AX-3 Cobra+ DBCS User's Manual

Twinax 5250 printer
protocol converter

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PREFACE

Welcome to the AX-3 Cobra+ double byte character stream (DBCS) twinax 5250 protocol converter. This manual will guide you through a step-by-step installation procedure. Once installed, the AX-3 Cobra+ works without operator intervention.

About Axis

Axis Communications, founded in 1984, is one of the world's fastest growing companies in the printer interface and network print server market. The headquarters are located in Lund, Sweden, with subsidiaries in Boston, Tokyo and Hong Kong.

Axis Communications has a distributor network operating in more than 30 countries world-wide, marketing two product lines:

- **IBM Mainframe and S/3x - AS/400 Printer Interfaces**

  These products include a wide variety of plug-in interfaces and free-standing box products such as the Cobra+ and the AFP/PS IPDS-to-Postscript converter.

- **Network Print Servers**

  These intelligent Ethernet and Token Ring print servers support a wide range of local area network (LAN) protocols. The AXIS NPS 530, NPS 532 and NPS 550 are Ethernet print servers, the AXIS NPS 650 is a Token Ring print server.

About this manual

The manual applies to the DBCS versions of the AX-3 Cobra+ with firmware release 1.00 and to subsequent releases until otherwise notified. The manual covers the following versions of the DBCS software:

- CG China
- JI and JS Japan
- KM and KS Korea
- TB and TI Hong Kong and Taiwan

Differences between the versions will be clearly indicated

Please refer to the AX-3 Cobra+ DBCS Technical Reference for further information of functions and parameters.

The main sections of this manual are:

1. **INTRODUCTION** – The AX-3 Cobra+ and the concepts used in this manual.
2. **INSTALLATION** – Installation of your AX-3 Cobra+ towards printer and IBM system.
3. **CONFIGURATION** – Configure your AX-3 Cobra+ from a terminal.
4. **ADVANCED FUNCTIONS** – Use your printer beyond standard IBM operation.
5. **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.

AX-3 Cobra+ DBCS User's Manual Revision: 1.0
Part No: 13864 Dated: June, 1994

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.

Europe

CE

This digital equipment fulfils the requirements for radiated emission according to limit B of EN55022/1987 with amendments of Amtsblatt no. 61/1991, Vfg. 243, and the requirements for immunity according to EN50082-1/1992 residential, commercial, and light industry.

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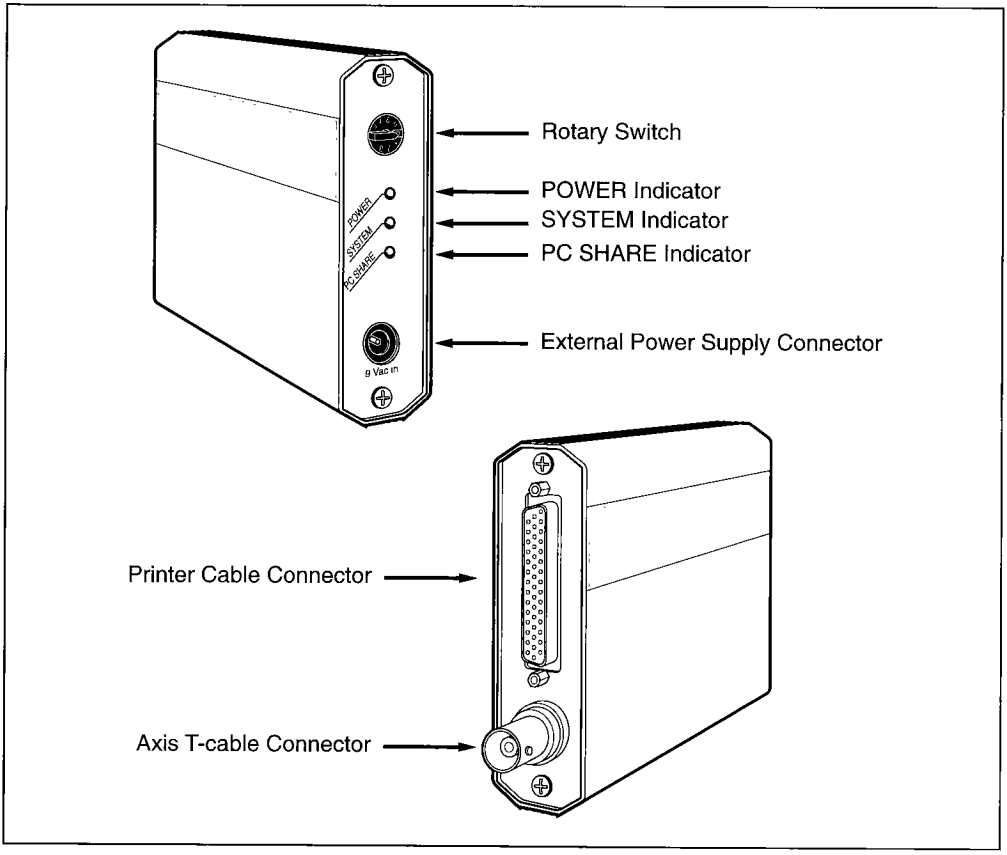
1 INTRODUCTION

1.1 The AX-3 Cobra+

The AX-3 Cobra+ is a protocol converter, which makes it possible to connect a PC type printer to an IBM 5250 (twinax) environment.

The AX-3 Cobra+ has a twinax 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.



1.2 Theory of Operation

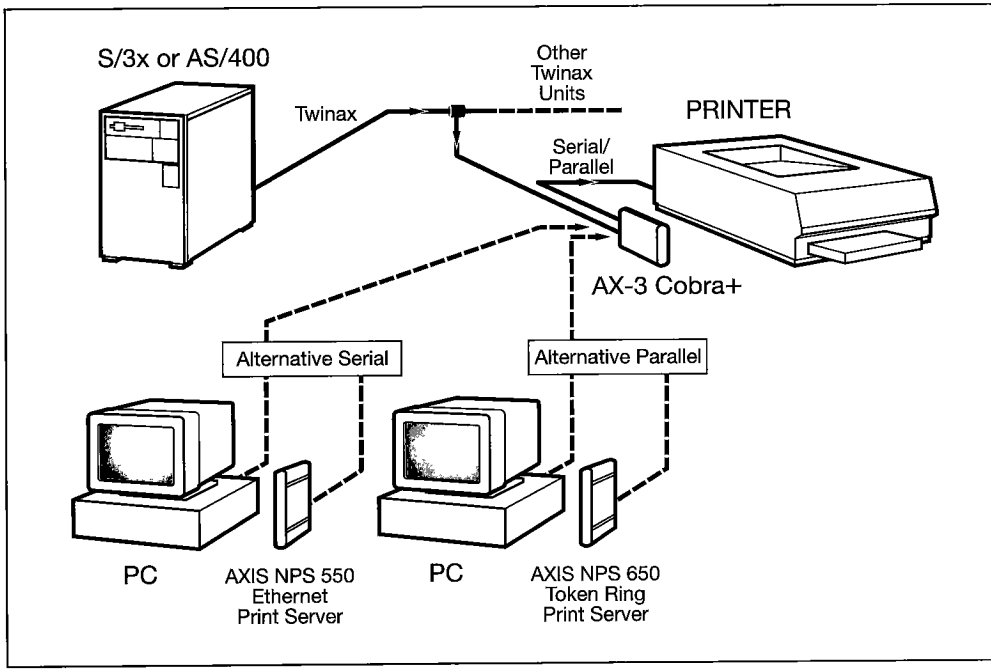
Print data from an IBM host is in a format that cannot be recognized by PC type printers.

The AX-3 Cobra+ converts IBM control and character codes to ASCII control commands and characters, which are recognizable by the PC type printer.

Together, the AX-3 Cobra+ and the attached printer will appear to the IBM host as an original IBM twinax printer.

In addition, the AX-3 Cobra+ can let any parallel and/or serial device share the printer with the IBM Host. The printer sharing function works auto-operated, using an optional cable.

The picture below shows a typical use of the AX-3 Cobra+ including the printer sharing function.



1.3 ASCII Printer Driver

The AX-3 Cobra+ can utilize many of the functions resident in the attached printer, such as underlining, page formatting and paper source selections. The control commands for these functions reside in the Printer Drivers. These cover the standard printer types. See Appendix A for a list of available Printer Drivers.

1.4 IBM Printer Emulations

The following printer emulations are available for the DBCS versions of the AX-3 Cobra+:

Version	Printer emulation	Version	Printer emulation
CG	5227-005 5327-005	KM and KS	5227-002 5327-002
JI and JS	5227-001 5327-001 5427-001	TB and TI	5227-003 5327-003

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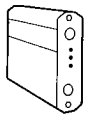
2 INSTALLATION

2.1 Unpacking

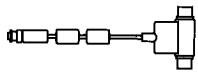
The following items are included in the standard delivery:

- AX-3 Cobra+ with AX-3 Cobra+ DBCS User's Manual (part no: 13864)

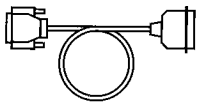


- Self-adhesive Velcro ribbons (part no: 11584 and 11585)

- Axis T-cable (part no: 12554)

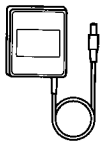


- Centronics parallel printer cable (part no: 12755)

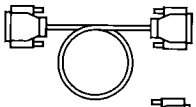


Optional:

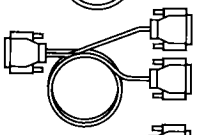
- External Power Supply US/Canadian (part no: 12919)
- External Power Supply Japanese (part no: 13249)
- External Power Supply European (part no: 12822)
- External Power Supply UK (part no: 12866)
- External Power Supply Australian (part no: 12867)



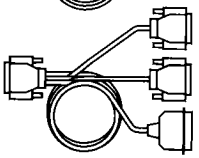
- Serial (RS-232C) printer cable (part no: 12756)



- 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)



2.2 Printer Attachment

First you establish contact between the AX-3 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). For optimal performance a parallel connection is recommended.

You may also need an optional external power supply, if the printer is unable to supply the AX-3 Cobra+.

We recommend that you mount the AX-3 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-3 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 (green) is lit and the SYSTEM indicator (green) will flash for a few seconds.

If the POWER indicator is not lit, the printer is unable to supply power to the AX-3 Cobra+. Connect an external power supply to the AX-3 Cobra+.

The AX-3 Cobra+ will produce a test printout on the printer which shows the firmware revision and basic configuration.

2.3 Test printouts

The following section gives test printout examples for the DBCS versions of the AX-3 Cobra+:

2.3.1 China (CG)

Test Printout:

```
******** TEST PRINTOUT ********
AX-3 Cobra+ CG Ver 1.00  YYMMDD

Printer Driver: #30 Epson High Speed (GB)

IBM Printer Emulation____ IBM 5X27-005
System Language_________ 836 Chinese
ASCII Char. Set_________ 903 Chinese
```

2.3.2 Japan (JI)

Test Printout, JI version:

```
******** TEST PRINTOUT ********
AX-3 Cobra+ JI Ver 1.00  YYMMDD

Printer Driver: #30 IBM 557X/558X

IBM Printer Emulation____ IBM 5X27-001
System Language__________ 290 Japanese Katakana
ASCII Char. Set__________ 942 Japanese
```

2.3.3 Korea (KM)

Test Printout, KM version:

```
******** TEST PRINTOUT ********
AX-3 Cobra+ KM Ver 1.00  YYMMDD

Printer Driver: #30 KSSM

IBM Printer Emulation____ IBM 5X27-002
System Language__________ 037 US English/Canadian
ASCII Char. Set__________ 437 US ASCII
```

2.3.4 Hong Kong and Taiwan (TB)

Test Printout, TB version:

```
******** TEST PRINTOUT ********
AX-3 Cobra+ TB Ver 1.00  YYMMDD

Printer Driver: #70 Epson LQ High Speed (BIG-5)

IBM Printer Emulation____ IBM 5X27-003
System Language__________ 037 US English/Canadian
ASCII Char. Set__________ 437 US ASCII
```

2.4 System Attachment

When your AX-3 Cobra+ is configured, and the configuration is verified by a test printout, it is time to connect it to the IBM host.

1. **Find a free device address on the twinax port.** The selected address must be configured to hold an IBM printer of the type the AX-3 Cobra+ will emulate. If in doubt, ask your system manager.
2. **Switch off the AX-3 Cobra+** by switching off the printer, or, if an external power supply is used, by unplugging the power cord.
3. **Set the device address (0-6) on the rotary switch.**
4. **Connect the Axis T-cable bar to the twinax cables**. Please do not disconnect the Twinax line without permission from your system manager.
5. **Connect the third end of the Axis T-cable to the AX-3 Cobra+.**
6. **Switch on the AX-3 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 printout.

You have completed the installation procedure, and your AX-3 Cobra+ is ready for use. It will not need any attendance or service during normal operation.

2.4.1 System Configuration

- S/36: Enable auto-configuration, and start the AX-3 Cobra+. Verify using CNFIGSSP that GA (5553) was selected for the AX-3 Cobra+.
- S/38 and AS/400: Enable auto-configuration, and start the AX-3 Cobra+. The IGCFEAT parameter must be set to an apropriate value using CHGDEVD, CHGDECPRT, or WRKDEVD. The following values apply to the different versions of the AX-3 Cobra+:

Version	IGCFEAT	Version	IGCFEAT
CG	2424S1 6FFE	KM and KS	2424K1 D3FE
JI and JS	2424J1 68FE	TB and TI	2424C1 91FE

If in doubt, consult your System Manager.

3 CONFIGURATION

Although the AX-3 Cobra+ is prepared for operation at delivery, you may want to change the configuration. A test printout will verify the current configuration, see Section 2.

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 5250 terminal such as a 3180, 3179, 3197, 347x, 348x or similar.

  Alternatively a PC equipped with a 5250 terminal emulation board or an Axis EMMA board (part no: 0041-1) can be used.

- **Configuration from the System**
  The AX-3 Cobra+ can also be configured using down-loaded programming sequences from the system, see Section 4.3.

3.1 Configuration from a Terminal

The AX-3 Cobra+ is equipped with a menu-driven Configuration Utility. This provides a step-by-step method to adapt the AX-3 Cobra+ to your IBM host and printer. Follow these steps to start the configuration:

1. **Switch off the AX-3 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-3 Cobra+ using the Axis T-cable, and switch the terminal on.** The terminal should be terminated.
3. **Set the rotary switch in position '7' and switch the AX-3 Cobra+ on.** Wait a few seconds until the SYSTEM indicator has stopped flashing.
4. **Select position '9'.** Wait until the SYSTEM indicator starts to flash.
5. **Select position '7'.**

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-3 Cobra+ off and repeat from step 3.

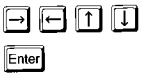
3.2 Key Definitions

```
================================================================================
     AX-3 Cobra+ CG                Ver 1.00                          YYMMDD
================================================================================

     KEY DEFINITIONS

     _Right
      Left
      Up
      Down
      Enter




     Assign cursor keys
```

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.

NOTE: The menu heading will show the version of the DBCS software. The above example is for the AX-3 Cobra+ CG.

3.3 Basic Configuration

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

```
================================================================================
     AX-3 Cobra+ CG                Ver 1.00                        YYMMDD
================================================================================

     MAIN MENU

    _Basic Configuration
     Printer Attachment
     View Configuration
     Print Parameter List
     Print SBCS EBCDIC to ASCII table
     Print DBCS Table
     Edit Parameters
     Set Factory Defaults
     Save
     Exit




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

All entries are described in Section 4.2.

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

↑ ↓, 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.
>
> The menu heading will show the version of the DBCS software. The above example is for the AX-3 Cobra+ CG.

3.3.1 Select Printer Driver (CG version)

This submenu is shown after you have selected 'Basic Configuration' in the Main Menu. The example is shown for the AX-3 Cobra+ CG

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

     PRINTER DRIVER

    _Epson High Speed (GB)
     Epson Normal Speed (GB)
     Epson LQ High Speed (GB)
     Epson LQ Normal Speed (GB)









     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.

For a list of available printer drivers for the different versions of the AX-3 Cobra+ see section A.2

If your printer is not listed, consult your printer manual.

↑ ↓, Enter **Select the Printer Driver matching your printer.**

3.3.2 Select IBM Printer Emulation

This submenu is shown after you have selected Printer Driver. The example is shown for an AX-3 Cobra+ CG.

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

     IBM PRINTER EMULATION

    _IBM 5X27-005

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

The AX-3 Cobra+ together with the PC type printer will appear to the IBM system as an original IBM twinax printer. You have to select which IBM printer emulation that is to be used.

The default printer emulations for the different versions of the AX-3 Cobra+ are listed in appendix A.3

Enter **Select the IBM Printer Emulation matching your system configuration.**

NOTE: Make sure the device address on the twinax port is configured according to the IBM Printer Emulation.

3.3.3 Select System Language

This submenu is shown after you have selected IBM Printer Emulation. The example is shown for the AX-3 Cobra+ CG

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

     SYSTEM LANGUAGE

     037 US English/Canadian
    _836 Chinese









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

You have to set up the AX-3 Cobra+ for the System Language matching your IBM system configuration in order to obtain correct language specific characters.

The available system languages for the different versions of the AX-3 Cobra+ are listed in Appendix A.3

[↑] [↓], [Enter] **Select the System Language corresponding to your IBM system configuration.**

3.3.4 Select ASCII Character Set

This submenu is shown after you have selected System Language.

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

     ASCII CHARACTER SET

     437 US ASCII
    _903 Chinese









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

This is the ASCII Character Set to be used in the printer.

See Appendix A.3 for the available ASCII character sets for the different versions of the AX-3 Cobra+.

↑ ↓, Enter **Select ASCII Character Set.**
Make sure the character set is available in the printer.

3.3.5 Printer attachment

This page applies to the AX-3 Cobra+ JI and TI only.

If your printer has a parallel interface with inverted Select signal (IBM 5550 interface type), you must configure the AX-3Cobra+ for this mode.

Select 'Printer Attachment' in the main menu, and select 'Parallel'.

The following submenu is shown:

```
================================================================================
                              PRINTER ATTACHMENT
================================================================================

     INTERFACE MODE

    _IBM PC
     IBM 5550









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

IBM PC is the standard Centronics mode, and IBM 5550 is the inverted Select mode.

↑ ↓, Enter **Select the interface mode matching your printer**

3.4 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.

3.5 Exit the Configuration

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

The following submenu is shown:

```
================================================================================
                                    EXIT
================================================================================

     EXIT CONFIGURATION

    _Yes
     No



     Please remember to set the Device Address on the Rotary Switch!
     Power off before connecting to the system.









     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-3 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.

4 ADVANCED FUNCTIONS

The AX-3 Cobra+ supports a number of functions beyond standard IBM printer operation.

During normal mode of operation, AX-3 Cobra+, together with your printer, emulates the IBM twinax 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.

4.1 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

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 Section 4.3).

> **NOTE:** Extended emulation works in both SBCS and DBCS mode. In DBCS, only alphanumerical characters (ward 42) are valid.

4.2 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 Section 3.1).

```
================================================================================
     AX-3 Cobra+ CG                  Ver 1.00                        YYMMDD
================================================================================

    MAIN MENU

   _Basic Configuration
    Printer Attachment
    View Configuration
    Print Parameter List
    Print SBCS EBCDIC to ASCII table
    Print DBCS table
    Edit Parameters
    Set Factory Defaults
    Save
    Exit


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

Basic Configuration – see Section 3.

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 Appendix A).

Print SBCS EBCDIC to ASCII table – print the translation table (see Appendix B).

Print DBCS table – print all DBCS characters. (several pages)

Edit Parameters – tailor the parameter list to meet specific needs.

Set Factory Defaults – abandon all changes to the configuration.

Save – store current configuration permanently.

Exit – exit configuration.

4.3 Configuration from the System

This function allows you to configure the AX-3 Cobra+ without using the Configuration from a Terminal as described in Section 3.

By inserting configuration commands in your document, you can tailor the AX-3 Cobra+ to meet special requirements for certain print jobs.

Example:

```
&&??%%P     (Enter extended emulation mode)
%P          (Configuration lead-in sequence)
=207,30     (Default Printer Driver)
=7,1        (System Language = US English/Canadian)
=8,1        (ASCII Character Set = US ASCII)
=206        (Initialize settings)
%           (Configuration trailer sequence)
&&??000     (Resume normal emulation mode and save settings )
```

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-3 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 and a value. '206' is also a function number. Please refer to the Technical Reference for a description of functions and their values.

'7' is a parameter number, followed by a comma and a value. '8' is also a parameter. 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 and to save the settings permanently.

> **NOTE:** The comments (within brackets) should not be included in your document.

4.4 Transparency

IBM PC Support Virtual Printer is one way of sending data transparent to the printer. This method is always active and is not described in this manual.

This section describes the AX-3 Cobra+ specific transparency methods.

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 AX-3 Cobra+.

Be careful when using the Transparency function for generating printable characters, selecting fonts or making text positioning. The AX-3 Cobra+ supports these functions in normal emulation mode, and your settings may be overridden by the system.

The Transparency function is mainly intended for down-loaded fonts, printing logos and forms and similar applications.

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-3 Cobra+ assumes hexadecimal data until a terminating percent sign occurs.

Example (Multi-byte Transparency):

You want the text to have an underlined part in the middle. Assuming that you have an Epson or KSSM/KS printer, '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
```

For an IBM 557X/558X the sequences are different:

```
This is %%1B7E11000101%underlined%%1B7E11000100% text
```

Printout:

```
This is underlined text
```

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

> **NOTE:** To access the Transparency function, Extended Emulation Mode must be entered.

4.5 Configuration and Transparency Sequences

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

- *Transparency Lead-In Sequence (#041)*, empty by default.
- *Configuration Lead-In Sequence (#042)*, empty by default.
- *Transparency/Configuration Trailer Sequence (#043)*, empty by default.

See Appendix A for a description of the parameters.

4.5.1 Define the Sequences

The parameters are defined when Extended Emulation Mode is entered.

Example:

Enter Extended Emulation Mode and set the Transparency Lead-In Sequence to '%%', the Configuration Lead-In Sequence to '%P' and the Trailer Sequence to '%':

```
&&??%%P                    (Enter Extended Emulation Mode and set parameters)
```

4.5.2 Redefine the Sequences

The parameters can be redefined using text sequences in the document.

Example:
Change the Transparency Lead-In Sequence from '%%' to '!?<' (EBCDIC codes $4F,$6F,$4C).

Also, change the Trailer Sequence from '%' to '>&' (EBCDIC codes $6E,$50):

```
%P                    (Configuration lead-in sequence)
=41,$4F,$6F,$4C       (Change the transparency lead-in sequence to '!?<')
=42,$6E,$50           (Change the configuration trailer sequence to '>&')
=205                  (Save settings permanently)
>&                    (Configuration trailer sequence (new) )
```

NOTES

1: To redefine the sequences, Extended Emulation Mode must be entered. The sequences are reset if you exit and re-enter Extended Emulation Mode. See above.

2: The sequences are redefined immediately. Therefore, the new sequence '>&' must be used as Configuration Trailer Sequence in the document.

Example:

Use the new sequences in the same example as in Section 4.4 (Multi-byte Transparency on Epson or KSSM/KS):

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

For an IBM 557X/558X the sequences are different:

```
This is !?<1B7E11000101>&underlined!?<1B7E11000100>& text
```

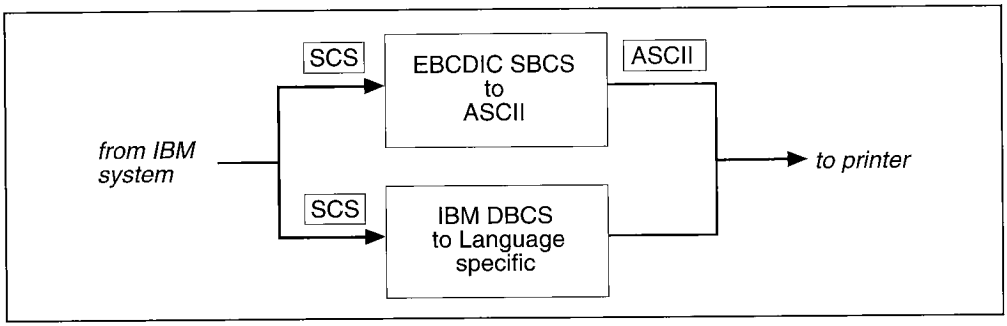
Printout:

```
This is underlined text
```

4.6 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.



SCS data stream EBCDIC SBCS (Single Byte Character Stream) codes are translated into ASCII codes, and IBM DBCS (Double Byte Character Stream) codes are translated into the following language specific codes:

- AX-3 Cobra+ CG GB (China)
- AX-3 Cobra+ JI JIS (Japan)
- AX-3 Cobra+ JS Shift-JIS (Japan)
- AX-3 Cobra+ KM/KS KSSM/KS (Korea)
- AX-3 Cobra+ TB/ TI BIG-5 (Hong Kong and Taiwan)

The ASCII and language specific codes are then sent to the printer.

You have access to the table that translates the EBCDIC SBCS codes into ASCII codes. Appendix B shows a printout of the characters for each EBCDIC SBCS code. The IBM DBCS to language specific code table cannot be edited.

Example:

To change a less-than character '<' *(EBCDIC SBCS code $4C)* to a left bracket '{' which has ASCII value $7B, insert the following programming sequences in your document:

```
%P                    (Configuration lead-in sequence)
=203,$4C,$7B          (Translate EBCDIC Int. 5 $4A to ASCII $7B)
=206                  (Initialize settings)
=205                  (Save settings permanently)
%
```

NOTE: To edit, Extended Emulation Mode must be entered.

'203' is the function number, '$4C' is the EBCDIC SBCS code and '$7B' is the new ASCII value (old ASCII value is deleted).

'206' and '205' are also function numbers.

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

You can modify any number of cells in the table by adding lines with function 203 calls.

4.7 User Definable Strings

There are ten parameters in the Parameter List that can be programmed as User Definable String *(Parameters #130 - #139).*

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.

4.7.1 Programming the Strings

Example: (Epson, for IBM 557X/558X control sequences, see section 4.4):

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

```
%P                          (Configuration lead-in sequence)
=130,$1B,$2D,$31            (Program parameter # 130 to 'start underline')
=131,$1B,$2D,$30            (Program parameter # 131 to 'stop underline')
%                           (Configuration trailer sequence
```

NOTE: Strings are programmed in Extended Emulation Mode.

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

'130' and '131' are the Parameter numbers. These are referred to as User Definable Strings '0' and '1' respectively.

4.7.2 Using the Strings

Example:

To underline text in a document using the strings number '0' and '1':

```
This is %Z0underlined%Z1 text
```

NOTE: Extended Emulation Mode must be entered.

Printout:

```
This is underlined text
```

4.8 Bar Codes

Bar codes are not available in the AX-3 Cobra+ JI and the AX-3 Cobra+ TI.

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 (#046).*
- *Bar Code Attributes (#047).*

The definition has to be done before a bar code can be printed. See Appendix A for a description of the parameters.

4.8.1 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

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.

4.8.2 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)
```

NOTES

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

2: The parameters of functions 211 and 212 have to be given using single byte (SBCS) characters.

Printout:

4.9 PC-Host Sharing

The AX-3 Cobra+ is capable of receiving input data both from the IBM host and any PC (serial or parallel). Using the AX-3 Cobra+ PC-Host sharing function rather than an external printer sharing device 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 Serial String (#53)* is sent *before* a serial PC printout.
  - *Host-PC Parallel String (#52)* is sent *before* a parallel PC printout.
  - *PC-Host String (#51)* is sent *after* a PC printout.
  - *PC-Host TOF String (#54)* is sent if the PC printout did not end with a Form Feed command.

> **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 1-2).

4.9.1 Configuration

Make sure that the AX-3 Cobra+, the printer and the PC are switched off.

1. **Connect the PC-Host sharing cable,** leading from the AX-3 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-3 Cobra+ configuration. The following DOS commands will set the PC port COM1 to match the default settings of the AX-3 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 timeout to infinite with the following command:

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

This page is intentionally left blank.

5 SOLVING PROBLEMS

This section helps you to solve any problems that might arise when installing or using your AX-3 Cobra+. There are three major areas of difficulty:

- Missing printouts
- Incorrect printouts
- Host communication problems

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

5.1 Missing Printouts

In case of missing printout, check the following:

1. **Is the POWER indicator on?**
   No: Your printer cannot supply the AX-3 Cobra+. You must use an external power supply.

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-3 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 (Section 4.2). The parameters are found under the 'Printer Attachment' entry in the Main Menu (Section 4.2). When using XON/XOFF protocol, *PC-Host Time-out (#50)* must be set to zero.

5. **System printouts: Is the SYSTEM indicator on?**
   No: The AX-3 Cobra+ is not correctly connected to the system, or the power-up routine has been disturbed. See checklist in Section 5.3.

6. **PC printouts: Is the PC-Host Sharing Configuration correct?**
   See Section 4.9.

5.2 Incorrect Host Printouts

There are three major types of incorrect printouts:

5.2.1 Some SBCS Characters are Printed Incorrectly

Print out the SBCS EBCDIC-to-ASCII translation table (see Appendix C), and compare this to the table in Appendix B. In some cases it is possible to edit the translation table (see section 4.6), or to select another character set in your printer. Consult your distributor for further details.

5.2.2 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 Section 5.4.2) to locate the control commands causing the problem.

5.2.3 Missing DBCS Characters or Missing Graphics

This is generally a host configuration problem, see section 2.3.1.

5.2.3 Incorrect Page Breaks

This may be caused by an incorrect Printer Driver selection. There may also be a printer problem, causing it not to print all lines on a page.

5.3 Host Communication Problems

In case of missing system printouts, please follow this checklist.

1. **Is the SYSTEM indicator lit?**
   Yes: The printer may not be properly connected. Please refer to Section 2.
2. **Is the device address correct?**
   Make sure the rotary switch is set to the desired device address. Switch the AX-3 Cobra+ off and on. Permissible values for the device address are within the range 0 to 6.
3. **Does the host configuration match the AX-3 Cobra+ configuration?**
   The AX-3 Cobra+ must be configured according to the IBM printer that has been defined for the device address on the twinax port.
4. **Has the print job been released from the host?**
   Check that Vary On has been made and that the print job has been released from the print queue. Ask your System Manager.
5. **Is the twinax line terminated?**
   The last unit on the twinax line must be terminated. Check that all units along the twinax line are installed correctly and that the termination is correct.
6. **Are any cables broken?**
   Check that the cables are properly connected and fully functional.

5.4 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

You can send questions and reports by Email to "bugs@axis.se" (Sweden) or "bugs@axis.com.hk" (Hong Kong).

5.4.1 Printing the Parameter List

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

1. **Switch the AX-3 Cobra+ and the printer off and on.** 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 the device address** to resume normal print operation.

5.4.2 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-3 Cobra+ features two different types of hexdump modes:

- **System hexdump**
  This mode will trap the input SCS data *before* the character and control code conversion. The data is printed as EBCDIC hexadecimal values.
- **ASCII hexdump**
  The input data is converted to ASCII hexadecimal values 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 AX-3 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 the device address** to resume normal print operation.

Example of ASCII hexdump (AX-3 Cobra+ CG):

```
AX-3 Cobra+ CG Ver 1.00  YYMMDD
Printer Driver #30 Epson High Speed (GB)

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"
```

5.5 Error messages

There are six different error conditions that will cause the AX-3 Cobra+ to print an error message on your printer:

```
61-UNPRINTABLE CHARACTER
```

This message is caused by invalid character codes or LAC buffer overflow.

```
64-RESET COMMAND RECEIVED FROM HOST
```

This message is caused by bad communication lines or colliding device addresses. The AX-3 Cobra+ will try to re-establish host communication after 10 seconds.

```
BE-BAR CODE ERROR
```

Incorrect or insufficient bar code definition. The bar code must be specified with five values. See Section 4.8.

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

This message indicates that the non-volatile memory has been corrupted. The AX-3 Cobra+ is automatically set to factory default state (your configuration is lost). If the message does not re-appear after power-off/power-on, configure the AX-3 Cobra+ (Section 3).

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

The available string area is exhausted. You must remove some strings from your configuration. The size of the available string area is printed in the Parameter List header, and is also displayed in all string programming menus.

```
F1-TWINAX TRANSCEIVER ERROR
```

Hardware error. Contact you dealer/distributor.

APPENDIX A: THE PARAMETER LIST

The Parameter List shows the complete configuration of the AX-3 Cobra+. Each parameter contains a value or string that is used to determine how the AX-3 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, Serial Printer Attachment and PC-Host Sharing Configuration. Please refer to the AX-3 Cobra+ Technical Reference for parameters not covered by this manual.

A.1 Printout Example

This printout shows the beginning of a Parameter List (the header and the first 12 parameters) for the AX-Cobra+ CG with printer driver #30, Epson High Speed (GB). Your own printout may differ depending on DBCS software version, printer driver selection, firmware revision and customized configuration.

```
AX-3 Cobra+ CG Ver 1.00  YYMMDD

Printer Driver #30 Epson High Speed (GB)
Free String Area: $1AE4

#001 Form Length_____________ 1
#002 SBCS Char. Density______ 10
#003 DBCS Char. Density______ 50
#004 Line Density____________ 6
#005 Print Speed_____________ 1
#006 EBCDIC Font_____________ 0
#007 System Language_________ 32
#008 ASCII Char. Set_________ 15
#009 IBM Printer Emulation___ 4

#010 Left Margin_____________ 1
#011 Max Print Pos___________ 136
#033 Phy. MPP at 10 CPI______ 136
```

A.2 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 for the different AX-3 Cobra+ versions:

Version	No	Title	
CG	30	Epson High Speed (GB)	*(default)*
	31	Epson Normal Speed (GB)	
	32	Epson LQ High Speed (GB)	
	33	Epson LQ Normal Speed (GB)	
JI	30	IBM 557X	*(default)*
	31	IBM 558X	
JS	30	Epson High Speed (JIS)	*(default)*
	31	Epson Normal Speed (JIS)	
KM	30	KSSM/Epson LQ	*(default)*
	31	KSSM/Epson	
KS	30	KS/Epson LQ	*(default)*
	31	KS	
TB	30	Epson LQ High Speed (BIG-5)	*(default)*
	31	Epson LQ Normal Speed (BIG-5)	
TI	30	IBM 557X	*(default)*
	31	IBM 558X	

NOTE: The list of printer drivers is continuously updated. Please contact your dealer/distributor for latest info.

A.3 Parameter Descriptions

#7 System Language

This parameter makes the SBCS EBCDIC language specific-to-ASCII translation table match the System Language configuration of your IBM System.

Version	Value	Title	
CG	1	037 US English/Canadian	
	32	Chinese	*(default)*
JI and JS	1	037 US English/Canadian	
	11	290 Japanese Katakana	*(default)*
KM and KS	1	037 US English/Canadian	*(default)*
TB and TI	1	037 US English/Canadian	*(default)*

#8 ASCII Character Set

Selects the ASCII Character Set to be used in the printer.

Version	Value	Title	
CG	0	US ASCII	
	15	903 Chinese	*(default)*
JI	0	US ASCII	
	8	Japanese	*(default)*
JS	0	US ASCII	
	8	- - - JIS 1/2	*(default)*
KM and KS	0	US ASCII	*(default)*
TB and TI	0	US ASCII	*(default)*

#9 IBM Printer Emulation

Selects the IBM Printer Emulation. This parameter is valid only in IBM 4214 emulation.

Version	Value	Title
CG	4	IBM 5X27-005
JI and JS	4	IBM 5X27-001
KM and KS	4	IBM 5X27-002
TB and TI	4	IBM 5X27-003

#19 Double Width SO/SI

If set to Yes, SO/SI will be printed as double SBCS space in double width printing.

Value	Description
*No	Print SO/SI as double SBCS space in double width printing (IBM 5317/5327/5427/5577)
Yes	SO/SI always prints as SBCS space (IBM 5227)

#30 Inverse Select

This parameter applies to the AX-3 Cobra+ JI and TI only.

Sets the select signal polarity (parallel attached printers only).

Value	Description	Value	Description
*No	Standard Centronics	Yes	IBM 5550 (inverted select)

#31 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	-	-

NOTE: The value 192 (19200 baud) cannot be used with PC-Host Sharing.

#32 Word Size

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

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

#33 Parity

Set serial port parity.

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

#34 Stop Bits

Set the serial port number of stop bits.

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

#40 Escape Character

Select the EBCDIC character code used for Single-byte Transparency and User Definable Strings.

Value	Description	Value	Description
$40-$FF	(one character code)	*$00	*(undefined by default)*

#41 Transparency Lead-In Sequence

Starts Multi-byte Transparency Mode.

Value	Description	Value	Description
<any seq>	(max 8 character codes)	*<empty>	*(default)*

#42 Configuration Lead-In Sequence

Starts Configuration Mode.

Value	Description	Value	Description
<any seq.>	(max 8 character codes)	*<empty>	*(default)*

#43 Transparency/Configuration Trailer Sequence

Terminates the Multi-byte and Configuration Modes.

Value	Description	Value	Description
<any seq.>	(max 8 character codes)	*<empty>	*(default)*

#46 Bar Code Driver

Bar codes are not available in the AX-3 Cobra+ JI and the AX-3 Cobra+ TI

Selects the graphics driver used for bar code printing.

Value	Description	Value	Description
0	Off	2	Epson LQ/Fujitsu DPC24C
1	IBM Proprinter/Epson FX	8	HP-PCL

#47 Bar Code Attributes

Bar codes are not available in the AX-3 Cobra+ JI and the AX-3 Cobra+ TI

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

#50 PC-Host Time-out

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)*	-	-

#51 PC-Host String

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

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

#52 Host-PC Parallel String

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 of free choice)	*<empty>	*(default)*

#53 Host-PC Serial String

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 of free choice)	*<empty>	*(default)*

#54 PC-Host TOF String

This string is sent before the PC-Host String (#51) if the PC printout did not end with a Form Feed command.

Value	Description	Value	Description
<any seq.>	(length and contents of free choice)	*0C	*(default)*

#130-#139 User Definable Strings

Programming and use are described in section 4.7.

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

This is page intentionally left blank

APPENDIX B: EBCDIC CHARACTER TABLES

This table (SBCS EBCDIC) shows the internal character representation in the AX-3 Cobra+ DBCS.

Code Page number 037, US English/Canadian

Hex Digits 1st → 2nd ↓	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		&	-						{	}	\	0
-1			/		a	j	~		A	J		1
-2					b	k	s		B	K	S	2
-3					c	l	t		C	L	T	3
-4					d	m	u		D	M	U	4
-5					e	n	v		E	N	V	5
-6					f	o	w		F	O	W	6
-7					g	p	x		G	P	X	7
-8					h	q	y		H	Q	Y	8
-9				`	i	r	z		I	R	Z	9
-A	¢	!	¦	:								
-B	.	$	,	#								
-C	<	*	%	@								
-D	(	)	_	'								
-E	+	;	>	=								
-F	|	¬	?	"								

Read each EBCDIC code as a column and row position. For example EBCDIC SBCS code $C1 represents the character 'A'.

Code Page number 836, Chinese

This code page is available in the AX-3 Cobra+ CG only.

Hex Digits 1st: → 2nd: ↓	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		&	-				~		{	}	$	0
-1			/		a	j	¯		A	J		1
-2					b	k	s	\	B	K	S	2
-3					c	l	t		C	L	T	3
-4					d	m	u		D	M	U	4
-5					e	n	v		E	N	V	5
-6					f	o	w		F	O	W	6
-7					g	p	x		G	P	X	7
-8					h	q	y		H	Q	Y	8
-9				`	i	r	z		I	R	Z	9
-A	£	!	ǀ	:				[				
-B	.	¥	,	#				]				
-C	<	*	%	@								
-D	(	)	_	'								
-E	+	;	>	=								
-F	ǀ	¬	?	"								

Read each EBCDIC code as a column and row position. For example EBCDIC SBCS code $C1 represents the character 'A'.

Code Page number 290, Japanese Katakana

This code page is available in the AX-3 Cobra+ JI and JS only.

Hex Digits 1st → 2nd ↓	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0		&	-	[	]	ソ	～	^	¦	¦	$	0
-1	｡	ｴ	／	i	ｱ	ﾀ	￣	¢	A	J		1
-2	「	ｫ	a	j	ｲ	ﾁ	ﾍ	＼	B	K	S	2
-3	」	ｬ	b	k	ｳ	ﾂ	ﾎ	t	C	L	T	3
-4	、	ｭ	c	l	ｴ	ﾃ	ﾏ	u	D	M	U	4
-5	・	ｮ	d	m	ｵ	ﾄ	ﾐ	v	E	N	V	5
-6	ヲ	ｯ	e	n	ｶ	ﾅ	ﾑ	w	F	O	W	6
-7	ｧ		f	o	ｷ	ﾆ	ﾒ	x	G	P	X	7
-8	ｨ		g	p	ｸ	ﾇ	ﾓ	y	H	Q	Y	8
-9	ｩ	ー	h	`	ｹ	ﾈ	ﾔ	z	I	R	Z	9
-A	£	!		:	ｺ	ﾉ	ﾕ	ﾚ				
-B	.	¥	,	#	q	r	s	ﾛ				
-C	<	*	%	@	ｻ		ﾖ	ﾜ				
-D	(	)	_	'	ｼ	ﾊ	ﾗ	ﾝ				
-E	+	;	>	=	ｽ	ﾋ	ﾘ	ﾟ				
-F	|	¬	?	"	ｾ	ﾌ	ﾙ	ﾟ				

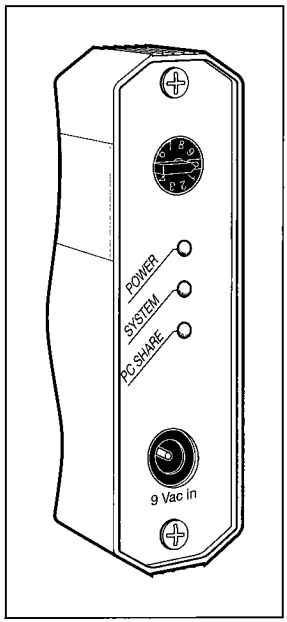
Read each EBCDIC code as a column and row position. For example EBCDIC SBCS code $C1 represents the character 'A'.

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 the device address.

C.1 The POWER indicator

This indicator (green) is lit when the AX-3 Cobra+ is switched on.



C.2 The SYSTEM indicator

This indicator (green) is lit when the AX-3 Cobra+ is connected to your IBM system. It can also flash under the following conditions:

- Flash during three 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.

C.3 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 sub-sequent delay time set by *PC-Host Time-out (#50)*.

C.4 The Rotary Switch

The ten-position rotary switch is used to set the device address for the AX-3 Cobra+. It is also used to set start conditions and to select and execute test functions during operation.

C.4.1 Start Conditions

The action when the AX-3 Cobra+ is switched on will be determined by the setting of the rotary switch, as follows:

Pos.	Description
0-6	Device address in normal print operation.
7,8	Reserved.
9	Perform a test printout.

C.4.2 Device Address

Follow these steps to change the device address:

1. **Switch the AX-3 Cobra+ off.**
2. **Select a new device address (positions 0-6).**
3. **Switch the AX-3 Cobra+ on.**
   A warning for change of device address will be printed.
4. **Step the rotary switch one position forward and back.**
   The new device address will be confirmed by a printed message.

C.4.3 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 SBCS EBCDICCto ASCII 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	**Print DBCS Table** - print the complete Double Byte character set.
6	Reserved
7	**Configuration from a Terminal** - run the Configuration Utility, 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 postion '9' to exit the test mode when done. After doing this, set the rotary switch to the device address again for normal print operation. Switch the AX-3 Cobra+ off and on.

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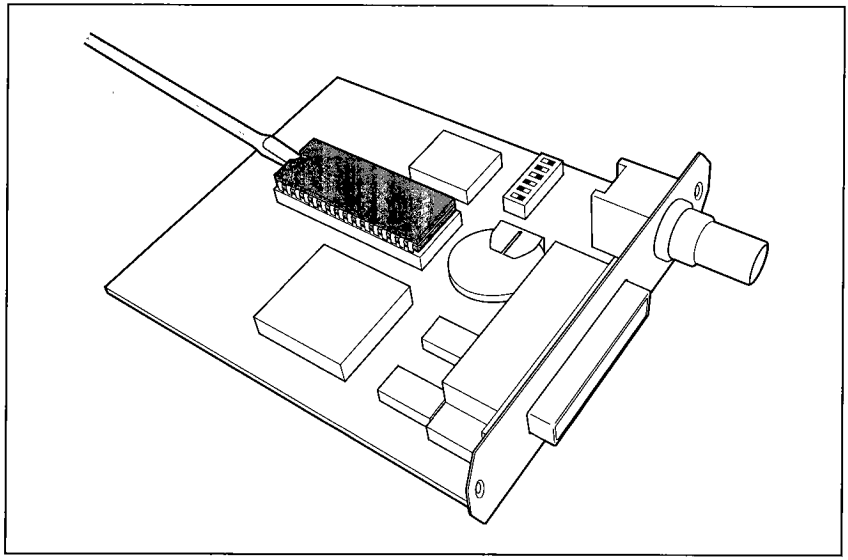
APPENDIX D: SOFTWARE VERSIONS

Any AX-3 Cobra+ can be converted to any of the DBCS versions (CG, JI, JS, KM, KS, TB or TI) simply by replacing the EPROM chip located inside the unit. To replace the EPROM, proceed as follows:

> **Caution**, The AX-3 Cobra+ circuit board is static-sensitive. Mishandling may cause permanent damage to its components. Make sure to take all recommended precautions related to static-sensitive devices.

1. **Turn off the AX-3 Cobra+** by removing the power supply connector.
2. **Disconnect the system and printer connections.**
3. **Unscrew the two screws on the back panel.**
4. **Gently pull the back panel.** The attached circuit board with the EPROM will slide out of the box.



5. **Gently remove the EPROM from its socket** using a flat screwdriver. *It is very important to insert the screwdriver from the edge facing the front panel.* See above illustration. If the screwdriver is inserted the wrong way, the battery could be short-circuited, causing permanent damage to the unit.

6. **Carefully insert the new EPROM chip into the socket.** The notch on the top of the chip should face the front panel. Make sure that all of the EPROM pins align with the socket and gently press the chip down.

   NOTE: There are two sizes of EPROM (24 and 28 pin) that work with the AX-3 Cobra+. If you are installing a 24 pin EPROM it should be positioned at the side of the socket that is closest to the back panel, leaving four empty connectors in the socket at the front panel side.

7. **Push the circuit board back into position inside the box.**
8. **Tighten the two screws on the back panel.**
9. **Attach the AX-3 Cobra+ to the printer and make a test printout.** (See section 2.2.) Please note that all user configurations will be lost and that the following error message will be printed as a normal consequence of a firmware upgrade:

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

10. **Attach the AX-3 Cobra+ to the system.** (See section 2.3)

D.1 Dip switch positions

The switch positions should not be altered on the DIP switch located on the circuit board. The correct positions are:

Switch no.	Position
1	on
2	off
3	on
4	off
5	off
6	on

APPENDIX E: TECHNICAL SPECIFICATION

Attachments

- IBM System/36
- IBM System/38
- IBM System AS/400
- IBM 5259 Migration Data Link
- IBM 5294 Control Unit
- IBM 5394 Control Unit
- IBM 5251 Model 12 Control Unit
- IBM 5299 Terminal Multiconnector

IBM Printer Emulations

- CG version: IBM 5227-005/5327-005
- JI and JS version: IBM 5227-001/5327-001/5427-001
- KB and KM version: IBM 5227-002/5327-002
- TB and TI version: IBM 5227-003/5327-003

IBM System Features

- IBM Advanced DBCS Printer Support/400 (5738-API)
- IBM PC Support/400 (5738-PC1) Virtual Printer
- SBCS and DBCS character printing
- Multiple Bin Support
- Grid lines
- National Languages
- 10/12/13.3/15/18 CPI (SBCS) and 5/6/6.7/7.5 CPI (DBCS)
- Print Speed
- Character size (double width, double height)
- Character rotation
- Down-loaded characters and graphics through LAC support
- SBCS EBCDIC Font

Additional Features

- Configuration from a Terminal or from the System
- Editable Character Translation Table
- Intelligent 3-way PC-Host Sharing (parallel or serial PC)
- 10 User Definable Strings
- Programmable Transparency Function (data pass-through)
- Predefined Printer Driver, fully editable
- Bar Codes *(not AX-3 Cobra+ JI and AX-3 Cobra+ TI)*

Hardware Specifications

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

Approvals

CE

- EMC: FCC 15A Class B, CE: EN 50081-1, EN 50082-1
- Safety: UL, CSA, TüV/GS, SAA, and CENELEC

Environments

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

All specifications are subject to change without prior notice.

APPENDIX F: RELATED DOCUMENTATION

Title	Part Number
AX-3 Cobra+ DBCS Technical Reference	13166
IBM 5250 Information display System Planning and Site Preparation Guide	GA21-9337
IBM 5299 Terminal Multiconnector model 3 Planning, Setup and Maintainance Guide	GA27-3749
IBM System/36 Functions Reference Guide	SA21-9436-05
IBM System/36 Print Facility User's Guide	SH18-0190
IBM System/38 Programmer's Guide/Control Program Facility (CPF)	SC21-7730
IBM System/38 Print Facility User's Guide	SH18-0181
IBM AS/400 Device Configuration Guide	SC41-8206
IBM AS/400 Guide to Programming for Printing:	SC21-8194-0
IBM AS/400 National Language Support Planning Guide	GG41-9877
IBM AS/400 Advanced Page Writer User's Guide and Reference	SH18-2419
IBM AFP Simplified Chinese Font Catalogue	SC18-0133
IBM AFP Korean Font Catalogue	SB09-1421
IBM AFP Traditional Chinese Font Catalogue	SC18-0124
IBM AFP Japanese Font Catalogue	GC18-0611
IBM 5227 Printer Operator's Guide/Set Up Instructions	GA18-2358
IBM 5227 Printer Reference	GA18-2377
IBM 5327 Printer Operator's Guide/Set Up Instructions	GA18-2777
IBM 5327 Printer Reference	GA18-2376
IBM 5427 Printer Operator's Guide/Set Up Instructions	GA18-7449
IBM 5427 Printer Reference	GA18-7448

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