



# **DIGITAL Family of Systems Administration, Installation and Upgrade Addendum**

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76-110-0175/G, Issue 2



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# **DIGITAL Family of Systems Administration, Installation and Upgrade Addendum**



Telrad Networks, Inc.  
Woodbury, New York

## NOTICE

The information in this addendum refers to the Telrad DIGITAL family of telephone systems' the DIGITAL 26 system, DIGITAL 32 system, DIGITAL KEY BX system (Release SB7), the DIGITAL 400 system (Release DB7), and the DIGITAL 1000 system (Release LB7), January 2000. Telrad, Ltd., reserves the right to make changes in the equipment described in this manual without notification. However, changes in the equipment do not necessarily render this manual invalid. Additional copies of this manual may be obtained from Telrad, Ltd. Reproduction of this manual or parts thereof, without written permission from Telrad, Ltd., is strictly prohibited.

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ImaGEN	Telrad Telecommunications, Inc.		

## FCC Regulations Warning

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user should contact the Telrad Field Service Department, at the telephone number listed below, to correct the interference problem. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of the FCC Rules which are designed to provide reasonable protection against such interference when operated in a commercial environment.

### Registration

The Telrad DIGITAL Family systems are registered with the FCC based upon compliance with part 68 of its rules. Connection of these systems to the nationwide telecommunications network is made through a standard network interface jack, which you can order from your telephone company. Jacks for this type of customer-provided equipment will not be provided on party lines or coin lines.

### Hearing Aid Compatibility

DIGITAL family telephones are Hearing Aid compatible, as defined in Section 68.316 of Part 68 FCC Rules.

### Telephone Company Registration

It is usually not necessary to call the telephone company with information on the equipment before connecting the DIGITAL family system cabinet to the telephone network. But, if the telephone company should require this information, provide the following:

FCC Registration Number (on label affixed to cabinet):	- Key system	ARAI SR-18430-KF-E
	- Multi-function (Hybrid Key/PBX) system	ARAI SR-18427-MF-E
AC Ringer Equivalence Number:		2.4B
USOC Jack:		DB15, RJ2EX, RJ2FX, RJGX, RJ2HX, RJ21X, RJ48C
Service Order Code (SOC):	- for off premise extensions and all analog trunk cards except the DID card	9.OF
	- for DID cards	AS.2
	- for digital trunks	6.OP
Facility Interface Code (FIC):	- Central Office Ground-start trunk	02GS2
	- Central Office Loop-start trunk	02LS2
	- Direct Inward Dialing	02RV2-T
	- Off-premises extension	OL13C
	- Primary Rate Interface (PRI24)	04DU9-1SN
	- DPNSS/QSIG Interface (N24 and N12)	04DU9-1SN
	- Basic Rate Interface (BRT and BHT)	04DU9-1SN
	- T1 (Digital Trunk) 04DU9-BN, 04DU9-DN, 04-DU9-1KN, 04DU9-1SN, 04-DU9-1ZN	
	- E&M (Tie Trunk Interface -- 2-wire)	RJ2EX, RJ2FX
	- E&M (Tie Trunk Interface -- 4-wire)	RJ2GX, RJ2HX

### Rights of the Telephone Company

If the system is determined to be causing harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, the telephone company will notify you as soon as possible. You will be given the opportunity to correct the situation and you will be informed of your right to file a complaint to the FCC. Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your system. If it does this, you will be notified in advance to give you the opportunity to maintain uninterrupted telephone service.

In the event of an equipment malfunction, all repairs will be performed by Telrad Telecommunications, Inc., or by one of its authorized dealers.

### Address of repair facility in the USA

Telrad Service Center, 135 Crossways Park Drive, Woodbury, NY 11797. Phone: 1-516-921-8300.

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# Section 1

## INTRODUCTION

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### 1.1 GENERAL

---

This addendum provides the procedures for installing and programming Release SB7 of the DIGITAL KEY BX system and Release DB7 of the DIGITAL 400 system that are not covered in the Release SB6/DB6 DIGITAL Installation manual and the Release SB6/DB6 DIGITAL Administration manual.

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### 1.2 PRODUCT DEFINITION

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The DIGITAL KEY BX and DIGITAL 400 systems are highly flexible digital telephone systems. Release SB7 of the DIGITAL KEY BX system provides enhanced software and hardware for the 128 port digital telephone system. Its many features can be tailored to your exact specifications and can be modified at any time to match your organization's changing needs. Release DB7 of the DIGITAL 400 system provides enhanced software for a larger telephone system, built on the success of the DIGITAL KEY BX system.

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### 1.3 ADDENDUM STRUCTURE

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The addendum includes the following sections:

#### **Section 1 Introduction**

This section provides a brief product definition and a general explanation of the scope, intended audience, and contents of this addendum.

#### **Section 2 Installation**

This section provides instructions for the installation of Release 7 not covered in the Release 6 Installation manual.

#### **Section 3 Administration**

This section provides instructions for the programming of Release 7 not covered in the Release 6 Administration manual.

#### **Section 4 Upgrade procedures**

This section confirms that there are only minor changes in the upgrade procedure for Release 7, provides instructions for upgrade programming, and refers the user to the Release 6 Upgrade manual.

### **Appendix A Summary of programming changes**

This appendix provides a summary of the new fields and new values used in programming the configuration file for the Release 7 DIGITAL systems.

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## **1.4 INTENDED AUDIENCE**

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This addendum is intended for the DIGITAL KEY BX and DIGITAL 400 System Administrator, the installation technician, and the technical support staff.

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## **1.5 APPLICABLE DOCUMENTATION**

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This addendum is to be used together with the SB6/DB6 and SB7/DB7 documentation, as follows:

**Feature description** (Catalog No. 76-110-0690/F) contains a detailed explanation of the DIGITAL KEY BX and DIGITAL 400 systems features and services.

**Hardware description** (Catalog No. 76-110-0685/F) contains a detailed explanation of the DIGITAL KEY BX and DIGITAL 400 systems hardware.

**Operating instructions** (Catalog No. 76-110-0165/F) provides operating instructions for digital telephone sets, Telrad analog key telephones and Single Line Telephones.

**Installation manual** (Catalog No. 76-110-0410/F) contains a detailed explanation of the hardware installation, power up and functional verifications of the system.

**Maintenance manual** (Catalog No. 76-110-0170/F) includes a testing and maintenance guide and provides instructions for diagnostics and troubleshooting.

**Administration forms** (Catalog No. 76-110-0405/F) contains copies of the administration forms.

**Integrated SMDR manual** (Catalog No. 83-110-0270/D) contains a detailed explanation of Integrated Station Message Detail Recording (SMDR) call accounting, including its hardware and software installation.

**ACD system manual** (Catalog No. 76-110-0430/F) contains an explanation of the Automatic Call Distribution (ACD) call system, including an explanation of functions and hardware installation, system configuration, and operation.

**Universal Data Card manual** (Catalog No. 79-125-0410/E) contains a description of the Universal Data Card and describes the hardware installation, software configuration, operation and applications of the card.

**Feature description addendum** (Catalog No. 76-110-0690/G) contains a detailed explanation of the system features and services that are new to Release 7 of the DIGITAL KEY BX and DIGITAL 400 systems.

**Operating instructions** (Catalog No. 76-110-0165/G) provides operating instructions for digital telephone sets, Telrad analog key telephones and Single Line Telephones.

**ImaGEN Integrated voice messaging system manual** (Catalog No. 83-130-8050/J) contains an explanation of ImaGEN, including an explanation of ImaGEN capabilities and features, as well as installation, maintenance and programming instructions.

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## 1.6 CONVENTIONS

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### 1.6.1 Terminology conventions

This addendum refers to the DIGITAL KEY BX system and the DIGITAL 400 system. These two systems are referred to in this addendum as the DIGITAL systems or the DIGITAL family of systems, depending on the context.

The DIGITAL KEY BX and DIGITAL 400 systems supports three types of telephones:

- Avanti telephones, referred to in this addendum as Avanti telephone sets.
- Digital telephones, referred to in this addendum as DIGITAL telephone sets.
- Single line analog telephones, referred to in this addendum as single line telephones or SLTs.

### 1.6.2 Typographic conventions

Throughout this manual, the following typographical conventions have been used:

- Text to be entered at the computer keyboard is shown like this: **128, name, Sunday**.
- Names of screens or menus appear, in capital letters, like this: **ONLINE CONFIGURATION** Screen.

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# Section 2

## INSTALLATION

---

### 2.1 GENERAL

---

The installation of Release SB7/DB7 DIGITAL systems is the same as that of Release SB6/DB6, except for those features described in this addendum.

Refer to the Release SB6/SB7 DIGITAL Installation manual.

**NOTE**

There is no technician station in Release SB7/DB7 DIGITAL systems.

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### 2.2 ULD AND UHD CARDS

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The ULD card provides an interface between the system and Avanti telephone sets and their add-ons (DSS consoles, SLTs, or RS232 data cards). There is no limit on the number of ULD cards in the system.

The **ULD** card supports: 16 Avanti telephones and their add-ons.

The **UHD** card supports: 8 Avanti telephones and their add-ons.

These cards are ready to install.

Figure 2-1 indicates the location of EMI and RFI contacts and the LED on the ULD and the UHD cards.

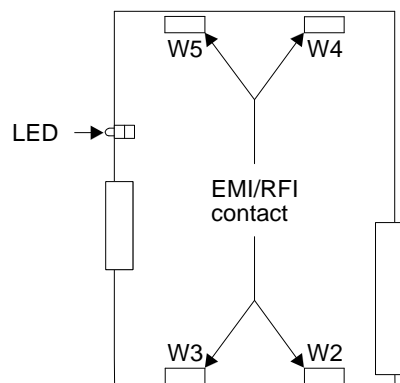


Figure 2-1 ULD and UHD cards

**ULD power limitation**

- Maximum 5 watt for 5 V
- Maximum 110 watt for 48 V

It is recommended that unused ULD ports be the last ports on the card.

**RS232 connector**

The ULD card has an RS232 socket for connection to a PC. The pins are the same as for an ELD card (RX TX GND). The RS232 port supports 19200 bps.

**LEDs**

There is a LED on the ULD card for the ULD controller. The indications are as follows:

- steady red - from the time that the card is plugged in until the initialization process is complete.
- blinking - (900 msec on, 100msec off) during regular operation.
- flashing - (100 msec on, 1000 msec off) when the card is out of service.

**MDF connector**

The ULD card has a 50 pin connector (J2) to be used as a front connector to the MDF.

The pin layout is provided in Table 2-1.

The Avanti telephones can be wired to the ULD or UHD card using two wires (designated U+ and U- on Table 2-1) or four wires (designated U+, U-, GROUND, and -48V on Table 2-1). With the two-wire connection the ULD and UHD cards support 16 and eight Avanti telephones, respectively. The the four-wire connection can be used for eight Avanti telephones on the ULD card or four on the UHD card.

With a four-wire connection, the distance that the telephones can be from the system cabinet is increased, with certain configurations (see Section 2.3.1).

**NOTE**

The polarity of the telephone wiring is not significant.

Table 2-1: ULD card MDF connector J2

Pin No.	Port No.	Port Function
1	P1	U+
2	P2	U+
3	P3	U+
4	P4	U+
5	P5	U+
6	P6	U+
7	P7	U+
8	P8	U+
9	P9	U+
10	P10	U+
11	P11	U+
12	P12	U+
13	P13	U+
14	P14	U+
15	P15	U+
16	P16	U+
17	SPARE	SPARE
18	P1	GROUND
19	P2	GROUND
20	P3	GROUND
21	P4	GROUND
22	P5	GROUND
23	P6	GROUND
24	P7	GROUND
25	P8	GROUND
26	P1	U-
27	P2	U-
28	P3	U-
29	P4	U-
30	P5	U-
31	P6	U-
32	P7	U-
33	P8	U-
34	P9	U-
35	P10	U-
36	P11	U-
37	P12	U-
38	P13	U-
39	P14	U-
40	P15	U-
41	P16	U-
42	SPARE	SPARE
43	P1	-48V
44	P2	-48V
45	P3	-48V
46	P4	-48V
47	P5	-48V
48	P6	-48V
49	P7	-48V
50	P8	-48V

## 2.3 AVANTI TELEPHONE SETS AND OPTION MODULES

### 2.3.1 Avanti telephone set configuration options

Table 2-2 shows the maximum configuration distances for Avanti sets wired with 24 AWG wire. These distances are valid when the add-on units receive their power from the DIGITAL system's power supply.

#### NOTE

When the add-on units are powered by an auxiliary power adapter, maximum distance is 1500 meters for all configurations, except for the two-wire fully duplex station, which has a maximum configuration distance of 1100 meters.

Table 2-2: Maximum configuration distances for Avanti telephone sets (in meters) - 24 AWG wire

Configuration	Avanti set	Avanti set with one add-on	Avanti set with two add-ons
Two-wire half-duplex station	1500	900	600
Two-wire full-duplex station	1100	700	500
Four-wire half-duplex station	1500	1500	1200
Four-wire full-duplex station	1500	1400	1000

### 2.3.2 Data card options

There are three types of data cards available for Avanti telephone sets:

- The Avanti *APPLync* card, for use with ACD I.Q.;
- The Avanti *DATAync* card, for use with TAPI;
- The CoOperate card, for use with TSAPI.

The data cards can be installed in the following telephone sets:

- Avanti 3025
- Avanti 3020F and Avanti 3020H
- Avanti 3015DF and Avanti 3015DH
- Avanti 3015H.

Unlike DIGITAL telephone sets, each of these data sets has only one RS232 connector.

#### Avanti *APPLync* card

The Avanti *APPLync* card uses a special protocol for PC applications, such as ACD I.Q.

In PC application mode, data transfer is over the DIGITAL system's D channel. This is the default work mode.

Data is transferred from the PC application via the PC RS232, the data card RS232, the U bus D channel, the ULD card, and the system LAN toward any DIGITAL system resource address.



### **CoOperate card**

The CoOperate card uses a special protocol for PC applications, such as TSAPI.

In PC application mode, data transfer is over the DIGITAL system's D channel. This is the default work mode.

Data is transferred from the PC application via the PC RS232, the data card RS232, the U bus D channel, the ULD card, and the system LAN toward any DIGITAL system resource address.

### **Avanti DATAync card**

This card supports TAPI applications. It has only one mode of operation - TAPI mode - in which signaling transfer is over the SBS D channel.

### **Protocol**

All data cards support proprietary commands for signaling purposes between the PC and the data card.

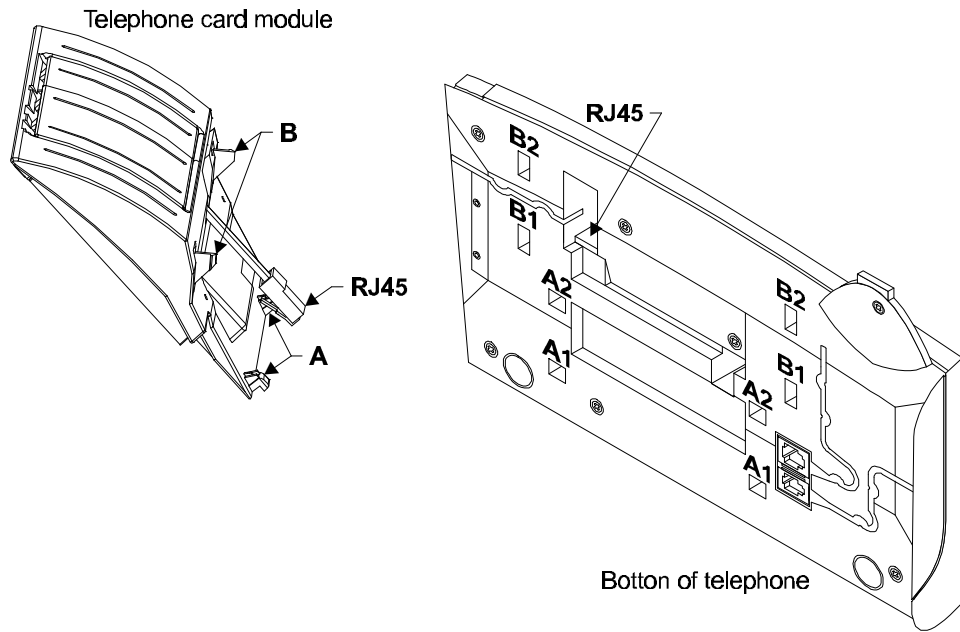
### **Features not supported by Avanti telephone sets**

- Keynet application
- Basic TAPI (CSV)
- Modem interface
- v110, 120 protocols
- technician set.

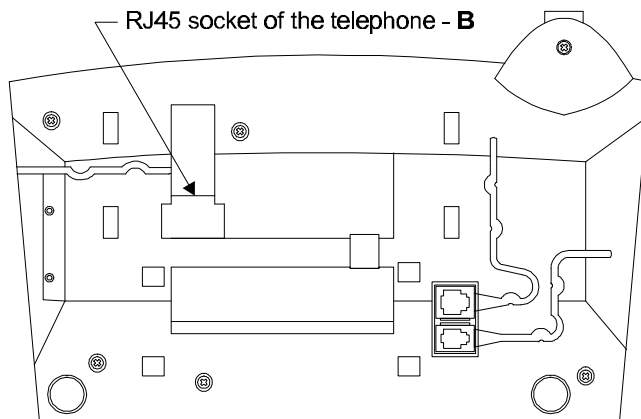
## **2.3.3 Connecting the option module or stand to the Avanti telephone set**

An Avanti telephone set can support various option modules or it can rest on a stand. The following procedures explain how to install the desired option module. Follow steps 2 and 3 to install the telephone stand.

1. Insert the RJ45 connector on the free end of the cable (marked RJ45 in Figure 2-2) on the option module into the RJ45 socket of the telephone, as shown in Figures 2-2 and 2-3.
2. Position the tabs marked **A** to fit into the appropriate **A1** or **A2** sockets on the Avanti set. The **A2** position will give the set a lower profile than the **A1** position (see Figure 2-2).
3. Swing the opposite end of the module toward the set and snap it into the respective **B** sockets on the set.



**Figure 2-2 Connecting the module to the telephone**



**Figure 2-3 Connecting a cable to the RJ45 port on the bottom of the telephone set**

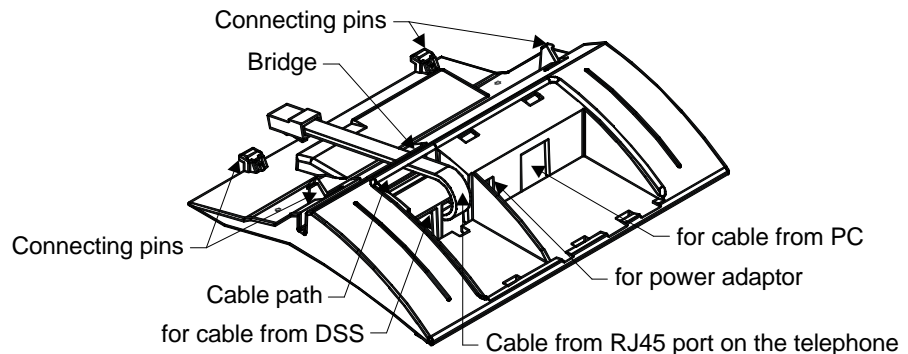
### 2.3.4 Removing the telephone set stand

These steps are only required when replacing an already attached stand with a module.

1. Place the telephone set face down.  
The stand of the set extends upward from the back of the telephone set.
2. Pull on the stand until it snaps out of place.
3. Replace it with the new module as described above (see Section [2.3.3](#)).

### 2.3.5 Connecting the cables to the option module

Refer to Figure 2-3, 2-4, and 2-5.



**Figure 2-4 Option module cabling**

1. To connect a data card to a telephone set with a DSS console, in addition to the above connection:
  - Remove the module's small door **C** by snapping it out of place (see Figure 2-5).
  - Connect the RJ45 connector on one end of cable **A** to the left-hand RJ45 connector of the module, pass it under the bridge **I**, and place it in the horizontal cable slot (see Figure 2-5).
  - Insert the RJ45 connector on the other end of cable **A** into the RJ45 socket adjacent to the four map buttons on the DSS console.
  - Snap the small door **C** back into place (see Figure 2-5).
2. To connect the power supply (see Figure 2-5):
  - Remove the module's large door **D** by snapping it out of place.
  - Connect the power supply **F** to the power supply socket **E** on the left side of the opening.
  - When the rest of the installation is complete, plug the power supply into the wall socket.
3. To connect the option module to the PC (relevant for data cards) see Figure 2-5
  - Insert the RJ45 connector on one end of cable **G** into the RJ45 socket to the right of the power supply socket.
  - Insert the RJ45 connector on the other end of cable **G** into the PC adaptor **H**.
  - Connect the PC adaptor to the RS232 port of the PC.

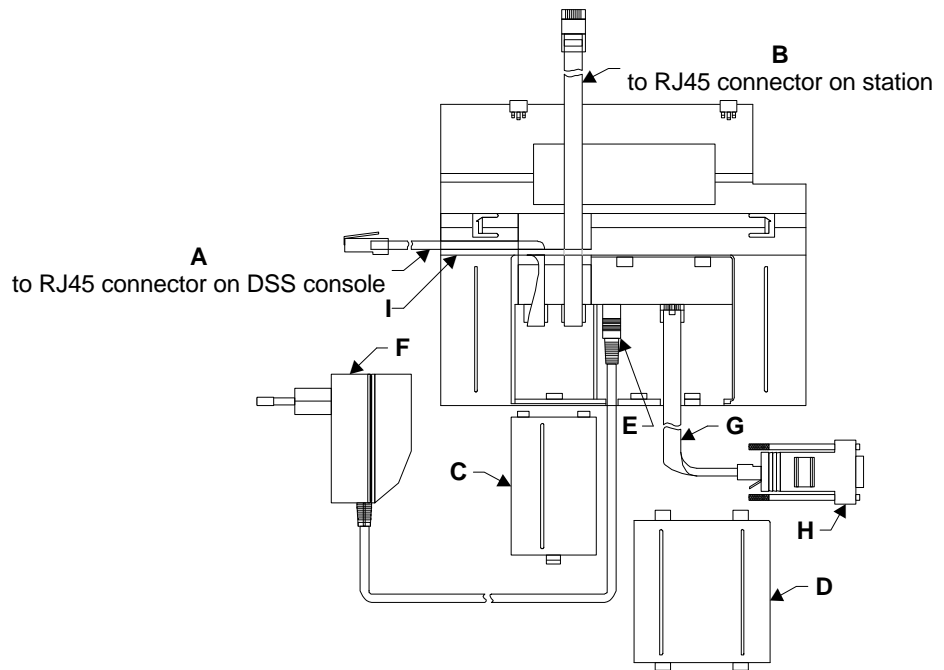


Figure 2-5 Connecting the cables to the option module

### 2.3.6 Technical specifications for cabling the data modules

**Data card wiring connections** The data card pin functions are shown in Table 2-3.

Table 2-3: Data card wiring connections

RJ 45 pin	Name
1	GND
2	TXD
3	RXD
4	CTS
5	DCD
6	DSR
7	DTR
8	RTS

#### **Serial port parameters**

- 19,200 bits per second;
- 8 data bits;
- no parity;
- 1 stop bit.

**PC wiring connections** The PC RS232 pin functions appear in Table 2-4.

**Table 2-4: PC wiring connections**

D-type 9 pin	Name
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

### 2.3.7 Connecting DSS consoles to Avanti telephone sets

You can connect up to four DSS units to each Avanti telephone set.

When making the connections, refer to Figure 2-6, below.

1. Lay the telephone set and the DSS console face down.
2. The stands of both the set and the console extend upward from the back of the telephone set. Pull down on the each stand to snap it out of place.
3. Remove the plastic piece covering the RJ45 socket **A** in the back of the telephone set.
4. Insert the RJ45 connector on one end of the cable to the RJ45 socket **A** in the back of the telephone set.

#### NOTE

If the telephone set has a option module connected to it, the cable is connected to the option module, instead of the telephone set (see Section 2.3.5).

5. Fit the cable into the horizontal cable slot on the left side of the telephone set.
6. Insert the RJ45 connector on the other end of the cable to the RJ45 socket **B** on the right side of the DSS console. (First remove the rubber plug covering the socket).
7. Use the DSS console bracket to connect the DSS console and the telephone set. The right side of the bracket (with four holes) is attached to the telephone. The left side of the bracket **C** (the side with two holes) is attached to the DSS console.
8. Insert two screws in the inner holes **D** on the right side of the

bracket and connect the bracket to the telephone.

9. Insert two screws in the holes **F** on the left side of the bracket and connect the bracket to the DSS console.
10. If you are connecting only one DSS console, snap the stands of the telephone set and the DSS console back into place.

### **To connect an additional DSS console**

When making the connections, refer to Figure 2-6, below.

1. Lay the telephone set with DSS console and the additional DSS console face down.
2. Remove the stands from the DSS consoles by snapping them out of place.
3. Remove the rubber plugs covering the RJ45 sockets **G** on the left side of the installed DSS console and the right side of the additional DSS console.
4. Insert the RJ45 connector on one end of the short cable **H** to the RJ45 socket on the left side of the DSS console connected to the telephone.
5. Insert the RJ45 connector on the other end of the short cable **H** to the RJ45 socket on the right side of the additional DSS console.
6. Fold the cable over so that the DSS consoles fit closely together.
7. Use the DSS bracket to connect the DSS consoles.

Insert two screws in the outer holes **E** on the right side of the bracket **C** and fasten them to the installed DSS console.

Insert two screws in the holes **F** on the left side of the bracket **C** and fasten them to the additional DSS console.

8. Repeat for any additional (for a total of up to four per telephone) DSS consoles that you want to connect to the telephone set.
9. Snap the stands of the telephone set and the DSS consoles back into place.

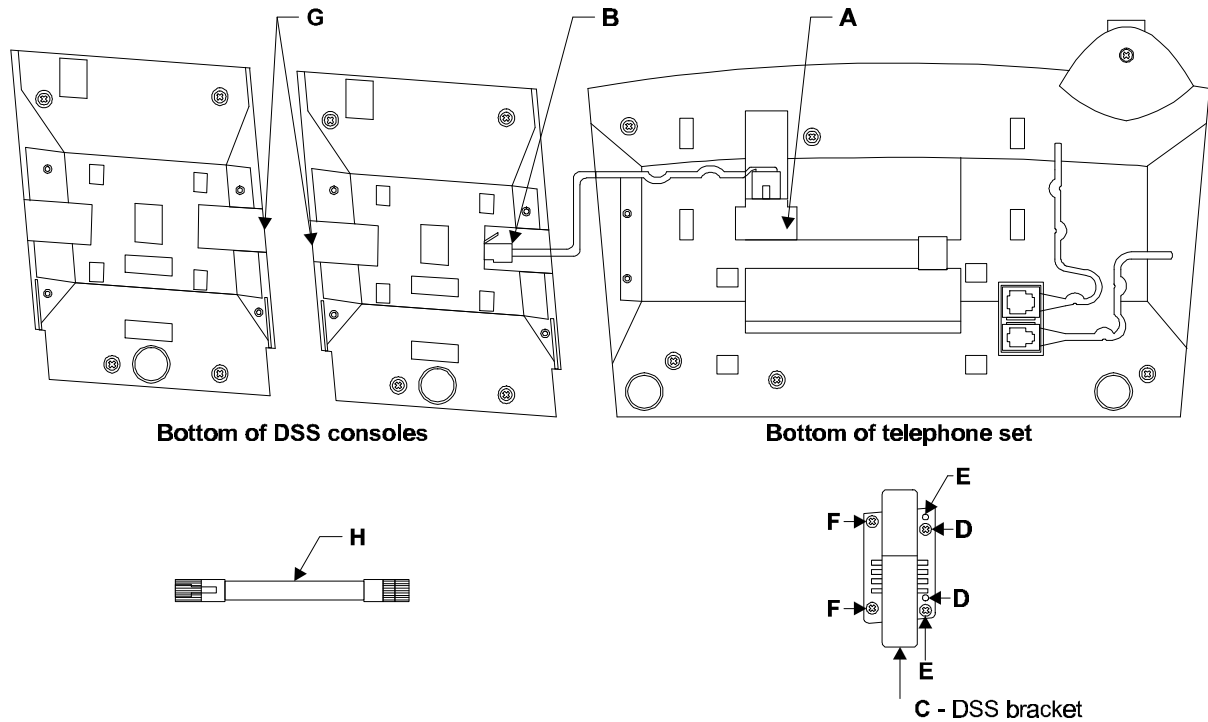


Figure 2-6 Connecting a DSS console

---

## 2.4 VOICE RECOGNITION CARD

---

The Voice Recognition card is installed in the same way as the data cards (see Section 2.3.3).

---

## 2.5 DIGITAL PRIVATE NETWORK

---

In SB7/DB7 there are two types of PRI card groups:

- Cards used for connection to the CO  
P30 and P24 cards using ETSI, DMS100, AT&T 4ESS or AT&T 5ESS protocols, and
- Network cards  
N10/20/30 (2M) and N12/24 (1.5M) cards using DPNSS or QSIG protocols.

SB7/DB7 supports both DPNSS (Digital Private Network Signaling System) and QSIG digital protocols for a private network in systems with either T1 or E1 lines.

SB7/DB7 continues to support NAP (Network Analog Protocol) for networking small SBS systems on E1/T1 cards.

### DPNSS protocol

DPNSS is a BT protocol and recommended for use wherever possible, particularly when one or more SBS is connected in a back-to-back network. It is required in the UK and optional in some other countries (Israel, USA, South Africa, Germany). In every country it supports all system features regularly supported by analog lines, and, in a back-to-back network, it supports all new system features.

### QSIG protocol

The QSIG protocol is a standard protocol that defines signaling requirements at the Q point. SBS supports only basic call features. At present time it is the only way, or the preferred way, to network systems in some countries.

### Installing network cards

The new network cards are installed as PRI cards with the following exception:

#### Using DPNSS protocol in the UK

The N10, N20, or N30 network card may be installed in the UK for using DPNSS protocol in one of two ways:

- standard installation for a twisted pair connected to the RJ45 connector, as for a PRI card
- using an adapter between the card's RJ45 connector and a coaxial cable connecting it to the network.

Use an adaptor, such as the Black Box Corporation's MT242A-F adaptor. Simply use regular eight wire cable to connect the adaptor's balance connector to the network card's RJ45 connector and plug the coaxial cable into the adaptor's transmit and receive sockets.

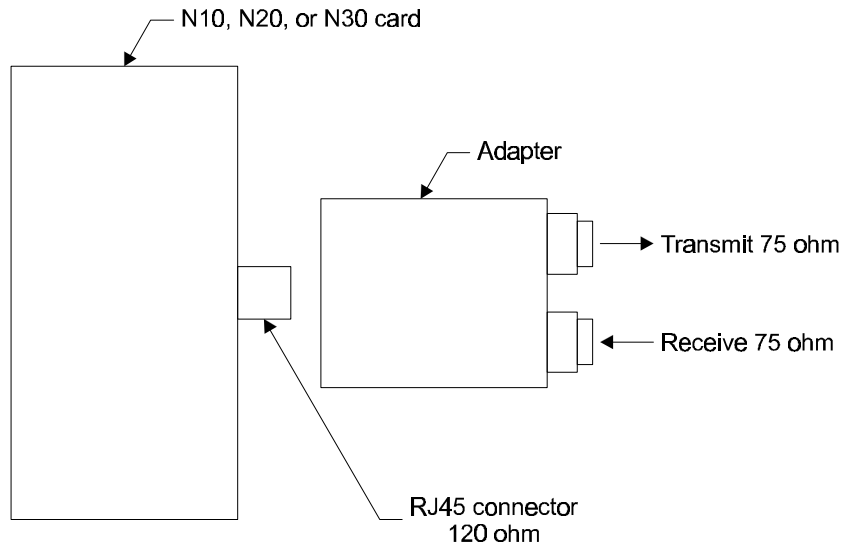


Figure 2-7 Connecting an adapter for DPNSS protocol



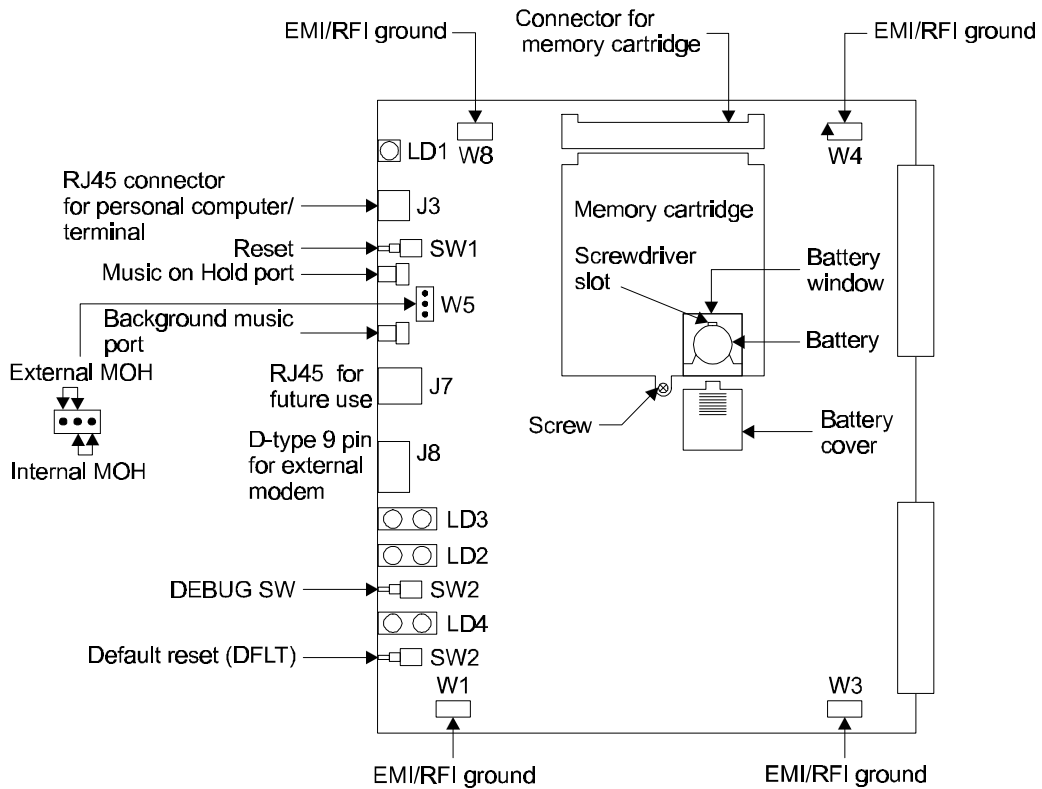
**NOTE**

Because SB7/DB7 does not support the provisions of the "Generic functional protocol for the support of supplementary services", it should not be installed as a transit system between PBXes that support services based on the Generic functional protocol.

**2.6 MPD CARD - DIGITAL 400 SYSTEM**

DIGITAL 400 Release DB7 has a new MPD card. Cabinet placement is the same as for the earlier versions of the MPD card.

There are changes in the LEDs and external connections on the MPD cards as shown in Figures 2-8, 2-9, and 2-10.



**Figure 2-8 DB7 model S400 MPD card**

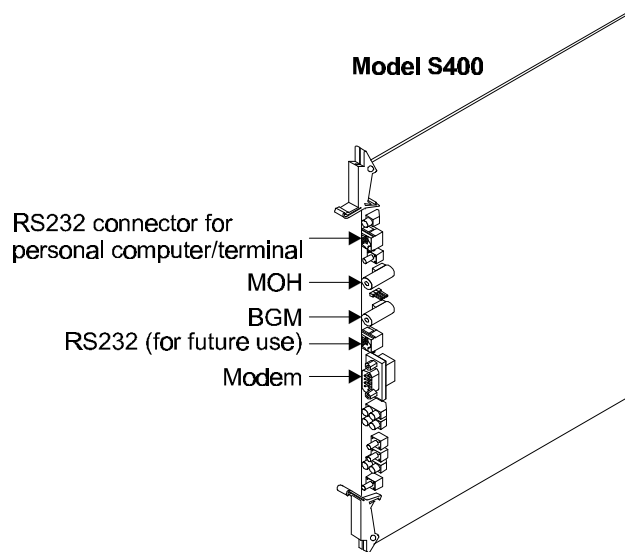


Figure 2-9 External connectors to S400 MPD card

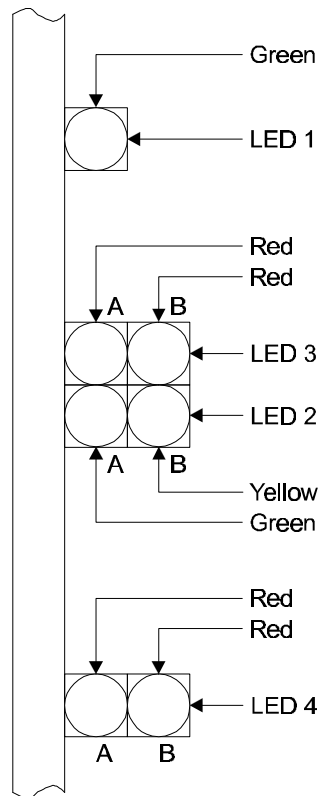


Figure 2-10 MPD S400 card LEDs

The LED indications are as follows:

- LED 1** Reset default
  - steady lit - reset default has been activated.
- LED 3 A** Maintenance mode (for future use).
- LED 3 B** Debug mode (for future use).

## Section 2: INSTALLATION

- LED 2 A** Master/Slave (NOTE: MPD 400 LED 2 A is labeled Master/Slave but there is no Master/Slave configuration. The indication is as follows:
- blinking - CPU run indication.
- LED 2 B** Ready
- Not used.
- LED 4 A** PC connectivity (for future use);
- LED 4 B** External modem (for future use);
- steady lit- external modem is active (there is communication with external modem).

# Section 3 ADMINISTRATION

---

## 3.1 GENERAL

---

The administration of Release 7 of the DIGITAL systems is the same as that of Release 6, except for those features described in this addendum.

The programming changes described below are summarized in [Appendix A](#).

Refer to the Release 6 Administration manual.

### NOTE

- On the MPD card in the DIGITAL KEY BX system, the lower RJ45 connector is used for connection to the computer used for programming or loading the system configuration file (see [Figure 3-1](#)).
- The default baud rate for the MAP port on DIGITAL KEY BX, DIGITAL 400, and DIGITAL 1000 systems is 38,400 baud.

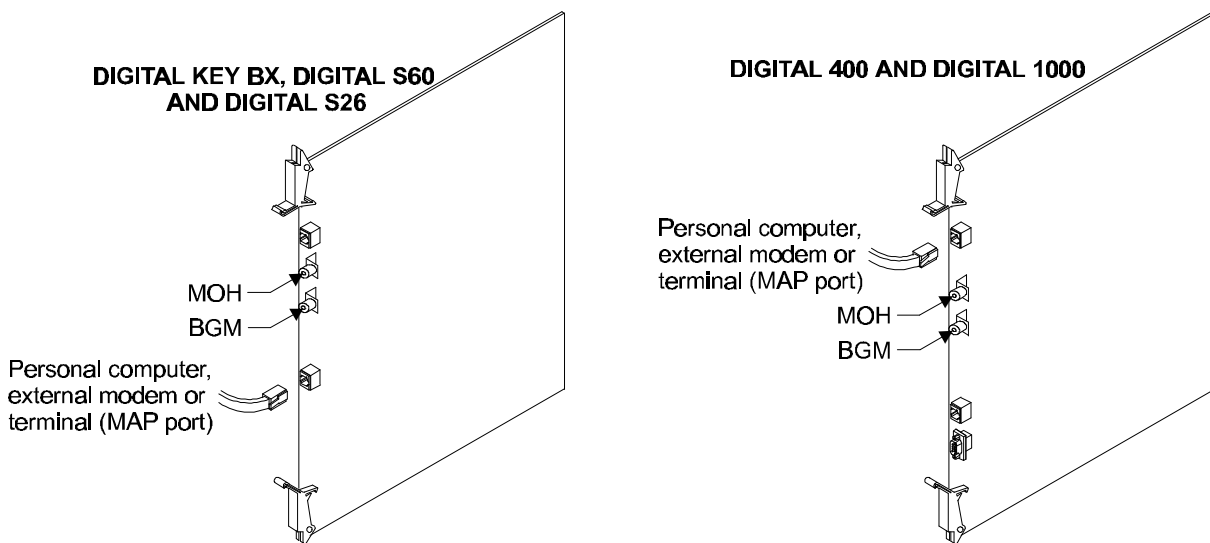


Figure 3-1 MPD card - MAP port

## 3.2 AVANTI FAMILY OF TELEPHONE SETS PROGRAMMING

Avanti telephone sets are supported by the ULD and UHD cards. Each ULD card provides ports for up to 16 Avanti telephone sets. Each UHD card provides ports for up to eight Avanti telephone sets. Each one of these telephone sets may also support a data card.

### 3.2.1 CARD CONFIGURATION Screen [YC-SC]

Legal values for the card following cards have been added: ULD and UHD (for Avanti telephones) and N24, and N30 (for QSIG and DPNSS network cards). Define these cards and enter their CARD DEFINITION Screen as you do for any other card.

### 3.2.2 ULD CARD DEFINITION Screen [YC-SC-F9]

Figure 3-2 shows the ULD CARD DEFINITION Screen,

November 15, 1998 FILE: DEFAULT.CFG Load area used: 2% PATH:YC+SC							
ULD Card Units Definition						Cabinet #1, Card #2	
	DN	STATION	PATH	ADDON1	ADDON2	ADDON3	ADDON4
BUS #1	-	-	-	-	-	-	-
BUS #2	-	-	-	-	-	-	-
BUS #3	-	-	-	-	-	-	-
BUS #4	-	-	-	-	-	-	-
BUS #5	-	-	-	-	-	-	-
BUS #6	-	-	-	-	-	-	-
BUS #7	-	-	-	-	-	-	-
BUS #8	-	-	-	-	-	-	-

<ESC>=Prev, <F2>=DN list, <F5>=Save/Load, <F6>=Exit, <F7>=Repeat, <F8>=Inc  
 <F1>=Units info  
 Legal values: "-" to delete, Up to 4 digits (x, # included) to define

Figure 3-2 ULD/UHD CARD DEFINITION Screen

This card supports up to 16 Avanti telephone sets and their add-on units. The values for entering the station type in this screen appear in bold. The telephone sets may be of the following types:

- Avanti 3025 - Graphic display (Full duplex) **E30**
- Avanti 3020F - Four line display (Full duplex) **D30**
- Avanti 3020H - Four line display (Half duplex) **D30**
- Avanti 3015DF - Two line display (Full duplex) **S30**
- Avanti 3015DH - Two line display (Half duplex) **S30**
- Avanti 3015H - No display, 15 buttons (Half duplex) **B30**
- Avanti 3000 - No display, four buttons (Half duplex) **M30**
- Avanti Attendant - Graphic display **ATT**.

For each station assign a DN, the type of station (see below), designate whether it is single or dual audio path, and its add-on unit, if any.

The add-on units may be defined as the following types:

- DSS1- DSS8 - direct station select console
- VRC - voice recognition card
- TAPI - Avanti DATA $Lync$  data card
- PCAPP - Avanti APPL $Lync$  card in PC application mode.

When using a data card, it must be defined as the first add-on for its station.

### 3.2.3 ATTENDANT DEFINITION Screen [AT-AD]

The fields **ST20 ATT MAP** and **ST30 ATT MAP** have been added to the ATTENDANT DEFINITION Screen to designate the attendant maps that apply to the DIGITAL model Attendant Consoles or to the Avanti model Attendant Consoles.

The field **ST20 ATT MAP** is for programming the appropriate softkey key map for Attendant Consoles belonging to the DIGITAL family of telephone sets.

The field **ST30 ATT MAP** is for programming the appropriate softkey key map for Attendant Consoles belonging to the Avanti family of telephone sets.

In both the **ST20 ATT MAP** and **ST30 ATT MAP** fields, the legal values are: 1-4 for DIGITAL KEY BX and DIGITAL 400 systems and 1-24 for DIGITAL 1000 systems.

#### NOTE

The same logical attendant position can simultaneously support a mix of some DIGITAL model Attendant consoles having the ST20 ATT MAP and some Attendant consoles of the Avanti model having the ST30 ATT MAP.

### 3.2.4 Attendant PROGRAMMABLE KEYS (MAP) Screen [AT-PK]

Figure 3-3 shows the ATTENDANT PROGRAMMABLE KEYS Screen.



Figure 3-3 Avanti Attendant ST30 ATT MAP PROGRAMMABLE KEYS Screen

### 3.2.5 STATION ATTRIBUTES Screen [FE-AT]

The Map Type parameter (display only) shows any Avanti telephone sets map types (ED, SM, BA) defined in the system.

### 3.2.6 STATION MAPS DEFINITION Screen [FE-PK]

The values ED and SM have been added to the STATION MAP DEFINITION Screen for the Avanti telephone sets. The value ED is used for maps of the Avanti 3025 and Avanti 3020 telephone set buttons. The value SM is used for maps of the Avanti 3015D and Avanti 3015 telephone set buttons.

### 3.2.7 Avanti telephone PROGRAMMABLE KEYS (MAP) Screens [FE-PK-F9]

The ED and SM MAP Screens have been added for the Avanti telephone sets. From the STATION MAP DEFINITION Screen, when the cursor is on ED or SM, press F9 to access these screens.

Figure 3-4 is the map screen used for programming the button assignments for the Avanti 3025 and Avanti 3020 telephone sets. The bottom row of this map is only relevant for the Avanti 3025 sets. The same specific map may be assigned to both Avanti 3025 and Avanti 3020 telephone sets, and the system recognizes what is relevant for each model of telephone.

Figure 3-5 is the map screen used for programming the button assignments for the Avanti 3015D and Avanti 3015 telephone sets.

Map screen BA is used for programming the button assignments for the Avanti 3000 telephone sets (see the DIGITAL Administration manual, Release 6).



Figure 3-4 Map type ED - used for E30 (Avanti 3025), D30 (Avanti 3020)

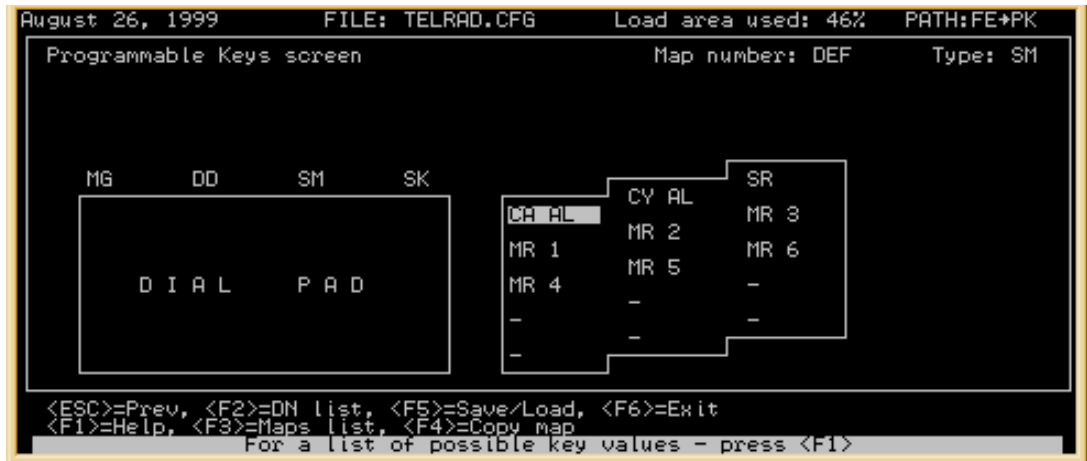


Figure 3-5 Map type SM - used for S30 (Avanti 3015D), B30 (Avanti 3015)



### 3.3 DIRECT STATION SELECT (DSS)

#### 3.3.1 DSS MAP ASSIGNMENT Screen [DS-DS]

The field MAP #1 has been added to the DSS MAPS ASSIGNMENT Screen. For each DSS in the system, enter in the MAP #1 field the number of the first of the four consecutive maps that are assigned to that DSS console. The legal values are:

for DIGITAL KEY BX: 1, 5; for DIGITAL 400: 1, 5, 9;

for DIGITAL 1000: 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45.

Figure 3-6 shows the DSS MAP ASSIGNMENT Screen.



Figure 3-6 DSS MAP ASSIGNMENT Screen

#### 3.3.2 DSS PROGRAMMABLE KEYS (map) Screen [DS-PK]

A PROGRAMMABLE KEYS (map) Screen has been added for the Avanti DSS consoles.

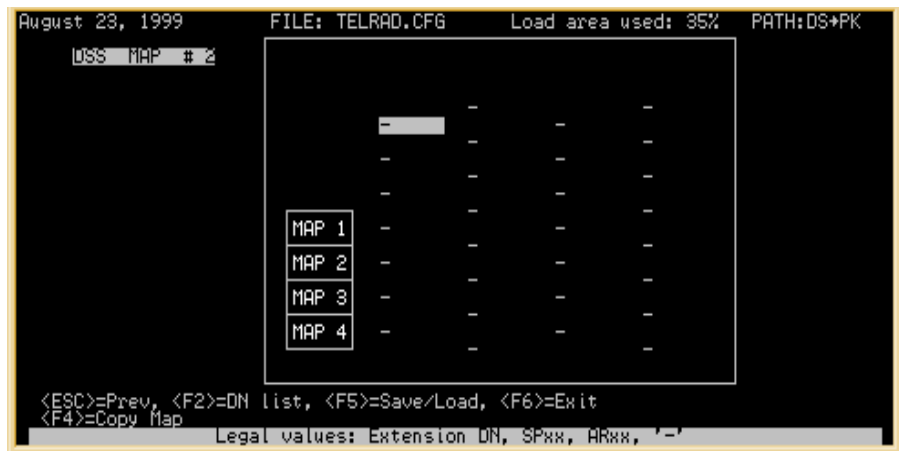


Figure 3-7 Map for Avanti DSS console

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## 3.4 NETWORK CARDS (N24 AND N30)

---

In DIGITAL systems there are two types of PRI card groups:

- Cards used for connection to the CO  
P24 and P30 cards using ETSI, DMS100, AT&T 4ESS or ATT&T 5ESS protocols, and
- Network cards  
N24 (1.5M) and N30 (2M) cards using DPNSS or QSIG protocols. DIGITAL systems support DPNSS (Digital Private Network Signaling System) or QSIG digital protocols for a private network in systems with either T1 or E1 lines.

The DPNSS protocol supports all system features regularly supported by analog lines. In a back-to-back configuration it supports all new system features.

The QSIG protocol supports only basic call features.

### 3.4.1 CARD CONFIGURATION Screen [YC-SC]

There are two new legal values for defining network cards on this screen: N24 and N30. Define the network cards as you do any other card.

### 3.4.2 CARD UNITS DEFINITION Screen [YC-SC-F9]

On the CARD CONFIGURATION Screen, when the cursor is on N24 or N30, the press **F9** to view the network CARD UNITS DEFINITION Screen and enter DNs and Public DNs for the channels on the card.

For each network card program only the appropriate number of channels:

- On the N24 CARD UNITS DEFINITION Screen you can enter DNs for up to 23 channels.
- On the N30 CARD UNITS DEFINITION Screen you can enter DNs for up to 30 channels.

The system supports the use of any one of the B channels of the leased line as the signaling channel.

### 3.4.3 CARD PARAMETERS Screens [YC-CP]

The names of the PRI CARD PARAMETERS Screens are now:

- PRI24/N24 CARD PARAMETERS -- path [YC-CP-UP];
- PRI30/N30 CARD PARAMETERS -- path [YC-CP-EP].

Not all fields will be relevant for each type of card defined. If a field is not relevant for the defined card, the default value of the field is "-" and it is display only.

The help line, range of legal values, and default values of fields change according to the type of card.

**New fields:** The following new fields have been added to the screens (between the fields for Protocol and Addressing Mode):

**Layer 2 side**

This field is relevant only for network cards.

Legal values: For DPNSS protocol: A/B (A or B end)  
For QSIG protocol: M/S (Master/Slave).

Default: For DPNSS protocol: B.  
For QSIG protocol: S.

When using QSIG protocol, if you define the **Layer 2 side** field, the same value is automatically assigned to the **Layer 3 side** field. If you define the **Layer 3 side** field, the same value is automatically assigned to the **Layer 2 side** field.

**Layer 3 side**

This field is relevant only for network cards.

Legal values For DPNSS protocol: X/Y (X or Y channel)  
For QSIG protocol: M/S (Master/Slave).

Default: For DPNSS protocol: Y.  
For QSIG protocol: S.

When using QSIG protocol, if you define the **Layer 3 side** field, the same value is automatically assigned to the **Layer 2 side** field. If you define the **Layer 3 side** field, the same value is automatically assigned to the **Layer 2 side** field.

**Signaling channel**

This field determines which channel is used as the D-channel for signaling. It appears on all screens, but is relevant only in the USA.

Legal values: 1-31 for N30 cards or 1-24 for N24 cards.

Default: 16 (N30 cards) or 24 for N24 cards.

**Back-to-back connection**

This field is relevant only for network cards.

Legal values: Yes (direct connection to network)  
No (connection to network via the CO)

Default: No. (for PRI cards the default - N - cannot be changed).

**Modified fields:** The following fields have been modified:

**Tone provision**

The default is Yes.

**Protocol**

For network cards the legal values are DPNS and QSIG.

The default is DPNSS.

**Addressing Mode**

The default is En-bloc.

**CRC4 (PRI30/N30 CARD PARAMETERS Screen)**

The default is No.

**CRC6 (PRI24/N24 CARD PARAMETERS Screen)**

The default is No.

**3.4.4 FEATURE SETS Screen [NT-FS]**

This is a new screen for defining the features supported by a network using DPNSS protocol. In this screen you define which functions each feature set supports and then assign the feature set in the NETWORK PREFIXES Screen [NT-PR] and BRANCH ROUTING Screen [NT-PR-F9].

The maximum number of Feature Sets that you may define is:

DIGITAL KEY BX: 16

DIGITAL 400: 32

**3-party Services**

The three-party-services groups includes all functions that can be performed while holding an existing call: consultation, toggling between a call on hold an active call, transfer, three party conference, and conference split.

Designate whether or not the far end of the network supports three-party services.

Legal Values: Y (Yes), N (No).

Default: Y.

**Call Back Busy**

Designate whether the far side of the network supports requests for Callback on busy.

Legal Values: Y (Yes), N (No).

Default: Y.

**Call Back No Answer**

Designate whether the far side of the network supports requests for Callback no answer.

Legal Values: Y (Yes), N (No).

Default: Y.

**Message**

Designate whether the far side of the network supports the message feature.

Legal Values: Y (Yes), N (No).

Default: Y.

**IVM Support**

Define the version of IMAGEN/IVM that the far side of the network supports.

Legal Values: V5U, V7, N (None).

Default: N.

**3.4.5 NETWORK PREFIXES Screen [NT-PR]**

This screen contains a new field for entering the number of the Features Set defined in the FEATURES SET Screen [NT-FS] that defines those features that the branch of the network supports.

**Features Set**

For each route of the network enter the number of the Features Set.

Legal Values: DIGITAL KEY BX: 16  
DIGITAL 400: 32

Default: "-" (None).

**3.4.6 BRANCH ROUTING Screen [NT-PR-F9]**

This screen contains a new field for entering the number of the Features Set defined in the FEATURES SET Screen [NT-FS] that defines those features that the branch route of the network supports.

**Features Set**

For each branch route of the network enter the number of the Features Set.

Legal Values: DIGITAL KEY BX: 16  
DIGITAL 400: 32

Default: The set defined for the prefix in the NETWORK PREFIXES Screen.

**3.4.7 NETWORK PARAMETERS Screen [NT-NP]**

There is a new field in this screen:

**Longest network path**

This field determines the maximum number of nodes through which a call may pass.

Legal values: 1-31.

Default: 5.

### 3.4.8 TIE/DID GROUP FEATURES Screen [GR-TF]

There is a new field at the end of this screen:

#### **Max % for VC**

This field is relevant to trunk groups using DPNSS protocol. It defines the maximum percentage of the trunks belonging to the trunk group that may be used for signalling (also referred to as virtual calls).

Legal Values: 0 - 100

Default: 0.

---

## 3.5 PHONE BOOK

---

The Phone Book feature enables system users with display telephone sets to enter, delete, revise, save in memory, search for and dial selected name and telephone number entries.

Two kinds of Phone Book can be utilized:

- a Private Phone Book
  - including the private list of names and telephone numbers selected exclusively by each user in the system, for that user's convenience.
- a System Phone Book
  - containing a series of up to 10 separate lists, each of which includes a logical group of names and telephone numbers.

In order to access the Phone Book feature on a telephone set that has no softkeys, an available programmable button on that set must be defined for this purpose.

For further information about the operation of this feature, see the Release 7 Feature Description manual and the Release 7 Operating Instructions manual.

#### **Speed dial bin enhancement**

The Phone Book utilizes an expansion of the existing personal and system speed dial features. Any speed dial bin can contain not only the telephone number corresponding to the speed dial number, but also the name of the person at that telephone number. The speed dial lists, expanded to include names, now serve as the Private Phone Book and System Phone Book lists.

#### **Phone Book maintenance**

A specific user is designated to maintain each system phone book list by defining new entries and updating or removing existing entries. All other users given access to a system phone book list *will not* be allowed to make changes to the list, but *will* be able to search for and dial that list's names and numbers.

The telephone set of the user designated to maintain each system phone book list is defined as the system speed dial group programming station. Maintenance of each system phone book list can be done, either from the authorized user's telephone set or from the system administration PC (PCP).

In a private phone book list, however, the individual user is solely responsible for new entries, as well as entry updating and removal.

#### **Phone Book entries**

Each name entry defined can contain up to 16 characters -- including letters, digits and the following three symbols: underscore, hyphen, space.

Each telephone number defined can contain up to 16 digits.

The names in both private and system phone book lists are sorted alphabetically.

The maximum permissible length of Phone Book entries is as follows:

- list name -- 10 characters;
- entry name -- 16 characters;
- entry telephone number -- 16 digits.

The maximum permissible number of entries in system Phone Book lists, is the actual system number of speed dial numbers available.

### **3.5.1 FUNCTION ACCESS CODES Screen [SP-FN]**

Default feature codes allow the users of telephone sets without soft-keys to access the Phone Book feature. You can modify these codes on this screen.

The Phone Book feature appears at the end of this screen: PHONE BOOK PRVT LIST and PHONE BOOK: LIST 1.... PHONE BOOK: LIST 10.

### **3.5.2 SYSTEM SPEED DIAL GROUPS Screen [SP-SD-SG]**

**NOTE:** You can program only one speed dial table during each partial download session. For example, after programming Speed dial table 1, you must save and download before programming Speed dial table 2.

A new field - **Group Name** - has been added. Enter up to 10 characters for the name of the Phone book list.

For each System speed dial group enter the DN of the station designated to maintain each Phone book list.

### 3.5.3 SYSTEM SPEED DIAL NUMBERS Screen [SP-SD-NS]

A new field - **Name** - appears after each Programmed number field.

Enter up to sixteen characters for the name of the person reached at each number.

By pressing **F4** in this screen, you toggle between seeing the list arranged by bin number or by name.

### 3.5.4 PROGRAMMABLE KEYS Screen [FE-PK-F9] for Phone Book

If you want the users of telephone sets without softkeys to be able to access the Phone Book feature, define programmable keys (PB PRV for Private phone book or PB 1 - PB 10 for system phone book) for the Phone Book lists for those telephone sets (see Section [3.2.7](#)).

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## 3.6 ADDITIONAL PROGRAMMING CHANGES

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### 3.6.1 SYSTEM TIMERS Screen [SP-TM]

Three new timers have been added to this screen:

#### **ISDN timer 302**

If this timer elapses before a party calling in on an ISDN DID trunk completes dialing the destination number the call is either disconnected or routed to the attendant, depending on the State code.

Legal values: 1-20.

Default: 15.

#### **Waiting tone timeout**

Define the number of seconds you want to elapses between tones for call waiting.

Legal values: 3-60 seconds.

Default: 13 seconds

#### **Time of waiting for next char**

If this time elapses between the entering of two characters in a new phone book entry, the system considers the new entry complete.

Legal values: 2-10 seconds.

Default: 3 seconds.



### 3.6.2 SMDR Screen [YC-IS-F9]

There is a new field in this screen:

#### **DID report to SMDR**

A new field has been added to designate whether or not DID numbers are printed out in SMDR reports, in the ACC field.

Legal values: Y (Yes), N (No).

Default: N.

### 3.6.3 GENERAL PARAMETERS Screen [SP-PR]

There are two new fields in this screen:

#### **ACD-IQ version**

In this field you designate which version of ACD-IQ is connected to the system. If the version is 3.0 or higher, CID and DID numbers are sent to ACD-IQ.

Legal values: 0.0 - 15.15.

Default: 0.0

#### **Send Directory Softkey**

Designate whether you want the idle display of Avanti 3025 stations to show a Directory softkey or a Phone book icon. If you set this field to Y, a Directory softkey appears. If you set this field to N, a Phone book icon appears.

Legal values: Y (Yes), N (No).

Default: N.

### 3.6.4 PRIVATE TRUNK FEATURES Screen [PT-TF-F9]

There is a new field in this screen:

#### **Disconnect Supervised**

If the trunk sends a signal to the DIGITAL system when the far end disconnects, enter a Y in this field. If the trunk does not send a signal when the far end disconnects enter N in this field.

When Y is programmed in this field, the system allows this trunk to connect to Meet Me Conference.

Legal values: Y (Yes), N (No).

Default: Y.

### 3.6.5 DID ROUTING Screen [RD]

A new legal value has been added for each of the parameters **Day Routing** and **Night Routing**. You can now enter **DISA** in either of these fields.

### 3.6.6 TRUNK LIST Screen [GR-AG-F9]

The new field in this screen is the same as in Section [3.6.4](#).

# Section 4

## UPGRADE PROCEDURES

---

### 4.1 GENERAL

---

You can upgrade an existing DIGITAL system from:

- DIGITAL KEY BX Release SB3, SBU5, or SB6 to Release SB7;
- DIGITAL 400 Release DB3, DBU5, or DB6 to Release DB7;
- DIGITAL KEY BX to DIGITAL 400.

The upgrade procedures are identical to those for upgrading from Release 5 DIGITAL KEY BX AND DIGITAL 400 systems to Release 6 systems and are described in the Release 6 Upgrade Manual, Catalog No. 76-110-0455/F.

There is only one minor change, as described below in Section [4.2](#).

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### 4.2 DIGITAL KEY BX CONFIGURATION FILE NAME CHANGE

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When upgrading DIGITAL KEY BX Release SB3, SBU5, or SB6 systems to SB7, the original Release SB3, SBU5, or SB6 configuration file is changed after the conversion.

The original file name with a .cfg extension, is changed to **cfg.bak**.

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### 4.3 MANDATORY AND RECOMMENDED PROGRAMMING

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#### 4.3.1 Mandatory programming

In the DIGITAL KEY BX Release SB7 and the DIGITAL 400 Release DB7 systems, it is mandatory that the parameter **Disconnect Supervised** be properly defined for every trunk in the system. This field is found on the following screens:

- TRUNK LISTS Screen (for trunk groups) -- path **[GR-AG-F9]**;
- ADDITIONAL TRUNK FEATURES Screen (for private trunks) -- path **[PT-TF-F9]**.

The **Disconnect Supervised** field should be programmed as **Y** if the trunk sends a signal to the DIGITAL system when the far end disconnects. If the trunk does not send a signal enter **N** in this field.

### 4.3.2 Recommended programming

It is recommended that for every loop-start or group-start analog central office outside line, the LENGTH field be defined as: *Long*. This applies whether the outside line is connected to an MPD (DIGITAL KEY BX systems only), COL, CHL, or COG card.

The LENGTH field appears on the following screens (path [YC-SC-F9]):

- MPD CARD UNITS DEFINITION Screen;
- COL CARD UNITS DEFINITION Screen;
- CHL CARD UNITS DEFINITION Screen;
- COG CARD UNITS DEFINITION Screen.

From the CARD CONFIGURATION Screen:

1. Place the cursor on the appropriate card (MPD, COL, CHL, or COG).
2. Press **F9** to access the appropriate CARD UNITS DEFINITION Screen.
3. Move the cursor to the LENGTH field.
4. Type: **L**.

#### **WARNING**

Only in special cases where the voice quality of the outside line has been successfully tested may the LENGTH field be programmed as S (Short) or V (Very long).

# Appendix A

## SUMMARY OF PROGRAMMING CHANGES

---

### A.1 GENERAL

---

This appendix provides a summary of the new fields and new values used in programming the configuration file for the Release 7 DIGITAL KEY BX, DIGITAL 400, and DIGITAL 1000 systems.

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### A.2 NEW PROGRAMMING FIELDS AND VALUES

---

Table A-1 provides a list of the new fields and new legal values in found the configuration programming the Release 7 DIGITAL systems.

**Table A-1 New fields and values on the programming screens**

Path	Field	Legal values	Notes
YC-SC (see Sections 3.2.1 and 3.4.1)	Card type	New values: ULD, UHD, N24, N30	
YC-SC-F9 (ULD or UHD cards) -- see Section 3.2.2	DN	Up to four digits including *, #	
	Station	E30, D30, S30, B30, M30, ATT	
	Path	S (Single Audio Path), D (Dual Audio Path)	
	Add on 1	DSS1 - DSS8 (Direct Station Select console), VRC (voice recognition card), TAPI (DATA <sub>Lync</sub> data card), PCAPP (APPL <sub>Lync</sub> data card)	
	Add on 2		
	Add on 3		
Add on 4			
YC-SC-F9 (N24 or N30 cards) -- see Section 3.4.2	DN	Up to four digits including *, #	
	Public DN	Up to 20 digits including *, #	

**Table A-1 New fields and values on the programming screens (continued)**

Path	Field	Legal values	Notes
YC-CP-UP (for N24 card) -- see Section 3.4.3	Protocol	DPNS, QSIG (default DPNS)	
	Layer 2 side	for DPNSS: A (A-side), B (B-side) for QSIG: M (master), S (slave)	
	Layer 3 side	for DPNSS: X (X-side), Y (Y-side) for QSIG: M (master), S (slave)	
	Signaling channel	for N24 card D-channel for signaling: 1 - 24 or N30 card D-channel for signaling: 1 - 31	
	Back-to-back connection	Y (direct to peer), N (via CO)	
YC-CP-EP (for N30 card) -- see Section 3.4.3	Protocol	for N24 and N30 network cards: DPNS, QSIG (default DPNS)	
	Layer 2 side	for DPNSS: A (A-side), B (B-side) for QSIG: M (master), S (slave)	
	Layer 3 side	for DPNSS: X (X-side), Y (Y-side) for QSIG: M (master), S (slave)	
	Signaling channel	for N24 card D-channel for signaling: 1 - 24 or N30 card D-channel for signaling: 1 - 31	
	Back-to-back connection	Y (direct to peer), N (via CO)	
YS-IS-F9 (with the cursor on SMDR, press F9) -- (see Section 3.6.2)	DID report to SMDR	Y (yes), N (no)	
SP-TM (see Section 3.6.1)	ISDN timer 302 (for ISDN trunks)	1 - 20 (seconds)	
	Waiting tone time-out	3 - 60 (seconds)	
	Time for waiting for next char.	2 - 10 (seconds)	

**Appendix A: SUMMARY OF PROGRAMMING CHANGES**

**Table A-1 New fields and values on the programming screens (continued)**

<b>Path</b>	<b>Field</b>	<b>Legal values</b>	<b>Notes</b>
SP-FN (see Section 3.5.1)	Call Account Monitor (FLNP code and Feature code)	Up to four digits including *, #	
	CLIR - Caller ID Presentation (FLNP code and Feature code)		
	Drop from conference (FLNP code and Feature code)		
	Internet connection (FLNP code only)		
	Background Music 9- 12 (for DIGITAL 1000 system only; FLNP code and Feature code)		
	Internal Page 9 - 16 (for DIGITAL 1000 system only; FLNP code and Feature code)		
	External Page 9 - 24 (for DIGITAL 1000 system only; FLNP code and Feature code)		
	Phone book private list (Feature code only)		
	Phone book lists 1 - 10 (Feature code only)		
SP-PR (see Section 3.6.3)	ACD-IQ version	0.0 - 15.15	
	Send directory softkey	Y (Directory softkey will appear on the telephone display), N (Phone book icon or softkey will appear on the telephone display)	

Table A-1 New fields and values on the programming screens (continued)

Path	Field	Legal values	Notes
SP-SD-SG (see Section 3.5.2)	Group name	Any 10 characters	
SP-SD-NS (see Section 3.5.3)	Group 1 - 10 name	A - Z (capital letters), 0 - 9, _ (underscore), / (slash), space	
PT-TF-F9 GR-AG-F9 (see Section 3.6.4 and 3.6.6)	Disconnect supervised	Y (The trunk sends a signal to the DIGITAL system when the far end disconnects.), N (The trunk does NOT send a signal to the DIGITAL system when the far end disconnects.)	
GR-TF (see Section 3.4.8)	Max % for VC (virtual channel)	0 - 100 (0 = network support services disabled)	
FE-AT (see Section 3.2.5)	Map Type	ED (for Avanti 3025 and Avanti 3020), SM (for Avanti 3015D and Avanti 3015), BA (for Avanti 3000)	
FE-PK (see Section 3.2.6)	Map Type	ED (for Avanti 3025 and Avanti 3020), SM (for Avanti 3015D and Avanti 3015), BA (for Avanti 3000)	
FE-PK-F9 (see Sections 3.2.7 and 3.5.4)	Programmable keys	New values: BM 9 - 12 (Background Music for DIGITAL 1000), PB PRV (private Phone book), PB 1 - 10 (Phone books 1 - 10), SP 90 - 99 (private speed dial) Other values: see the Administration manual, Release 6	
AT-AD (see Section 3.2.3)	ST20 ATT MAP	1 - 4 (for all systems) 5 - 24 (for DIGITAL 1000 only)	
	ST30 ATT MAP	1 - 4 (for all systems) 5 - 24 (for DIGITAL 1000 only)	
AT-PK (see Sections 3.2.4 and 3.5.4)	Programmable keys	New values: PB PRV (private Phone book), PB 1 - 10 (Phone books 1 - 10), SP 90 - 99 (private speed dial) Other values: see the Administration manual, Release 6	
RD (see Section 3.6.5)	Day routing	New value: DISA	
	Night routing	New value: DISA	
DS-DS (see Section 3.3.1)	MAP #1	for DIGITAL KEY BX: 1, 5 for DIGITAL 400: 1, 5, 9 for DIGITAL 1000: 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45	
DS-PK (see Section 3.3.2)	Programmable keys	Extension DNs, SPxx (Speed Dial code), ARxx (Automatic Redial code), "-" (None).	

**Appendix A: SUMMARY OF PROGRAMMING CHANGES**

**Table A-1 New fields and values on the programming screens (continued)**

<b>Path</b>	<b>Field</b>	<b>Legal values</b>	<b>Notes</b>
NT-FS (see Section 3.4.4)	3-party services	Y (feature supported), N (feature NOT supported)	
	Callback busy	Y (feature supported), N (feature NOT supported)	
	Callback no answer	Y (feature supported), N (feature NOT supported)	
	Message	Y (feature supported), N (feature NOT supported)	
	IVM supported	V5U (ImaGEN version 5.00U), V7 (ImaGEN version 7.00)	
NT-PR (see Section 3.4.5)	Feature set	for DIGITAL KEY BX: 1 - 16 for DIGITAL 400: 1 - 32 for DIGITAL 1000: 1 - 64	
NT-PR-F9 (see Section 3.4.6)	Feature set	for DIGITAL KEY BX: 1 - 16 for DIGITAL 400: 1 - 32 for DIGITAL 1000: 1 - 64	
NT-NP (see Section 3.4.7)	Longest network path	1 - 31	



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