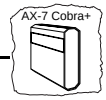


Preface

Welcome to the User's Manual for the AX-7 Cobra+ coax 3270 protocol converter. This manual will guide you through a step-by-step installation procedure. Once installed, the AX-7 Cobra+ works without operator intervention.

About Axis

Axis Communications, founded in 1984, is one of the world's fastest growing companies in the CD-ROM server, network printer server, network camera and IBM printer interface market. The headquarters are located in Lund, Sweden, with subsidiaries in Beijing, Boston, Paris, London, Shanghai, Singapore, Tokyo, and Hong Kong. Please refer to *Appendix F - How to contact Axis*, on page 85. Axis Communications has a distributor network operating in more than 60 countries worldwide, marketing four product lines:

IBM Mainframe and S/3x - AS/400 Printer Interfaces. These products include a wide range of plug-in interfaces and standalone products such as the AXIS Cobra+, AXIS 330/370 Cobra, AXIS HP MIO, the AXIS AFP IPDS-to-PostScript converter, and the AXIS AFP MIO/IOP IPDS-to-PCL converters.

Network Printer Servers. These intelligent Ethernet and Token Ring print servers support a wide range of LAN protocols. The AXIS NPS 530, 550, and AXIS 150, 540, 560, 560/100, 570, 570 MIO are Ethernet print servers, while the AXIS NPS 630, 650, and AXIS 640, 660, 670, 670 MIO are Token Ring print servers.

Network CD-ROM Servers. AXIS StorPoint CD multiprotocol CD-ROM servers provide a flexible and cost-efficient solution for sharing CD-ROMs across the network. They are available in Ethernet and Token Ring versions.

Network Camera Server. The AXIS NetEye 200 Network Camera attaches directly to an Ethernet network. It supports TCP/IP and Internet-related protocols. This product replaces closed circuit video, or PC with framegrabber, at a lower cost.

About this manual

The manual applies to the AX-7 Cobra+ with firmware release 5.41 and to subsequent releases until otherwise notified. Please refer to the Technical Reference for further information of functions and parameters.

The manual consists of five sections:

Introduction. The AX-7 Cobra+ and the concepts used in this manual.

Installation. Installation of your AXIS AX-7 Cobra+ towards printer and IBM system.

Configuration. Configure your AXIS AX-7 Cobra+ from a terminal.

Advanced Functions. Use your printer beyond standard IBM operation.

Solving Problems. Checklist for identifying and solving problems.

Every care has been taken in the preparation of this manual; if you detect any inaccuracies or omissions, please inform us at the address on the back cover. Axis Communications AB cannot be held responsible for any technical or typographical errors and reserves the right to make changes in this manual and to the firmware without prior notice.

Emission notices

USA 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. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference. Shielded cables should be used with this unit to ensure compliance with the Class A limits.

CE

Europe This digital equipment fulfils the requirements for radiated emission according to limit B of EN55022/1994, and the requirements for immunity according to EN50082-1/1992 residential, commercial, and light industry. (Compliance is not valid for unshielded network and printer cables.)

Trademark Acknowledgements IBM, Lexmark, Epson, Fujitsu, OKI, HP, Canon, Kyocera, and Xerox, are registered trademarks of the respective holders.

AXIS AX-7 Cobra+ User's Manual — Revision 6.01
Part No: 12821 — Dated: July 1997

Table of Contents

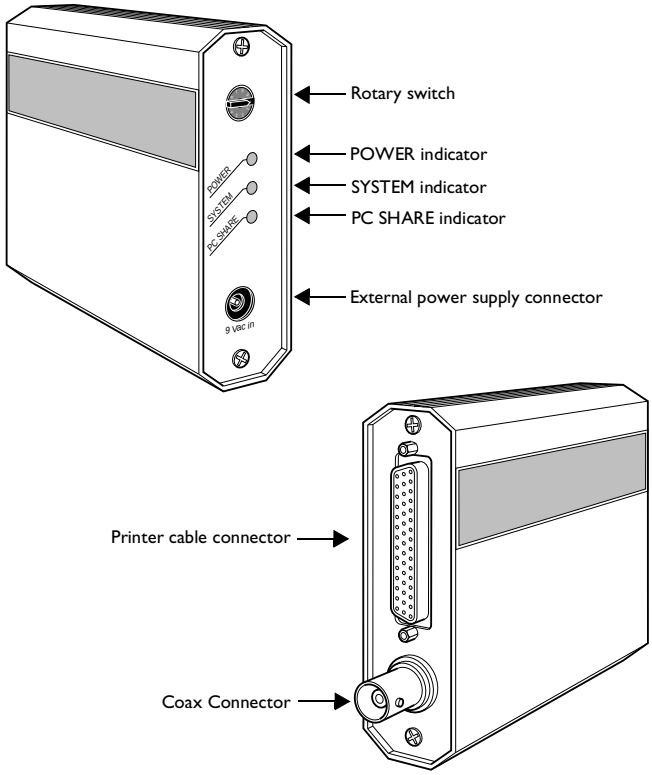
Section 1 Introduction

The AX-7 Cobra+

The AX-7 Cobra+ is a protocol converter, which makes it possible to connect a PC type printer to an IBM mainframe environment.

The AX-7 Cobra+ has a coax connector for incoming system data and a printer cable connector for outgoing ASCII data. Power is supplied via the printer's parallel connector or from an optional external power supply.

The picture below shows the front and back panels.



AX-7 Cobra+ front and back panels

Theory of Operation

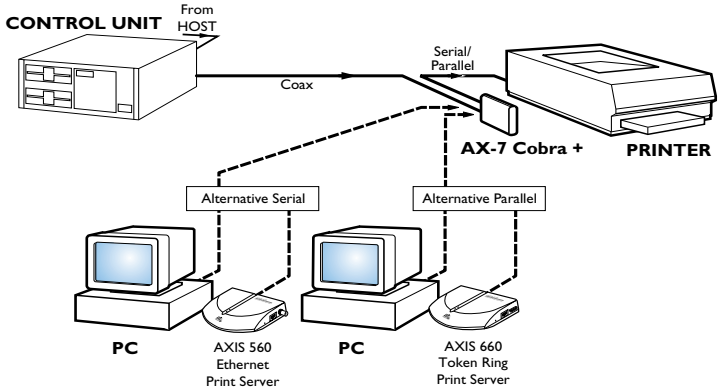
Print data from an IBM host is in a format that cannot be recognized by PC type printers.

The AX-7 Cobra+ converts IBM control and character codes to ASCII control commands and characters, which are recognizable by the PC type printer.

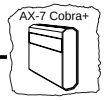
Together, the AX-7 Cobra+ and the attached printer will appear to the IBM host as an original IBM coax printer.

In addition, the AX-7 Cobra+ allows any parallel and/or serial device to share the printer with the IBM Host. The printer sharing function works automatically, using an optional cable.

The picture below shows a typical use of the AX-7 Cobra+ including the printer sharing function.



AX-7 Cobra+ printer sharing function



ASCII Printer Driver

The AX-7 Cobra+ can utilize many of the functions resident in the attached printer, such as bolding, page formatting and paper source selections. The control commands for these functions reside in the Printer Drivers. These cover the standard ASCII emulations such as IBM Proprinter, Epson and HP LaserJet. See page 61 for a list of available Printer Drivers.

IBM Printer Emulation

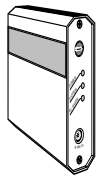
The following IBM printers can be emulated by the AX-7 Cobra+ and an attached PC type printer:

- IBM 3287 mod. 1 and 2C *(default)*
- IBM 3268 mod. 1 and 2
- IBM 4214 mod. 1
- IBM 3262
- IBM 4224 mod. 2 (non-IPDS mode)

See page 79 for further technical specification.

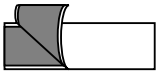
Section 2 Basic Installation

Unpacking

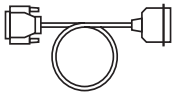


The following items are included in the standard delivery (part no: 0036-1):

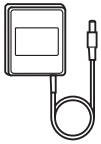
- AX-7 Cobra+
- AX-7 Cobra+ User's Manual (part no: 12821)



- Self-adhesive Velcro ribbons (part no: 11584 and 11585)

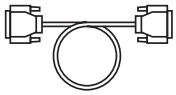


- Centronics parallel printer cable (part no: 12755)

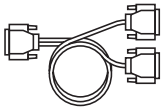


Optional:

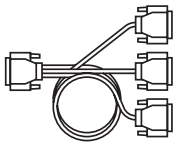
- External Power Supply US/Canadian (part no: 12919)
- External Power Supply European (part no: 13599)
- External Power Supply UK (part no: 12866)
- External Power Supply Australian (part no: 12867)
- External Power Supply Japan (part no: 13949)



- Serial (RS-232C) printer cable (part no: 12756)



- PC-Host 2-way sharing cable; serial PC in, serial printer attachment (part no: 12757)
- PC-Host 2-way sharing cable; parallel PC in, parallel printer attachment (part no: 12998)



- PC-Host 3-way sharing cable; serial and parallel PC in, parallel printer attachment (part no: 12758)

Printer Attachment

First you establish contact between the AX-7 Cobra+ and the PC type printer. Prepare this by checking that the printer is ready to use and that the printer cable matches the printer connector (parallel or serial).

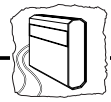
You may also need an optional external power supply, if the printer is unable to supply the AX-7 Cobra+.

We recommend that you mount the AX-7 Cobra+ to the side of your printer, using the self-adhesive Velcro ribbons.

1. Switch off the printer.
2. Connect the cable from the AX-7 Cobra+ to the printer.
3. Set the rotary switch to position '9' (test printout function).
4. Switch on the printer.
5. Connect the optional external power supply (if needed).

The POWER indicator is lit and the SYSTEM indicator will flash for a few seconds.

If the POWER indicator is not lit, the printer is unable to supply power to the AX-7 Cobra+. Connect an external power supply to the AX-7 Cobra+.



The AX-7 Cobra+ will produce a test printout on the printer which shows the firmware revision and basic configuration. The default configuration is for a generic printer.

Example:

```
******** TEST PRINTOUT ********

AX-7 Cobra+  Ver 5.41  960311

Printer Driver #30 Generic Printer
#045 IBM Printer Emulation____ 87: IBM 3287
#005 System Language__________ 0:  037 English (US)
#063 ASCII Char. Set__________ 0:  US English
#001 Form Length______________ 72
#002 Line Density_____________ 6
#004 Char. Density____________ 10
```

The Generic Printer configuration will support limited printer operation. To get more out of your printer, it is advised to configure the AX-7 Cobra+ for your printer type. Please refer to page 16 before continuing with System Attachment.

The test printout will show if the AX-7 Cobra+ has been configured for your printer by the dealer/distributor.

Example:
The printout shows that this AX-7 Cobra+ has already been configured for an HP LaserJet III printer:

```
******** TEST PRINTOUT ********

AX-7 Cobra+  Ver 5.41  960311

Printer Driver #49 HP Laserjet III
#045 IBM Printer Emulation____ 87: IBM 3287
#005 System Language__________ 0:  037 English (US)
#063 ASCII Char. Set__________ 13: PC 850
#001 Form Length______________ 66
#002 Line Density_____________ 6
#004 Char. Density____________ 10
```

System Attachment

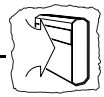
When your AX-7 Cobra+ is configured, and the configuration is verified by a test printout, it is time to connect it to the IBM system.

1. Switch off the AX-7 Cobra+ by switching off the printer, or, if an external power supply is used, by unplugging the power cord.
2. Set the rotary switch to position '0' (normal print operation).
3. Connect an IBM coax cable leading from the control unit to the AX-7 Cobra+.
4. Switch on the AX-7 Cobra+ (switch on the printer or plug in the external power supply).

The POWER indicator is lit. The SYSTEM indicator flashes for a few seconds and is then constantly lit.

To verify the attachment, make a local screen copy printout. Use a terminal attached to the IBM system and send a screen copy print to the port to which the AX-7 Cobra+ is connected.

You have completed the installation procedure, and your AX-7 Cobra+ is ready for use. It will not need any attendance or service during normal operation.



Section 3 Configuration

Although the AX-7 Cobra+ is prepared for operation at delivery, you may want to change the configuration. A test printout will verify the current configuration, see page 10.

The configuration can be done in two ways:

- **Configuration from a Terminal**
  This is the method described in this section. The configuration method requires a dedicated IBM 3270 terminal such as a 3178, 3179, 3197, 3192 or 3474.
  Alternatively a PC equipped with a 3270 terminal emulation board or an Axis EMMA board (part no: 0041-1) can be used.
- **Configuration from the System**
  The AX-7 Cobra+ can also be configured using down-loaded programming sequences from the system, see page 28.

Configuration from a Terminal

The AX-7 Cobra+ is equipped with a menu-driven Configuration Utility. This provides a step-by-step method to adapt the AX-7 Cobra+ to your IBM host and printer. Follow these steps to start the configuration:

1. Switch off the AX-7 Cobra+. If the power is taken from an attached printer, then switch the printer off. If you are using an external power supply, unplug the power cord.
2. Connect a terminal to the AX-7 Cobra+ via a coax cable, and switch the terminal on.
3. Set the rotary switch in position "0" and switch the AX-7 Cobra+ on. The SYSTEM indicator should now flash rapidly.

Within a few seconds, the Key Definitions Menu should appear on your terminal.

The rest of Section 3 is a guide to the Configuration Utility. If you want to restart the configuration, just switch the AX-7 Cobra+ off and on.

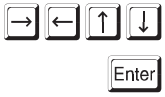
Key Definitions

```
=====================================================
 AX-7 Cobra+           Ver 5.41              960311
=====================================================

 KEY DEFINITIONS

_Right
 Left
 Up
 Down
 Enter




 Use <Up><Down> to move, <Enter> to select
```

The first menu is for assigning the specific keys to be used in the configuration. No other keys than the five assigned can be used.

Press the key you wish to assign when the corresponding value is highlighted.

The highlight will move to the next value after the key has been assigned.



Right, Left, Up and *Down* are normally assigned to the cursor keys, and *Enter* to the 'Enter' or 'Return' key.

When you have assigned the five keys, the Main Menu will be shown.

Basic Configuration

The Main Menu is shown after you have assigned the keys.

```
==================================================
 AX-7 Cobra+           Ver 5.41              960311
==================================================

 MAIN MENU

_Basic Configuration
 Printer Attachment
 View Configuration
 Print Parameters List
 Edit Parameters
 Character Translation
 User Defined Strings
 String Substitutions
 Set Factory Defaults
 Save
 Exit


 Use <Up><Down> to move, <Enter> to select
```

All entries are described on page 26.

The Basic Configuration entry initiates a configuration procedure which will guide you through a sequence of submenus. You will be prompted for selections in the following order:

1. Printer Driver
2. IBM Printer Emulation
3. System Language
4. Form Length
5. Lines per Inch
6. Characters per Inch

↑ ↓, Enter Select 'Basic Configuration'.

The Printer Driver submenu is shown.

Note:

- ❑ If an incorrect selection is made during the Basic Configuration, press *Enter* until the Main Menu appears, and re-enter the Basic Configuration.

Select Printer Driver

This submenu is shown after you have selected 'Basic Configuration' in the Main Menu.

```
=====================================================
                BASIC CONFIGURATION
=====================================================

 PRINTER DRIVER

_Generic Printer          Epson ESC/P (Japan)
 IBM Graphics             Brother M-4018
 IBM Proprinter           HP LaserJet II
 Epson FX/EX/DFX          HP LaserJet III
 Epson LQ                 HP LaserJet 4
 Fujitsu DL (DPL24C)      HP Color LaserJet
 Fujitsu DX (Epson)       CANON LBP-8III
 OKI 320 (Epson)          IBM 4019 (PPDS)
 OKI 390 (Epson)          IBM 4029 (PPDS)
 OKI 393 (Epson)          IBM 4039 (PCL-5)
 OKI 2350/2410            XEROX 4045
 Diablo 630 HP            HP 7475/7550
 Philips GP300            PaintJet XL300
 Mannesmann MT660
 IBM Matrix (PPDS)
 IBM 5577 (Japan)


 Use <Up><Down> to move, <Enter> to select
```

A printer driver is a device driver containing all the variables, including command sequences and character sets, required to drive a particular range of printers.

The default printer driver is Generic.

If your printer is not listed, consult your printer manual. Most printers can emulate at least one of the common printers like Epson, IBM Proprinter or HP LaserJet II.

↑ ↓, Enter — Select the printer driver matching your printer.

Select IBM Printer Emulation

This submenu is shown after you have selected the printer driver.

```
=====================================================
                    BASIC CONFIGURATION
=====================================================
 IBM PRINTER EMULATION

_IBM 3287
 IBM 3268
 IBM 4214
 IBM 3262
 IBM 4224




 Use <Up><Down> to move, <Enter> to select
```

The AX-7 Cobra+ together with the PC type printer will appear to the IBM system as an original IBM coax printer. You have to select which IBM printer emulation that is to be used.

The default printer emulation is IBM 3287.

If you are planning to use CECP (Country Extended Code Page) in LU3 mode, you have to select the IBM4224 emulation.

↑ ↓, Enter — Select the IBM Printer Emulation matching your system configuration.

Select System Language

This submenu is shown after you have selected IBM Printer Emulation.

```
================================================================================
                              BASIC CONFIGURATION
================================================================================
 SYSTEM LANGUAGE

_037 US English (US)           288 Swedish/Finnish alt --- XBASIC (Arabic)
 037 Netherlands               289 Spanish alt         --- XCOM2 (Arabic)
 037 Portuguese                290 Japanese Katakana   --- Load Translate Table
 037 Canadian Bilingual        297 French
 260 Canadian French           297 French AZERTY
 273 Austrian/German           420 Arabic
 275 Brazilian                 423 Greek
 277 Danish/Norwegian          424 Hebrew
 278 Swedish/Finnish           500 International Set 5
 280 Italian                   500 New Swiss French
 281 Japanese English          500 Belgian
 284 Spanish                   838 Thai
 284 Spanish Speaking          870 East Europe
 285 UK English                875 Greek
 286 Austrian/German alt       880 Cyrillic
 287 Danish/Norwegian alt      1026 Turkey (Latin 5)


 Use <Up><Down> to move, <Enter> to select
```

You have to set up the AX-7 Cobra+ for the System Language matching your IBM system configuration in order to obtain correct language specific characters.

The default System Language is English (US).

↑ ↓, Enter

Select the System Language corresponding to your IBM system configuration.

If you select "Load Translation Table", your IBM Control Unit will download the System Language when the AX-7 Cobra+ is switched on.

Select Form Length

This submenu is shown after you have selected System Language.

```
==================================================
                  BASIC CONFIGURATION
==================================================
 FORM LENGTH

 072

 Use cursor keys to edit, <Enter> to select
```

This is the number of lines per page.

The default form length is 72 lines for matrix printer drivers and 66 lines for laser printer drivers.

Selecting 0 lines will inhibit the form length setting, i.e. the printer itself keeps track of the page breaks.

Select the value corresponding to the physical paper size.

Note:

- ❑ The form length selection may be overridden by the host in SCS mode.

Select Lines per Inch (LPI)

This submenu is shown after you have selected Form Length.

```
==================================================
                  BASIC CONFIGURATION
==================================================
 LINES PER INCH

 3
 4
_6
 8
 Off









 Use <Up><Down> to move, <Enter> to select
```

This is the line spacing of the printout.

The default is 6 Lines per Inch.

'Off' means that no LPI commands are sent to the printer. Use this selection if you set LPI using the printer's front panel only.

↑ ↓, Enter — Select a Lines per Inch Value

Note:

- The Lines per Inch selection may be overridden by the host in SCS mode.

Select Characters per Inch (CPI)

This submenu is shown after you have selected LPI.

```
=====================================================
                    BASIC CONFIGURATION
=====================================================
 CHARACTERS PER INCH

  5
_10
  12
  15
  17
  Proportional
  Off









  Use <Up><Down> to move, <Enter> to select
```

This is the character spacing of the printout.

The default is 10 Characters per Inch.

The value "Proportional" is used to select proportionally spaced characters.

'Off' means that no CPI commands are sent to the printer. Use this selection if you set CPI using the printer's front panel only.

↑ ↓, Enter — Select a Character per Inch value.

Note:

- ❑ The Characters per Inch selection may be overridden by the host in SCS mode.

End of Configuration

The Basic Configuration is now completed, and the Main Menu is displayed again.

Save the Configuration

↑ ↓, Enter — Select 'Save' in the Main Menu

The following submenu is shown:

```
==================================================
                      SAVE
==================================================
 SAVE SETTINGS PERMANENTLY


_Yes
 No









 Use <Up><Down> to move, <Enter> to select
```

↑ ↓, Enter — Select 'Yes' to save the current configuration permanently.

The Main Menu is displayed.

Note:

- The previous configuration remains in the permanent memory until you select 'Save'. If you exit without saving, the changes you have made to the configuration will be lost at the next power-off.

Exit the Configuration

↑ ↓, Enter — Select 'Exit' in the Main Menu.

The following submenu is shown:

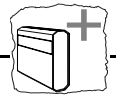
```
=====================================================
                          EXIT
=====================================================
 EXIT CONFIGURATION


_YES
 NO









 Use <Up><Down> to move, <Enter> to select
```

↑ ↓, Enter — Select 'Yes' to exit the Configuration.

The Configuration Utility is terminated and the screen is left blank. Disconnect the terminal and connect the AX-7 Cobra+ to your IBM system.

If you select 'No' in this submenu the Main Menu will be displayed again.

Note: ❑ If you exit without saving, the changes you have made to the configuration will be lost at the next power-off.



Section 4 Advanced Functions

The AX-7 Cobra+ supports a number of functions beyond standard IBM printer operation.

During normal mode of operation, AX-7 Cobra+, together with your printer, emulates the IBM coax printer selected in your configuration. In addition, the Extended Emulation Mode gives you access to functions not available in standard IBM printers.

The examples in this section are intended to give you an overview of how to use the advanced functions in the Extended Emulation Mode and the PC-Host Sharing function.

Extended Emulation Mode

The advanced functions that you can access in the Extended Emulation Mode are:

- Transparency
- Configuration from the System
- Character Translation
- User Definable Strings
- String Substitutions
- Bar Code Printing

The functions are programmed, and called, by text sequences inserted into your documents. The sequences are inserted between enter and exit commands that control the Extended Emulation Mode, see page 28.

Main Menu

A number of the advanced functions can be programmed or edited using Configuration from a Terminal. The Main Menu is displayed when the configuration is started. See page 16.

```
==================================================
 AX-7 Cobra+           Ver 5.41              960311
==================================================

 MAIN MENU

_Basic Configuration
 Printer Attachment
 View Configuration
 Print Parameter List
 Edit Parameters
 Character Translation
 User Definable Strings
 String Substitutions
 Set Factory Defaults
 Save
 Exit




 Use <Up><Down> to move, <Enter> to select
```

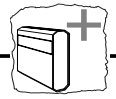
Basic Configuration see page 16.

Printer Attachment select parallel or serial printer connection and set serial parameters.

View Configuration display the basic configuration.

Print Parameter List print the complete configuration, see page 59.

Edit Parameters tailor the parameter list to meet specific needs.



Character Translation	view and edit tables see page 33.
User Definable Strings	define and edit strings see page 39.
String Substitutions	search and replace strings, see page 43.
Set Factory Defaults	abandon all changes to the configuration.
Save	store current configuration permanently.
Exit	exit configuration.

Configuration from the System

This function allows you to configure the AX-7 Cobra+ without using the Configuration from a Terminal as described on page 14.

By inserting configuration commands in your document, you can tailor the AX-7 Cobra+ to meet special requirements for certain print jobs.

Example:

`&&??%%`	*(Enter extended emulation mode)*
`%P`	*(Configuration lead-in sequence)*
`=207,49`	*(Printer Driver = HP LaserJet III)*
`=1,66`	*(Form Length = 66 lines)*
`=4,12`	*(Character Density = 12 CPI)*
`=45,24`	*(IBM printer type = IBM 4224)*
`=207,10`	*(Initialize settings)*
`=207,12`	*(Save settings permanently)*
`%`	*(Configuration trailer sequence)*
`&&??000`	*(Resume normal emulation mode)*

The example shows how to select a printer driver and program the basic configuration parameters.

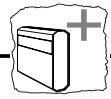
The first line is to enter the Extended Emulation Mode.

'%P' tells the AX-7 Cobra+ that configuration commands are to follow. '=' indicates a command line. Each command line has a function or parameter number.

'207' is a function number, followed by a comma sign and a value. Please refer to the Technical Reference for a description of functions and their values.

'1' is a parameter number, followed by a comma sign and a value. '4' and '45' are also parameters. See Appendix A for a description of the parameters and their values.

'%' indicates the end of the configuration commands.



The last line is to exit the Extended Emulation Mode.

Note: ❑ The comments (within brackets) should not be included in your document.

Transparency

The Transparency function allows you to send data directly to your printer without any conversion (pass-through). The data could be ASCII printer commands unsupported by the interface (*e.g.* underlined text), or even down-loaded fonts.

There are two types of Transparency, Single-byte and Multi-byte. The function is accessed in Extended Emulation Mode.

The Single-byte Transparency function is called by a percent sign in your document ('%') and it will pass through one subsequent ASCII byte (hexadecimal).

The Multi-byte function is started by two successive percent signs. When the start sequence ('%%') is found, the AX-7 Cobra+ assumes hexadecimal data until a terminating percent sign occurs.

Example (Multi-byte Transparency on IBM Proprinter):
You want the text to have an underlined part in the middle. Assuming that you have an IBM Proprinter, 'start underline' and 'stop underline' are defined by the ASCII codes $1B,$2D,$31 and $1B,$2D,$30 respectively:

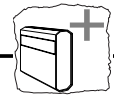
```
This is %%1B2D31%underlined%%1B2D30% text
```

To access the Transparency function, Extended Emulation Mode must be entered.

Printout:

```
This is underlined text
```

Please refer to the manual for your PC type printer for information on ASCII printer commands.



Redefine Configuration and Transparency Sequences

The Start and Stop Transparency and Configuration are controlled by three string parameters:

- *Transparency Lead-In Sequence (#070)*, default '%%'.
- *Configuration Lead-In Sequence (#071)*, default '%P'
- *Transparency/Configuration Trailer Sequence (#072)*, default '%'.

See page 59 for a description of the parameters. The parameters can be redefined using Configuration from the System, see page 38

Example:
Change the Transparency Lead-In Sequence from '%' to '!?<' (DBC codes $19, $18, $09).

Also, change the Trailer Sequence from '%' to '>&' (DBC codes $08, $30):

```
%P                  (Configuration lead-in sequence)
=40,2               (Set Extended Emulation type 2 permanently)
=70,$19,$18,$09     (Change the transparency lead-in sequence to '!?<')
=72,$08,$30         (Change the configuration trailer sequence to '>&')
=207,10             (Initialize settings)
=207,12             (Save settings permanently)
>&                  (Configuration trailer sequence (new))
```

- ❑ To redefine the sequences, Extended Emulation Mode must be entered. The sequences are reset to their default values if you exit and re-enter Extended Emulation Mode.
- ❑ The sequences are redefined immediately. Therefore, the new sequences '>&' must be used as Configuration Trailer Sequence in the document.

Example:
Use the new sequences in the same example as in the previous section (Multi-byte Transparency on IBM Proprinter):

```
This is !?<1B2D31>&underlined!?<1B2D30>& text
```

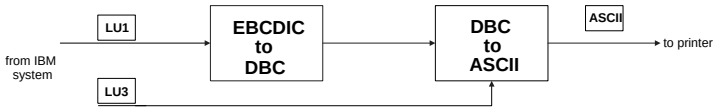
This results in the same printout as in the previous section.

Edit Translation Tables

Normally, there is no need to edit the translation tables. The character translation tables activated by the Printer Driver and System Language selections are designed to produce the same printouts as the emulated IBM printer.

If you should need to make further adjustments, this section explains the character translation process and how to modify the translation tables to meet specific needs.

Character Translation



Character Translation diagram

LU1 (*i.e. SCS*) data stream EBCDIC characters are first translated into DBC codes (Device Buffer Code). This is the internal character representation in the AX-7 Cobra+. The DBC codes are then translated into ASCII codes, which are sent to the printer.

LU3 (*i.e. DSE/DSC/non-SCS*) data stream DBC characters are directly translated into printable ASCII codes.

The EBCDIC-to-DBC translation table is determined by the selected System Language.

The DBC-to-ASCII table is determined by the selected Printer Driver.

Editing Translation Tables using Configuration from a Terminal

Start the Configuration from a Terminal as described on page 14.

↑ ↓, Enter

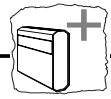
Select the Character Translation entry in the Main Menu.

The Character Translation menu is displayed:

```
==================================================
               CHARACTER TRANSLATION
==================================================

 CHARACTER TRANSLATION FUNCTIONS

_View/Edit DBC to ASCII table
 View/Edit EBCDIC to DBC table
 Print DBC to ASCII table
 Print DBC to ASCII table (hex)
 Print EBCDIC to ASCII table
 Print EBCDIC to ASCII table (hex)
 Print EBCDIC to DBC table (hex)
 Return to Main Menu
```

↑ ↓, Enter

Select 'View/Edit DBC to ASCII table'.



The translation table is displayed:

```
================================================================
                VIEW/EDIT DBC TO ASCII TABLE
================================================================
 ASCII Char. Set: PC-850
    0   1   2   3   4   5   6   7   8   9   A   B   C   D   E   F
_0 $20 $20 $30 $26 $85 $84 $B7 $8E $61 $71 $41 $51 $20 $D0 $20 $D1
 1 $20 $3D $31 $2D $8A $89 $D4 $D3 $62 $72 $42 $52 $20 $E7 $20 $E8
 2 $20 $27 $32 $2E $8D $8B $DE $D8 $63 $73 $43 $53 $20 $EC $20 $ED
 3 $20 $22 $33 $2C $95 $94 $E3 $99 $64 $74 $44 $54 $20 $20 $20 $20
 4 $20 $2F $34 $3A $97 $81 $EB $9A $65 $75 $45 $55 $20 $20 $20 $20
 5 $20 $5C $35 $2B $C6 $83 $C7 $B6 $66 $76 $46 $56 $FB $F1 $20 $20
 6 $20 $7C $36 $AA $E4 $88 $E5 $D2 $67 $77 $47 $57 $FD $F6 $20 $20
 7 $20 $DD $37 $EE $98 $8C $59 $D7 $68 $78 $48 $58 $FC $9E $20 $20
 8 $3E $3F $38 $F8 $85 $93 $41 $E2 $69 $79 $49 $59 $AB $FA $20 $20
 9 $3C $21 $39 *** $8A $96 $45 $EA $6A $7A $4A $5A $AC $AE $20 $20
 A $5B $24 $E1 $5E $82 $A0 $45 $B5 $6B $91 $4B $92 $F3 $AF $20 $20
 B $5D $BD $F5 $7E $8D $82 $49 $90 $6C $9B $4C $9D $A7 $A8 $20 $20
 C $29 $9C $23 $F9 $95 $A1 $4F $D6 $6D $86 $4D $8F $A6 $AD $20 $20
 D $28 $BE $40 $60 $97 $A2 $55 $E0 $6E $87 $4E $80 $F4 $E6 $20 $20
 E $7D $23 $25 $EF $81 $A3 $59 $E9 $6F *** $4F $3B $B8 $20 $20 $20
 F $7B $CF $5F $F7 $87 $A4 $43 $A5 $70 *** $50 $2A $A9 $20 $20 $20




Use <Right> to enter View/Edit mode, <Enter> to exit
```

The translation table shows the ASCII codes for each DBC code. Appendix B, page 73 shows a printout of the characters for each DBC code.

Read each DBC code as a column and row position where you find the ASCII translation. For example, DBC $2A translates to ASCII $E1.

This is the table for the PC-850 character set used by the HP LaserJet III printer driver. Changing the printer driver selection will also change the table.

Three asterisks (***) in the table indicate that the DBC code is translated into a string of ASCII codes, rather than a single code. The string is not displayed in the table but is available for editing.

To View/Edit:

→, Enter

Press *Right*. The highlight moves to the ASCII value for DBC $00. Use the cursor keys to move and press *Enter* to enter edit mode.

Example 1:
To change a left bracket '[' at position 0A to a left bracket '{' which has ASCII value $7B.

1. Move the highlight to position 0A in the table.
2. Press *Enter* to edit.

The row above the help message contains the edit field. This field shows the current DBC position and the corresponding ASCII value. The bottom of the screen looks like this:

```
E  $7D $23 $25 $EF $81 $A3 $59 $E9 $6F *** $4F $3B $B8 $20 $20 $20
F  $7B $CF $5F $F7 $87 $A4 $43 $A5 $70 *** $50 $2A $A9 $20 $20 $20

$0A:$5B
Use <Right> to enter View/Edit mode, <Enter> to exit
```

Now replace the value $5B with the new value $7B:

3. Change $5B to $7B using the *Up/Down* keys.
4. Press *Enter* to resume view mode.

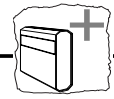
The position 0A in the table is now highlighted, and has the new value $7B.

5. Press *Left* to move the cursor to the home position (under the upper left digit '0').
6. Press *Enter* to exit and return to the Character Translation Menu.

From now on, a left bracket '[' is replaced by '{' in printouts.

Example 2:
Change the overscored semicolon '$\bar{;}$' at position 9E to a 'bullet' character '•' which has ASCII value $FA:

1. Move the highlight to position 9E in the table. The three asterisks indicate that this DBC character translates to a string rather than a single character.



2. Press *Enter*. The bottom of your screen now looks like this:

```
E  $7D $23 $25 $EF $81 $A3 $59 $E9 $6F *** $4F $3B $B8 $20 $20 $20
F  $7B $CF $5F $F7 $87 $A4 $43 $A5 $70 *** $50 $2A $A9 $20 $20 $20

$9F:$EE,$08,$3B
Use <Right> to enter View/Edit mode, <Enter> to exit
```

Replace the string $EE,$08,$3B (overscore, backspace, semicolon) with the value $FA (the bullet character):

3. Change $EE to $FA.
4. Step *Right*, and change $08,$3B to $00,$00.
5. Place the cursor under the first $00 to delete this and all subsequent zero values.
6. Press *Enter* to resume view mode.

The position 9E in the table is now highlighted, and the three asterisks are replaced with $FA.

7. Exit edit mode.

Note: ❑ Changing printer driver will override all changes to the table.

Editing Translation Tables using Configuration from the System

The translation table can be modified from the system.

Example (see also previous examples):
Change the overscored semicolon '; ' at position 9E to a 'bullet' character '•' by inserting the following programming sequences in your document:

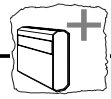
```
%P              (Configuration lead-in sequence)
=205,$9E,$FA    (Translate DBC $9E to ASCII $FA)
=207,10         (Initialize settings)
=207,12         (Save settings permanently)
%               (Configuration trailer sequence)
```

Note: ❑ To edit, Extended Emulation Mode must be entered.

'205' is the function number, '$9E' is the DBC table position and '$FA' is the new ASCII value (old ASCII value/ values are deleted).

You can modify any number of DBC positions by adding lines with function 205 calls.

The EBCDIC to DBC table is editable in a similar fashion, the only difference being that an EBCDIC character translates to a single DBC character only. The function number for EBCDIC table editing is 204.



User Definable Strings

A set of 255 User Definable Strings is at your disposal.

A common application is to program and store various printer control commands, and send them to the printer using string references rather than the commands themselves.

Please refer to the manual for your PC type printer for information on ASCII printer commands.

Programming Strings from a Terminal

Start the Configuration from Terminal as described on page 14.

↑ ↓, Enter

Select the User Definable Strings entry in the Main Menu.

The User Definable Strings Menu is displayed:

```
==================================================
              USER DEFINABLE STRINGS
==================================================
                                Free String Area: $4020
 View/Edit User Definable Strings
_$01 User Def. String    ____ .
 $02 User Def. String    ____ .
 $03 User Def. String    ____ .
 $04 User Def. String    ____ .
 $05 User Def. String    ____ .
 $06 User Def. String    ____ .
 $07 User Def. String    ____ .
 $08 User Def. String    ____ .
 $09 User Def. String    ____ .
 $0A User Def. String    ____ .
 $0B User Def. String    ____ .
 $0C User Def. String    ____ .
 $0D User Def. String    ____ .
 $0E User Def. String    ____ .
 $0F User Def. String    ____ .
 $10 User Def. String    ____ .
 Use cursor keys to edit, <Enter> to exit
```

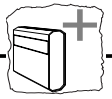
The numbers in the leftmost column are the string numbers, ranging from $01 to $FF.

Example (IBM Proprinter):
You want to store commands for underlining text. Assuming that you have an IBM Proprinter, 'start underline' and 'stop underline' are defined by the ASCII codes $1B,$2D,$31 and $1B,$2D,$30 respectively.

1. When string number $01 is highlighted, press *Right* to enter edit mode. The string is set to $00.
2. Edit the string to $1B,$2D,$31 using the cursor keys (press *Right* to expand the string).
3. Press *Enter*.
4. Edit string number $02 to $1B,$2D,$30.

Your screen now looks like this:

```
=================================================
              USER DEFINABLE STRINGS
=================================================
                                Free String Area: $401A
 View/Edit User Definable Strings

 $01 User Def. String____ $1B,$2D,$31.
_$02 User Def. String____ $1B,$2D,$30.
 $03 User Def. String____ .
 $04 User Def. String____ .
 $05 User Def. String____ .
 $06 User Def. String____ .
 $07 User Def. String____ .
 $08 User Def. String____ .
 $09 User Def. String____
 $0A User Def. String____ .
 $0B User Def. String____ .
 $0C User Def. String____ .
 $0D User Def. String____ .
 $0E User Def. String____ .
 $0F User Def. String____ .
 $10 User Def. String____ .
 Use cursor keys to edit, <Enter> to exit
```



Enter

Press *Enter* until the Main Menu is displayed.

The maximum String length is determined by the Free String Area.

Note: ❑ Changing printer driver will override all User Definable Strings.

Programming Strings from the System

Example (See also previous section):
Assume that you have an IBM Proprinter:

```
%P                          (Configuration lead-in sequence)
=209,$00                    (Delete all)
=209,$01,$1B,$2D,$31        (Program string 01 to 'start underline')
=209,$02,$1B,$2D,$30        (Program string 02 to 'stop underline')
=207,10                     (Initialize settings)
=207,12                     (Save settings permanently)
%                           (Configuration trailer sequence)
```

Note: ❑ Strings are programmed in Extended Emulation Mode.

'209' is the function number, '$01' is the string number. If the string number is not followed by a value, the string is deleted.

'209,$00' will delete all previously programmed User Definable Strings.

Using the Strings

Example (IBM Proprinter):
To underline text in a document using the strings number $01 and $02 (see previous example):

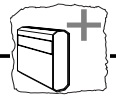
```
This is %01underlined%02 text
```

Note: ❑ To use the Strings, Extended Emulation Mode must be entered.

Printout:

```
This is underlined text
```

As you can see, the function syntax is equal to the Single-byte Transparency function. However, the User Definable Strings will override the Transparency function. If a value is used as a string number it cannot be passed through by the Single-byte Transparency function.



String Substitutions

This function is useful when you want to print a document that is prepared for a different PC type printer than yours.

The document contains control commands for a specific printer, and you have to convert these commands in order to print this document with your printer. Instead of changing the document, you can let the AX-7 Cobra+ do the conversion for you by using String Substitution.

The String Substitution function will search the data stream for a specified sequence of ASCII characters and substitute them with another sequence. Note that this function operates after the character and control code conversion.

Example:
Assume that you have an HP LaserJet. The document is prepared for an IBM Proprinter and contains 'start underline' and 'stop underline' pass-through commands at several locations. To print the document with an HP LaserJet, the sequences must be converted.

To 'start underline', the IBM Proprinter uses ASCII value string $1B, $2D, $31 and the HP LaserJet uses $1B, $26, $64, $44.

'Stop underline' commands are $1B, $2D, $30 and $1B, $26, $64, $40 respectively.

The following pages show how to program these substitutions, both from a Terminal and the System.

Programming String Substitutions from a Terminal

Start the Configuration from Terminal as described on page 14.

Select the String Substitutions entry in the Main Menu. The String Substitutions Menu consists of pairs of Match and Substitute strings.

Edit the first two string pairs. See page 39 on how to edit strings.

The String Substitutions Menu now looks like this:

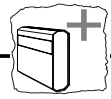
```
=================================================
                STRING SUBSTITUTIONS
=================================================
                                Free String Area: $4012
 View/Edit ASCII String Substitutions

 $01 Match String  1_____ $1B,$2D,$31.
 $02 Subst. String 1_____ $1B,$26,$64,$44.
 $03 Match String  2_____ $1B,$2D,$30.
_$04 Subst. String 2_____ $1B,$26,$64,$40.
 $05 Match String  3_____ .
 $06 Subst. String 3_____ .
 $07 Match String  4_____ .
 $08 Subst. String 4_____ .
 $09 Match String  5_____ .
 $0A Subst. String 5_____ .
 $0B Match String  6_____ .
 $0C Subst. String 6_____ .
 $0D Match String  7_____ .
 $0E Subst. String 7_____ .
 $0F Match String  8_____ .
 $10 Subst. String 8_____ .



 Use cursor keys to edit, <Enter> to exit
```

When a Match String is encountered in the ASCII data stream, it will be replaced by the subsequent Substitute String.

The maximum Match String length is 50 bytes. The maximum Substitute String length is determined by the Free String Area.

Notes:

- ❑ Extensive use of Substitutions may slow down the printing speed.
- ❑ Changing Printer Driver will delete all String Substitutions.



Programming String Substitutions from the System

The same programming example as above can also be obtained by inserting the following lines into your document:

```
%P                              (Configuration lead-in sequence)
=210,$00                        (Delete all)
=210,$01,$1B,$2D,$31            (Start underline - Proprinter)
=210,$02,$1B,$26,$64,$44        (Start underline - HP LaserJet)
=210,$03,$1B,$2D,$30            (Stop underline - Proprinter)
=210,$04,$1B,$26,$64,$40        (Stop underline -HP LaserJet)
=207,10                         (Initialize settings)
=207,12                         (Save settings permanently)
%                               (Configuration trailer sequence)
```

Note:

- ❑ String Substitutions are programmed in Extended Emulation Mode.

'210' is the function number. If the string number is not followed by data, the string will be deleted.

'210, $00' will delete all String Substitutions.

Bar Codes

This function gives you easy access to a range of standard bar code types. You can design every single bar code printout to meet your specific requirements, such as width and height.

There are two functions and two parameters that are used for printing bar codes:

- Function '211' defines the bar code.
- Function '212' prints the bar code.
- Bar Code Driver (#093).
- Bar Code Attributes (#094).

The definition has to be done before a bar code can be printed.

See page 62 for a description of parameters.

Define Bar Codes

The function '211', which is to be inserted into a document, has the following syntax:

211,value 1,value 2,value 3,value 4,value 5

The function number is followed by five bar code specification values. All five values must be specified:

Value 1: Bar Code Type. Selectable values (in decimal):

1 =Code 39
3 =UPC-A
8 =EAN8
9 =EAN13
12 =2 of 5 Interleaved
13 =Codabar Matrix
17 =Code 128

Value 2: Module Width as a multiple of 1/120 inch.
The value may range from 1 to 32 (in decimal).

Value 3: Bar Code Height in number of lines (1/6 inch).
The value may range from 1 to 32 (in decimal).

Value 4: Human Readable Text. Selectable values:

0 = No textline below the bar code

1 = Human readable textline below the bar code.

2 = Human readable textline below the bar code with empty line in between.

Value 5: Horizontal Bar Code Start Position in 1/12 inch steps.
The value may range from 1 to 255 (in decimal).

Note: ❑ When you set the horizontal width and start position, make sure that the printout will fit on the paper area.

Print Bar Code

The function '212' prints a bar code according to the settings in the bar code definition. The syntax is as follows:

212,"bar code data"

Example:

```
%P                          (Configuration lead-in sequence)
=211,9,2,2,1,10             (Define Bar Code)
=212, "123456789012"        (Print Bar Code)
%                           (Configuration trailer sequence)
```

Note: ❑ To Define and Print bar code, Extended Emulation Mode must be entered.

Printout:

PC-Host Sharing

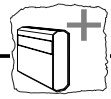
The AX-7 Cobra+ is capable of receiving input data both from the IBM host and any PC (serial or parallel). Using the AX-7 Cobra+ PC-Host sharing function gives you the following advantages:

- Switching between one or two PCs and host is done without operator intervention.
- Host settings and the current print position are restored after a PC printout.
- Three optional PC-Host sharing cables are available:

  - 2-way sharing cable for parallel PC input.
  - 2-way sharing cable for serial PC input.
  - 3-way sharing cable for serial and parallel PC input.
- Four string parameters are provided to facilitate PC printout customization, *e.g.* a different character set or printer emulation:

  - *Host-PC Ser. Sequence (#138)* is sent *before* a serial PC printout.
  - *Host-PC Par. Sequence (#141)* is sent *before* a parallel PC printout.
  - *PC-Host Sequence (#137)* is sent *after* a PC printout.
  - *PC-Host TOF Sequence (#152)* is sent if the PC printout did not end with a Form Feed command.
- One yes/no parameter, *Resend Host-PC sequence (#154),* which forces the Host-PC serial or parallel sequences *(#138 or # 141)* to be sent between two PC printouts if the timer *PC-Host Time-out (#136)* has expired.

Note: ❑ You can interface with other types of computers such as workstations, LAN print servers, etc., provided that the computer has a PC-compatible parallel or serial output (see picture on page 5).



Configuration

Make sure that the AX-7 Cobra+, the printer and the PC are switched off.

1. Connect the PC-Host sharing cable, leading from the AX-7 Cobra+ to your printer and to the PC (or PCs).
2. Switch on all units.

For PC serial printing, make sure that the PC's serial parameters match the AX-7 Cobra+ configuration. The following DOS commands will set the PC port COM1 to match the default settings of the AX-7 Cobra+ serial parameters and print a directory listing:

```
MODE COM1:96,n,8,2,p  (Set the serial parameters for COM1)
DIR >COM1             (Print a directory listing for verification)
```

For PC parallel printing it is recommended to set the DOS parallel printer time-out to infinite with the following command:

```
MODE LPT1:,,P         (Set the timeout to infinite)
```

Automatic Page Orientation

(This section applies to Laser Printer drivers only.)

The automatic page orientation function calculates page sizes based on the following page formatting parameters:

- Form Length (#001)
- Line Density (#002)
- Maximum Print Position (#003)
- Character Density (#004)
- Automatic Orientation/Physical Paper Size (#074)

Portrait or landscape orientation is automatically selected depending on the calculated length/width ratio. If the calculated page size is larger than the physical page in either orientation, and *Orientation (#148)* is set to Computer Output Reduction (COR), COR mode is used.

The COR function is designed to accommodate traditional data processing applications that require 66 lines of 132 columns on laser printers. The following changes are made:

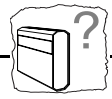
- The page is printed in landscape orientation.
- The line spacing is set to 70% of that specified.
- The character density is changed as follows:

  10 CPI ⇨13.3 CPI

  12 CPI ⇨15 CPI

  15 CPI ⇨20 CPI

  17 CPI ⇨ 27 CPI
- The top and left margins are set to 0.5".



Section 5 Solving Problems

This section helps you to solve any problems that might arise when installing or using your AX-7 Cobra+ interface. There are two major areas of difficulty:

- Missing printouts
- Incorrect printouts

Use the following checklists to pinpoint the possible cause. If your problems continue, please contact your dealer/distributor.

Missing Printouts

In case of missing printouts, check the following:

1. Is the POWER indicator on?
   No: Your printer cannot supply the AX-7 Cobra+. You must use an external power supply (see page 10).

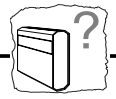
2. Is the attached printer on-line (*Ready*)?
   No: Set the printer on-line (see the printer manual).

3. Is the printer correctly attached?
   Make sure that the AX-7 Cobra+ printer cable is connected to the proper port. If your printer has both parallel and serial input ports, the printer must be set up for the printer cable type (parallel/serial) you are using.

4. For serial attached printers: Are the serial parameters correct?
   Make sure that the baud rate, stop bits, parity and word length settings match your printer settings. These parameters are found under the 'Printer Attachment' entry in the Main Menu, see page 26. When using XON/XOFF protocol, *PC-Host Time-out (#136)* must be set to zero.

5. System printouts: Is the SYSTEM indicator on?
   No: The AX-7 Cobra+ is not correctly connected to the system, or the power-up routine has been disturbed. Restart the interface (power-off/power-on). If this doesn't help, make sure that the coax cable is properly connected between the interface and system. If the cable works with another 3270 printer, contact your distributor.
   Flashing: The AX-7 Cobra+ is in Test Mode. To exit set the rotary switch to position '9', or switch the AX-7 Cobra+ off and on.

6. PC printouts: Is the PC-Host Sharing Configuration correct?
   See page 48.



Incorrect Host Printouts

There are five major types of incorrect printouts:

Some Characters are Printed Incorrectly

- **Characters like ä ü Ä Ü are printed as** { } [ ]
  Most likely an incorrect System Language has been selected. Select the System Language matching your system configuration, or 'Load Translate table' to make your Control Unit down-load the System Language for you, see page 19.
- **Characters like é ì ô ü are printed as e i o u**
  Your printer has not been set up for the character set matching the ASCII Character Set selection in the Printer Driver. Make sure that you have selected the correct Printer Driver. If this doesn't help, your printer may not be able to print all the characters that the system produces. Print out the DBC-to-ASCII translation table, see page 34, and compare this to the table on page 73. In some cases it is possible to edit the translation table, or to select another character set in your printer. Consult your distributor for further details.

Corrupted Printouts

This is generally caused by selecting a Printer Driver not matching your printer. The control commands will then be misinterpreted by the printer, causing corrupted printouts. If changing Printer Driver does not help, you can use the ASCII hexdump function (see page 56) to locate the control commands causing the problem.

Incorrect Page Breaks

Most likely an incorrect Form Length setting. Recommended values are listed on page 62 . Make sure that you have selected the correct Printer Driver.

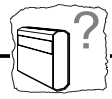
Lost characters at end of line

Some laser printers cannot print a full line of 80 characters in 10 CPI. Change the Characters per Inch setting to 12 CPI.

Note: ❑ *Advanced users:* You might also modify the 10 CPI string contents to set 10.2 CPI instead.

Additional empty lines or spaces

Your system application may assume the utilization of an IBM RPQ (Request for Price Quotation). Several empty lines can be caused by an incorrect logical buffer size. If you are not familiar with IBM RPQ's and buffer sizes, your distributor should be able to help you.



Reporting Problems

If you run into problems that you can't solve on your own, it is important that you make an error report for your System Manager or distributor. The error report should include:

- A printout with a description of the errors
- If possible, a correct printout
- A Parameter List
- A System and ASCII hexdump

If you need technical support, please contact your dealer. If they cannot help you, they will forward your request through the appropriate channels.

If you are connected to the Internet, have a look at the Axis WWW Home Page at **http://www.axisinc.com/** or **http://www.axis.com/** Here you can find information about the company and our products. You can also down-load on-line manuals, tools such as the Acrobat Reader for different platforms, and the latest versions of the software utilities. You can also get files and information through anonymous ftp: log in to **ftp.axisinc.com** or **ftp.axis.com** and go to the /pub/axis directory, or enter **ftp://ftp.axisinc.com/pub/axis** or **ftp://ftp.axis.com/pub/axis** in your WWW browser.

Printing the Parameter List

The Parameter List shows the complete configuration. A selection of parameters are described on page 59. To print the Parameter List, do as follows:

1. Make sure that your printer is on-line.
2. Set the rotary switch to '9', and wait for approx. 3 seconds until the SYSTEM indicator starts to flash. You are now in the Test Mode.
3. Set the rotary switch to '8' to start the printout.
4. Set the rotary switch to '9' when the printout is completed. The SYSTEM indicator will stop flashing.
5. Select position '0' to resume normal print operation.

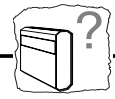
Producing Hexdumps

A hexdump is a printout where the input data stream is printed as hexadecimal byte values rather than being interpreted as characters and control codes. The AX-7 Cobra+ features two different types of hexdump modes:

- **System hexdump**
  This mode will trap the input data *before* the character and control code conversion. The data is printed as EBCDIC or DBC hexadecimal values.
- **ASCII hexdump**
  The input data is converted to ASCII hexadecimal values *after* the character and control code converstion but *before* printing. This mode is useful if you want to see what printer control command a certain IBM control code corresponds to.

To produce a hexdump, do as follows:

1. Switch the printer and AX-7 Cobra+ off and on.
2. Set the rotary switch to '9', and wait for approx. 3 seconds until the SYSTEM indicator starts to flash. You are now in the Test Mode.
3. Select position '4' for system hexdump, or position '3' for ASCII hexdump.



4. Repeat your print job. The data will now be printed in hexadecimal form.
5. Set the rotary switch to '9' when the printout is completed. The SYSTEM indicator will stop flashing.
6. Select position '0' to resume normal print operation.

Example of ASCII hexdump:

```
AX-7 Cobra+   Ver 5.41  960311
Printer Driver #49 HP LaserJet III

0001 1B 26 61 33 36 30 48 1B 26 61 35 32 38 56 1B 26 "-&a360H-&a528V-&"
0002 61 33 36 30 48 1B 26 61 35 32 38 56 54 45 53 54 "a360H-&a528VTEST"
```

Error messages

There are four different error conditions that will cause the AX-7 Cobra+ to print an error message on your printer:

```
E2-PERMANENT MEMORY CHECKSUM ERROR, FACTORY DEFAULTS
SET
```

This message indicates that the non-volatile memory has been corrupted. The interface is automatically set to factory default state (your configuration is lost). If the message does not re-appear after power-off/power-on, reconfigure the AX-7 Cobra+, see page 14.

```
E6-MEMORY OVERFLOW: FREE STRING AREA EXHAUSTED
```

The available string area is exhausted. You must remove some strings from your configuration. (User Definable Strings, String Substitutions or String parameters in the Parameter List). The size of the available string area is printed in the Parameter List header, and is also displayed in all string programming menus.

```
BE-BAR CODE ERROR
```

Incorrect or insufficient bar code definition. The bar code must be specified with five values. See page 46.

```
BF-GDDM SUPPORT NOT ENABLED: NOT ENOUGH ROOM IN FREE
STRING AREA; 13283 ($33E3) BYTES REQUIRED
```

An attempt has been made to enable GDDM (#142) when insufficient free memory is available. You must remove some strings from your configuration. (User Definable Strings, String Substitutions or String parameters in the Parameter List). The size of the available string area is printed in the Parameter List header, and is also displayed in all string programming menus.

Appendix A The Parameter List

The Parameter List shows the complete configuration of the AXIS AX-7 Cobra+. Each parameter contains a value or string that is used to determine how the AXIS AX-7 Cobra+ should behave towards the host and towards the printer.

In this appendix you will find a selection of parameters, i.e. the Basic Configuration, Please refer to the AX-7 Cobra+ Technical Reference Manual for parameters not covered by this manual.

Printout Example

This printout shows the beginning of a Parameter List (the header and the first 10 parameters) for the HP LaserJet III printer driver. Your own printout may differ depending on printer driver selection, firmware revision and customized configuration.

```
AXIS AX-7 Cobra+ Cobra+  Ver 5.41  960311

Printer Driver #49 HP LaserJet III
Free String Area: $3DEE

#001 Form Length_____________ 66
#002 Line Density____________ 6
#003 Max. Print Pos._________ 132
#004 Char. Density___________ 10
#005 System Language_________ 0: 037 English (US)
#006 True Screen Image_______ No
#007 FF before Hardcopy______ No
#008 FF after Hardcopy_______ Yes
#009 Monocase________________ No
#010 Suppress Ctrl. Codes____ No
```

Note:

- If any User Definable Strings or String Substitutions are defined, they will be printed after the Parameter List.

Printer Drivers

A printer driver is a device driver containing all the parameters required to drive a particular range of printers. The following printer drivers are available:

No	Title	No	Title
30	Generic Printer	44	IBM Matrix (PPDS)
31	IBM Graphics	45	IBM 5577 (Japan)
32	IBM Proprinter	46	Epson ESC/P (Japan)
33	Epson FX/EX/DFX	47	Brother M-4018
34	Epson LQ	48	HP LaserJet II
35	Fujitsu DL (DPL24C)	49	HP LaserJet III
36	Fujitsu DX (Epson FX)	50	Canon LBP-8 III
37	OKI 320 (Epson FX)	51	IBM Laser (PPDS)
38	OKI 390 (Epson LQ)	52	Xerox 4045
39	OKI 393 (Epson LQ)	53	HP 7475/7550
40	OKI 2350/2410	54	IBM 4029 (PPDS)
41	Diablo 630	55	HP LaserJet 4
42	Philips GP300	57	HP Color LaserJet
43	Mannesmann MT660	56	IBM 4039 (PCL-5)
		62	HP PaintJet XL 300

Note: ❑ Optional firmware is available for IBM PPDS printers supporting East European and Middle East countries and for XEROX printers Access Facility (XPAF) ver 2.2 host software. Please contact your dealer/distributor.

Parameter Descriptions

#001 Form Length

Number of lines per page. The AXIS AX-7 Cobra+ causes the paper to be ejected (cut sheet) or advanced to the next top of form (fanfold) when the specified number of lines have been printed.

Value	Description	Value	Description
1-255	Number of lines per page	66	A4 size cut sheet
0	Do not count lines	*66	11" fanfold *(default, laser printers)*
48	8.5" fanfold	*72	12" fanfold *(default, matrix printers)*
64	Letter size cut sheet	-	-

#002 Line Density

Number of lines per inch (LPI).

Value	Description	Value	Description
0	Do not set Line Density	*6	6 Lines per Inch *(default)*
3	3 Lines per Inch	8	8 Lines per Inch
4	4 Lines per Inch	-	-

#004 Character Density

Number of characters per inch (CPI).

Value	Description	Value	Description
0	Do not set Char. Density	15	15 Characters per Inch
5	5 Characters per Inch	17	16.7 Characters per Inch
*10	10 Characters per Inch *(default)*	99	Proportional Char. spacing
12	12 Characters per Inch	-	-

#005 System Language

This parameter makes the EBCDIC-to-DBC translation table match the System Language configuration of your IBM system.

Value	Description	Value	Description
*0	037 English (US) *(default)*	18	297 French
1	037 Netherlands	19	297 French AZERTY
2	037 Portuguese	20	500 International Set 5
3	037 Canadian Bilingual	21	500 New Swiss French
4	260 Canadian French	22	500 Belgian
5	273 Austrian/German	23	290 Japanese Katakana*
6	275 Brazilian	30	420 Arabic*
7	277 Danish/Norwegian	31	424 Hebrew*
8	278 Swedish/Finnish	32	423 Greek*
9	280 Italian	33	1026 Turkey (Latin 5)*
10	281 Japanese English	35	880 Cyrillic*
11	284 Spanish	36	870 East Europe*
12	284 Spanish Speaking	37	875 Greek*
13	285 English (UK)	38	838 Thai*
14	286 Austrian/German alt	80	- - - XBASIC (Arabic)*
15	287 Danish/Norwegian alt	81	- - - XCOM2 (Arabic)*
16	288 Swedish/Finnish alt	99	- - - Load Translate Table
17	289 Spanish alt		

Note: ❑ To use system languages marked with *, the matching *ASCII Character set (#063)* must be selected.

#031 Baudrate

Set the serial port baud rate.

Value	Description	Value	Description
1	100 baud	36	3600 baud
3	300 baud	48	4800 baud
6	600 baud	72	7200 baud
12	1200 baud	*96	9600 baud *(default)*
18	1800 baud	192	19200 baud
24	2400 baud		

#032 Word Size

Set the serial port word size (number of bits).

Value	Description	Value	Description
7	7 bits	*8	8 bits *(default)*

#033 Parity

Set the serial port parity.

Value	Description	Value	Description
*0	No parity *(default)*	2	Even parity
1	Odd parity		

#034 Stop Bits

Set the serial port number of stop bits.

Value	Description	Value	Description
1	One stop bit	*2	Two stop bits *(default)*

#040 Extended Emulation Mode

Selects the default Extended Emulation Mode.

Value	Description	Value	Description
*0	No Extended Emulation Mode *(default)*	3	MPI compatible mode
1	Escape Character translates to ASCII $1B	4	Memorex 2068 compatible mode
2	Standard Extended Emulation Mode	5	Maersk Data compatible mode

#041 Escape Character

Select the DBC character code used for Single-byte Transparency, User Definable Strings and Extended Emulation Mode 1.

Value	Description	Value	Description
$10-$BF	(valid range)	*$2E	'%' *(default)*

#042 Option Select 1

This parameter controls 8 independent switches. Each bit represents one switch.

Value	Description	Value	Description
$00-$FF	(valid range)	*$02	(default)

Bit 0 ($01): Reserved

Bit 1 ($02): LU1 Form Feed valid in 1st line.

Value	Description	Value	Description
0	No	*1	Yes *(default)*

Bit 2 ($04): Reserved

Bit 3 ($08): SHF Maximum Print Position select.

Value	Description	Value	Description
*0	Default MPP is used *(default)*	1	Current MPP is used

Bit 4 ($10): Reserved

Bit 5 ($20): SVF Maximum Page Length select.

Value	Description	Value	Description
0	Default MPL is used *(default)*	*1	Current MPL is used

Bit 6 ($40): Extended SCS Transparency.

Value	Description	Value	Description
*0	SCS TRN data as SCS codes *(default)*	1	SCS TRN data as ASCII codes

Bit 7 ($80): Action at coax communication loss.

Value	Description	Value	Description
*0	No action *(default)*	1	Restart attempt after 60 seconds

#045 IBM Printer Emulation

Selects the IBM Printer Emulation.

Value	Description	Value	Description
*87	IBM 3287 *(default)*	62	IBM 3262
68	IBM 3268	24	IBM 4224 (non-IPDS)
14	IBM 4214		

#063 ASCII Character Set

Selects the DBC to ASCII translation table.

Value	Description	
0	US English	(7-bit symbol set)
1	Swedish/Finnish	(7-bit symbol set)
2	Danish/Norwegian	(7-bit symbol set)
3	German	(7-bit symbol set)
4	UK English	(7-bit symbol set)
5	Italian	(7-bit symbol set)
6	French/Belgian	(7-bit symbol set)
7	Spanish	(7-bit symbol set)
8	Japanese	(7-bit symbol set)
9	XBASIC (Arabic)	(8-bit symbol set)
10	XCOM2 (Arabic)	(8-bit symbol set)
11	PC Set 2	(8-bit symbol set)
12	Roman-8	(8-bit symbol set)
13	PC-850	(8-bit symbol set)
14	ISO/ECMA94	(8-bit symbol set)
15	PC-942 Shift JIS	(8/16-bit symbol set)
16	JIS X0201	(8-bit symbol set)
20	PC-864 Arabic	(8-bit symbol set)
21	PC-862 Hebrew	(8-bit symbol set)
22	PC-869 Greek	(8-bit symbol set)
23	PC-857 Turkish	(8-bit symbol set)
25	PC-855 Cyrillic	(8-bit symbol set)
26	PC-852 PC Latin 2	(8-bit symbol set)
27	PC-851 Greek	(8-bit symbol set)
28	PC-874 Thai	(8-bit symbol set)

Note: ❑ The default setting depends on the selected printer driver.

#066 Option Select 2

This parameter controls 8 independent switches. Each bit represents one switch.

Value	Description	Value	Description
$00-$FF	(valid range)	*$10	(default)

Bit 0 ($01): Extended Emulation Control Syntax.

Value	Description	Value	Description
*0	Normal syntax *(default)*	1	Only Escape Character after '&&??'

Bit 1 ($02): True Screen Image in Host Direct Mode.

Value	Description	Value	Description
*0	True Screen Image valid for all Hardcopy modes *(default)*	1	Suppress NULs in Host Direct Mode

Bit 2 ($04): Next print position after New Line at MPP+1.

Value	Description	Value	Description
*0	1st print position of current + 2 lines *(default)*	1	1st print position of current + 1 line

Bit 3 ($08): Lock MPP.

Value	Description	Value	Description
*0	No *(default)*	1	Yes

Bit 4 ($10): Suppress New Line after Extended Emulation Sequence.

Value	Description	Value	Description
0	Yes	*1	No *(default)*

Bit 5 ($20): CR and Space Character Buffering.

Value	Description	Value	Description
*0	Yes *(default)*	1	No

Bit 6 - 7 ($40 - $80): Reserved

#070 Transparency Lead-In Sequence

Starts Multi-byte Transparency Mode.

Value	Description	Value	Description
<any seq.>	(any length or content)	*$2E $2E	'%%' *(default)*

#071 Configuration Lead-In Sequence

Starts Configuration Mode.

Value	Description	Value	Description
<any seq.>	(any length or content)	*$2E $AF	'%P' *(default)*

#072 Transparency/Configuration Trailer Sequence

Terminates the Multi-byte and Configuration Modes.

Value	Description	Value	Description
<any seq.>	(any length or content)	*$2E	'%' *(default)*

#074 Automatic Orientation

Controls the automatic page orientation function, the following values can be selected:

Value	Description	Value	Description
*0	Off *(default)*	3	A4 (8.27" x 11.69"/ 297 mm x 210 mm)
1	Letter (8.5" x 11")	4	Executive (7.25" x 10.5")
2	Legal (8.5" x 14")	99	Custom. Auto orientation enabled for Custom size paper.

#075 Custom Page Size

User definable paper size implemented by selecting '99' in #074. The size is entered in $^{1}/_{300}$" as a 4-byte hexadecimal sequence: width x length.

#093 Bar Code Driver

Selects the graphics driver used for bar code printing. The default value depends on the selected Printer Driver.

Value	Description	Value	Description
0	Off	2	Epson LQ/Fujitsu DPL 24C
1	IBM Proprinter/Epson FX	8	HP-PCL

#094 Bar Code Attributes

Adjust bar code printout quality to paper and printer conditions.

Value	Description	Value	Description
*0	Normal *(default)*	2	Bold
1	Thin	3	Thin and Bold

#100 Option Select 3

This parameter controls 8 independent switches. Each bit represents one switch.

Value	Description	Value	Description
$00-$FF	(valid range)	*$02	(default)

Bit 0 ($01): Next print position after LU3 Form Feed within Print Buffer.

Value	Description	Value	Description
*0	2nd print position of next form *(default)*	1	1st print position of next form

Bit 1 ($02): Form Feed at LU3 to LU1 change.

Value	Description	Value	Description
0	Yes	*1	No *(default)*

Bit 2 ($04): Valid LU3 Form Feed positions.

Value	Description	Value	Description
*0	1st print position and MPP+1 *(default)*	1	Any position

Bit 3 ($08): Automatic function at End of Job.

Value	Description	Value	Description
*0	New line *(default)*	1	Form Feed

Bits 4 - 6 ($10 - $40): Reserved

Bit 7 ($80): Space as delimiter in Extended Emulation Mode.

Value	Description	Value	Description
*0	Not valid *(default)*	1	Valid

#124 Extended Attribute Buffer (EAB)

Controls the EAB and APL text emulation. The default value depends on the selected Printer Driver.

Value	Description	Value	Description
0	EAB and APL disabled	2	Use EAB, APL characters are emulated by PC Set 2 Characters
1	Use EAB, print APL characters as normal characters	-	-

#136 PC-Host Timeout

A timer value controlling the automatic switching between PC and Host input.

Value	Description	Value	Description
1-254	Delay in seconds	60	1 minute delay time
0	Host input only	255	PC serial input only
*10	10 seconds delay time *(default)*		

#137 PC-Host Sequence

This string precedes the first host buffer following a PC printout.

Value	Description	Value	Description
<any seq>	(length and contents free of choice)	*<empty>	(default)

#138 Host-PC Serial Sequence

This string precedes the first serial PC printout following a host buffer or a parallel PC printout.

Value	Description	Value	Description
<any seq>	(length and contents free of choice)	*<empty>	(default)

#139 End of Job Time-out

A timer controlling parameters #140 and #151 when the host has been idle for the specified amount of time.

Value	Description	Value	Description
1-255	Time-out in seconds	60	Take action after 1 min. idle
*0	Do not take action on idle *(default)*	255	Take action after 4:15 min. idle
10	Take action after 10 sec. idle	-	-

#140 End of Job Sequence

This string is sent when the End of Job timeout has expired.

Value	Description	Value	Description
<any seq.>	(any length or content)	*<empty>	(default)

#141 Host-PC Parallel Sequence

This string precedes the first parallel PC printout following a host buffer or a serial PC printout.

Value	Description	Value	Description
<any Seq>	(length and contents free of choice)	*<empty>	(default)

#142 GDDM Support

Selects the graphics driver used for GDDM (Programmable Symbols) graphics.

Value	Description	Value	Description
*0	Off *(default)*	3	HP LaserJet
1	Fujitsu DPL24C	4	HP LaserJet 2/3 size
2	Epson/Proprinter	-	-

#143 GDDM Color

Selects Color/Monochrome GDDM graphics.

Value	Description	Value	Description
*0	Monochrome *(default)*	2	Seven colors
1	Four colors		

#148 Orientation

Controls the page orientation when automatic orientation is disabled, or when the calculated page size does not fit within the physical page size. #151Start of Job Sequence

Value	Description	Value	Description
*0	Portrait *(default)*	2	COR
1	Landscape		

This string precedes the first host buffer arriving after an End of Job timeout.

Value	Description	Value	Description
<any seq.>	(any length or content)	*<empty>	(default)

#152 PC-Host TOF Sequence

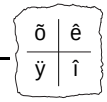
The PC-Host TOF string is sent when the PC printout did not finish with a Form Feed.

Value	Description	Value	Description
<any seq>	Printer control commands	*$0C	Factory default

#154 Resend Host-PC Sequence

Forces the Host_PC *serial sequence (#138)* or the *Host-PC parallel sequence (#141)* to be sent between two PC printouts if the timer *PC-Host Timeout (#136)* has expired.

Value	Description	Value	Description
1-254	Delay in seconds	60	1 minute delay time
0	Host input only	255	PC serial input only
*10	10 seconds delay time *(default)*		



Appendix B DBC Character Table

This table (DBC - Device Buffer Code) shows the internal character representation in the AX-7 Cobra+.

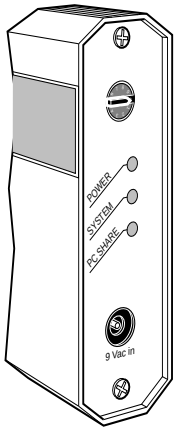
Hex Digits 1st → 2nd ↓	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	NUL		0	&	à	ä	À	Ä	a	q	A	Q		ð		Ð
-1	EM	=	1	-	è	ë	È	Ë	b	r	B	R		þ		Þ
-2	FF	'	2	.	ì	ï	Ì	Ï	c	s	C	S		ý		Ý
-3	NL	"	3	,	ò	ö	Ò	Ö	d	t	D	T				
-4		/	4	:	ù	ü	Ù	Ü	e	u	E	U				
-5	CR	\	5	+	ã	â	Ã	Â	f	v	F	V	¹	±		
-6		|	6	¬	õ	ê	Õ	Ê	g	w	G	W	²	÷		
-7		¦	7	¯	ÿ	î	Y	Î	h	x	H	X	³	×		
-8	>	?	8	°	à	ô	A	Ô	i	y	I	Y	½	·		
-9	<	!	9	˅	è	û	E	Û	j	z	J	Z	¼	«		
-A	[	$	ß	ˆ	é	á	E	Á	k	æ	K	Æ	¾	»		
-B	]	¢	§	˜	ì	é	I	É	l	ø	L	Ø	º	¿		
-C	)	£	#	¨	ò	í	O	Í	m	å	M	Å	ª	¡		
-D	(	¥	@	`	ù	ó	U	Ó	n	ç	N	Ç	¶	µ		
-E	}	Pts	%	´	ü	ú	Y	Ú	o	¯	O	;	®			
-F	{	¤	_	¸	ç	ñ	C	Ñ	p	¯	P	*	©			

Appendix C The Front Panel

The front panel has three indicators (POWER, SYSTEM and PC SHARE) and a rotary switch. The switch is used for accessing certain functions. In normal print operation it should be set to '0'.

The POWER indicator

This indicator (green) is lit when the AX-7 Cobra+ is switched on.



The SYSTEM indicator

This indicator (green) is lit when the AX-7 Cobra+ is connected to your IBM system. It can also flash under the following conditions:

- Flash during six seconds at power up.
- Flash in Test Mode (see below).
- Rapid flash during test function execution.

Note: ❑ If the power up flashing continues, a hardware error has occurred. Contact your dealer/ distributor.

The PC SHARE indicator

This indicator (yellow) is lit during a PC printout. Any print job from host will be put on wait during the PC printout and for a subsequent delay time set by parameter *PC-Host Timeout (#136)*.

The Rotary Switch

The ten-position rotary switch is used to set start conditions for the AX-7 Cobra+. It is also used to select and execute test functions during operation.

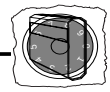
Start Conditions

The action when the AX-7 Cobra+ is switched on will be determined by the setting of the rotary switch, as follows:

Pos.	Description
0	Normal print operation. *
1-7	Reserved.
8-9	Perform a test printout, then start normal print operation.

Note:

- ❑ If a terminal is connected the terminal set-up routine is started automatically, see page 14.



Test Mode

Test Mode is reached from normal print operation. It is used to access a number of internal functions. Normal print operation is inhibited.

Set the rotary switch to position '9'. When the SYSTEM indicator starts to flash, you can select one of the following Test Mode functions:

Pos.	Test Mode Function
0	**Restart** - same as power off/power on.
1	**Set Factory Defaults** - abandon the current configuration.
2	**Print Character Translation Table** - see Appendix B.
3	**ASCII Hex Dump Mode** - trap the outgoing data stream and print characters and control commands as hexadecimal values.
4	**System Hex Dump Mode** - trap the incoming data stream and print characters and control codes as hexadecimal values.
5, 6	Reserved
7	**Terminal Set-Up Mode** - run the Configuration Utility using a directly attached 3270 terminal, see Section 3.
8	**Print Parameter List** - print the complete configuration, see Appendix A.
9	**Exit Test Mode** - resume normal print operation.

Do not forget to set the rotary switch to "0" again for normal print operation.

Appendix D Technical Specifications

Host Environments

- IBM S/370, S/390
- IBM 303x, 308x, 309x
- IBM 81xx
- IBM 47xx
- IBM 43xx
- IBM 937x

- IBM 3174
- IBM 3274 type A
- IBM 3276
- IBM 8775 Display Terminal
- IBM 4701/4702 Device Cluster
- IBM 4300 Printer Adapter
- IBM 9370 Subsystem Control Unit
- IBM 3299 Multiplexor
- Equivalent PCM Control Units

- IBM 3287 mod. 1 and 2C
- IBM 3268 mod. 1 and 2
- IBM 4214 mod. 1
- IBM 3262 mod. 3 and 13
- IBM 4224 mod. 2 (non-IPDS mode)

IBM System Features

- SNA SCS (LU1), SNA DSE (LU3) and BSC 3270/DSC data streams
- APL2/Text Feature
- LU1 FM Headers Subset 1
- SCS Local/Remote Save/Restore Formats
- Extended Attribute Buffer (EAB)
- 3270/DSC/DSE Query Reply and LU1 Query List
- IBM RPQs
- Load Translate Table
- Country Extended Code Pages (CECP)
- IBM 3287 mod. 2C Programmable Symbols (PS) and color
- Page Presentation Media
- Cut Sheet Feeder Command

AX-7 Cobra+ Additional Features

- Configuration from a Terminal or from the System
- 26 predefined Printer Drivers, fully editable
- Fully editable Character Translation Tables
- Intelligent 3-way PC-Host Sharing (parallel or serial PC)
- 255 User Definable Strings
- 127 String Substitutions
- Programmable Transparency Function (data pass-through)
- Bar Codes
- Start/End of Job Strings
- Automatic Page Orientation and COR
- XEROX XPAF support (optional)

Hardware Specifications

- Size: 100x25x90 mm / 4.0"x1.0"x3.5"
- Weight: 0.25 kg/ 0.55 lb
- Power:Max 170mA at 5V DC supplied via Centronics printer cable, or 9V AC/12V DC (200mA) via optional External Power Supply

Approvals

- EMC: FCC Class A, CE: EN 55022/1987, EN 50082-1/1992
- Safety: EN 60950

Environments

- Temp.: 5-40°C/ 40-105°F
- Humidity: 20-80% non-condensing

All specifications are subject to change without prior notice.

Appendix E Related Documentation

Title	Part Number
AX-7 Cobra+ Technical Reference	12937
IBM 3274 Control Unit Customizing Guide	GA23-0065-6
IBM 3174 Subsystem Control Unit Customizing Guide	GA23-0214-1
IBM 3174 Character Set Reference	GA27-3831-04
IBM 3287 Printer Models 1C and 2C Components Description	GA27-3229-2
IBM 3268 Printer Models 2 and 2C Description	GA27-3268-2
IBM 4214 Printer Model 1 Product Description	GC31-2563-1
IBM 3262 Printer Models 3 and 13 Components Description	GA24-3741-1
IBM 4224 Printer Models 1xx and 2xx Product and Programming Description Manual	GC31-2551-4

Appendix F How to contact Axis

Technical Support

If you need technical support, please contact your dealer. If they can't help you, they will forward your request to us.

Axis on-line service

Use the Axis on-line service at any time to retrieve electronically distributed items. The material available includes the AX-7 Cobra+ Technical Reference, the Adobe Acrobat Reader (required for all Axis on-line documentation), company and product presentations, etc. All items are available on Internet by a WWW browser or FTP file transfer.

Internet and World Wide Web

If you are connected to Internet, have a look at the Axis WWW Home Page at **http://www.axis.com/**. You can find information here about the company and our products. You can also down-load online manuals, tools such as the Acrobat Reader for different platforms, and the latest versions of the software utilities. You can also get files and information through anonymous FTP: log in to **ftp.axis.com** and go to the **/pub/axis directory**, or enter **ftp://ftp.axis.com/pub/axis** in your WWW browser.

If you want to receive regular information about new products and product updates by e-mail, send and e-mail to Majordomo@axis.com with SUBSCRIBE AXIS-NEWS in the message body.

The Axis Offices

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