
Meridian 1

Attendant Consoles

Description

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December 1989

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July 1989

Removed all references to MJ1250 console.

February 1989

Standard for M1250 Console issued.

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About this document

This document is a global document. Contact your system supplier or your Nortel Networks representative to verify that the hardware and software described are supported in your area.

Introduction

Reference list

The following are the references in this section:

- *Equipment Identification (553-3001-154)*
- *Meridian 1 Attendant PC: Software User Guide*

Feature description

Attendant consoles are designed to assist in placing and extending calls into and out of a telephone switching system. The console is operated by an attendant who is the human interface between the system and the users.

Several types of attendant consoles are designed for telephone traffic control in the Meridian 1. Each provides attendants with specialized features that increase the speed and ease of call processing.

This document describes the M1250 and M2250 attendant consoles, and the Meridian 1 Attendant PC Software application. The M1250 and M2250 consoles are functionally compatible with the QCW4 Attendant Console.

- The M1250 is designed to work in analog mode and functions through an analog line card when connected to a digital switch. Its cabling schemes are compatible with those of the QCW4 console.
- The M2250 is a digital version of the M1250, offering additional features. A digital line card connects the M2250 to the Meridian 1. It has a modified cabling scheme.

- The Meridian 1 Attendant PC Software application allows all functions supported by the M2250 to be performed on a computer workstation using a mouse pointing device or keyboard within a Windows 95® operating system environment. The M2250 attendant console is not required to run the Meridian 1 Attendant PC Software application. Refer to the *Meridian 1 Attendant PC: Software User Guide* for more information on Meridian 1 Attendant PC Software.

Refer to Table 1 for engineering and ordering codes for the types and colors of the M1250 and M2250 attendant consoles. For more ordering information, refer to *Equipment Identification* (553-3001-154).

Table 1
Engineering and ordering codes for the M1250 and M2250 and related equipment

Console model	Engineering code	Color	Ordering (CPC) code
M1250	NT2G00AC-35	Chameleon gray (ash)	A0387385
M1250	NT2G00AA-98	BTS dark gray	A0338244 (not available in North America)
M2250	NT6G00AF-35	Chameleon gray (ash)	A0393450
M2250	NT6G00AE-98	BTS dark gray	A0349187 (not available in North America)
BLF/CGM	NT3G40AB-35	Chameleon gray (ash)	A0375234
BLF/CGM	NT3G40AB-98	BTS dark gray	A0349423 (not available in North America)
Adjustable stand	NT3G30AA-35	Chameleon gray (ash)	A0348780
Adjustable stand	NT3G30AA-98	BTS dark gray	A0348778 (not available in North America)
ASM	NT7G10AA	N/A	A0366221
16V DC Power Supply (300 mA)	N/A	N/A	A0367601

The M1250 and M2250 have the following features:

- A four-line, 40 character, liquid crystal display (LCD) with backlighting. Power, including backlighting, is maintained during building power failures with the Meridian 1 battery backup, if equipped.
- **or**
- A two-line, 23 character, liquid crystal display (LCD) with backlighting (M2250 only).
- Angle adjustment of the display screen, which can be tilted through 90° from horizontal to fully vertical.
- Scrolling control of lines 2 and 3 of the display screen.
- In Shift mode, the M1250 console can have up to 16 trunk group busy (TGB) keys, and the M2250 can have up to 20 TGB keys. This eliminates the need for any QMT-2 key/lamp strip add-on modules.
- In Shift mode, the M2250 can have up to 10 extra flexible feature keys for a total of 20.
- An optional supporting stand that can be adjusted to nine different positions.
- A handset and headset volume slider control, situated below the dial pad.
- A physical connection to a serial data port through a subminiature D-type female connector on the console back wall. This permits connection of the console to the serial port of a personal computer.
- An optional Busy Lamp Field/Console Graphics Module (BLF/CGM), which displays the status of up to 150 consecutive extensions (SBLF) or any group of 100 extensions within the system (EBLF) and has many text and graphics capabilities.
- An optional Attendant Supervisory Module (ASM) can be installed.
- To meet international requirements, the M2250 provides 16 transmission levels that facilitate acceptance and processing of information downloaded from the system (when supported by software).
- Multi-language selection.
- Menus for local console features (Options menu) and diagnostics (Diagnostics menu).
- Code blue or emergency relay (associated with ICI 0).

- Time and date system download on the M2250.
- Alert tone volume and frequency selection.
- Electret or carbon transmitter support.
- Power Fail Transfer switch.
- Keyclick (M2250 only).

Description

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Reference list

The following are the references in this section:

- *Telephone and Attendant Console: Installation (553-3001-215)*

Feature description

Figure 1 on page 19 and Figure 2 on page 20 show top views of the layouts of the M1250 and M2250 attendant consoles, respectively. The user-accessible components are labeled using a row/column grid arrangement. Figure 3 on page 21 shows rear, left side, and bottom views of the consoles. These illustrations show where to find the various components.

Physical details

The attendant console dimensions are as follows:

Width	425 mm (16.75 in.)
Depth	245 mm (9.6 in.)
Height (front)	25 mm (1 in.)
Height (back)	65 mm (2.5 in.)
Height (with display screen panel up)	115 mm (4.5 in.)
Weight	approximately 2.75 kg (6 lbs)

Keyboard layout

Refer to Table 2 on page 22 for the description of keys and Figures 1, 2, and 3 for the location of switches and keys mentioned in this section.

Figure 1
M1250 attendant console – top view

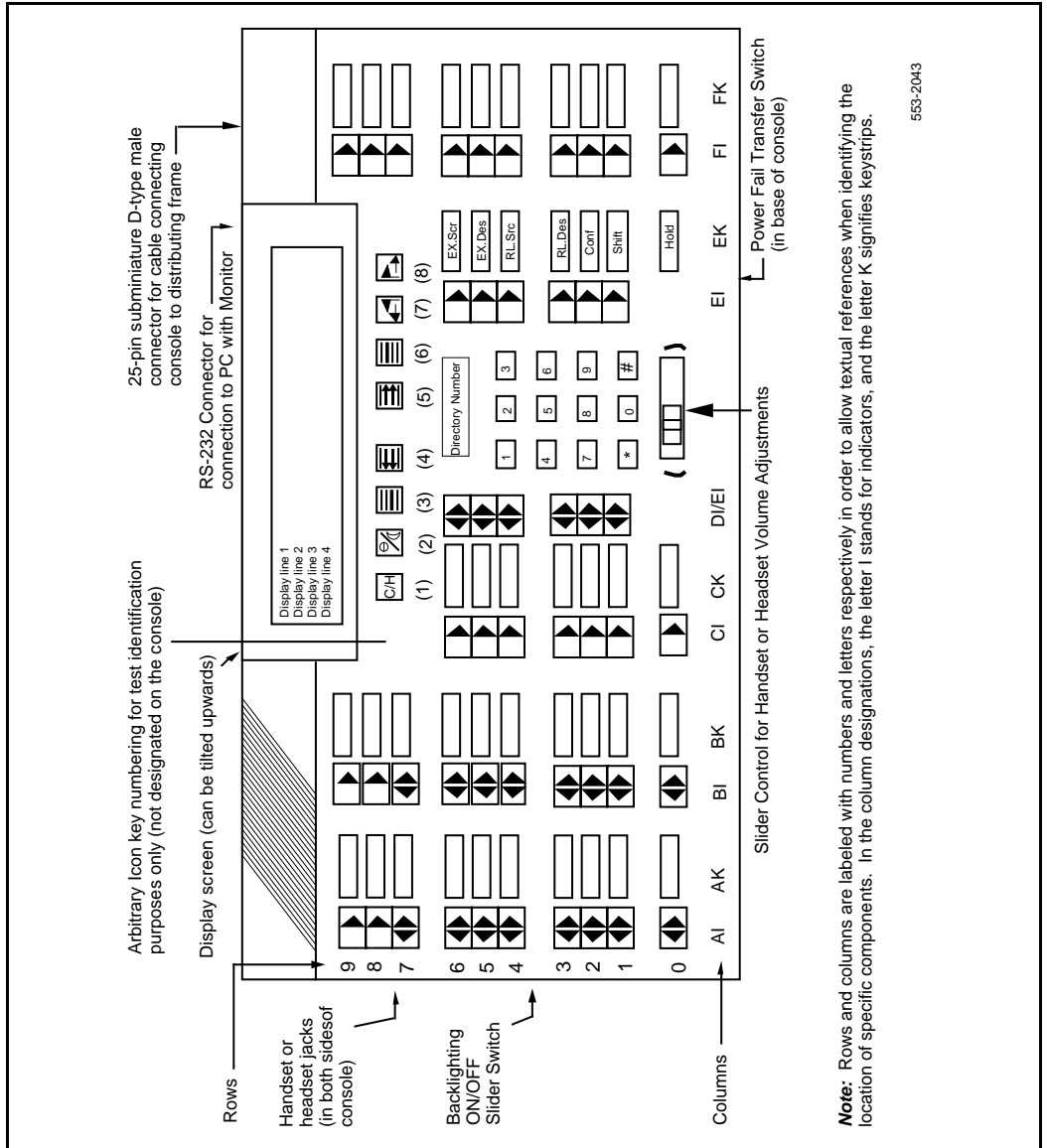
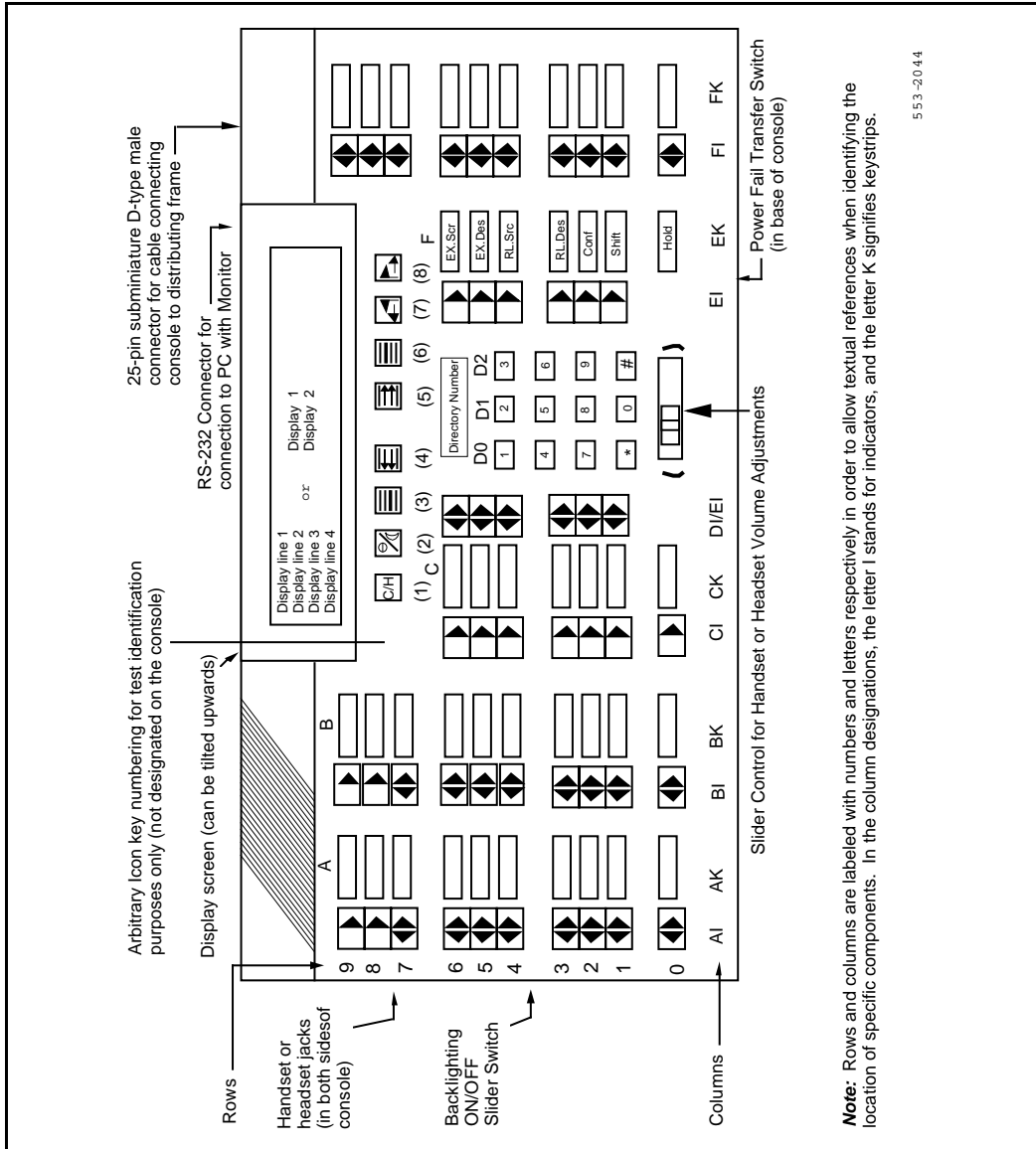
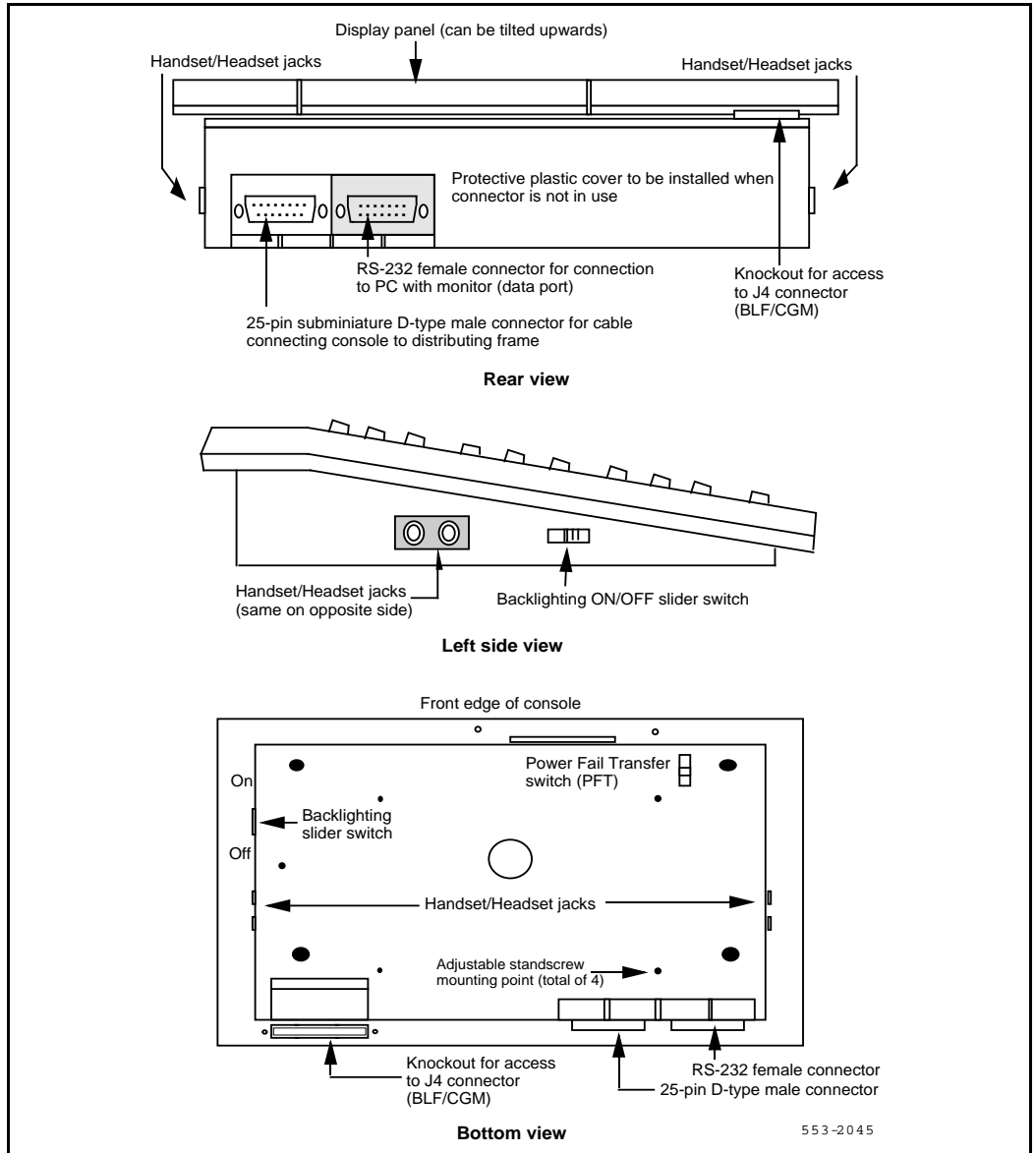


Figure 2
M2250 attendant console – top view



553-2044

Figure 3
M1250 and M2250 attendant consoles – rear, left side, and bottom views



Function keys

The attendant console has eight function keys, located directly below the display screen. Refer to Table 2 for the positions, functions, and markings of these keys. For an explanation of the functions assigned to the rest of the attendant console keys, refer to “Attendant console operation” on page 29.

Table 2
Softkey definitions and functions (Part 1 of 2)


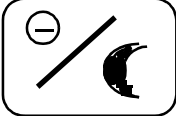

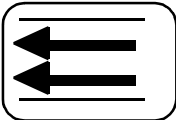
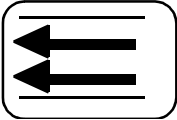
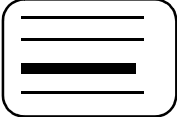
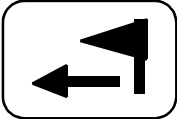
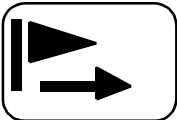
Key number (as shown in Figures 1 and 2)	Key	Function
(1)		Centralized Attendant Service (CAS) File
(2)		Prime function (normal): Position Busy feature Level 1 function (Shift): Night Service feature
(3)		Prime function (normal): Selects display screen line 2 for scrolling. Level 1 function (Shift): Selects the Options menu on the display screen. Alternating between the idle and active call display (M2250 only). From the idle display, press this key to show the active call display.
(4)		Prime function (normal): Scrolls the currently selected line to the left. Level 1 function (Shift): Decreases the alert speaker volume.

Table 2
Softkey definitions and functions (Part 2 of 2)

Key number (as shown in Figures 1 and 2)	Key	Function
(5)		<p>Prime function (normal): Scrolls the currently selected line to the right.</p> <p>Level 1 function (Shift): Increases the alert speaker volume.</p>
(6)		<p>Prime function (normal): Selects line 3 on display screen for scrolling.</p> <p>Level 1 function (Shift): Selects the Diagnostics menu on the display screen. (On the M2250 console, the Diagnostics menu is password-protected. To display it, the user must enter a 4-digit password and press * on the dial pad.)</p> <p>Alternating between the idle and active call display (M2250 only). From the active call display, press this key to show the idle display.</p>
(7)		<p>Prime function (normal): Signal Source feature key</p> <p>Level 1 function (Shift and Conf/Busy Lamp Field key): Used with the Busy Lamp Field/Console Graphics Module, as CGM key.</p>
(8)		<p>Prime function (normal): Signal Destination feature key</p> <p>Level 1 function (Shift): Used with the Busy Lamp Field/Console Graphics Module, as the Mode key.</p>

Switches

A slider control, located below the dial pad, between columns DI/EI and FI, controls the handset and headset receive volume level. See Figures 1 and 2.

A Power Fail Transfer (PFT) switch is located in the baseplate. See Figure 3 on page 21. Both the line connector and the RS-232 connector for the PC port are located at the back of the console.

Shift key

The Shift key, mentioned earlier, is positioned in column FK, row 1, just above the Hold key. See Figures 1 and 2. It is used to access Level 1 mode functions.

Handset and headset jacks

Two pairs of jacks are provided for plugging in handsets or headsets. The jacks are located on both sides of the console beneath the faceplate in the recessed area shown by the arrows. See Figures 1 and 2. The console accepts both carbon and electret handsets or headsets and automatically adapts itself to each type.

Note: Electret headsets and handsets are polarity sensitive and must be correctly inserted into the jack.

LCD indicators

The LCD indicators on the M1250 and M2250 display triangular symbols that normally point towards the key with which they are associated. Certain keys in the QMT2 mode of operation and loop keys have two LCDs associated with each key instead of one.

On the M2250, every LCD can flash at 30, 60, or 120 impulses per minute (ipm). On the M1250 console, certain lamps can flash only at 60 or 120 ipm. Refer to “Attendant console operation” on page 29 for more details.

The M2250 attendant console has 10 more flexible features than the M1250 attendant console. These are programmed in LD12 and accessed using the Shift key.

Display screen messages

Source information appears on line 2 of the display screen. Destination information appears on line 3 of the display screen.

The status messages listed below appear on line 4 of the display screen panel.

- MN (minor alarm)
- MJ (major alarm)
- C/H (CAS/History File)
- CW (Call Waiting)
- BUSY (Position Busy)
- NIGHT (Night Service)
- IDLE (Idle)
- ACTIVE (lpk has been selected)
- S (Shift mode) Only on the M2250 and later releases of the M1250.
- EMERGENCY (Power Fail Transfer (PFT) feature is activated.)

Connections

The line cord connects to the rear of the attendant console through a 25-pin subminiature D-type connector. The jack connector is attached to the line cord for user safety and equipment protection (pins are not exposed). Having the plug connector mounted in the console also prevents interchanges between the line cord and the serial data port connectors (the serial data port in the console has a jack connector).

Identical two-prong G3 type connectors are provided on each side of the console body to permit handset or headset connection at either side of the console. The attendant console is compatible with both carbon and electret handsets or headsets. The electret handset plug is orientation-dependent and is labeled accordingly.

The M2250 attendant console is connected to the Meridian 1 through two digital ports (primary and secondary) with three additional ports for powering. The M1250 uses two hybrid ports (primary and secondary) for connection to the Meridian 1, with two additional ports for powering.

The M2250 console requires a digital line card or an Integrated Services Digital Line Card (ISDL) of vintage D or later. The M1250 requires a QPC61 or QPC451 line card.

Local console controls

Visual contrast on the display panel can be adjusted using the Contrast option on the Options menu.

From the Options menu, four-line mode can be changed to two-line mode for easier viewing and to use larger fonts.

The pitch and volume of the buzz tone on the console can be adjusted by the user.

Any one of 15 languages (English, French, Spanish, German, Italian, Norwegian, Irish, Turkish, Katakana, P.R.C. (People's Republic of China), Taiwan, Korean, Polish, Czech/Slovak or Hungarian) can be chosen for the console screen displays.

When the languages P.R.C., Taiwan, and Korean are chosen, the M2250 uses two-line display.

The attendant console is equipped with a real-time clock/calendar. The time of day (hours, minutes, and seconds) and the date (day, month, and year) are displayed on line 1 of the display screen.

The sound of key clicks can be turned on or off. On the M2250, the pitch and volume of key clicks can be adjusted.

Busy Lamp Field/Console Graphics Module

The Busy Lamp Field/Console Graphics Module (BLF/CGM) can be added to an M1250 or M2250 attendant console.

The BLF/CGM can do the following:

- display the status (busy or idle) of up to 150 consecutive extensions within the Meridian 1 Standard Busy Lamp Field (SBLF)
- display the status (busy or idle) of any hundreds group of DN's within the system Enhanced Busy Lamp Field (EBLF)
- display which attendant console is the supervisory console and which consoles are active
- display supplementary information about individual extensions, such as the reason the person is away (business, vacation, or illness), when the person is due to return, and an alternate extension where calls to the person should be directed
- display a company logo
- display graphics
- display text in any one of eight languages
- have its screen contrast adjusted for easy viewing

Installation

The BLF/CGM mounts on the back of the attendant console and is held on by snapfits and screws. It is connected to the console using a 16-way connector that is located on the keyboard Printed Circuit Board (PCB). This connector is accessed through a rectangular knockout section located underneath the casing overhang at the Meridian logo location. See Figure 3 on page 21.

For more on installing the BLF/CGM, refer to *Telephone and Attendant Console: Installation* (553-3001-215). For more on the features and operation of the BLF/CGM, refer to the Busy Lamp Field/Console Graphics Module user guide.

Power requirements

The BLF/CGM obtains its power through the attendant console.

To provide backlighting for the BLF/CGM display, an external floating 16 V dc (300 mA) power supply (A0367601) must be cabled in at the local Main Distribution Frame (MDF) at a maximum of 35 m (115 ft) from the attendant console.

Display backlight power supply option

An optional 16 V dc power supply (A0367601) can be installed to the MDF to improve the display backlight brightness.

Attendant console operation

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Reference list

The following are the references in this section:

- *Networking Features and Services* (553-2901-301)
- *Features and Services* (553-3001-306)
- *Administration* (553-3001-311)

This section presents an overview of operating procedures for the M1250 and M2250 attendant consoles. The attendant console faceplate layout is shown in Figures 1 and 2 on pages 19 and 20. Use these illustrations as the basis for component location references throughout this document.

M1250/2250 configurations

The M1250 and M2250 attendant consoles can be configured to operate with the QMT2 feature, which is provided by a QMT2 add-on module incorporated in the console. Instead of having to add a keystrip unit, the technician can set a dip switch on the keyboard/controller Printed Circuit Panel (PCP) to ON (enable QMT2) or OFF (disable QMT2). It is important that the system software configuration and the QMT2 dip switch be set correctly. For more information, refer to the section on LD15 in the following publications:

- *Features and Services* (553-3001-306)
- *Administration* (553-3001-311)

QMT2 feature disabled

When the QMT2 feature is disabled, the following conditions apply:

- If the console is not in Shift mode, keystrip AK is inactive.
- If the console is in Shift mode, the keys in strip AK function as Trunk Group Busy (TGB) keys, if configured in the system software.
- If the operator presses any of these keys, the associated trunk group is busied out.
- The triangle points aimed to the left of keystrip AK are never active.
- If the operator presses any key outside keystrip AK when the console is in Shift mode, the console performs the function associated with that key. The Shift indicator remains on.
- The keys in keystrip BK function as Incoming Call Identification (ICI) keys.

QMT2 feature enabled

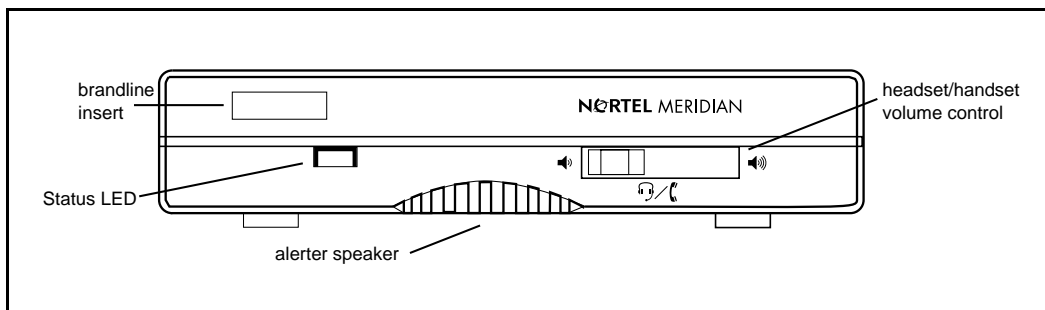
When the QMT2 feature is enabled, the following conditions apply:

- If the console is not in Shift mode, the keys in strip AK and/or BK function as Incoming Call Identification (ICI) keys.
- If the console is in Shift mode, the keys in keystrips AK and BK function as Trunk Group Busy (TGB) keys. That is, they imitate the keystrips of the QMT2 add-on module as follows:
 - The LCD indicators pointing to the left indicate busy trunks.
 - The LCD indicators pointing to the right indicate incoming calls.

Meridian 1 Attendant PC configuration

The Meridian 1 Attendant PC Software application operates with the Attendant PC Unit. See Figure 4 on page 32. The Attendant PC Unit is typically installed under the attendant's PC monitor, and provides connection to the Meridian 1 MDF and PC communications port. The Attendant PC Unit hardware allows the software to communicate with the Meridian 1 and simulate M2250 operation through a Windows 95® operating system environment. The Attendant PC Unit is configured in LD 12. Refer to *Administration* (553-3001-311) for configuration information.

Figure 4
Meridian 1 Attendant PC Unit



To install the Meridian 1 Attendant PC Software, an MPC 2-compliant PC compatible Pentium system is required, with the following:

- minimum 16 MB RAM

- hard disk with at least 4 MB free disk space
- 17-inch color monitor (SVGA recommended)
- MPC-2 16 bit sound board
- Network interface adapter

For complete installation and operation instructions, refer to the *Meridian 1 Attendant PC Installation Guide* and *Meridian 1 Attendant PC User Guide*.

M1250/2250 feature key modes

Functions shown for some of the feature keys in Table 2 page 22 vary, depending on which console mode is in effect while the key is being pressed. Table 1 on page 34 lists the various alternate feature key functions.

When a feature key is pressed while the attendant console is in a mode other than normal or Level 1, nothing happens.

When in the normal call processing mode, access the Level 1 mode by pressing the Shift key. The LCD indicator beside the shift key lights and remains on throughout all options and menus. , It goes out only upon return to normal call processing. All call processing keys that do not have a dual function perform normally while the console is in Level 1 mode. Press the Shift key again to return to normal call processing.

On early releases of the M1250 attendant console, press the pound (#) key to return from any menu on the display screen to the Level 1 mode. On the M2250 attendant console and later releases of the M1250, press the pound (#) key to exit from any submenu from the Options menu, or from the Diagnostics menu to normal operating mode. Press the Shift key to return to the Level 1 mode.


Level 1 mode also provides access to additional call processing features, as well as to options and maintenance features. One of the additional call processing features is access to Trunk Group Busy (TGB) keys that are locked out in normal mode. For example, in normal mode, there are eight available TGB keys on the M1250 and 10 on the M2250. With QMT2 enabled, the number of TGB keys on each console is doubled.

Table 1
Softkey alternate functions

Key	Operational mode	Function
F1	Normal	Selects line 2 of the display for scrolling.
F2	Normal	Scrolls left on the selected line, at 8 characters per step.
F3	Normal	Scrolls right on the selected line, at 8 characters per step.
F4	Normal	Selects line 3 of the display screen for scrolling.
Shift, F1	Level 1	Selects the Options menu.
Shift, F2	Level 1	Turns down the alerter speaker volume.
Shift, F3	Level 1	Turns up the alerter speaker volume.
Shift, F4	Level 1	Selects the Diagnostic menu. (A password must be entered on the M2250 before the Diagnostics menu appears.)
Example: Press Shift and F1 (in sequence)	Options menu Press dial pad key 1 Press dial pad key #	The Options menu is displayed. Accesses Contrast menu. (Refer to user guide for contrast setting routines.) Returns to Options menu.

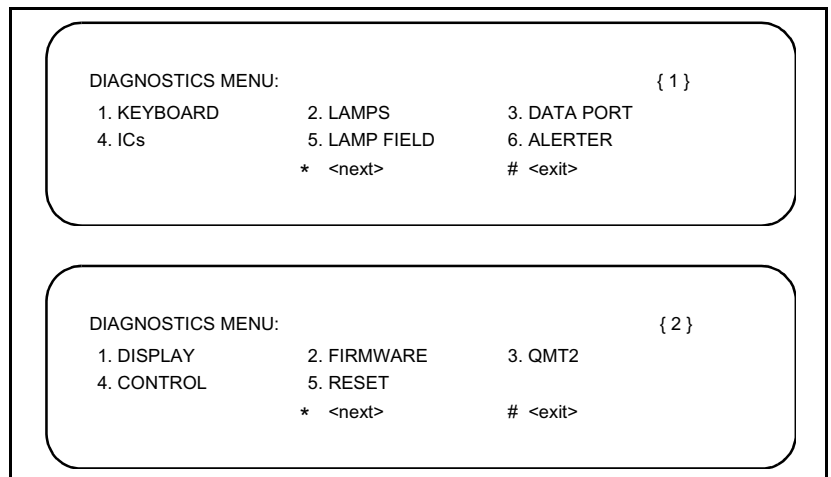
M1250/2250 console diagnostics

Use the Diagnostics menu to check the functions of the console and to perform tests. To enter the Diagnostics mode, use the following procedure. Figure 5 shows the main Diagnostics menu for the M1250 and M2250 attendant consoles.

- 1 Press the Shift key.
- 2 Press the  key (function key F4).
- 3 On M2250 consoles, enter password “9999.”
- 4 Press the asterisk (*) key to enter Diagnostics menu 1. To toggle between menu 1 and menu 2, press the asterisk (*) key.
- 5 To quit the Diagnostics mode, press the pound (#) key.

Follow the procedures listed below to perform the Diagnostic tests.

Figure 5
Console Diagnostics menus



Keyboard

Use this procedure to check the functionality of each key on the console. When a key is pressed, its location code is displayed within parentheses. For example, (00) denotes the upper left-hand ICI key.

- 1 From Diagnostics menu 1, press “1.”
- 2 Press any key on the console. The display shows the key’s location code, indicating that the key is functional. Table 2 shows the key location codes.
- 3 Press the pound (#) key to exit and return to Diagnostics menu 1.

Table 2
Key location codes for console diagnostics

		22	21	20	34		54	60	61	62		
00	10								70		80	90
01	11								71		81	91
02	12								72		82	92
03	13	23						63	73		83	93
04	14	24						64	74		84	94
05	15	25		35	45	55		65	75		85	95
06	16	26		36	46	56		66	76		86	96
07	17	27		37	47	57		67	77		87	97
08	18	28		38	48	58		68	78		88	98
09	19	29						69	79		89	99

Lamps

Use this procedure to check the functionality of each LCD indicator on the console.

- 1 From the Diagnostics menu 1, press “2.”
- 2 Press 1 to turn all lamps ON. Press the asterisk (*) to turn each lamp OFF one by one.
- 3 Press 2 to turn all lamps OFF. Press the asterisk (*) to turn each lamp ON one by one.
- 4 Press the pound (#) to exit and return to Diagnostics menu 1.

Data Port

Use this procedure to perform a loopback test on the RS-232 port at the back of the console. Before performing the test, a connector (25-way D-plug) with pin 2 shorted to pin 3 should be inserted in RS-232 port. A failure code is displayed if any error is found.

- 1 From Diagnostics menu 1, press “3.” The display shows “OK” if the test is successful.
- 2 Press the asterisk (*) to repeat the loopback test.
- 3 Press the pound (#) to exit and return to Diagnostics menu 1.

ICS

Use this procedure to check the functionality of any peripheral devices connected to the User interface printed circuit card UIP and audio and system interface printed circuit card ASIP microprocessors within the console. A failure code is displayed if any error is found.

- 1 From Diagnostics menu 1, press “4.”
- 2 Press the asterisk (*) to perform the IC test.
- 3 Press the pound (#) to exit and return to Diagnostics menu 1.

Lamp Field

Use this procedure to check the functionality of the Busy Lamp Field/Console Graphics Module. Once in this menu, the dial pad is in CGM mode. When any dial pad keys are pressed, except the pound (#) key, the keys are echoed on the BLF/CGM Module.

- 1 From Diagnostics menu 1, press “5.”
- 2 Press keys 0 through 9 and the asterisk (*) on the dial pad. Check the CGM to see that they are echoed.
- 3 Press the pound (#) to exit and return to Diagnostics menu 1.

Alerter

Use this procedure to check the pitches and volume levels of the alerter and auxiliary tone channel.

- 1 From Diagnostics menu 1, press “6.”
- 2 Follow these instructions in any order:
 - Press key “1” to turn the buzz and auxiliary tones ON.
 - Press key “2” to turn the buzz and auxiliary tones OFF.
 - Press key “3” to increase the pitch of the buzz and auxiliary tones.
 - Press key “4” to decrease the pitch of the buzz and auxiliary tones.
 - Press key “5” to increase the volume of the buzz and auxiliary tones.
 - Press key “6” to decrease the volume of the buzz and auxiliary tones.
- 3 Press the pound (#) to exit and return to Diagnostics menu 1.

Display

Use this procedure to check the functionality of the alphanumeric display panel. Cycle through a number of different display patterns to check for visual defects.

- 1 From Diagnostics menu 2, press “1.”
- 2 Press the asterisk (*) to change the display screen pattern. Continue changing the pattern until all the patterns have been cycled through.
- 3 Press the pound (#) to exit and return to Diagnostics menu 1.

Firmware

Use this procedure to display the release and issue numbers of the firmware installed on the UIP and ASIP microprocessor boards.

- 1 From Diagnostics menu 2, press “2.” The display shows the firmware release and issue numbers, as shown below:

```
DIAGNOSTICS:  FIRMWARE
                ASIP: XX XX
                UIP:  XX XX
```

- 2 Press the pound (#) to exit and return to Diagnostics menu 1.

QMT2

Use this procedure to display the current state of the QMT2 dip switch inside the console and to change the setting for verification testing (LD 31). After a change, the actual switch setting will return to its original state after a timeout period of about three minutes.

- 1 From Diagnostics menu 2, press “3”.
- 2 Press the asterisk (*) to toggle between QMT2 ON and OFF.
- 3 Press the pound (#) to exit and return to Diagnostics menu 1.

Control

Use this procedure to turn the conference bridge analog control gates, the auxiliary tone channel, and the Code Blue Relay ON or OFF. Note that the auxiliary control only affects the control gate on the ASIP board. To actually generate a tone, use the Alerter menu.

- 1 From Diagnostics menu 2, press “4.”

```
DIAGNOSTICS: CONTROL
```

```
1. SCR    2. DST    3. ARX    4. ATX    5. TON    6. REL
   { 0 }   { 0 }   { 0 }   { 0 }   { 0 }   { 0 }
   * <OFF>                                # <exit>
```

- 2 Follow the appropriate instruction below:

Press key “1” to toggle the primary control gate between ON and OFF.

Press key “2” to toggle the secondary control gate between ON and OFF.

Press key “3” to toggle the attendant receive control between ON and OFF.

Press key “4” to toggle the attendant transmit control between ON and OFF.

Press key “5” to toggle the auxiliary tone control between ON and OFF.

Press key “6” to toggle the relay control between ON and OFF.

- 3 Press the asterisk (*) to turn all the control gates OFF.
- 4 Press the octothorp (#) to exit and return to Diagnostics menu 1.

Reset

Use this procedure to perform a hard reset of the console. All devices and memory on the UIP and ASIP boards are reset as if the power cord were unplugged and plugged in again.

- 1 From Diagnostics menu 2, press “5.” The reset is performed immediately.

M1250 failure codes

A failure code will appear on the display screen in response to the detection of a hardware fault. Refer to Table 3 for an explanation of failure codes and possible solutions.

Table 3
M1250 failure codes (Part 1 of 2)

Failure code	Reason	What to do
20 H	The 6818 RTC, U6, is faulty.	Unplug the line cord and plug it in again. If the failure code still appears, there is an electrical fault in the console, and it should be returned. Note: Log the failure code with the returned unit, as the code gives an indication of which component has failed.
10 H	The RAM IC, U10, is faulty.	Same as for 20H .
08H	A key in column A is stuck.	Unplug the line cord. Free the key that is stuck. Plug in the line cord. If the failure code still appears, the console is faulty and should be returned.
09H	A key in column B is stuck.	Same as for 08H .
0AH	A key in column C is stuck.	Same as for 08H .
0BH	A key in column D0 is stuck.	Same as for 08H .
0CH	A key in column D1 is stuck.	Same as for 08H .
0DH	A key in column D2 is stuck.	Same as for 08H .

Table 3
M1250 failure codes (Part 2 of 2)

Failure code	Reason	What to do
0EH	A key in column E is stuck.	Same as for 08H .
0FH	A key in column F is stuck.	Same as for 08H .
C0H	The SRC micro is not responding.	Same as for 20H .
90H	The RS-232 port has failed the loopback test.	Check to see if the loopback connector is inserted. If not, insert it and perform the loopback test again. If the failure code still appears, turn the console off and on while the connector is inserted. Redo the loopback test. If the failure code still appears, the console is faulty and should be returned.
88H	The EPROM, U18, does not contain the correct ID, or is faulty.	Same as for 20H .

The failure codes produced by the firmware are bit-significant, as follows:

B7	B6	B5	B4	B3	B2	B1	B0
0	USART	RTC	RAM	KEYS	c2	c1	c0*
1	SRC	BLF	RS232	EPROM	0	0	0
* Refers to key's column number.							

In most instances, the failure code accurately identifies the faulty hardware component. However, if the microprocessor is faulty, the readings may be unreliable or misleading.

Failure code 90H is always shown if the loopback test has not been performed. Refer to “Data Port” on page 37.

M2250 failure codes

A failure code appears on the display in response to the detection of a hardware fault.

Refer to Table 4 for an explanation of failure codes and possible solutions.

Table 4
M2250 failure codes (Part 1 of 2)

Failure code	Printed circuit pack (PCP)	Reason	What to do
40H	UIP	The PSG, U13, is not responding.	Unplug the line cord and plug it in again. If the failure code still appears, there is an electrical fault in the console, and it should be returned. Note: Log the failure code with the returned unit, as it gives an indication of which component has failed.
20H	UIP	The RTC, U16, is faulty.	Same as for 40H .
10H	UIP	The RAM IC, U1, is faulty.	Same as for 40H .
08H	UIP	A key in column A is stuck.	Unplug the line cord. Free the key if it is stuck. Plug in the line cord. If the failure code still appears, the console is faulty and should be returned.
09H	UIP	A key in column B is stuck.	Same as for 08H .
0AH	UIP	A key in column C is stuck.	Same as for 08H .
0BH	UIP	A key in column D0 is stuck.	Same as for 08H .

Table 4
M2250 failure codes (Part 2 of 2)

Failure code	Printed circuit pack (PCP)	Reason	What to do
0CH	UIP	A key in column D1 is stuck.	Same as for 08H .
0DH	UIP	A key in column D2 is stuck.	Same as for 08H .
0EH	UIP	A key in column E is stuck.	Same as for 08H .
0FH	UIP	A key in column F is stuck.	Same as for 08H .
A0H	ASIP	The RS-232 has failed the loopback test.	Check to see if the loopback connector is inserted. If not, insert it and perform the loopback test again. If the failure code still appears, turn the console off and on while the connector is inserted. Perform the loopback test again. If the failure code still appears, the console is faulty and should be returned.
90H	ASIP	ASM A44#3, U1, is faulty.	Same as for 40H .
88H	ASIP	Secondary A44#2, U2, is faulty.	Same as for 40H .
84H	ASIP	Primary A44#1, U1, is faulty.	Same as for 40H .
82H	ASIP	The UART, U5, is faulty.	Same as for 40H .
81H	ASIP	The RAM, U8, is faulty.	Same as for 40H .

The failure codes produced by the firmware in response to the detection of a hardware fault are bit-significant as follows:

B7	B6	B5	B4	B3	B2	B1	B0
0	PSG	RTC	RAM	KEYS	c2*	c1*	c0*
1	ASIP	RS-232	A44#3	A44#2	A44#1	UART	RAM

* Refers to key's column number.

Note: Bit 7 indicates whether the failure occurred on the user interface printed circuit card (UIP) (B7=0) or on the audio and system interface printed circuit card (ASIP) (B7=1).

In most instances, the failure code accurately identifies the faulty hardware component. However, if the microprocessor is faulty, the readings may be unreliable or misleading.

Failure code A0H is always shown if the loopback test has not been performed. Refer to “Data Port” on page 37.

Attendant console features

Time and date

On the M2250 only, the time and date are automatically downloaded from the Meridian 1 on power-up or console reset.

To set the time and date locally on the M1250 attendant consoles, follow the procedures in Tables 5 and 6.

On the M2250 console, the time and date are downloaded by the switch whenever it runs a lamp audit. Only the visual format can be changed.

Table 5
Setting the time (M1250)

Step	Action	Response
1	Press the Shift key.	The Shift indicator goes on.
2	Press F1 to enter the Options menu.	
3	Select option 4 (set time).	The current time appears in the 24-hour format (hours: minutes: seconds).
4	To exit without changing the time, press the octothorpe (#) key. To enter a new time, use the dial pad keys to overwrite the displayed settings.	When the new time is typed in, the cursor moves from position to position and then to the next entry field. If more than six digits are entered, the cursor returns to the hour field.
5	To put the new time setting into effect, press the asterisk (*) key.	After pressing the asterisk (*) key, the time entered is checked for correct (24-hour) format. If it is legal, the real-time clock changes to the setting entered; if it is illegal, the current real-time clock settings are redisplayed.
6	To exit, press the octothorpe (#) key.	

Table 6
Setting the date (M1250)

Step	Action	Response
1	Press the Shift key.	
2	Press F1 to enter the Options menu.	
3	Select option 5 (set date).	The current date appears in the day-month-year format.
4	To exit without changing the date, press the octothorpe (#) key. To enter a new date, use the dial pad keys to overwrite the displayed settings.	As in the new date is typed in, the cursor moves from position to position and then to the next entry field. If more than six digits are entered, the cursor returns to the day field.
5	To put the new date setting into effect, press the asterisk (*) key.	After pressing the asterisk (*) key, the date entered is checked for correct format. If the format is legal, the real-time clock changes to the setting entered; if it is illegal, the current real-time clock settings are re-displayed.
6	To exit, press the octothorpe (#) key.	

Trunk Group Busy indicators

Trunk Group Busy (TGB) indicators show the status of each group of trunks. If a TGB indicator is on steadily, the attendant has busied out all trunks in that group by pressing the Shift key plus the TGB key. If a TGB indicator is flashing, all the trunks in that group are actually busy.

In Supervisory mode, TGB indicators show the status of other consoles in the customer group. If the indicator is off, the attendant position is in a Position Busy mode. When an indicator associated with a particular attendant is on, the attendant is available to service calls.

Note: The M2250 attendant console must be equipped with the Attendant Supervisory Module (NT7G10AA) to allow attendant supervision.

Incoming Call Indicators

Incoming Call Indicators (ICIs) display the various types of incoming calls presented to the attendant console. They also indicate the number of calls, and the length of time calls have been queued.

- If the indicator is on, one call has been queued for less than a certain length of time (as defined by software).
- If the indicator is flashing, one call has been queued for more than the defined length of time, or there is more than one call in the queue.

Night service/busy

When the Shift key is off, pressing the Busy key puts the attendant console into Position Busy mode. When the Shift key is on, pressing the Busy key puts the console into Night Service mode. To return to normal operating mode, press the Busy key again.

In a multiconsole system, activating Night Service mode will busy out all attendant consoles in the system.

Enhanced Night Service

This feature allows Public Network (Central Office [CO], Direct Inward Dial [DID], Foreign Exchange [FEX], and Wide Area Telephone service [WAT]) trunks to be assigned to specific Directory Numbers (DN) during Night Service.

With this feature each customer will be able to assign Public Network trunks to one of nine Night Groups. Each Night Group will allow the customer to define up to nine Night DNs. During Night Service incoming calls will be routed to one of the Night DNs defined for the group. The actual DN the call will be routed to is determined by the Night Service Option number selected at that time.

The customer will also be able to define whether Night Call Waiting tone will be given to Night stations. With Night Call Waiting tone allowed, busy Night stations are notified when an incoming call is terminating on them. The incoming call will be queued on the Night station until it becomes idle. When the Night station becomes idle, the incoming call will be presented.

This enhancement allows incoming DID trunks to be queued against busy Night stations, thereby making the operation of the DID trunks the same as for all other Public Network trunks.

Attendant Blocking of DN

The Attendant Blocking of DN (ABDN) feature enables the attendant to block a DN for a telephone from receiving or making calls. This is particularly useful when a caller dials the attendant DN and requests an external (long distance) call. If the caller chooses to disconnect until the attendant successfully places the call, the requesting DN becomes idle and can receive or make calls. Therefore, the requesting DN could be busy when the attendant establishes the requested call.

To prevent the requesting DN from being busy when the requested call is completed, the attendant can block the DN from making or receiving calls. To callers attempting to contact the blocked DN, the line appears busy. To a caller attempting to use the blocked DN, the line is connected to the attendant.

When the attendant completes the external call, the attendant can call the blocked DN and extend the call. This feature applies to both stand-alone and ISDN network environments.

The Attendant Blocking of DN feature is available on the M2250 and M1250 attendant consoles. It is not valid on 2616 telephones used as attendants on Option 11 systems. It applies to the following systems: Meridian 1; Options 11C, 51C, 61C, and 81C.

Attendant and Network Wide Remote Call Forward

This modification to the Remote Call Forward feature (RCFW) allows a user to program a call forward Directory Number from any attendant console or station throughout the network. A new RFW key on the attendant console allows an attendant to view any station's call forward status and to activate or deactivate call forward for a station.

Refer to *Networking Features and Services* (553-2901-301) for further details.

Network Attendant Services

This feature allows attendant services to be distributed anywhere within a Meridian ISDN network. If, at the time of an attendant request, attendant services are not available at a station's local node, connection to an attendant at a remote node takes place. Call treatment is the same as for a connection to a local attendant node.

Call processing

The attendant answers an incoming call by pressing the flashing loop key.

To answer a specific type of incoming call, press the ICI key next to the appropriate ICI indicator. This removes the call from the queue and presents it to the attendant.

ICI key assignments

An ICI key may be assigned more than one call type. Refer to *Administration* (553-3001-311). If the Attendant Call Party Name Display (ACPND) feature is equipped, all incoming calls are displayed by calling party name or external call source. Examples of possible ICI key assignments and displays are given in the following listing.

- **Attendant Intercept** indicates that a call is being made by a station to a facility to which that station is restricted, and the call has been routed to the attendant console.
- **Listed Directory Numbers (maximum four)** indicates that a call is being made to an attendant console associated with one of the listed directory numbers.
- **Dial 0** indicates that a station that is not fully restricted has dialed 0.
- **Fully Restricted Station** indicates that a fully restricted station has dialed 0.
- **Foreign Exchange** indicates that the incoming call is from a foreign exchange.
- **Wide Area Telephone Service** indicates that the incoming call originated at a wide area telephone exchange.

- **Recall** indicates that a camped-on call or a call extended to an idle station has not been answered for 30 seconds or that a station is recalling the attendant.
- **Call Forward** indicates that the call is being forwarded to the console from a station within the system.
- **Tie Trunk** indicates that the incoming call is on a tie trunk.

Operating keys

The operating key/lamp strips CI/CK, DI, EI, and FI/FK allow the attendant to process calls from the console.

Key/lamp strips CI/CK and FI/FK have permanently assigned functions as given in the following list.

- **Release** allows the attendant to release a call presented to the console. When the LCD associated with the RLS key is lit, it indicates that no incoming calls are being presented to the console.
- **Loop Keys/Lamps** allow the attendant to answer and originate calls from the console. The first call in the incoming queue is automatically presented to an idle loop key. Subsequent calls are queued and presented to a loop key when a loop becomes idle. Call selection is made by pressing the required ICI key. This action causes the call, which was automatically presented to the loop key by the system, to be replaced by the selected incoming call. In all cases, when the loop key is pressed, all ICIs go dark except the one associated with the call presented to the loop key.
- **Position Busy** enables the attendant to put the console in Position Busy mode. All calls directed to a console in Position Busy mode are redirected to a free console in multiconsole installations or to the night connection in single console installations. When a console is in Position Busy mode, "BUSY" is shown on line 4 of the display.
- **Night Service** permits incoming calls to the attendant to be routed to a preselected station. The Night Service key enables the attendant to assign the Night Directory Number (DN) and to initiate Night Service. When assigning the Night Service DN, "NIGHT" flashes on line 4 of the display. When Night Service is on, "NIGHT" appears without flashing on the display.

- In a multiconsole system, activating Night Service will busy out all attendant consoles in the system.
- **Hold** allows the attendant to hold an active call at the console while serving other calls.
- **Conference** permits the attendant to set up a conference of up to five conferees plus the attendant.
- **Release Destination** allows the attendant to release the called party from a call held at the console while holding the calling party.
- **Release Source** allows the attendant to release the calling party from a call held at the console while holding the called party.
- **Signal Source and Destination** allows the operator to recall either party to a call held on the console.
- **Exclude Destination** excludes the called party from an established call held at the console, allowing the attendant to speak privately with the calling party.
- **Exclude Source** excludes the calling party from an established call held at the console, allowing the attendant to speak privately with the called party.

Feature keys

Any of the keys on keystrip FK can be assigned any of the optional features in the list that follows except the Barge-In and Busy Verify features. These require five LCD indicator states (off, on, and flash at 30, 60, or 120 impulses per minute). If Barge-In or Busy Verify is required, it must be assigned to keys FK-0 and FK-1.

All other features may be assigned to any of the keys on strip FK. Refer to *Administration* (553-3001-311) for additional information. The following are some of the more common feature keys:

- **Attendant End to End Signaling** enables the attendant to send dual tone multifrequency (DTMF) signals to either the source or destination party.
- **Busy Verify** allows the attendant to confirm that a station returning a busy signal is actually being used.

- **Barge-In** allows the attendant to enter an established trunk connection for the purpose of talking to one or both parties.
- **Paging** allows access to a public address facility.
- **Speed Call** allows numbers to be dialed automatically by pressing the SPEED CALL key and dialing a 1- or 2-digit code.

Call Waiting indicator

The Call Waiting indicator indicates that there is a queue of calls to be answered. When one or more calls are waiting, “CW” appears on line 4 of the display. The CW display changes from steady to flashing when waiting calls exceed a certain number or when a call has been waiting longer than a specified time.

The maximum number of waiting calls and the maximum hold time for each waiting call to be answered can be set with a data administration task. Refer to *Features and Services* (553-3001-306) for more information.

An optional buzz is available to indicate when the first call enters the queue. The number of waiting calls can be viewed on the LCD screen by pressing a key assigned on the attendant console. On the M2250, the number of waiting calls can be displayed continuously on line 4 of the display, if defined in LD15 and selected from the Options menu.

Alarm indicators

Alarms appear on line 4 of the display. “MN” indicates a minor alarm condition; “MJ” indicates a major alarm. A minor alarm is an indication of a minor system failure affecting a limited number of lines or trunks. A major alarm indicates that Emergency Transfer may have been initiated. See “Emergency Transfer” on page 53.

Emergency Transfer

If a major equipment or power failure halts local call processing, preselected CO trunks are automatically connected to preselected stations (predetermined and hard-wired at installation time) through relays in the Meridian 1. Emergency Transfer can also be activated manually by a switch underneath the attendant console.

If the switch is activated while the console has power, the word “EMERGENCY” appears on line 4 of the display.

Attendant Administration

Attendant Administration is an optional feature that allows the attendant to modify some of the features assigned to selected telephone sets within the attendant’s customer group. The attendant can enter a special program mode with an assigned key.

Once in the program mode, the console key/lamp strips have different functions from those during normal call processing. A plastic overlay can be placed over the console keyboard to identify the altered key functions. Refer to *Features and Services* (553-3001-306) for Attendant Administration description and operating procedures.

Collect Call Blocking

The Collect Call Blocking feature enables a Meridian 1 administrator to block long distance collect call service calls on incoming Direct Inward Dialing (DID) and Public Exchange/Central Office trunks (analog or DT12).

Under the following conditions, the Meridian 1 sends a special answer signal to the Central Office to indicate that collect calls cannot be accepted:

- The Collect Call Blocking (CCB) package 290 is enabled
- The incoming route has CCB enabled via the CCB prompt in the Route Data Block
- The call is answered by a CCB user (i.e., Collect Call Blocking Allowed Class of Service or option)

New classes of service and prompts have been introduced to inhibit specific users from receiving collect DID and Central Office calls. These can be configured for the following:

- PBX and BCS through the Collect Call Blocking Allowed/Denied (CCBA/CCBD) option
- Attendant and Network Alternate Route Selection calls on a per customer basis through CCBA/CCBD option
- Automatic Call Distribution (ACD) queues through the CCBA prompt

- Direct Inward System Access (DISA) through the CCBA prompt
- Tandem calls dialed with Coordinated Dialing Plan (CDP) (Trunk Steering Code, Distant Steering Code) through the CCBA prompt
- Tandem non-CDP calls through the CCBA prompt in the Route Data Block from the outgoing trunk route

When a call is answered by a CCB user, the Meridian 1 sends the CCB answer signal in place of the regular signal for incoming DID/CO calls from the routes with CCB enabled. If the call is a collect call, The CO will disconnect the call.

Alarm Management

The Integrated Alarm Management feature is a series of subfeatures which improve the handling of key alarm messages generated by the Meridian 1 system and its Application Processors.

It also clarifies existing alarm messages and makes Attendant Console alarm lamp signals more meaningful. The Meridian 1 system has three levels of alarm: critical, major, and minor. The Attendant Console alarm lamp will light when critical alarms occur.

Digital Trunk Interface – CIS

The CIS DTI trunk feature provides connectivity between the Meridian 1 and digital trunks used in the Commonwealth of Independent States (CIS).

The CIS 2Mbps DTI feature is designed to allow the Meridian 1 to connect digital DID/COT trunks to a CIS Local Central Office and to a CIS Toll Exchange (through Local CO and Public Network, or directly for incoming toll call connections). This link supports DID/COT trunking types, and requires that the Meridian 1 be equipped with at least one CDTI2/CSDTI2 digital trunks pack, as well as associated software.

DPNSS Executive Intrusion

Executive Intrusion (EI) allows an originating party to break into an established call between two other parties (the wanted and the unwanted parties) under certain circumstances. If intrusion succeeds, a conference takes place on the wanted node between the originating, wanted and unwanted parties.

EI succeeds in breaking into the call based on comparisons between the Intrusion Capability Level (ICL) of the originating party and the Intrusion Protection levels (IPL) of the wanted and unwanted parties.

The Meridian 1 implementation provides Executive Intrusion from Attendant Consoles. Executive Intrusion from Telephone Sets is not supported. However, a Meridian 1 PBX will accept an EI activation request from an ordinary set on a third party PBX.

Attendant Monitor

Attendant Monitor is a customer-defined option which allows the attendant to monitor – in listen only mode – any established call involving a set or trunk on the customer with or without the connected parties being aware that monitoring is taking place (depends on the configuration of the new customer tone option).

The differences between the existing Busy Verify and Barge-in features and the Attendant Monitor feature are the following:

- Attendant Monitor provides a listen only path for the attendant.
- There is no click sound given to the connected parties upon Attendant connection when the no tone option is configured.
- The tone to the connected parties may or may not be given depending on the new customer tone options for Attendant Monitor.
- The display (if there is one) on any of the parties involved in the calls does not indicate that the Attendant is monitoring.

Busy Verify and Barge-in Enhancement

Attendant Monitor changes the operation of Busy Verify and Barge-in slightly. Tone is now configurable. Busy Verify and Barge-in restrictions relating to the Warning Tone Allowed/Denied class of service apply to Attendant Monitor as well.

Attendant Forward No Answer

Attendant Forward No Answer allows two enhancements to existing operations. The first enhancement permits calls presented to the attendant to forward to a second attendant or the night DN when a customer-defined time expires. The second enhancement allows DID or CO calls to any set during night service to disconnect if not answered within a predefined number of ring cycles.

Attendant Forward No Answer is selectable on a customer basis, and is included in the package 134, AFNA.

Semi-Automatic Camp-On

Semi-Automatic Camp-On is an option to the current camp-on operation. When the party to which a call is camped-on becomes free, the attendant is recalled first instead of the wanted party being rung immediately. The modification is implemented under the Semi-Automatic Camp-on (SACP) package.

When an external call is camped on to a busy DN by an attendant or a set, the called party receives a buzz (for SL1 sets) or a burst of tone (for 500/2500-type sets) indicating camp-on. Without SACP, if the called party becomes idle within a customer-defined time, the camped-on call rings the station immediately.

With SACP, if the called party becomes idle, the camped-on call recalls the attendant instead of ringing the called party. The called party meanwhile is kept busy from receiving any calls (but is still able to originate calls).

A new programmable key, the Semi-Automatic Camp-on Recall (SACP) key is introduced with the SACP feature. When a recall is presented to the console, the RECALL ICI lamp and the SACP lamp light up. After answering the recall from the calling party, the attendant can ring the called party by pressing the SACP key. The attendant can then hold the call on the console, or release the call as usual.

When the attendant tries to present the call (after it has recalled to the attendant) to the wanted party, this party may have originated another call. In that case, the attendant receives the indication that the set is busy, and can then camp-on the call again or release it, as usual. On a second camp-on, the attendant must activate the SACP feature again, if needed.

The SACP feature is active either for all camped-on calls or on a per-call basis depending on the customer option. When the per-call basis is chosen, the attendant activates the feature by pressing the SACP key before camping-on the call. If the SACP key is pressed twice, the associated lamp goes dark, and the SACP feature becomes inactive for the call.

Series Call

The Series Call feature causes a source call (either an attendant-answered incoming call, or an attendant-originated trunk call), that has been extended to an internal destination party, to be recalled to the attendant when the destination party hangs up. The attendant can then send the source call to another destination party. This feature enables a caller to talk to more than one party without having to disconnect and call again. Recall to Same Attendant must be allowed, otherwise the recall is routed to the first available attendant. This process can be repeated for as many destinations as requested by the caller.

A Series Call is canceled if one of the following occurs:

- the attendant presses the SECL key while the associated lamp is lit
- the attendant extends the source to a trunk while the SECL lamp is lit
- the attendant enters Night Service after extending the call and prior to receiving the recall
- the destination is call forwarded to a trunk
- the source disconnects

Powering and reset

After a power failure or a temporary corruption of data, the M1250/2250 attendant console is reset automatically.

If a permanent fault condition is detected, the console enters the maintenance mode (Position Busy), and a failure message is displayed on the LCD screen.

Note 1: The failure code format is XXH, where XX is a two-digit hex-code indicating where the fault has been detected. Refer to Tables 3 and 4 for explanations of the failure codes.

Note 2: When the BLF/CGM is attached to the console, an additional 16 V unregulated power source is required.

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Meridian 1
Attendant Consoles
Description

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