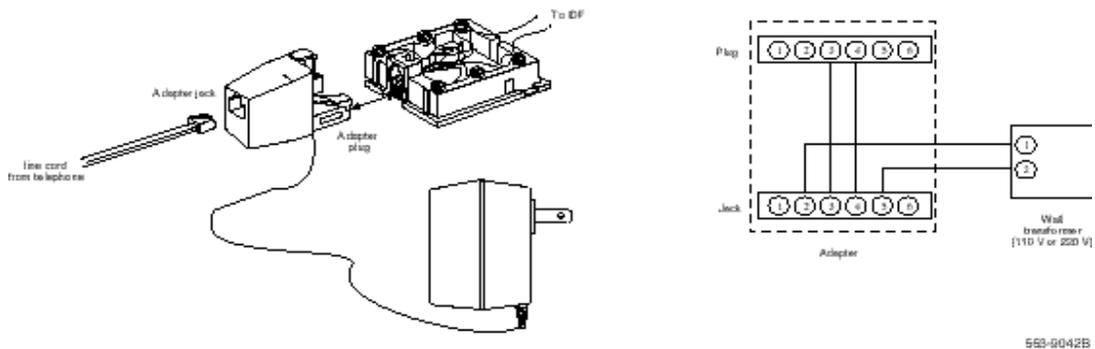
Operating Parameters

The receive audio level is attenuated during the FDHF mode while both you and the party you are speaking with are conversing; therefore, you may notice fluctuations in the receive volume during a FDHF call.

During a call, the FDHF cartridge can be removed or inserted intothe ACM without interrupting the established call. If the FDHF cartridge is removed, half-duplex operation is restored.

Status light indicator

A red LED status light located on the FDHF cartridge indicates the status of the cartridge.

- **Flashing red** indicates that the cartridge is operating normally.

- **Solid red** indicates that the cartridge is not operating normally. Contact your network administrator.

- **Red light off** indicates that there is no power going to the cartridge or the cartridge is not operating correctly. Check the power connections to the cartridge. If problems continue, contact your network administrator.

Configure the Meridian SL-100 for use with the FDHF Cartridge

Table 10-8 Add a new M3904 telephone set with hadnsfree enabled via SERVORD

Prompt	Response	Description
SO:	new	Enter "new" if the telephone is not currently configured.
HANDS_FREE	y	Enter "y" for yes.

Table 10-9 Enable Handsfree on an existing M3904 set via SERVORD

Prompt	Response	Description
SO:	Chf	Change feature on existing M3904 set.
...		
OPTKEY:	1	Enter primary DN key #.
OPTION:	hndsfree	Enter "hndsfree" for Handsfree option.
HANDS_FREE:	y	Enter "y" for yes.

Note: The M3904 telephone set must be a NTMN34GA or later vintage. If you are replacing an existing M3904 that currently has hnadsfree enabled, a datafill change is not required.

11 Environmental and safety considerations

This section address special considerations for the M3900 Series Meridian Digital Telephone:

- temperature and humidity
- line engineering

Temperature and humidity

Table 11-1 shows the temperature and humidity for operating and table 11-2 for storage.

Table 11-1 Temperature and humidity

Operating state:	
Temperature range	0° to 50°C (32° to 104°F)
Relative humidity	5% to 95% (noncondensing). At temperatures above 34°C (93°F) relative humidity limited to 53 mbar of water vapor pressure.

Table 11-2 Temperature and humidity

Storage:	
Temperature range	-50° to 70°C (-58° to 158°F)
Relative humidity	5% to 95% (noncondensing). At temperatures above 34°C (93°F) relative humidity limited to 53 mbar of water vapor pressure.

Line engineering

 M3900 Series Meridian Digital Telephones use twisted pair wiring on transmission lines. The maximum acceptable loop length is 1067 m. (3500 ft.), assuming 24 AWG (0.5 mm) standard twisted wire with no bridge taps. A 15.5 vdB loss at 256 kHz defines the loop length limit. Longer lengths are possible, depending on the wire's gauge and insulation.

WARNING

Use only the line cord provided with the telephone. A line cord designed for another telephone can cause damage to the equipment.

Accessory environmental information

The following table provides specification and physical environmental information for M3900 series accessories.

Meridian External Alerter and Recording Interface (MEARI)

The following table provides specification and physical environmental information for the MEARI

Table 11-3 MEARI specifications (Sheet 1 of 2)

Ring relay contact	Normally open, max 50 mA 30 V
Call status relay contact	Normally open, max 50 mA 30 V
Record audio level (RJ12 jack)	Nominal - 12dBm, 600 Ohm
Record audio level (3.5mm jack)	Nominal - 52 dBu, microphone level

Table 11-3 MEARI specifications (Sheet 2 of 2)

Operating temperature	0ºC to 50ºC
Humidity	5% to 95% Relative Humidity
Dimensions (H x W x D)	1.25 x 3.75 x 4.65 inches
	3.2 x 9.5 x 11.8 centimeters
Weight	4 oz.
	104g
M3902, M3903, M3904, M3905 all equipped with M3900 series ACM and power supply	Compatibility

Accessory Connection Module (ACM)

Table 11-4 provides specification and physical environmental information for the ACM.

Table 11-4   Environmental information

Physical environment	Temperature range	0º to 50ºC (32º to 104ºF)
	Relative humidity	5% to 95% (non-condescending). At temperatures above 34ºC (93ºF) relative humidity limited to 53 mbar of water vapor pressure.
Storage	Temperature range	-50º to 70ºC (-58º to 158ºF)
	Relative humidity	5% to 95% (non-condescending). At temperatures above 34ºC (93ºF) relative humidity limited to 53 mbar of water vapor pressure

List of terms

AAB

        Automatic Answerback Key

AAK

        Answer Agent

ACD

        Automatic Call Distribution

ACD DN

        ACD Mis

ACD HOLD

        ACD Mis

ACDNR

        Not Ready

ACM

        Accessory Connection Module

ADD

        SERVORD command for add

ADO

        Asynchronous Data Option

AEMK

        Answer Emergency

ALC

        Automatic Level Control

ASL

        ACD Agent Status Lamp

ATA

Analog Terminal Adapter

AUD

Automatic Dialing

AUL

Automatic Line

AUTODISP

Automatic Display Feature

BC

Bearer Capability

BCLID

BCLID Feature

BLF

Busy Lamp Field

BLK

Blank Key

CAG

Call Agent Key

CCOS

Controlled Class of Service

CFDVT

CFD Variable Timer

COS

Class of Service

CFB

Separate Keylist for CFB

CFD

Separate Keylist for CFD

CFTOD

Call Forward Time of Day

CFU

Call Forward

CFUIF

Separate Keylist CFUIF

CFW

Call Forward

CHF

SERVORD command for change feature

CI

Command Interpreter

CIF

Controlled Interflow

CLI

Calling Line Identify

CLSUP

Call Supervisor

CNF

4 to 30-way Conference

CNF C06

6-party Conference

COT

Customer Originated Trace

CPK

Call Park

CPM

Call Progress Monitor

CPND

Calling Party Name Display

CPU

Call Pick-up

CTD

Carrier Toll Denied

CTR

Call Transfer

CWD

CWD Key

CWT

Call Waiting

CXR

Transfer

DASK

ACD Display Agents

DBA

Display-based Access Expansion Module

DCE

Data Communications Equipment

DCPK

Directed Call Park

DDN

Data DN (Audits Only)

DIN

Denied Incoming

DLC

Digital Line Card

DMCT

DMCT Feature

DND

Do Not Disturb

DN

Directory Number

DQS

Display Queue Status

DQT

Display-Queue Threshold

DRING

Distinctive Ringing

DTMK

Data Terminal Mode Keys

EBO

Executive Busy Override

EIA

Electronic Industries Association

EMK

Emergency

EMW

Executive Message Waiting

EST

SERVORD command for establish

EXPEC

Extended Peripheral Equipment Controller

EXT ATR

External Alerter

FAA

ACD FAA

FAI

Feature Activation Indicator

FCC

Federal Communications Commission

FXR

Fast Transfer

GIAC

Group Intercom All Calls

GIC

Group Intercom

GLISTEN

Group Listening

HD Set

Headset

ICM

Intercom

IDF

Intermediate Distribution Frame

INSPECT

Inspect Key

JOIN

Call Join

KBA

Key-based Access Expansion Module

KSF

Key Set Short Hunt

KSMOH

Key Set Music On Hold

LCD

Liquid Crystal Display

LED

Light Emitting Diode (lamp)

LOB

Line of Business

LPIC

Primary Interlata Carrier

MBK

Make Busy Key

MBSCAMP

MBS Camp On Key

MCH

Malicious Call Hold

MDF

Main Distribution Frame

MEARI

Meridian External Alerter and Recording Interface

MSB

Make Set Busy

MSMWI

Multiple Set Message Waiting Indication

MSQS

Multistage Queue Status

MWI

Message Waiting Indicator

MWQRY

Message Query

MWT

Message Waiting

NEW

SERVORD command for new

NEWACD

SERVORD command for new ACD

NGTSRVCE

ACD Night Service Key

OBS

Observe Agent

OLS

Originating Line Select

OPTKEY

Option Key

OTM

Optivity Telephony Manager for MSL-100 (formerly Switch Manager)

PBL

Private Business Line

PDN

Primary Directory Number

PIC

Primary Interlata Carrier

PRL

Privacy Release

QBS

Query Busy Station

QCK

Quick Conference Key

RAG

Ring Again

RESETPWD

CI command for password reset

RMB

Random Make Busy

RNP

Ringing Number Pick-up

RSUS

Requested_Suspension

SACB

Subscriber Call Block

SCA

Selective Call Accept

SCF

Selective Call Forward

SCL

Speed Call Long

SCMP

Series Completion

SCRJ

Selective Call Rejection

SCS

Speed Call Short

SCU

Speed Call User

SDN

      Directory Number

SDY

      AT&T Line Study

SEC

      Security Code

SERVORD

      Service Order

SHU

      Stop Hunt

SLQLG

      Single Line Queueing

SLU

      Subscriber Line Usage

SMDI

      Simplified Messages

SOR

      Station Origination Restrictions

SPB

      Special Billing Codes

SSAC

      Station-Specification Authorization Codes

SUPR

      Supervisor Feature

TLS

      Terminating Line Select

TN

      Terminal Number

TRKDISP

      Trunk Member Display

TWC

      3-Way Calling

TWCPUB

      TWCPUB Line Options

UCDLG

      UCD Login Key

UCDSD

      UCD SD Point Features

WML

      MDC/RES Warm Line-NC0011

Meridian SuperNode
Meridian SL-100 M3900 Meridian Digital Telephones
Reference Guide

NORTEL NETWORKS