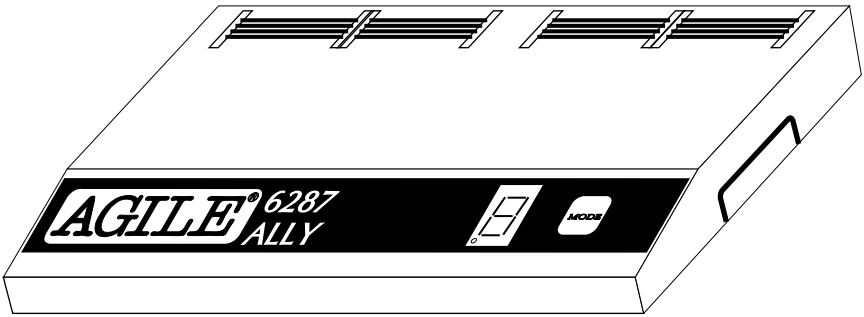
AGILE®

6287 ALLY™

Printer Interface Controller



USER'S MANUAL

Copyright Information

Release Notes

This document was printed in October 1995 and describes 6287 ALLY firmware version 6.00 and later.

Printed in the United States of America.

Fill in for future reference:

AGILE 6287 ALLY Purchase Date: _____

AGILE 6287 ALLY Serial Number: _____

About AGILE

In 1978 “IBM” and the word “compatible” were rarely found together, but IBM’s mainframe customers wanted a less expensive, more flexible printing solution than IBM offered them. They wanted value, performance and features that only ASCII printers could provide. *They wanted freedom of choice.*

This market need prompted Robert Torrey, then Director of Engineering for AGILE, to develop a bridge between popular ASCII printers and the IBM 3270 coax protocol that was a barrier to using ASCII printers in an IBM environment. Robert Torrey is now president of AGILE, and his coax protocol converter was so successful that more than 40 companies tried to copy it.

The industry has undergone enormous changes, and so has AGILE. As the age of the mainframe fades, AGILE’s 6287 ULTRA coax printer interface is still known industry wide as the finest available. The recognized leader in IBM and PCM mainframe and midrange connectivity, AGILE continually seeks new ways to offer its customers options that broaden their choices and provide solutions to their printing problems.

Over 50,000 AGILE interfaces have been installed worldwide. By working closely with industry leaders including Xerox, Lexmark, Hewlett-Packard and Novell, AGILE makes certain that its products will continue to provide full compatibility, remain attractively priced and stay on the leading edge of market developments.

AGILE’s staff of experienced hardware, software and technical support engineers ensure that we will remain in the forefront of technology without sacrificing reliability. The custom solution is one of our strengths, and we have a variety of platforms from which to fulfill the special needs of our customers. If we cannot provide the connectivity you require, we will gladly refer you to one of our strategic business partners who can.

If you read what AGILE’s customers have to say, you will see words like “the performance was flawless” and “the best support we have seen.” You see, customer satisfaction is the only true measure of our success. We understand that to keep pace with the rapidly changing environment, we must do more than simply provide products. That is why we remain uncompromising about some very important things: *Quality, Performance, Value* and *Service*.

Also From AGILE

6287 ALLY PLUS™

A high-speed protocol converter that enables industry-standard serial and parallel ASCII and EBCDIC printers and plotters to be attached to a 3270-type controller. Its alternate host feature allows the mainframe host and a PC to share the same printer without an A/B switch.

6287 ULTRA™

A full-featured protocol converter that enables an industry-standard serial or parallel ASCII or EBCDIC printer or plotter to be attached to a 3270-type controller. Its alternate host feature allows the mainframe host and a PC to share the printer without an A/B switch.

3270 KLONE™

A PC expansion card that enables an IBM PC/AT/XT, PS/2 or compatible computer to emulate a mainframe terminal. Its features include powerful file transfer utilities for sharing PC and mainframe data, plus mainframe printer emulation, allowing mainframe data to be printed on a PC printer.

5250 OPTIMA™

An intelligent protocol converter that enables industry-standard serial and parallel ASCII and EBCDIC printers to be attached to an AS/400 or System/3X midrange computer. Up to three twinax addresses are supported. Its alternate host feature allows the midrange host and PC to share the same printer without an A/B switch.

5250 ALLY™

An intelligent protocol converter that enables an industry-standard parallel ASCII or EBCDIC printer to be attached to an AS/400 or System/3X midrange computer. Its alternate host feature allows the midrange host and PC to share the printer without an A/B switch.

Printer Monitor™

A small device that enables the user to capture print data streams for troubleshooting analysis. Attaches to a parallel port of a PC used to capture data that otherwise would have been sent to the printer.

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PREFACE

About This Manual

This manual covers the installation and use of the AGILE 6287 ALLY printer interface controller. AGILE makes no warranties, expressed or implied, as to its completeness or accuracy. The information in this manual is current as of the date of its publication, but it is subject to change by AGILE at any time without notice. This manual is not intended to be used for manufacturing or engineering specifications, and it is assumed that the user understands the interrelationship between any affected systems, machines, programs and media.

AGILE periodically updates this manual for clarity, to correct inaccuracies and typographical errors, or to document added or changed product features. AGILE will be pleased to improve the manual by implementing suggestions from our customers. Please put suggestions in writing and mail to AGILE at the address below:

AGILE
Attn: Marketing
875 Alfred Nobel Drive
Hercules, CA 94547-1899

AGILE Product Warranty

Standard Warranty

AGILE warrants to the original purchaser that this product will be free from defects in materials and workmanship and in good working order per the functional specifications current at the time of shipment for a period of two (2) years from the date of shipment to the purchaser. AGILE units that fail within the first thirty (30) days from the date of delivery will be treated as an Express Exchange Service (see Optional Warranties and Services) at no extra charge.

Should this product fail to be in good working order at any time during the two-year period, AGILE will, at its absolute discretion, repair or replace this product. AGILE shall have no obligation whatsoever if the product has been damaged due to accident or disaster, or if it has been misused, carelessly handled, defaced, modified or altered, including unauthorized repairs made or attempted, or if the user has failed to provide and maintain a proper environment for the product.

AGILE reserves the right to determine what constitutes warranty repair. Out-of-warranty products will be repaired using AGILE's flat repair rate. All out-of-warranty repaired units have a 90-day Standard Warranty. Units returned for repair and found not defective will, at AGILE's discretion, incur a handling and testing charge. AGILE is not responsible for delays caused by shipping or non-availability of replacement components or other similar causes, events or conditions beyond its reasonable control.

Claims must be reported to AGILE's Technical Support Department at (510) 724-1600, (800) 538-1634, or by FAX at (510) 724-2222. AGILE will assist the customer in verifying the source of the problem.

At AGILE's discretion, a Return Materials Authorization (RMA) number will be issued to the customer. The customer will then carefully package and ship the unit to AGILE (preferably in the original shipping container) with the RMA number on the outside of the box. Shipping costs incurred in sending the unit to AGILE are borne by the customer. Shipping costs incurred in returning the unit to the customer via UPS Ground (or equivalent service with a secondary shipper) are borne by AGILE. Repair parts and replacement products will be furnished on an exchange basis and will be either reconditioned or new. All replaced parts and products become the property of AGILE.

This warranty is the only warranty provided by AGILE. If this product is not in good working order as warranted above, the customer's sole remedy shall be repair or replacement as provided above. This warranty states the purchaser's exclusive remedy for any breach of AGILE's warranty and for any claim, whether in contract or tort, for loss, injury or damages caused by the sale or use of any product and is in lieu of all other warranties, expressed or implied. In no event shall AGILE be responsible for any loss of business, savings or profits, downtime or delay, labor repair or material costs, injury to person or property, or any similar or dissimilar consequential or inconsequential loss or damage resulting from this product, its use, or arising out of any breach of warranty, even if AGILE or an authorized AGILE dealer has been advised of the possibility of such damage, or for any claim by any other party. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply.

All expressed and implied warranties for this product, including the warranties of merchantability and fitness for a particular purpose, are limited in duration to a period of two (2) years from the date of purchase by the original purchaser, and no warranties, whether expressed or implied, will apply after this period. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply.

This warranty gives the user specific legal rights, and the user may also have other rights which may vary from state to state.

Optional Warranties and Services

Extended Warranty lengthens the Standard Warranty and is available in 12-month increments for a maximum of three (3) years. This extension can effectively lengthen the Standard Warranty to five (5) years. Any Extended Warranty must be purchased prior to the expiration date of the Standard Warranty.

Express Exchange Service provides a next-business-day delivery of a replacement unit. The customer must contact AGILE, and AGILE's Customer Support Department must determine by 2:00 p.m. PST that a replacement unit is required. Express Exchange Service is available in 12-month increments for a maximum total of five (5) years and must be concurrent with Standard or Extended Warranties.

Medallion Support Program extends the AGILE two-year Standard Warranty by one year to three years, plus it includes three years of Express Exchange Service, all at a savings of one-third off the standard price.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy. If it is not installed and used in strict accordance with AGILE's instructions, it may cause interference to radio and television reception. This equipment has been tested and complies with the limits for a Class A computing device in accordance with the specifications in Subpart J 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.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the ALLY with respect to the receiver.
- Move the ALLY away from the receiver.
- Plug the ALLY into a different outlet so that the ALLY and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/ television technician for additional suggestions. The booklet, *How to Identify and Resolve Radio-TV Interference Problems,* prepared by the Federal Communications Commission, may also be helpful. This booklet is available from the US Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

WARNING: This equipment has been certified to comply with the limits for a Class A computing device, pursuant to Subpart J of Part 15 of FCC rules. Only peripherals (computer input/output devices, printers, plotters, etc.) certified to comply with the Class A (commercial) or Class B (residential) limits may be attached to the ALLY. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

Note: This equipment uses shielded cables to meet compliance limits for a Class A computing device. Shielded cables must be used to ensure this equipment continues to meet these limits. The shield must be terminated to the metallic connector at both ends to guarantee adequate suppression of undesirable emissions. All cables are fully double shielded (Mylar foil and tinned copper braid.)

Warnings

Electrical Shock

Never open the ALLY when the power is on or when it is connected to any power source. Opening the ALLY may void the warranty.

Notes

Standard Factory Setup

Unless otherwise requested, the ALLY is shipped with the following defaults:

- Other printer type (non-Xerox)
- Parallel output
- ASCII character set
- 132 column right margin

If the user's equipment does not match these parameters, the relevant configuration settings on the ALLY must be changed.

Serial Port Setup

With serial interfacing, the baud rate, parity, word length (data bits), stop bits and handshaking settings of the ALLY must match the serial port settings of the printer. If the user's equipment is not set up to use the default settings, these configuration parameters in Option Group #40 must be changed. The default settings for the serial ports are:

- 9600 baud
- No parity
- 8 data bit word length
- 1 stop bit
- RTS/CTS flow control (handshaking)

Coax Host Considerations

The ALLY connects directly to the establishment controller through an IBM category A device adapter. The port designation for the ALLY must be configured for a category A device, not as the system printer.

The ALLY must be defined to the system as a 3287 printer with a maximum 4K physical buffer size (and/or with other features required by the system and supported by the ALLY PLUS).

The host parameters in Option Group #50 must match what the host expects on the channel to which the ALLY is attached. The defaults are as follows:

- 4K physical buffer size
- 3440 bytes/buffer logical buffer size

If using SCS data streams, the ALLY must be defined to the host as an SNA type 1 logical unit (LU1).

If using DSC data streams, the ALLY must be defined to the host as a type 3 logical unit (LU3).

If using VTAM or another Network Control Program, the 3174, 3274 or 3276 control unit to which the ALLY is attached must be defined as a type 2 physical unit.

Power-On Reset

The ALLY responds to a poll with a POR sequence if no coax traffic has been detected for five seconds, so the host will know that it is "ready," even after catastrophic circumstances. For instance, if power to the host or controller fails, the controller, when it resumes operation, might otherwise consider the ALLY inactive. In other cases, systems are put to "sleep" when not in use. This feature ensures that communication with the host will resume when the host is ready.

Printer/Controller Configuration

The ALLY provides all of the necessary functions normally provided by the operator switches of an IBM 3287. However, practical application of industry-standard printers does not allow a one-to-one correspondence in functions. It is accordingly expected that any particular printer/controller configuration will be a subset of the IBM 3287 function set.

INTRODUCTION

General Information

The AGILE 6287 ALLY is a high-speed protocol converter that allows industry-standard ASCII and EBCDIC printers to be attached to an IBM 3270-type mainframe controller.

The coax port allows a standard IBM RG62 A/U cable to connect to an IBM 3174 or 3274 establishment controller (EC) with a category A device adapter, a 3276 terminal controller unit, or an IBM CPU with a Display Printer Adapter (DPA).

By using the ALLY, non-IBM impact and laser printers can replace IBM 3287, 3289, 3262 and 4224 printers. Popular printers from Xerox, Hewlett-Packard, Lexmark and other manufacturers are supported and appear to the host as IBM printers.

The ALLY may also be attached to plotters, rasterizers, bar code printers and other output devices that support parallel or serial interfacing, although this manual will refer to the attached device as a printer.

Supported Printer Interfaces and Character Sets

The ALLY supports the following printer interfaces and character sets:

- DB-25 Centronics parallel interface (IBM PC compatible)
- RJ-12 serial interface (to 115.2K baud)
- ASCII, EBCDIC or APL character sets

IBM Port

The ALLY connects directly to the IBM establishment controller, or equivalent CPU with a Display Printer Adapter, through an IBM standard coaxial cable.

6287 ALLY Features and Specifications

Input/Output Ports
- IBM RG62 A/U Coax Port
- 1 Centronics DB-25 Parallel Output Port
- 1 RJ-12 Serial Output Port

Host Interface
- IBM BNC type A Coax

Printer/Plotter Output Interfacing
- ASCII, EBCDIC or APL
- 1 Centronics DB-25 Parallel Port
- 1 RJ-12 Serial Port (300-115.2K baud)

IBM Specifications
- Category A device
- Type 1 or 3 logical unit
- IBM or compatible type A RG62 A/U coax cable attachment to an IBM 3174, 3274 or 3276 controller, or an IBM CPU with a Display Printer Adapter (DPA)

Host Systems Supported
- IBM 30XX, 43XX, 9370, 370 with 3270 support
- IBM 8100, 4700, S/3X, AS/400 with type A coax support

Printer Emulations
- IBM 3262, 3287, 3289 and 4224 printers

Printers Supported
- Xerox 2700, 3700, 4010, 4011, 4030, 4045, 4197, 4213, 4220, 4235, 4700 and other Xerox distributed electronic printers
- Hewlett-Packard LaserJet II, IID, IIID, IIISi, 4, 4Si and compatibles
- IBM/Lexmark laser, dot matrix and compatible printers

Plotters Supported
- Hewlett-Packard 7221, 7475, 7550
- Zeta plotters
- All HPGL- and GML-capable plotters

Throughput
- With the DisplayWrite 370 feature disabled, supports up to 100 logical pages-per-minute at 100% print density (132 columns by 66 lines, for a total of 8712 characters per page); 60 logical pages-per-minute with the DisplayWrite 370 feature enabled.

Upgradeability
- Removable external ROM cartridge for configuration and upgrade ease

Programmability
- On line through coax host data stream

User-Programmable Function Strings (PFSs)
- 64 PFSs in a dynamic 12K space

Transparency
- 35h
- 36h
- 2-trigger
- Trigger+count byte

Translation
- Translation tables changeable on line

Character Sets
- Supports LU1 (SCS) and LU3 (DSC) character sets

Custom Application Support
- Laserpage
- XPAF
- XES
- DisplayWrite 370
- MD-Laser
- Metacode
- Special application customization available

Power
- 5 VDC at 700 milliamps

Size
- 8.6" x 5.5" x 1.5"

Weight
- 1.4 lbs

Product Support
- Toll-free technical support from 7:00 a.m. to 4:30 p.m. PST
- Two-year product warranty

INSTALLATION

General Information

This chapter provides information on physically attaching the AGILE 6287 ALLY to the computer environment.

Before Beginning

The following are needed before installing the ALLY:

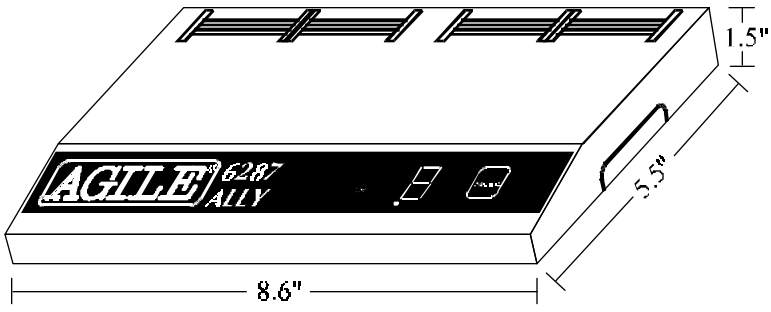
- A suitable location.
- A parallel or serial printer (or plotter).
- A host interface cable — RG62 A/U coaxial cable with BNC connectors on both ends. The length of this cable is not to exceed 5000 feet (1500 meters).
- Additionally, the user or someone in the user's organization should be knowledgeable about the host system.

Selecting a Location

The compact size, quiet operation, and attractive styling of the ALLY enable it to be placed in almost any location. For ease of operation, it is best installed beside the printer.

Space Requirements

The dimensions of the ALLY are as follows:



Electrical Requirements

The ALLY requires 5 VDC at 700 milliamps provided by the 117 VAC adapter or the optional 250 VAC adapter.

Plug the AC adapter and the printer into different electrical circuits. Do not use the same circuit for the printer and the ALLY. Do not use extension cords with the ALLY.

Users with any questions regarding the electrical service available at their site should contact a qualified electrician.

Operating Environment

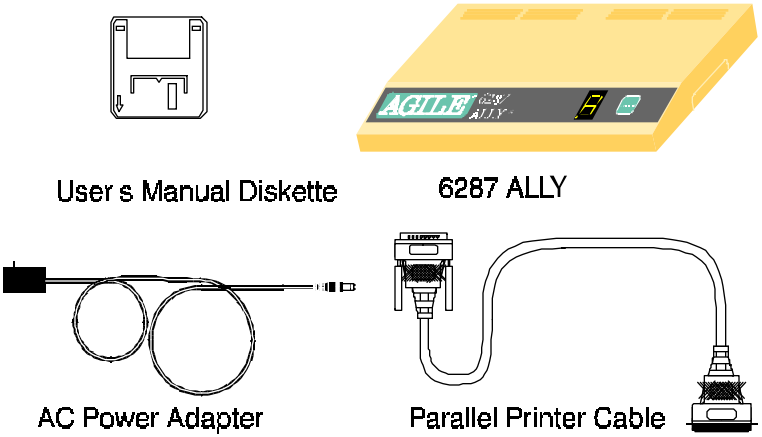
The ALLY operates best in an environment with a temperature between 50 and 90 degrees Fahrenheit and 15% to 65% relative humidity.

Unpacking

After removing the ALLY from the shipping container, inspect the unit for any damage in shipment. Immediately report any damage to the freight carrier. Save the packing container.

Package Contents

Except when ordered otherwise, the ALLY includes the ALLY protocol converter, an AC power adapter, a parallel printer cable and this user's manual. Should any of these items be missing, contact an AGILE sales representative.



Connections

The following section describes and illustrates how to make the physical connections between the ALLY and the other components of the system. Be certain to use AGILE 6287 ALLY cables for connection to the printer(s). Approved cables are listed in the following chart:

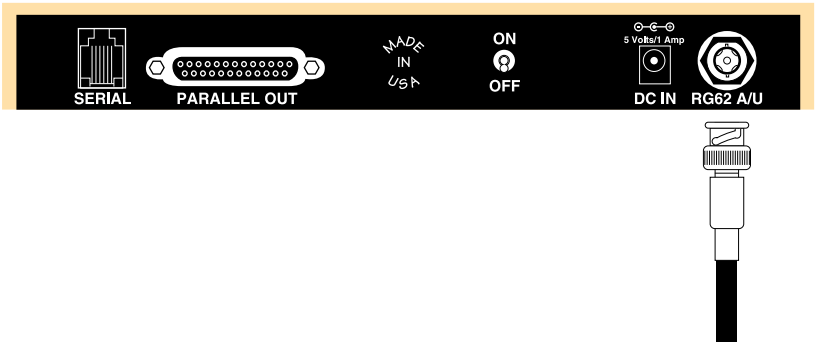
AGILE 6287 ALLY CABLE CHART	
AGILE P/N	**DESCRIPTION**
830650-1	Standard Parallel Output (DB-25 P/Centronics 36) 6'
830730-1	Serial COM Port Adapter (DB-25 P) 1'
830750-1	Serial 4045/HP LJIII (DB-25 P) 7'
830760-1	Serial Zeta Plotter (DB-25 P) 7'
830770-1	Serial Norcom 1700 (DB-25 S) 7'
830780-1	Serial HP-7550 (DB-25 P) 7'

6287 ALLY Rear Panel

The rear panel of the ALLY provides an on/off switch, an AC power adapter outlet, a coax port for connection to the establishment controller (RG62 A/U), a Centronics parallel printer port (PARALLEL OUT) and an RJ-12 serial printer port (SERIAL).

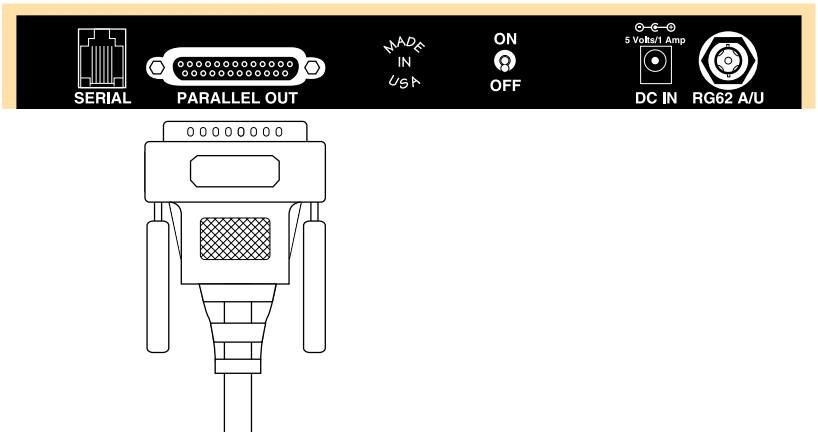
6287 ALLY Connection to Establishment Controller

Attach the device end of an RG62 A/U coax cable to the coax connector on the rear panel of the ALLY. Rotate the cable connector 1/4 turn clockwise to lock it in place. Attach the EC end of the coaxial cable to the establishment controller at the coax port designated for the ALLY.

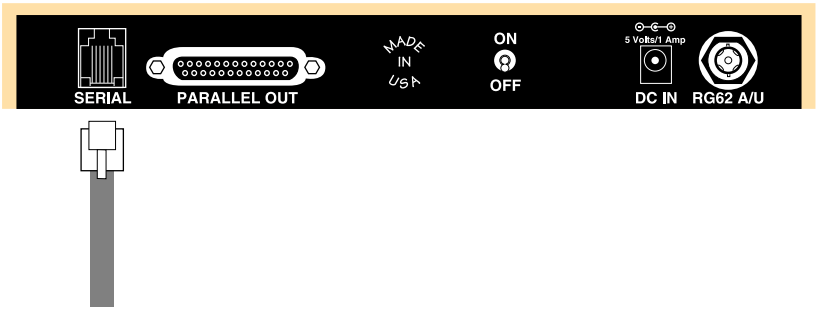


ALLY Connection to Printer/Plotter

Insert the device end of the AGILE printer cable into the connector on the rear of the printer. Then connect the ALLY end of the AGILE printer cable to the proper output port of the ALLY. Secure the cable to the printer using the clips (parallel) or screws (serial) provided. If using the AGILE COM port adapter with a serial cable, connect the serial port end of the cable to the AGILE COM port adapter, then connect the adapter to the SERIAL port on the ALLY. The FCC requires all printer interface cables to be properly shielded.



(parallel printer connection to ALLY)



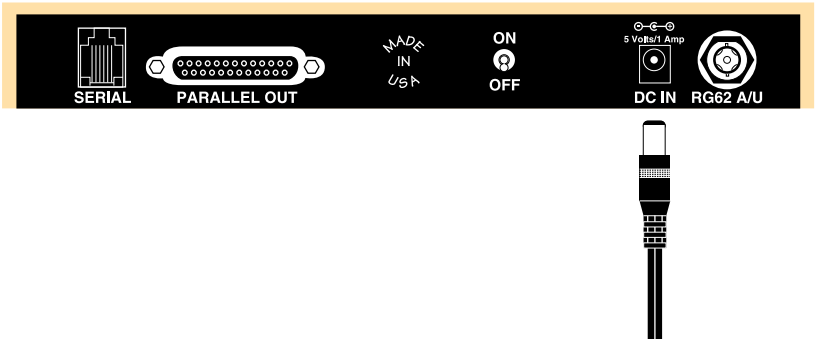
(serial printer connection to ALLY)

Dual Printer Installation

The ALLY may have two printers (one serial and one parallel) attached. Mode B on the front panel will switch to serial output; Mode C will switch to parallel output. (See configuration Option #1 for switching output ports on line.)

6287 ALLY Connection to AC Outlet

Ensure that the power switch on the ALLY is set in the OFF (down) position. Insert the device end of the AC adapter into the rear of the ALLY. Insert the male end of the AC adapter into a wall receptacle.



6287 ALLY Front Panel

The front panel of the ALLY provides a mode indicator in the form of a seven-segment LED, and a pushbutton for changing modes. To select a mode, press the MODE selector button until the appropriate mode number is indicated by the LED. The mode operation will begin after two seconds. Each of the possible modes is described below:

Modes

0 — Normal Operating Mode

Host data may be accepted at any time during normal operating mode. If the LED decimal point is on, the establishment controller is actively communicating with the ALLY. A flashing decimal point indicates that the controller unit is in slow poll mode.

1 — PA1 or PFS %59

Unless PFS %59 has been programmed by the user, Mode 1 will send Program Attention key #1 to the host application and return to normal operating mode. If PFS %59 has been programmed, Mode 1 will send PFS %59 to the current printer (see Section 4 — Programmable Function Strings) and return to normal operating mode.

2 — PA2 or PFS %60

Unless PFS %60 has been programmed by the user, Mode 2 will send Program Attention key #2 to the host application and return to normal operating mode. If PFS %60 has been programmed, Mode 2 will send PFS %60 to the current printer (see Section 4 — Programmable Function Strings) and return to normal operating mode.

3 — RESET

The ALLY will reset and return to normal operating mode.

4 — Form Feed

The ALLY will return to normal operating mode after a form feed is sent to the current printer.

5 — General Configuration Report

The ALLY will return to normal operating mode after a General Configuration Report is sent to the current printer. (See the Appendix for a sample of this report.)

6 — Translate Table Report

The ALLY will return to normal operating mode after a Translate Table and Function Report is sent to the current printer. (See the Appendix for a sample report.)

7 — PFS Report

The ALLY will return to normal operating mode after a PFS Report is sent to the current printer. (See the Appendix for a sample report.)

8 — Printer Test Report

This mode tests the connection between the ALLY and the current printer. It sends out a continuous stream of characters, including alphabetic, numeric and special characters. (See Appendix.) The ALLY must be powered down to stop this operation.

9 — Plotter Test Report

This mode tests the connection between the ALLY and the current plotter. (See Appendix.) Any plotter capable of accepting GML or HPGL plot commands may be tested with this selection. (See Section 3 — Configuration, and use Option #03 for selecting the plotter to be tested.)

A — ASCII/EBCDIC Toggle

The ALLY will return to normal operating mode after switching from the current selection (ASCII or EBCDIC) to the other (EBCDIC or ASCII). All data will be output in the new data format until the ALLY is configured otherwise. This option can also be configured from the host (see Section 3 — Configuration).

B — Serial Port Mode

The ALLY will return to normal operating mode after switching to serial output. All output from the ALLY will come from the SERIAL port until configured otherwise. This option can also be configured from the host (see Section 3 — Configuration).

C — Centronics Port Mode

The ALLY will return to normal operating mode after switching to Centronics output. All output from the ALLY will come from the PARALLEL OUT port until configured otherwise. This option can also be configured from the host (see Section 3 — Configuration).

D — Extended Modes

This mode is used to select Extended Modes. Extended modes are acquired by selecting Mode D and another mode in consecutive order. For instance, to select Extended Mode D3, press the MODE selector button until the LED reads "D." After 2 seconds, the LED will display a "0." The user must then press the MODE selector button until the LED reads "3." Supported Extended Modes are described in the next subsection.

E — Reserved

This mode is reserved.

F — Host Diagnostic Report

When this mode is selected, the ALLY enters a diagnostic mode and prints a Host Diagnostic Report useful for analyzing data streams. The data presented by this report is printed as it was sent by the establishment controller, unaltered by the ALLY. (See the Appendix for a sample of this report.) The ALLY must be powered down to halt this operation.

Extended Modes

D3 — 6287 ULTRA Coax Host Configuration

This extended mode is used to configure the ALLY from a coax host with data streams created for other AGILE protocol converters, the 6287 ULTRA, 6287 IC and 6287 IC+. This mode is the functional equivalent of placing dip switch B7 in the ON (down) position and pressing the RESET button on the front panel of the ULTRA. To select Extended Mode D3, press the MODE selector button until the LED reads "D." After 2 seconds, the LED will display a "0." Then press the MODE selector button until the LED reads "3." This will place the unit in Extended Mode D3, although the LED will display a "0." After the configuration changes are made, normal operation will resume after the user resets the unit by pressing the MODE selector button until the LED reads "3." Refer to Section 10 — 6287 ULTRA Compatibility for more information.

Resetting to Defaults

The user may reset the ALLY PLUS to its default configuration by turning off the ALLY PLUS, then holding down the MODE button while powering on the unit.

6287 ALLY Power Up

Power on the printer. After the printer completes its power on initialization sequence, verify that it is on line and ready to receive and print data. If necessary, refer to the printer user's manual for detailed information.

Power on the ALLY. The LED should display a 0. If proper connection to the establishment controller has been made, the decimal point to the left of the 0 should also be displayed.

A flashing decimal point indicates the controller is in slow poll mode (i.e., that a connection is not established between the controller and the ALLY). To correct this problem, power off the ALLY, then turn it back on.

Connection Tests

The following tests will verify that proper connections have been made between the ALLY, the host and the printer(s).

Printer/Plotter Verification

In order to verify the printer connection, print a General Configuration Report by pressing the MODE button on the front panel of the ALLY until the LED reads 5. If using a plotter, press the MODE button until the LED reads 9. A sample General Configuration Report and a Plotter Test can be found in the Appendix.

If the report does not print:

- Check that the ALLY and the printer are connected to a power source, powered on and on line.
- Verify that the printer is securely connected to the ALLY with an ALLY cable or with an ALLY COM port adapter used with the printer's serial cable.
- The ALLY may be configured incorrectly for a serial or parallel printer (the default is parallel). Select serial output by using Mode B on the front panel. Select parallel output by using Mode C on the front panel.

- If using a serial printer, make sure that the Option Group #40 settings (Options 41-45) match the printer interface settings for baud rate, parity, word length (data bits), stop bits and handshaking. Refer to Section 3 — Configuration for detailed instructions on configuration, and change the settings as needed.
- If using a plotter, make sure that Option #03 is set correctly. Refer to Section 3 — Configuration, and change the settings as needed.
- Confirm that the printer is functioning properly by having it perform a self test. Refer to the printer user's manual for instructions.

If the report prints garbage:

- The ALLY may be incorrectly configured for ASCII or EBCDIC (the default is ASCII). This setting can be changed using Mode A from the front panel.

Coax Host Verification

After successfully printing a General Configuration Report, verify the host connection to the ALLY by sending a Local Copy or a typical host-generated print transaction to the printer. Refer to the system documentation for instructions. Verify that the transaction is properly formatted and output by the printer.

If it does not print:

- Check that the ALLY and the host are securely connected to the coax cable, and that the decimal point on the ALLY LED is on, indicating a proper connection.

  A flashing decimal point indicates that the controller is in slow poll mode (i.e., that a connection is not established between the ALLY and the controller). To correct the problem, power off the ALLY, then turn it back on.
- Refer to Section 3 — Configuration for detailed instructions on configuration, check the settings of Option Group #50 in the General Configuration Report, and change the settings as needed.
- Refer to Section 6 — Coax Host Considerations. Check that the ALLY is connected to a Category A device adapter. Make certain that the ALLY is defined to the host as an LU1 or LU3, and as a 3287 printer with a maximum of 4K physical buffer space (and/or with other features required by the application and supported by the ALLY). If using VTAM or another Network Control Program, confirm that the ALLY is defined as a type 2 phyical unit.

If the print output is not formatted correctly:

- Refer to the printer user's manual for the commands necessary to format the printer's output to suit the needs of the application.
- Refer to Section 3 — Configuration for detailed instructions on configuration, check the settings of Option #00, Option Group #10, Option Group #20, Option Group #30, Option Group #60 and Option #70 in the General Configuration Report, and change the settings as needed.

Contacting AGILE Technical Support

If a problem persists after each of the potential problems listed above has been checked and corrected, call AGILE technical support. Please have the following information available before calling:

A printout of the General Configuration Report, if able to print one using Mode 5 from the front panel.

6287 ALLY serial # (found on the bottom panel): S/N _____

Firmware version #
(found on the bottom of the external ROM cartridge): _____

Cluster controller model #: _____

SCS or DSC mode: _____

Printer or plotter make: _____ Model #: _____

Printer/plotter cable #: _____

Plotter graphics software name: _____

Parallel or serial interface: _____

If serial: Length: _____ Stops: _____

Parity: _____ Baud: _____

Flow control: _____

AGILE toll-free technical support is available between the hours of 7:00 a.m. and 4:30 p.m. PST. For Express Exchange Service customers who would like next-business-day replacement of a unit, AGILE technical support must be contacted earlier enough so that the need for a replacement unit can be determined by 2:00 p.m. PST. Refer to page x for warranty information.

Call (800) 538-1634, FAX (510) 724-2222 or e-mail *tech@agileinc.com*.

AGILE's address on the World Wide Web is http://www.agileinc.com.

The AGILE Bulletin Board System

To upload files that do not print correctly, or to download information, call the AGILE BBS:

1. Load the communications software.

2. Set up the modem:

   - Baud rate: Fastest setting available (AGILE supports speeds of up to 28.8 with both V.FC and V.34 modems)
   - Data bits: 8
   - Stop bits: 1
   - Parity: None

3. Dial 15107248073. If using a line with *Call Waiting*, dial *70,15107248073 to disable *Call Waiting*.

4. As prompted by the bulletin board, enter the following:

   - First name
   - Last name
   - "Y" to confirm name
   - Password
   - Re-enter password
   - "C" to continue
   - Company name
   - Voice phone number

5. Now answer a few questions about your system:

   - Hot keys (Y/N) allow options to be selected without pressing Enter
   - Color menus — "A" = auto-detect
   - Default editor mode — "F" = full screen (if the user has ANSI terminal emulation); "L" = line edit (if the user does not have ANSI terminal emulation)
   - Protocol for file transfers — the preferred file transfer protocol is ZMODEM ("Z"), but the user may also use any of the other protocols displayed on the screen.

6. The bulletin board will then ask if you want to display the Bulletin menu (Y/N), inform you that you have no personal mail, and after you press Enter, will display the Main menu.

7. To download a file, perform the following steps:

    - Press “F” to display the File menu
    - Press “L” to List files
    - Press “1” to go to File area 1 (AGILE software download area)
    - Press “M” to Mark the file
    - Type the number of the file to be downloaded
    - Press “D” to Download the file
    - Press “D” to confirm the download
    - Perform the local download procedure according to your communications software instructions

8. After downloading the file, press Enter, then exit the bulletin board with the following steps:

    - Press “S” to Stop downloading and exit the Download menu
    - Press “Q” to Quit to the Main menu
    - Press “G” to Goodbye and Logoff
    - Press “Y” to confirm the Logoff

Software Upgrades

AGILE periodically makes improvements to the operating software for its products. These software upgrades are available from AGILE for a nominal charge during the warranty period. All future code modifications will be made through replacement of the ROM cartridge. To upgrade to a new version of the software, turn off the AGILE 6287 ALLY PLUS, remove the ROM cartridge on the right panel, insert the new ROM cartridge, and restart the ALLY PLUS. Then hold down the MODE button, turn off the unit and turn it back on again, holding down the MODE button until the LED displays an “8.” This will set all options to factory defaults.

CONFIGURATION

General Information

Configuring the ALLY changes the way in which it handles the data stream from the host before the data is sent to the printer(s) or plotter(s). The configuration option parameters allow the user to change printer output, page formatting, setup of the serial port, host parameters, transparency modes, etc.

Some of these configuration changes can be made from the front panel. This chapter covers coax host configuration of the ALLY, which is accomplished by sending a print job to it. This is a very powerful feature. It allows system administrators and end users to change the parameters of the ALLY without leaving their workstations. Whether the configuration changes are made from the front panel or through the coax host data stream, they determine the ALLY configuration, even after the unit is powered down, until it is configured otherwise.

Under many circumstances, the ALLY configuration will not have to be modified, because the default configuration is appropriate for the most common environments. In some cases, the configuration will have to be altered to match the requirements of the user's system.

Before changing any of the configuration settings, the user should print a General Configuration Report that will display the current settings. A General Configuration Report can be generated by selecting Mode 5 from the front panel of the ALLY. A sample report can be found in the Appendix.

The most critical part of configuring the ALLY is correctly choosing the output settings. If the user's output device operates in serial mode, refer to Options 41-45 in this section before printing.

Programmable function strings (PFSs) and translate tables are also editable from the host, although those topics are covered later in this manual.

Changing Configuration Option Parameters

All parameters that are changeable in the ALLY are preceded by the text !ALLY!, the configuration "trigger." The trigger is followed eventually by a semicolon (;), the configuration "terminator."

General configuration changes take the following form:

```
!ALLY!OO=CC;
```

!ALLY! is the trigger; OO represents the two-digit Option number; CC represents the two-digit Choice number for that option; an equals sign (=) separates the option number from the choice number; and a semicolon (;) is the terminator. All choices are entered in hexadecimal format. The Appendix provides a hexadecimal to decimal conversion chart.

CCs may take the following forms:

CC	Description
00	exactly two hexadecimal digits are allowed
00	00 implies "no" for yes/no choices
01	01 implies "yes" for yes/no choices
FF	this is the maximum allowed value

To change the ALLY configuration, create a document to be printed. Type the trigger (!ALLY!), the two-digit option number (OO), an equals sign (=), the two-digit choice number (CC) and the terminator (;). Print the document to the ALLY.

The simplest way to change the settings of the ALLY is with a Local Copy. After the user's change is keyed onto the screen, the user simply presses the Local Copy key on the terminal. The ALLY interprets the command and stores the new selection in its battery-backed RAM.

If the document is a Local Copy, the characters that were used to change the configuration will be printed to the current printer. If a formatted document with configuration characters is sent to the ALLY, the configuration characters will not be printed in the document. This feature allows the user to change the configuration of the ALLY transparently within a formatted document.

Multiple Configuration Changes

Multiple configuration changes can be made in a single document. Configuration settings that affect the entire document (e.g., printer type, parallel output, ASCII) must be entered on the first lines of the document, while configuration settings that affect only a portion of the document (e.g., PFS BOLD ON, etc.) may be entered at any appropriate time.

Multiple configuration changes can be made using only one trigger and only one terminator per line, but each new line in the document must have its own trigger and terminator. The configuration changes on each line of the document must begin with the trigger (!ALLY!) and end with the terminator (;). Each configuration change must be separated by a comma (,). For example, the following commands will change the margins in an SCS data stream:

[text] !ALLY!11=05,12=FE;

!ALLY!13=05,14=42; *[text]*

Configuration Defaults

The ALLY is shipped from the factory with a given set of parameters (called "defaults"). The default configuration will allow most operators to use the ALLY after making few, if any, configuration changes. These factory defaults, including the default programmable function strings and translate tables, can be restored at any time by sending the trigger followed directly by the terminator as shown:

!ALLY!;

The ALLY can also be reset to a default configuration from the front panel by pressing the MODE button while powering on the ALLY. Due to the use of non-volatile battery-backed RAM, configuration changes, including changes to programmable function strings and translate tables, will be stored in the ALLY even when it is powered off.

To reset an individual configuration parameter to its factory default setting, enter the trigger, the Option number and the terminator. The following example resets the top margin for SCS data streams:

!ALLY!13;

A General Configuration Report, with most of the default values selected, can be found in the Appendix. The user can print the current General Configuration Report at any time using Mode 5 from the front panel.

Changing Configuration Options Within a Print Job

If the user intends to make configuration changes within a print job, Option #12 — SCS right margin and Option #22 — DSC right margin should be set to 00 (infinite line length), Option # 14 — SCS bottom margin and Option #24 — DSC right margin should be set to 00 (infinite page length), and Option #70 — DisplayWrite 370 support should be set to 00 (disabled). Otherwise, unpredictable formatting errors could occur.

Configuration Groups

The ALLY configuration options are organized into 8 groups numbered 00 through 70. Below is a description of each option and how it affects the operation of the ALLY.

Printer Output (Group #00)

This configuration group allows the user to define the printer type, to select ASCII or EBCDIC character sets, and to enable or disable specific plotter types. To determine which settings are appropriate, refer to the printer user's manual.

00 — Printer type (Xerox, HP, 4213, other)

This option tells the ALLY the escape sequences (or programmable function strings) that should be used for special functions such as resetting the printer or bolding text. Each printer type has its own escape sequences. The programmable function strings in the ALLY are set up according to the printer type that is selected. If Choice #03 is selected (the default), no programmable function strings will be installed.

For example, the reset PFS for Xerox printers is Esc+X CR/LF. When Xerox is selected, PFS %00 (reset printer) becomes 1B 2B 58 0D 0A. The Xerox selection has other implications (see Section 9 — Xerox Applications).

A complete list of the programmable function strings defined with each choice can be found in the appendix under Programmable Function String Report.

Use these values to program this option:

!ALLY!00=00; use Xerox escape sequences

!ALLY!00=01; use HP escape sequences

!ALLY!00=02; use Xerox 4213 escape sequences

!ALLY!00=03; use no escape sequences (default)

01 — Output Type

Note: This option can also be selected from the front panel. Use Mode B for serial output. Use Mode C for parallel output.

This option tells the ALLY to which port to send output. The default is the parallel output port. If the serial port is selected, be sure to set up all of the options in the Serial Port Group (Option Group #40) so proper communication can be established with the output device. When programming this option, use one of these sequences:

!ALLY!01=00; for output to PARALLEL OUT (default)

!ALLY!01=01; for output to SERIAL

02 — Character set

Note: This option can also be selected from the front panel. Use Mode A to toggle between ASCII and EBCDIC output.

Some printer types (such as Xerox 4045s) can accept EBCDIC data. This option allows the user to select either EBCDIC or ASCII output from the ALLY. When programming this option use one of these sequences:

!ALLY!02=00; for ASCII output (default)

!ALLY!02=01; for EBCDIC output

03 — Plotter support

Mode 9 on the front panel of the ALLY will produce a test of the plotter connection. For the test to function correctly, select the appropriate plotter from the list below. If a printer is attached, this option should be set to 00 (disabled), the factory default. Use one of these sequences:

!ALLY!03=00; for no plotter support

!ALLY!03=01; for HP 7221 plotter attachment

!ALLY!03=02; for HP 7475 plotter attachment

!ALLY!03=03; for HP 7550 plotter attachment (default)

!ALLY!03=04; for Zeta GML plotter attachment

SCS Page Formatting (Group #10)

11 — SCS left margin

SCS SHF commands will override this setting. Refer to Section 7 for details.

The left margin default is 01, but it may be set to any value between 01 and the value of the right margin (see below). After a CR sequence, the ALLY will check this parameter. If the option is set to a value other than 01 and a CR has been output, the ALLY will output spaces to reach the proper column. Here are some examples for setting this option:

!ALLY!11=01;	left margin is the first column (default)
!ALLY!11=05;	the ALLY will send four spaces to get to column five before putting a printable character on the page

12 — SCS right margin

SCS SHF commands will override this setting. Refer to Section 7 for details.

The right margin places a limit on the number of printable columns available to the host application. This value represents the last column at which the ALLY will allow any character to be printed before sending out a CR/LF sequence.

A value of 00 implies an infinite line length. This is the desired setting if the host application is sending new lines. If the application does not send new lines, this option should be set to a non-zero value.

The default value is 84 (or 132 decimal), but the user may select any value between the value of the left margin and FF (255 decimal).

!ALLY!12=84;	the right margin is column 132 (default)
!ALLY!12=FE;	before column 255 is printed, the ALLY will send out a new line

Note: A value of 00 implies an infinite line length. In infinite line length, the ALLY will not send a CR/LF to the printer unless the user or the user's application has embedded a CR/LF in the data stream. To avoid unexpected formatting results, this option should be set to 00 if any of the following are true:

- *the user or the user's application embeds escape sequences in the data stream*
- *the user or the user's application embeds transparency or pseudo transparency strings in the data stream*
- *the user embeds !ALLY! commands (configuration, translate table or PFS commands) within print jobs.*

This option should not be set to 00 (infinite line length) if Option #70 — DisplayWrite 370 support is enabled. The ALLY will not buffer more than 255 characters per line.

13 — SCS top margin

SCS SVF commands will override this setting. Refer to Section 7 for details.

After receiving an SCS form feed sequence, the ALLY will send out line feeds until the top margin is reached. The internal margin position of the ALLY is 01h (the default value) after a form feed has been sent.

!ALLY!13=01;	printing begins on line 1 (default)
!ALLY!13=05;	the ALLY will send 4 line feeds before printing anything on the new page

14 — SCS bottom margin

SCS SVF commands will override this setting. Refer to Section 7 for details.

The bottom margin places a limit on the number of printable lines available to the host application. This value represents the last line on which the ALLY will allow any character to be printed before sending out a form feed.

If the user needs the ALLY to insert form feeds, and if the desired page length is 66 lines, this value should be set to 42h. When the ALLY detects a printable character after 66 lines have been sent, it will first output a form feed.

The default value is 00, which implies an infinite page length. This is the desired setting if the application is sending form feeds and the page is a standard size (66 lines). If the application does not send form feeds, or if the page is a non-standard size, this option should be set to a non-zero value.

The user may choose any value between the top margin value and FF (255).

!ALLY!14=00; implies an infinite page length (default)

!ALLY!14=42; after 66 lines, the ALLY sends FF

Note: A value of 00 implies an infinite page length. In infinite page length, the ALLY will not send a form feed to the printer unless the user or the user's application has embedded a form feed in the data stream. To avoid unexpected formatting results, this option should be set to 00 (infinite page length) if any of the following are true:

- *the user or the user's application embeds escape sequences in the data stream*
- *the user or the user's application embeds transparency or pseudo transparency strings in the data stream*
- *the user embeds !ALLY! commands (configuration, translate table or PFS commands) within print jobs.*

15 — SCS line spacing

If the ALLY detects a line feed in the incoming data stream, or if it must send out a line feed itself, it will output the number of line feeds specified by this option. The user may enter a value between 01 and 09. To program this option, use the appropriate sequence:

!ALLY!15=01; single spacing (default)

!ALLY!15=02; use this for double spacing

16 — SCS EM ignored if in column 1

Typically, an EM (end of message) character from the host should signal the ALLY to send out a CR/LF sequence. If this option is set to 01, and if the printer is in column 1, the EM will be ignored by the ALLY. The default value is 00. Program this option with these sequences:

!ALLY!16=00; send CR/LF after receiving EM (default)

!ALLY!16=01; ignore SCS EM if in column 1

DSC Page Formatting (Group #20)

21 — DSC left margin

The left margin default is 01, but it may be set to any value between 01 and the value of the right margin (see below). After a CR sequence, the ALLY will check this parameter. If the option is set to a value other than 01 and a CR has been output, the ALLY will output spaces to reach the proper column. Here are some examples for setting this option:

!ALLY!21=01;	the left margin is the first column (default)
!ALLY!21=05;	the ALLY will send four spaces to get to column five before sending more data to the printer

22 — DSC right margin

The right margin places a limit on the number of printable columns available to the host application. This value represents the last column at which the ALLY will allow any character to be printed before sending out a CR/LF sequence.

A value of 00 implies an infinite line length. This is the desired setting if the host application is sending new lines. If the application does not send new lines, this option should be set to a non-zero value.

The default value is 84 (or 132 decimal), but the user may select any value between the value of the left margin and FF (255 decimal).

!ALLY!22=84;	the right margin is column 132 (default)
!ALLY!22=FE;	before column 255 is printed, the ALLY will send out a new line

Note: A value of 00 implies an infinite line length. In infinite line length, the ALLY will not send a CR/LF to the printer unless the user or the user's application has embedded a CR/LF in the data stream. To avoid unexpected formatting results, set this option to 00 if any of the following are true:

- *the user or the user's application embeds escape sequences in the data stream*
- *the user or the user's application embeds pseudo transparency strings in the data stream*

- *the user embeds !ALLY! commands (configuration, translate table or PFS commands) within print jobs.*

This option should not be set to 00 (infinite line length) if Option #70 — DisplayWrite 370 support is enabled. The ALLY will not buffer more than 255 characters per line.

23 — DSC top margin

After receiving a DSC form feed sequence, the ALLY will send out line feeds until the top margin is reached. The default margin position of the ALLY is 01 after a form feed has been sent.

!ALLY!23=01;	printing begins on line 1 (default)
!ALLY!23=05;	the ALLY will send 4 line feeds before printing anything on the new page

24 — DSC bottom margin

The bottom margin places a limit on the number of printable lines available to the host application. This value represents the last line on which the ALLY will allow any character to be printed before sending out a form feed.

If the user needs the ALLY to insert form feeds, and if the desired page length is 66 lines, this value should be set to 42h. When the ALLY detects a printable character after 66 lines have been sent, it will first output a form feed.

The default value is 00, which implies an infinite page length. This is the desired setting if the application is sending form feeds and the page is a standard size (66 lines). If the application does not send form feeds, or if the page is a non-standard size, set this option to a non-zero value.

The user may choose any value between the top margin value and FF (255).

!ALLY!24=00;	implies an infinite page length (default)
!ALLY!24=42;	after 66 lines, the ALLY sends FF

Note: A value of 00 implies an infinite page length. In infinite page length, the ALLY will not send a form feed to the printer unless the user or the user's application has embedded a form feed in the data stream. To avoid unexpected formatting results, this option should be set to 00 (infinite page length) if any of the following are true:

- *the user or the user's application embeds escape sequences in the data stream*
- *the user or the user's application embeds pseudo transparency strings in the data stream*
- *the user embeds !ALLY! commands (configuration, translate table or PFS commands) within print jobs.*

25 — DSC line spacing

If the ALLY detects a line feed in the incoming data stream, or if it must send out a line feed itself, it will output the number of line feeds specified by this option. The user may enter a value between 01 and 09. To program this option, use the appropriate sequence:

!ALLY!25=01; single spacing (default)

!ALLY!25=02; use this for double spacing

26 — DSC EM generates CR/LF even in infinite line length

Typically, an EM (end of message) character will generate a CR/LF sequence by the ALLY, unless Option #22 has been set to 00 (infinite line length). This option is provided for users who require a CR/LF sequence to be sent to the printer upon receipt of a DSC EM, even when the ALLY is in infinite line length. To activate this feature, use a value of 01. The default value is 00. Refer to Section 8 — DSC Data Streams for more information. Program this option with these sequences:

!ALLY!26=00; EM received, NL is not sent (default)

!ALLY!26=01; EM received, NL is sent

27 — DSC EM generates CR/LF even if in column 1

If a DSC EM is detected, and if the printhead is in the leftmost column, normally the ALLY will not send out a new line (CR/LF). This option allows the user to force the ALLY to send out the new line sequence no matter what column the printhead is in. To force a new line, set this option to 01. The default value is 00. Refer to Section 8 — DSC Data Streams for more information. Use the following sequences to program this option:

!ALLY!27=00; if EM and in column 1, NL not sent (default)

Local Copy Page Formatting (Group #30)

Option Group #30 gives the user some control over Local Copy print jobs.

30 — FF before Local Copy

If this option is set to 01, the ALLY will send a form feed to the printer prior to printing the screen text (a Local Copy). To program this option, send:

!ALLY!30=00;	do not send an FF before a Local Copy (default)
!ALLY!30=01;	send an FF before a Local Copy

31 — FF after Local Copy

If this option is set to 01, the ALLY will send a form feed after all screen text has been sent to the printer. To program this option, send:

!ALLY!31=00;	do not send an FF after a Local Copy
!ALLY!31=01;	send an FF after a Local Copy (default)

32 — Local Copy blank line suppression

If this option is set to 01, the ALLY will avoid sending blank lines (containing only spaces or nulls) to the printer when printing a Local Copy. To program this option, send:

!ALLY!32=00;	send blank lines to the printer
!ALLY!32=01;	do not send blank lines to the printer (default)

Serial Port Setup (Group #40)

The following options allow the user to set up the serial port of the ALLY. Refer to the serial printer user's manual for the appropriate settings.

41 — Baud Rate

The default value for this option is 04 (for a baud rate of 9600). If another rate is desired, program the ALLY with one of the following values:

!ALLY!41=00; 300 baud

!ALLY!41=01; 1200

!ALLY!41=02; 2400

!ALLY!41=03; 4800

!ALLY!41=04; 9600 (default)

!ALLY!41=05; 19.2K

!ALLY!41=06; 38.4K

!ALLY!41=07; 57.6K

!ALLY!41=08; 115.2K

42 — Parity

The parity setting for the serial port may be programmed as follows:

!ALLY!42=00; no parity (default)

!ALLY!42=01; odd parity

!ALLY!42=02; even parity

43 — Word length (data bits)

The serial port word length may be set for 5, 6, 7 or 8 bits. The default is 8 bits. Use the following values to program this option:

!ALLY!43=05; 5 bit word length

!ALLY!43=06; 6 bit word length

!ALLY!43=07; 7 bit word length

!ALLY!43=08; 8 bit word length (default)

44 — Stop bits

The default number of stop bits for the serial port is 1. To program this option:

!ALLY!44=00; no stop bits

!ALLY!44=01; one stop bit (default)

45 — Flow control (handshaking)

There are two selections for flow control. The ALLY uses software handshaking by default. This option may be programmed as follows:

!ALLY!45=01; XON/XOFF (software) handshaking

!ALLY!45=02; RTS/CTS (hardware) handshaking (default)

Host Parameters (Group #50)

The options in Group #50 are used to control host interfacing. Refer to the host system documentation for information on configuring these options.

50 — Physical buffer size

This parameter must match the buffer size that the host expects on the channel to which the ALLY is attached. The default value of 01 is for a 4K buffer, and it is most efficient for many systems. A value of 00 indicates a 2K buffer. For EAB support, select a value of 02 or 03 (refer to Section 6 — Coax Host Considerations for more information). To program this option, send one of these sequences:

!ALLY!50=00; 2K buffer size

!ALLY!50=01; 4K buffer size (default)

!ALLY!50=02; 2K buffer with EAB support

!ALLY!50=03; 4K buffer with EAB support

51 — Logical buffer size

The logical buffer size must match the contents of the log mode entry table (found on the host system). The default value is 03 (for 3440 bytes). If a change is required, the following sequences may be used:

!ALLY!51=00; 960 bytes

!ALLY!51=01; 1920 bytes

!ALLY!51=02; 2560 bytes

!ALLY!51=03; 3440 bytes (default)

!ALLY!51=04; 3564 bytes

52 — Intervention required status report delay

The host should be informed when a problem is detected at the printer or at the protocol converter. If the problem is minor, such as a paper jam, the user may correct the problem before it needs to be reported. This option tells the ALLY how many minutes to wait before reporting the problem to the host. The acceptable range of values is from 00 (never) to FF (255 minutes). For example:

!ALLY!52=00; never send I/R to host

!ALLY!52=0A; allow 10 minutes (default)

54 — LU1 bracketing

This option enables one of two ALLY PLUS methods of outputting job boundary information to the printer. (Option #57 enables the other method.) If this option is enabled, and if bracketing information provided by the system is detected in the data stream, PFS 21 will be sent to the printer at the beginning of a print block, and PFS 22 will be sent to the printer at the end of a print block.

The bracketing information required by this option is found in FID (format identifier) type 2 data streams only. The method provided by this option is the preferred method if the user would like to have job boundary PFSs output, often required for duplex printing.

If the user is uncertain as to whether or not the system sends the information required to use this option, the user can perform a test:

- Use Mode F to place the ALLY PLUS in Host Diagnostic Report mode.
- Send a short, typical LU1 print job to the printer.
- If the system sends the required data, the Host Diagnostic Report produced will show nine bytes preceding the printable data, as follows:

  ```
  SCS TH and RH ->
  2C 00 06 01 00 0C 00 90 80
  ```

  If the first byte in the sequence is a 28h or a 2Ch, then bracketing information is likely to be present. The two high bits of the last byte in the sequence indicate the following:

00 - between begin bracket and end bracket
01 - end bracket
10 - begin bracket
11 - begin and end bracket (only block in job)

Note: This option is disabled by default. To use this option, the user must enable it and must also define the appropriate strings in PFS 21 and PFS 22. Refer to Section 4 — Programmable Function Strings for information on programming these PFSs.

!ALLY!54=00; feature is disabled (default)

!ALLY!54=01; send LU1 bracketing PFSs

57 — Alternate bind processing

This option is an alternate method to enable the ALLY PLUS to send job boundary PFSs to the printer. It functions in both LU1 and LU3 data streams by inferring the presence of job boundaries implied by systems that otherwise do not support bracketing.

This method requires SSAs to surround each job. This is not available in most host systems, requiring the system administrator to modify the printing system in order to generate SSAs around each print job.

Refer to Section 4 — Programmable Function Strings for information on binds and other job boundaries. Use the following sequences to program this option:

!ALLY!57=00; feature is disabled (default)

!ALLY!57=01; allow job boundaries

Transparency Modes (Group #60)

Most ASCII and EBCDIC printers have features that are not available on IBM printers. If the user's host application is aware that the destination of the data may be a non-IBM printer attached to a protocol converter, the application can take advantage of the printer's advanced features. To activate a particular printer feature, the application will send a transparent command in the data stream. (Refer to the printer user's manual for a list of available printer commands.)

A transparent printer command, or transparency, consists of a trigger (character code) followed by the sequence that will activate a particular printer feature. The trigger alerts the protocol converter that the data that follows it is a printer command that should be sent directly to the printer without translation. If the appropriate form of transparency is activated in this option group, the ALLY will recognize the trigger and respond appropriately to that form of transparency. The ALLY can use standard IBM 35h and Xerox 36h transparency, and the ALLY also provides its own versions of transparency.

Note: If the user or the user's application embeds transparent or pseudo transparent strings in the data stream, Option #12 — SCS right margin and Option #22 — DSC right margin should be set to 00 (infinite line length), Option #14 — SCS bottom margin and Option #24 — DSC bottom margin should be set to 00 (infinite page length), and Option #70 — DisplayWrite 370 support should be set to 00 (disabled). Otherwise, unpredictable formatting errors could occur.

60 — Allow IBM 35h transparency

This form of transparency is valid only in SCS data streams. In IBM 35h transparency, the trigger character is 35h, and it indicates the start of the transparent data stream. The 35h is followed by a count byte that indicates the length, in bytes, of the transparent data stream, not counting the count byte itself. The count byte is followed by the actual data to be sent. For instance, the following code will send a Xerox 4045 printer reset command (Esc+X CR/LF) using 35h transparency:

```
35051B2B580D0A
```

This includes the trigger (35), the count byte (05), and the five bytes for Esc+X CR/LF (1B, 2B, 58, 0D, 0A).

The user can generate any possible 8-bit command or data byte that is to be sent to the printer. There is a one-to-one correspondence between what is received by the ALLY and what is sent to the printer.

If this option is set not to allow 35h transparency (00), then the trigger, the count byte and all of the otherwise transparent characters will be printed normally, as indicated by the active translate table (see Section 5 — Translate Tables). Refer to Section 7 — SCS Data Streams for more information on IBM 35h transparency. Program this option by using one of these two sequences:

!ALLY!60=00; 35h transparency disabled

!ALLY!60=01; 35h transparency enabled (default)

61 — Allow Xerox 36h transparency

This form of transparency is identical to 35h transparency, except that the trigger character is 36h. Xerox applications typically use 36h instead of 35h to send data directly to the printer. If this option is enabled (01), the ALLY detects the trigger, picks up the count byte and starts "passing through" the remaining data. The default is 01.

If this option is set to 00, then the trigger, the count byte and all of the otherwise transparent characters will be printed normally, as indicated by the active translate table (see Section 5 — Translate Tables). To program this option use:

!ALLY!61=00; 36h transparency is disabled (default)

!ALLY!61=01; 36h transparency is enabled

62 — Pseudo transparency

The ALLY has its own form of transparency, called pseudo transparency mode (PTM). Unlike IBM 35h and Xerox 36h transparency, pseudo transparency can be used in both SCS and DSC data streams.

This type of transparency has two forms: *one trigger* (trigger+count byte) and *two trigger*. It also may be disabled altogether. The programming sequences for this option are:

!ALLY!62=00; pseudo transparency disabled

!ALLY!62=01; one-trigger method (with count byte)

!ALLY!62=02; two-trigger method (default)

Note: In either trigger method, the only valid characters following the trigger sequence are the numerals 0 through 9 and the letters A through F. In the one-trigger method, all invalid characters are translated and printed after exiting transparent mode. In the two-trigger method, any invalid character acts as a terminator unless a terminator has been defined in Option #68.

In the *one-trigger* method, the user selects the trigger, using any single character that is not commonly found in the printable data stream (see Options 63 and 65). The one-trigger mode requires a count byte following the trigger that tells the ALLY how many pairs of additional characters will follow the count byte (the count byte is not included in the count). In the following examples, we use the cent sign (¢) as the trigger character:

To send 1 ASCII escape character requires 5 input characters — the trigger (¢), the hexadecimal count byte (01) and the hexadecimal ASCII escape character (1B):

¢011B

To send the Xerox 4045 reset sequence requires 13 characters — the trigger (¢), the hexadecimal count byte (05) and the hexadecimal reset sequence (1B2B580D0A):

¢051B2B580D0A

In the *two-trigger* method, the user selects the trigger using any two characters that are not commonly found together in the printable data stream (see Options 63-66). In this method, no count byte is required. Rather, all pairs of bytes following the triggers are combined until terminated with an invalid character (valid characters are 0-9 and A-F).

Note: The system may insert an NL command (an invalid character) in the data stream. This will terminate two-trigger transparency unless the terminator is restricted to a specific invalid character in Option #68. Option #67 gives the user the choice of printing or discarding the terminator.

In the following examples, we use a cent sign (¢) and a dollar sign ($) as the trigger sequence. Note that in the examples, a cent sign (an invalid character) is also used as the terminator.

To send 1 ASCII escape character requires 5 input characters — the first trigger (¢), the second trigger ($), the hexadecimal ASCII escape character (1B) and an invalid character/terminator (¢):

¢$1B¢

To send the Xerox 4045 reset sequence requires 13 characters — the first trigger (¢), the second trigger ($), the hexadecimal reset sequence (1B2B580D0A) and an invalid character/terminator (¢):

¢$1B2B580D0A¢

63 — DSC PTM trigger 1

This option tells the ALLY which character in the incoming DSC data stream will activate pseudo transparency mode. If no pseudo transparency is needed (see Option #62), this option has no effect. To set or change the trigger, enter the appropriate hexadecimal value:

!ALLY!63=1B; a DSC cent sign (¢) (default)

!ALLY!63=16; a DSC vertical bar (|) is common

Note: The trigger 1 character should be reserved for this use only. Any other use of the trigger 1 character may produce unpredictable results.

64 — DSC PTM trigger 2

This option has no effect unless the two-trigger method (see Option #62) is selected. The default second trigger is 1A, which is a DSC dollar sign ($). Here are some examples of programming this option:

!ALLY!64=1A; a DSC dollar sign ($) (default)

!ALLY!64=36; a DSC logical not (¬) is popular

65 — SCS PTM trigger 1

This option sets trigger 1 for SCS pseudo transparency. Option #62 must be set for 01 or 02 for this option to have an effect. Some examples:

!ALLY!65=4A; an SCS cent sign (¢) (default)

!ALLY!65=4F; an SCS vertical bar (|) is also popular

Note: The trigger 1 character should be reserved for this use only. Any other use of the trigger 1 character may produce unpredictable results.

66 — SCS PTM trigger 2

This option has no effect unless the two-trigger method (see Option #62) is selected. The default second trigger is 5B, which is an SCS dollar sign ($). Here are some examples of setting this option:

!ALLY!66=5B; an SCS dollar sign ($) (default)

!ALLY!66=5F an SCS logical not (¬) is frequently used

67 — Discard transparency terminator

When the two-trigger pseudo transparency mode is selected (see Option #62), an invalid character is needed to terminate the sequence (an invalid character is one outside of the 0-9 and A-F range). When the terminator is detected by the ALLY, this option tells it whether to print it or discard it. Discarding the terminator is the default. Here are the proper programming sequences for this option:

!ALLY!67=00; print pseudo transparency terminator (default)

!ALLY!67=01; discard terminator

68 — Specify DSC transparency terminator

This option applies only to DSC data streams. When the two-trigger pseudo transparency mode is selected (see Option #62), the user normally terminates pseudo transparency with an invalid character. When this option is set to 00, any invalid character will terminate pseudo transparency, including a system NL command. A non-zero value selects a specific terminator character, and it tells the ALLY PLUS to throw away all other invalid characters, and to combine only valid pairs for outputting until the specific terminator is detected.

!ALLY!68=00; terminate on any invalid character (default)

!ALLY!68=1B; terminate only on DSC cent sign (¢)

69 — Specify SCS transparency terminator

This option applies only to SCS data streams. When the two-trigger pseudo transparency mode is selected (see Option #62), the user normally terminates pseudo transparency with an invalid character. When this option is set to 00, any invalid character will terminate pseudo transparency, including a system NL command. A non-zero value selects a specific terminator character, and it tells the ALLY PLUS to throw away all other invalid characters, and to combine only valid pairs for outputting until the specific terminator is detected.

!ALLY!69=00; terminate on any invalid character (default)

!ALLY!69=4A; terminate only on SCS cent sign (¢)

Custom Configuration (Group #70)

These options accommodate specific applications that may be installed at the user's site.

70 — DisplayWrite 370 support

DisplayWrite 370 is a word processing application that provides the capability to bold, underline or overstrike text. DisplayWrite 370 printing features are supported by the 6287 ALLY when this option is enabled. To use these features, the user should read and understand Section 4 — Programmable Function Strings. To use all of the DisplayWrite 370 features, this option must be enabled, and the appropriate programmable function strings must be programmed. They are listed here:

DESCRIPTION	PFS
BOLD ON	%02
BOLD OFF	%03
OVERSTRIKE ON	%04
OVERSTRIKE OFF	%05
UNDERLINE ON	%06
UNDERLINE OFF	%07

To enable or disable this feature, use the following sequences:

!ALLY!70=00; DisplayWrite 370 is disabled (default)

!ALLY!70=01; DisplayWrite 370 is enabled

With DisplayWrite enabled, the data stream is handled in quite a different way than when DisplayWrite is disabled:

When DisplayWrite is OFF, the data stream is sent to the printer one character at a time as it is received. In this mode, it is possible to embed printer-specific escape sequences or PFS commands (!ALLY!>*PFS#*) in the data stream with predictable results. However, users will be unable to achieve bolding of text unless they invoke a bold font.

When DisplayWrite is ON, each line of text is buffered until a new line (CR/LF) is received, or until the column limit (determined by Option #12 or Option #22) is reached, whichever comes first. No escape sequences should be added to the data stream by the user when DisplayWrite is ON, because these escape sequences will be added to the column count, and because they will come into conflict with the escape sequences being sent to the printer by the ALLY. In other words, the user cannot expect to be able to control the printer at the same time that the ALLY is trying to control the printer, because conflicts will inevitably occur with unpredictable results.

Similarly, PFS commands (!ALLY!>*PFS#*) should not be embedded in the data stream when DisplayWrite is ON. While these commands are not added to the column count, they can cause formatting problems because they are not buffered along with the text. Rather, they are sent to the printer immediately upon receipt by the ALLY. Thus, any PFS command will affect the entire line of text, not just the text that follows the command. For instance, if PFS %02 — Bolding On and PFS %03 — Bolding Off are on the same line of text, no text on the line will be bolded, because the printer will receive both the bold on and bold off commands before any text is sent to the printer.

Note: To avoid unexpected formatting results, Option #12 — SCS right margin and Option #22 — DSC right margin should be set to 00 (infinite line length), Option #14 — SCS bottom margin and Option #24 — DSC bottom margin should be set to 00 (infinite page length), and Option #70 — DisplayWrite 370 support should be set to 00 (disabled) if any of the following are true:

- *the user or the user's application embeds escape sequences in the data stream*
- *the user or the user's application embeds transparency or pseudo transparency strings in the data stream*
- *the user embeds !ALLY! commands (configuration, translate table or PFS commands) within print jobs.*

If DisplayWrite is ON, Option #12 — SCS right margin and Option #22 — DSC right margin should be set to a non-zero value (i.e., the unit should not be set to infinite line length). The ALLY will not buffer more than 255 characters per line.

71 — MD-Laser support

The AGILE 6287 ALLY is capable of supporting the "continuous escape" mode offered in Maersk Data products. If using Maersk Data software, enable this feature.

!ALLY!71=00; feature is disabled (default)

!ALLY!71=01; feature is enabled

Note: If this option is set to 01 (enabled), Option #12 — SCS right margin and Option #22 — DSC right margin should be set to 00 (infinite line length), Option #14 — SCS bottom margin and Option #24 — DSC bottom margin should be set to 00 (infinite page length), and Option #70 — DisplayWrite 370 support should be set to 00 (disabled). Otherwise, unpredictable formatting errors could occur.

72 — Metacode support

Metacode is a variation of 35h transparency (see Option #60), with the exception that this transparency mode is handled directly by the printer, rather than by the ALLY. When this feature is enabled, it causes the ALLY to send the 35h character and the count byte to the printer without any translation, rather than removing them from the data stream. It also sends the remaining bytes in the transparent group without any translation. Enable this option if the printer uses Metacode transparency. Use these sequences to enable or disable this feature.

!ALLY!72=00; Metacode feature is disabled (default)

!ALLY!72=01; Metacode feature is enabled

Note: If this option is set to 01 (enabled), Option #12 — SCS right margin and Option #22 — DSC right margin should be set to 00 (infinite line length), Option #14 — SCS bottom margin and Option #24 — DSC bottom margin should be set to 00 (infinite page length), and Option #70 — DisplayWrite 370 support should be set to 00 (disabled). Otherwise, unpredictable formatting errors could occur.

73 — Xerox graphic window support

XPAF (Xerox Printer Access Facility) allows AFPDS (Advanced Function Printing Data Stream) data to be converted for use by Xerox centralized and decentralized printers. XPAF uses forms, fonts and graphic windows to build images. When this option is enabled, the ALLY detects graphic windows, and it strips away corrupting characters, such as new lines, that may be inserted into the data stream by the host. Use these sequences to enable or disable this feature:

!ALLY!73=00; feature is disabled (default)

!ALLY!73=01; feature is enabled

Note: This option must be set to 00 (disabled) if Option #02 — Character set is set to 01 (EBCDIC).

74 — Allow EBCDIC font downloads

XPAF (Xerox Printer Access Facility) allows AFPDS (Advanced Function Printing Data Stream) data to be converted for use by Xerox centralized and decentralized printers. XPAF uses forms, fonts and graphic windows to build images. When this option is enabled, the ALLY detects font downloads, and it strips away corrupting characters, such as new lines, that may be inserted into the data stream by the host.

This feature also allows EBCDIC fonts supplied by Xerox to be converted to ASCII, and this allows the user to avoid purchasing ASCII fonts the user already owns in host-based EBCDIC font format. (Xerox supplies fonts in EBCDIC format, but many users prefer to operate their printers in ASCII.) Use these sequences to enable or disable this feature:

!ALLY!74=00; feature is disabled (default)

!ALLY!74=01; feature is enabled

Note: This option must be set to 00 (disabled) if Option #02 — Character set is set to 01 (EBCDIC).

75 — Continuous bell ringing

When an SCS 2Fh is detected in the data stream, the ALLY will check this option to see how to respond. If this option is enabled, the ALLY will send BELL characters to the printer on a continuous basis until the user changes the Mode on the front panel of the ALLY. For those printers capable of sounding an alarm, this bell ringing helps to notify the printer attendant of important printed information. Use these sequences to enable or disable this feature.

!ALLY!75=00; feature is disabled (default)

!ALLY!75=01; feature is enabled

76 — Eliminate C0 05 header

Some applications send these two DSC characters to the printer. When this option is enabled, the ALLY will ignore these characters. To enable or disable this feature:

!ALLY!76=00; feature is disabled (default)

!ALLY!76=01; C0 05s ignored

77 — CR with each FF

Some printers do not begin printing at the left margin after a form feed. This option sends a CR out after an FF by default. It may also be disabled. The following two sequences will program this option:

!ALLY!77=00; do not send a CR with each FF

!ALLY!77=01; send a CR after each FF (default)

78 — Laserpage support

The AGILE 6287 ALLY PLUS supports Laserpage, a software product that allows IBM AFP data streams to be printed to Xerox and Hewlett-Packard laser printing systems. If using Laserpage, two-trigger pseudo transparency must be activated (see Option #62), and this option must be enabled.

!ALLY!78=00; feature is disabled (default)

!ALLY!78=01; feature is enabled

Note: If this option is set to 01 (enabled), Option #12 — SCS right margin and Option #22 — DSC right margin should be set to 00 (infinite line length), Option #14 — SCS bottom margin and Option #24 — DSC bottom margin should be set to 00 (infinite page length), and Option #70 — DisplayWrite 370 support should be set to 00 (disabled). Otherwise, unpredictable formatting errors could occur.

79 — Continuous program mode

This option is used by owners of the AGILE 6287 ULTRA who would like to use ULTRA commands to configure the ALLY PLUS. This option enables the user to send data streams with ULTRA configuration commands embedded in them to the ALLY PLUS without changing the mode of the ALLY PLUS. Please refer to Section 11 — 6287 ULTRA Compatibility for more information on using ULTRA configuration commands with the ALLY PLUS.

To configure this option:

!ALLY!79=00; feature is disabled (default)

!ALLY!79=01; feature is enabled

PROGRAMMABLE FUNCTION STRINGS

General Information

Programmable function strings (PFSs) provide a means of storing frequently used printer data and instruction strings and sending them to the printer. PFSs are used by the ALLY to implement special features found on a variety of printers. These features include bolding, underlining, overstriking, resetting the printer, etc.

The ALLY sends the appropriate PFS to the printer whenever some special formatting or control function is required. PFSs are sometimes sent to the printer automatically in response to a host command, sometimes in response to the characteristics of the data stream, and sometimes as a response to a trigger that the user has embedded in the data stream. For example, the ALLY looks up the contents of PFS %02 — Bolding On and sends it to the printer if: a) the system requests bolding; b) Option #70 is enabled and a *[character-backspace-same character]* sequence is detected in the data stream; or c) the user has placed the command !ALLY!>02; in the data stream.

If the user chooses a printer type that is listed in General Configuration Option #00, the ALLY will automatically program the applicable PFSs for the selected printer (Xerox, Hewlett-Packard, etc.), and the user may not have to make any modifications to the ALLY PFSs.

If the user's printer type is not listed in Option #00, programming the PFSs is necessary to access the printer's special functions. Refer to the printer user's manual for a list of escape sequences that control the printer. Enter the escape sequence in the appropriate PFS number as indicated below.

The user may want to program the ALLY PFSs in a way not anticipated by AGILE. For instance, if the user's printer can double underline, and if the user would like to use double underlining instead of single underlining, the %06 — Underlining On and %07 — Underlining Off PFSs can be replaced with the printer's escape sequences for double underlining on and off, respectively.

Programming PFSs

Programming PFSs is similar to programming all other configuration options on the ALLY. As with general configuration options, a trigger and a terminator are required, and all values are entered in hexadecimal format. Additionally, a percent sign (%) is needed to tell the ALLY to program a PFS, rather than a general configuration option. Otherwise, programming PFSs is done the same way that general configuration changes are made. Refer to Section 3 — Configuration for detailed information on configuration changes.

PFS configuration changes take the following form:

```
!ALLY!%PP=EEFFGG;
```

!ALLY! is the trigger; the percent sign (%) indicates a PFS trigger, rather than a general configuration option trigger; PP represents the two-digit decimal PFS number; an equals sign (=) separates the escape sequence from the PFS number; EEFFGG represents the string of two-digit hexadecimal characters for that PFS function; and a semicolon (;) is the terminator. Each PFS entry must be separated by a comma (,), and each command line must have its own trigger and terminator. Here are some examples:

```
!ALLY!%00=1B2B580D0A;
```
set PFS %00 (power on)

```
!ALLY!%01=1B2B580D0A,%02=1B62;
```
set PFSs %01 and %02 (reset and bold on)

Resetting PFSs to their Default Values

All PFSs can be reset to their factory default settings by sending the trigger, the percent sign and the terminator as shown:

```
!ALLY!%;
```

Individual PFSs can be reset to their default settings by sending the trigger, the percent sign, the PFS number and the terminator, as the examples below illustrate:

```
!ALLY!%03;
```
set PFS %03 (bold off) to its default setting

```
!ALLY!%04,%05;
```
set PFSs %04 and %05 (overstrike on and off) to their default settings

A Programmable Function String Report, with values selected for a Xerox printer type, can be found in the Appendix. The user can print the current PFS Report at any time using Mode 7 from the front panel.

Deleting the Contents of a PFS

The contents of a PFS can be deleted by sending the trigger, a percent sign, the PFS number, an equals sign and a terminator. For example, to delete the contents of PFS %00:

```
!ALLY!%00=;
```

Accessing PFSs from the Host

All of the ALLY PFSs may be triggered by the user directly, rather than by the host application. To force an escape sequence from the coax host, simply key:

```
!ALLY!>PP;
```

!ALLY! is the trigger; a greater than sign (>) tells the ALLY to send a PFS to the printer; PP is the two-digit decimal number of the PFS to send; and a semicolon (;) is the terminator. Here are some examples:

```
!ALLY!>00;
```
reset the printer with the reset PFS

```
!ALLY!>11;
```
set line density to 8 lines per inch

PFSs can be triggered at any appropriate place in the data stream, following the same rules as general configuration option changes. Refer to Section 3 — Configuration for detailed information.

Note: If the user intends to trigger PFSs in the data stream of a print job, Option #12 — SCS right margin and Option #22 — DSC right margin should be set to 00 (infinite line length), Option #14 — SCS bottom margin and Option #24 — DSC bottom margin should be set to 00 (infinite page length), and Option #70 — DisplayWrite 370 support should be set to 00 (disabled). Otherwise, unpredictable formatting results could occur.

PFS Descriptions

The ALLY can store up to 64 PFSs in a dynamic 12K space. The following is a complete list of PFSs currently offered. A description of when each PFS is triggered by the host application is included, although PFSs can also be triggered by the user at any time.

%00 — Power On

When the ALLY receives printable data for the first time after power up or RESET, or when this PFS is triggered directly by the user, this PFS is sent to the printer.

%01 — Printer Reset

This PFS resets the printer.

%02 — Bolding On

If DisplayWrite 370 is enabled and the ALLY detects the sequence *[character-backspace-same character],* this PFS will be sent to the printer. *Note: This is not used when DisplayWrite 370 is disabled (see Option #70) unless it is triggered directly by the user.*

%03 — Bolding Off

If bolding was on previously, and if a *[character-non-backspace]* sequence is detected, this PFS is sent to the printer. *Note: This is not used when DisplayWrite 370 is disabled (see Option #70) unless it is triggered directly by the user.*

%04 — Overstriking On

If a *[character-backspace-different character]* sequence is detected, this PFS is sent to the printer. *Note: This is not used when DisplayWrite 370 is disabled (see Option #70) unless it is triggered directly by the user.*

%05 — Overstriking Off

If overstriking was on previously, and if a *[character-character]* sequence is detected, this PFS is sent to the printer. *Note: This is not used when DisplayWrite 370 is disabled (see Option #70) unless it is triggered directly by the user.*

%06 — Underlining On

If a *[character-backspace-underline]* sequence is detected in the incoming data, this PFS will be sent out. *Note: This is not used when DisplayWrite 370 is disabled (see Option #70) unless it is triggered directly by the user.*

%07 — Underlining Off

If underlining was on previously, and if a *[character-non-backspace]* sequence is sent to the ALLY, this PFS will be sent to the printer. *Note: This is not used when DisplayWrite 370 is disabled (see Option #70) unless it is triggered directly by the user.*

%08 — Set Line Density to 3 LPI

When a host line density command (2B C6 02 nn) is detected and nn is 18 (18h = 24/72nds), the contents of this PFS are output to the printer. *Note: This command will be seen only in an SCS data stream.*

%09 — Set Line Density to 4 LPI

When a host line density command (2B C6 02 nn) is detected and nn is 12 (12h = 18/72nds), the contents of this PFS are output to the printer. *Note: This command will be seen only in an SCS data stream.*

%10 — Set Line Density to 6 LPI

When a host line density command (2B C6 02 nn) is detected and nn is 0C (0Ch = 12/72nds), the contents of this PFS are output to the printer. *Note: This command will be seen only in an SCS data stream.*

%11 — Set Line Density to 8 LPI

When a host line density command (2B C6 02 nn) is detected and nn is 09 (09h = 9/72nds), the contents of this PFS are output to the printer. *Note: This command will be seen only in an SCS data stream.*

%12 — Switch to Coax Host

A job boundary PFS. When the coax host becomes active, this PFS is sent out.

%13 — Coax Host Finished

A job boundary PFS. When coax host data is no longer being processed, this PFS is sent to the printer.

%14 — Reserved

This PFS is reserved for the user.

%15 — Reserved

This PFS is reserved for the user.

%16 — Reserved

This PFS is reserved for the user.

%17 — Reserved

This PFS is reserved for the user.

%18 — Switch to Local Copy

A job boundary PFS. When a Local Copy is requested, this PFS is sent prior to the screen data being sent.

%19 — Local Copy Finished

A job boundary PFS. After a Local Copy is finished printing, this PFS is sent to the printer.

%20 — Reserved

This PFS is reserved for future use by AGILE.

%21 — LU1 Begin Bracket

If Option #54 is enabled, this PFS is sent to the printer when a Begin Bracket indicator is presented by the host. The user should ordinarily define this PFS with a printer reset command, or with an emulation switching command for a multimode printer.

%22 — LU1 End Bracket

If Option #54 is enabled, this PFS is sent to the printer when an End Bracket indicator is presented by the host. The user should ordinarily define this PFS with a printer reset command, or with an emulation switching command for a multimode printer.

%23 — Reserved

This PFS is reserved for the user.

%24 — Reserved

This PFS is reserved for the user.

%25 — Reserved

This PFS is reserved for the user.

%26 — Reserved

This PFS is reserved for the user.

%27 — LU1 Bind

A job boundary PFS used when Option #57 is enabled. Before data may be sent to a device like the ALLY PLUS, the host must perform a "bind" with that device. This PFS, if it has been programmed, is sent to the printer when that bind occurs; by default there is no data in this PFS. A typical use of this feature is to offset printing or to reset the printer. On a Xerox 4213 (or other multimode printer) this PFS could be used to change emulations.

%28 — LU1 Unbind

A job boundary PFS used when Option #57 is enabled. If an LU1 bind has occurred and an LU3 bind is attempted, the ALLY PLUS will send an LU1 unbind PFS to the printer. This is another logical place to perform resetting of the printer (or an emulation change). By default there is no data in this PFS.

%29 — LU3 Bind

A job boundary PFS used when Option #57 is enabled. This PFS is sent prior to LU3 data and prior to the LU3 begin bracket PFS. One use of this PFS might be to reset the printer. By default there is no data in this PFS.

%30 — LU3 Unbind

A job boundary PFS used when Option #57 is enabled. After the host is done sending LU3 data, this PFS will be sent. By default there is no data in this PFS.

%31 — Tray 1

This command is reserved for future use by AGILE.

%32 — Tray 2

This command is reserved for future use by AGILE.

%33 — Tray 3

This command is reserved for future use by AGILE.

%34 — Envelope Tray 1

This command is reserved for future use by AGILE.

%35 — Envelope Tray 2

This command is reserved for future use by AGILE.

%36 - %51 — Reserved

PFSs %36 through %51 are reserved.

%52 — Alternate LU1 Begin Bracket

A job boundary PFS used when Option #57 is enabled. This PFS is sent just prior to the actual LU1 data. If the PFS is empty, nothing will be sent to the printer. By default there is no data in this PFS.

%53 — Alternate LU1 End Bracket

A job boundary PFS used when Option #57 is enabled. After an LU1 job, and before any other job type (including alternate host jobs), this PFS is sent. A good use for this PFS is to reset the printer or to offset the output. By default there is no data in this PFS.

%54 — LU3 Begin Bracket

A job boundary PFS used when Option #57 is enabled. This PFS is sent just prior to an LU3 job. Until the LU3 unbind PFS is sent, no other host may take control of the printer. By default there is no data in this PFS.

%55 — LU3 End Bracket

A job boundary PFS used when Option #57 is enabled. This PFS is sent out after an LU3 job is finished. By default there is no data in this PFS.

%56 — Reserved

This PFS is reserved for future use by AGILE.

%57 — Reserved

This PFS is reserved for future use by AGILE.

%58 — Reserved

This PFS is reserved for future use by AGILE.

%59 — Mode 1 PFS

If the length of this PFS is non-zero, selecting Mode 1 from the front panel will force the sending of this PFS.

%60 — Mode 2 PFS

If the length of this PFS is non-zero, selecting Mode 2 from the front panel will force the sending of this PFS.

%61 — Esc c1 Replacement

This PFS is reserved for Xerox applications that require special tray commands.

%62 — Esc c2 Replacement

This PFS is reserved for Xerox applications that require special tray commands.

%63 — Esc c3 Replacement

This PFS is reserved for Xerox applications that require special tray commands.

Job Boundary PFSs

A number of the ALLY PFSs are used exclusively for providing "job boundaries." Job boundaries allow the printer operation to be modified by the data stream transparently to the user. This feature is useful for printers that have job offset or multimode capabilities. Job boundaries also can be used to change font assignments or to reset the printer.

Note: To use job boundaries, configuration Option #57 must be enabled.

Job offsetting is a feature found on the Xerox 4235, HP LaserJet IIISi and other printers. The feature allows jobs to be separated by physically shifting the paper to the left or to the right in the output tray. When a host job is begun (or finished), the ALLY may be programmed to send the job offset escape sequence first (or last).

Multimode printers are those that support modes other than their native mode. The HP LaserJet IIISi, for example, supports Postscript as well as PCL5. The job boundary PFSs provided by the ALLY could be programmed to change modes depending upon the data source (i.e., LU1, LU3).

The following is a list of the job boundary PFSs and a description of when they are triggered by the data stream:

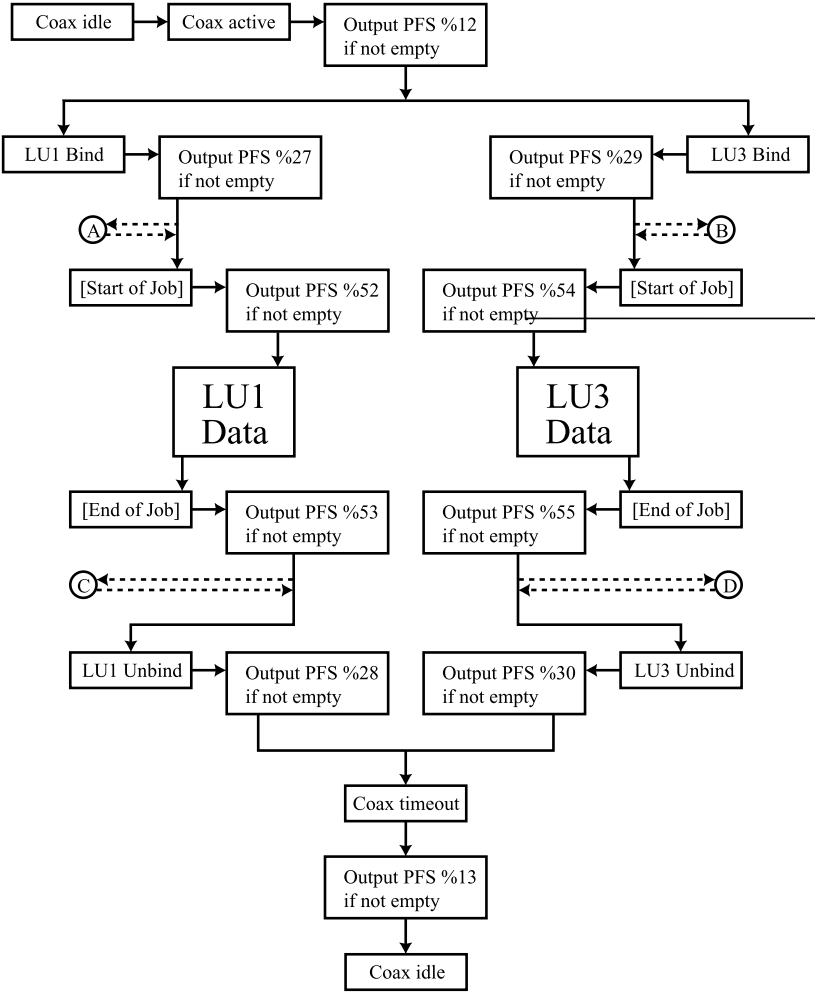
PFS	Description
%12	Switch to Coax Host
%13	Coax Host Finished
%18	Switch to Local Copy
%19	Local Copy Finished
%27	LU1 Bind
%28	LU1 Unbind
%29	LU3 Bind
%30	LU3 Unbind
%52	Alternate LU1 Begin Bracket
%53	Alternate LU1 End Bracket
%54	LU3 Begin Bracket
%55	LU3 End Bracket

Individual jobs are surrounded by the Bracket PFSs (%52-%55). For example, in an LU1 job, PFS %52 is sent to the printer, then the data, then PFS %53. This is true only if the PFS actually contains data; by default, these PFSs are empty. The user must program these PFSs to suit the system environment as required.

Job Boundary PFS Examples

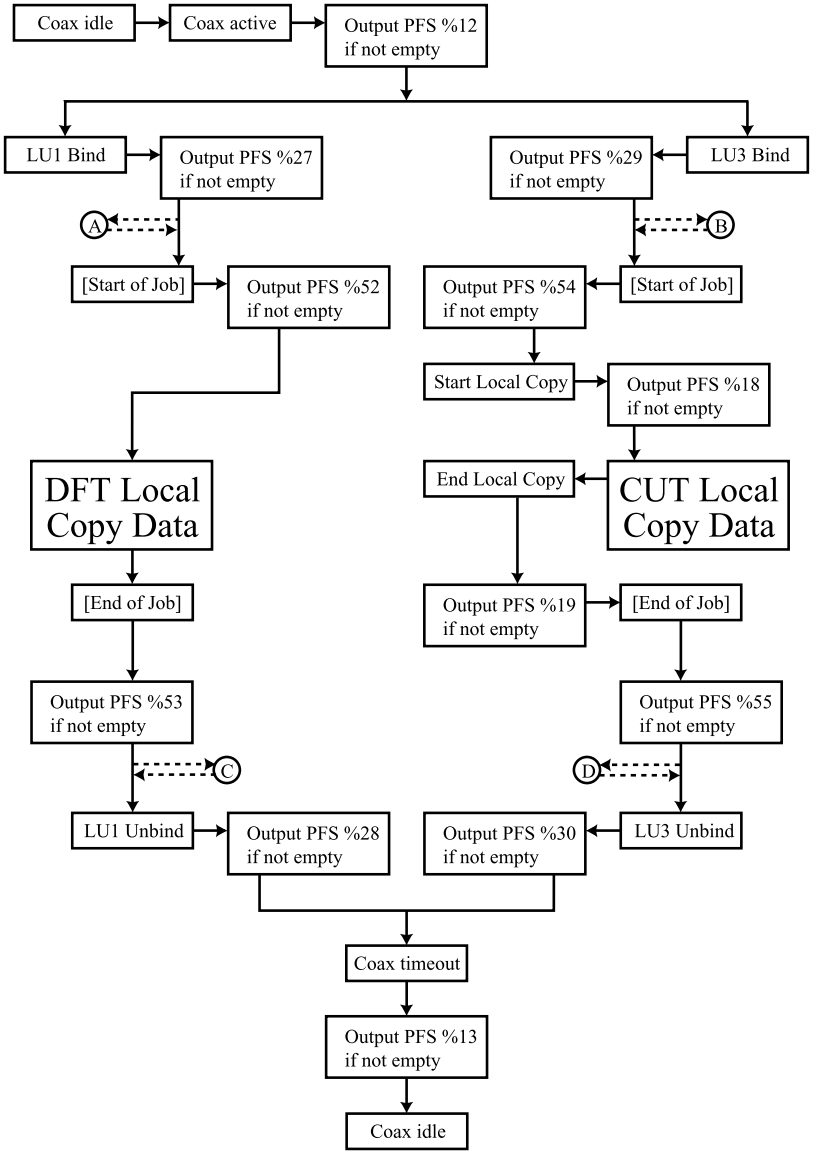
The following pages contain examples of host data streams. The examples show where the job boundaries are placed, assuming that the PFSs have been programmed.

Standard Coax Host Print Job



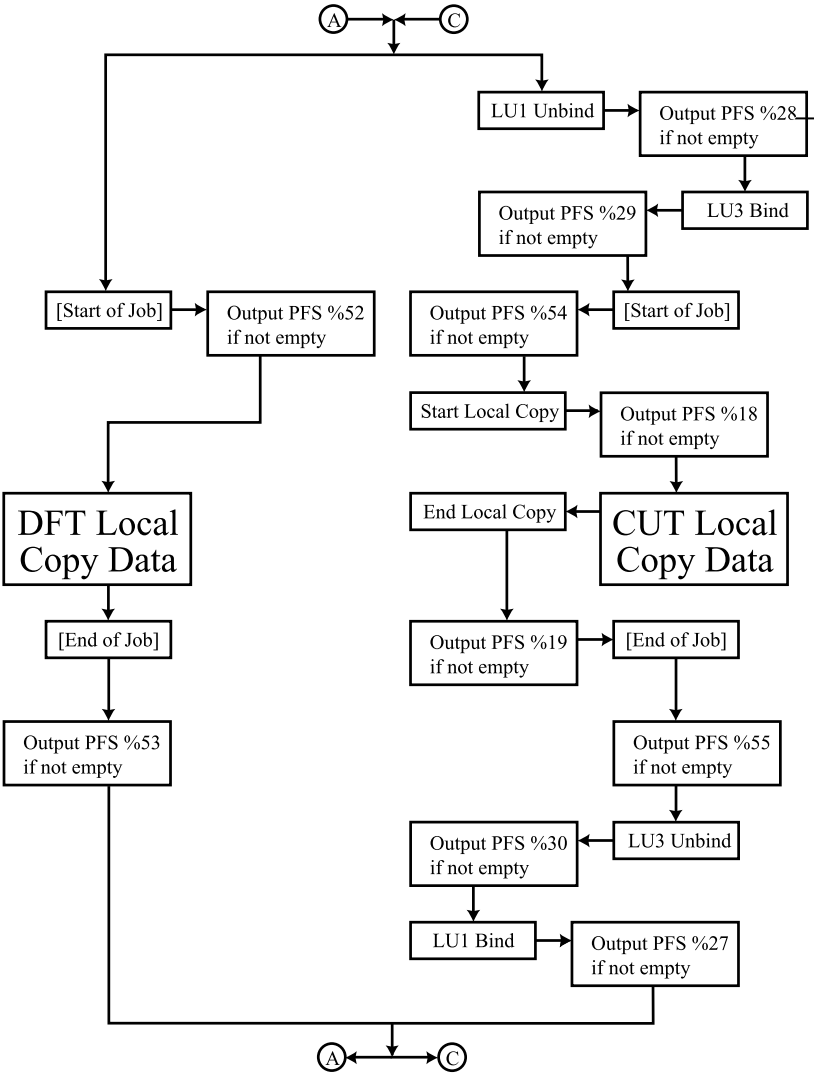
A, B, C and D are entry and exit points where data can branch to or from a CUT or DFT Local Copy print job. Examples are illustrated on the following pages.

Standard Coax Local Copy Print Job



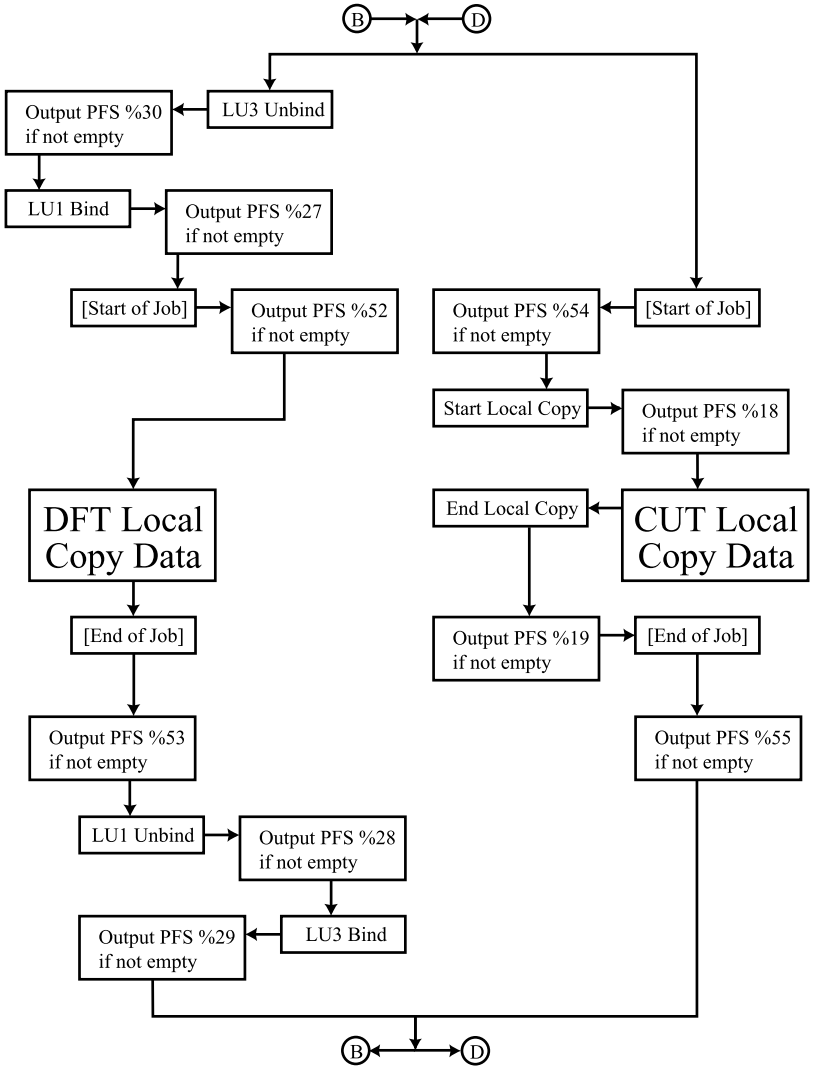
A, B, C and D are entry and exit points where data can branch to or from an alternate host print job. Examples are illustrated on the following pages.

Standard Coax Local Copy Print Job When Currently Bound to an LU1 Session



A and C are the entry and exit points indicated in the Standard Coax Host Print Job chart.

Standard Coax Local Copy Print Job When Currently Bound to an LU3 Session



B and D are the entry and exit points indicated in the Standard Coax Host Print Job chart.

TRANSLATE TABLES

General Information

The data stream from the coax host is not sent directly through the ALLY to the attached printer. Rather, all characters must first pass through the appropriate character code translation table.

A translation table must be selected that will convert the data from one format to another. The most basic function of the ALLY is to convert EBCDIC (or host) data to ASCII data one byte at a time. Each translate table has 256 entries numbered 00 to FF. When a character is received by the ALLY, the corresponding character from the appropriate translate table is substituted, and that value is sent to the printer.

The ALLY has ten translate tables that can be modified by the user. The tables are listed here with their table access number or letter:

#	Description
0	ASCII from ASCII (not used)
2	ASCII from DSC
4	ASCII from SCS
6	EBCDIC from ASCII (not used)
8	EBCDIC from DSC
A	EBCDIC from SCS
C	ASCII from DSC APL
E	ASCII from SCS APL
G	EBCDIC from DSC APL
I	EBCDIC from SCS APL

Translate Table Selection

The ALLY determines the appropriate translation table to use based upon the user's configuration of the ALLY and the data stream it receives. The output character set (ASCII or EBCDIC) is determined by the user's configuration of the ALLY, using Mode A from the front panel, or configuring from the coax host using Option #02.

The input is detected by analysis of the data stream by the ALLY. When an EBCDIC character from the host arrives at the ALLY, it may be either DSC or SCS data. See Section 7 — SCS Data Streams and Section 8 — DSC Data Streams for more information.

APL tables allow the user to access printable characters not provided in the standard tables, and they are used in place of the standard tables under the following circumstances:

- In DSC when a 01h appears in the EAB buffer.
- In SCS when a graphic escape (08h) precedes the character to be translated.

The table to be used is selected by the ALLY by combining the information from the input and output variables as follows:

Input:

- If the host data stream is in DSC format, the appropriate translate table is 2 (for ASCII output), 8 (EBCDIC output), C or G (APL/EAB output).
- If the host data stream is in SCS format, the appropriate translate table is 4 (for ASCII output), A (EBCDIC output), E or I (APL output).

Output:

- If the ALLY is configured for ASCII output, the appropriate translate table is 2, 4, C or E.
- If the ALLY is configured for EBCDIC output, the appropriate translate table is 8, A, G or I.

Functions

Each of the tables above has an associated function table. The translate tables are combined with their associated function tables when printed in a Translate and Function Table Report (see the Appendix). The function tables occupy the odd numbers missing from the list above:

#	Description
1	ASCII from ASCII (not used)
3	ASCII from DSC
5	ASCII from SCS
7	EBCDIC from ASCII (not used)
9	EBCDIC from DSC
B	EBCDIC from SCS
D	ASCII from DSC APL
F	ASCII from SCS APL
H	EBCDIC from DSC APL
J	EBCDIC from SCS APL

WARNING: Modifying the function tables is for advanced users only. Setting the function tables with improper values can have catastrophic consequences. It is recommended that users do not modify the function tables without first contacting AGILE Technical Support.

Function Options

The following table describes all valid non-zero values in a function table. A function value of zero (00) in the table indicates a one-for-one translation of a source character to a printable character. A non-zero value has special meaning. Note that an asterisk (*) indicates that the function is applied only when rows and columns are being counted (i.e., when Option #70 —DisplayWrite 370 is enabled).

Value	Meaning
01	End of message*
02	Send a form feed and clear the line count*
03	Send new line and clear column count*
04	Vertical channel select (SCS only)*
05	Send CR and clear column count*
06	Treated as null
07	Bell character (see Option #75)
08	Move left one space in print buffer*
09	Tab right to next tab stop*
0A	Send line feed and add to line count*
0B	Send line feeds until next vertical tab stop*
0C	— reserved for future use —
0D	— reserved for future use —
0E	Add to line count*
0F	— reserved for future use —
10	Escape handler (SCS 2Bxx)
11	— reserved for future use —
12	Pseudo transparency trigger
13	— reserved for future use —
14	Graphic escape (SCS only)
15	IBM 35h transparency trigger (SCS only)
16	Xerox 36h transparency trigger (SCS only)
17	— reserved for future use —
18	Display field switch ON
19	Display field switch OFF
1A	Character is ignored
1B	UDK trigger
1C	Xerox font trigger ('i')
1D	UDK definition trigger ('=')
1E	ALLY program mode trigger ('!')
1F	Pass this character to printer (no translation)

Reading Translate Tables

A Translate and Function Table Report, with the default values of the tables selected, can be found in the Appendix. The user can print the current values of the tables at any time using Mode 6 from the front panel of the ALLY. The tables also are represented on the following pages, along with the printable character or control code that each table entry represents.

The left column of each table is a series of numerals and letters representing the most significant digit of the hexadecimal input character received by the ALLY. The top row of each table is a series of numerals and letters representing the least significant digit of the hexadecimal input character received by the ALLY.

The intersection in the table of the most significant and least significant digits of the input character is the location of the output value that the ALLY sends to the printer upon receiving a given input character in the data stream. The entry directly below the output value is the printable character or control code that the output value represents (note that this is not included in the translate table reports). The numeral at the bottom of each cell is the function value.

To understand the way that the translate/function tables work, look at Translate and Function Table 2&3 (ASCII from DSC) on page 5-8. Find the output value for the hexadecimal input character '3A.' Look down the left column and find the entry "3_." Look across the table until reaching the intersection of the column headed by "_A." The table shows that the output value for the input value of '3A' is '5E.' Beneath the output value is a caret sysmbol (^). This is the character output by the printer when the printer receives the '5E.'

Now look at the numeral in the table directly below the caret symbol. In this instance, the value is '00.' As indicated in the Function Options table, this character (5E) will be passed to the printer without further translation.

If the input value is '03,' the table indicates that the normal ASCII output character would be '0A.' However, the table contains a non-zero value ('03') in the function location below '0A.' In this instance, rather than sending '0A' to the printer, the ALLY will perform the function of '03' as indicated by the Function Options table. The Function Options table description adjacent to '03' reads "Send new line and clear column count.*" So, when the ALLY is using the ASCII from DSC table, and if it receives an input value of '03' in the data stream, the ALLY will send a CR/LF sequence to the printer (if Option #70 — DisplayWrite 370 support is enabled).

Modifying Translate Tables

The translate and function tables may be modified in a manner similar to the General Configuration Options. Refer to Section 3 — Configuration for detailed information on configuration. The example shown here changes the output value for an SCS form feed character to an ASCII space:

```
!ALLY!#4@0C=20;
```

!ALLY! is the trigger; a number sign (#) indicates a change to a translate or function table; 4 represents the ASCII from SCS translate table; the at sign (@) is the position identifier; 0C is the position to be changed; 20 is the value moved into position 0C; an equals sign (=) separates the position from the value; and a semicolon (;) is the terminator.

Multiple configuration combinations are possible by separating assignments with a comma. (Each line in the data stream must have its own trigger and its own terminator.) For example:

```
!ALLY!#2@05=20,#2@02=20,#4@0D=20,#4@0C=20;
```

With this sequence we assign spaces to:

- the ASCII from DSC CR character
- the ASCII from DSC FF character
- the ASCII from SCS CR character
- the ASCII from SCS FF character

To set all translate and function tables to their default values, enter:

```
!ALLY!#;
```

To set an individual table to its default values, enter:

```
!ALLY!#n;
```

where n represents the number of the table to set to default values.

Note: If the user intends to download translate table values within the data streams of print jobs, Option #12 — SCS right margin and Option #22 — DSC right margin should be set to 00 (infinite line length), Option #14 — SCS bottom margin and Option #24 — DSC bottom margin should be set to 00 (infinite page length), and Option #70 — DisplayWrite 370 support should be set to 00 (disabled). Otherwise, unpredictable formatting results could occur.

The Translate Tables

ASCII from ASCII (Tables 0 & 1)

LS	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00 0	00 NUL 00	01 SOH 00	02 STX 00	03 ETX 00	04 EOT 00	05 ENQ 00	06 ACK 00	07 BEL 00	08 BS 00	09 HT 00	0A LF 0A	0B VT 00	0C FF 02	0D CR 05	0E SO 00	0F SI 00
16 1	10 DLE 00	11 DC1 00	12 DC2 00	13 DC3 00	14 DC4 00	15 NAK 00	16 SYN 00	17 ETB 00	18 CAN 00	19 EM 00	1A SUB 00	1B ESC 00	1C FS 00	1D GS 00	1E RS 00	1F US 00
32 2	20 SP 00	21 ! 1E	22 " 00	23 # 00	24 $ 1A	25 % 1F	26 & 00	27 ' 00	28 (00	29) 00	2A * 19	2B + 00	2C , 00	2D - 00	2E . 00	2F / 00
48 3	30 0 06	31 1 06	32 2 06	33 3 06	34 4 06	35 5 06	36 6 06	37 7 06	38 8 06	39 9 06	3A : 00	3B ; 10	3C < 00	3D = 1D	3E > 00	3F ? 00
64 4	40 @ 00	41 A 04	42 B 04	43 C 04	44 D 04	45 E 04	46 F 04	47 G 00	48 H 00	49 I 00	4A J 00	4B K 00	4C L 00	4D M 00	4E N 1B	4F O 00
80 5	50 P 00	51 Q 00	52 R 00	53 S 00	54 T 00	55 U 00	56 V 00	57 W 00	58 X 00	59 Y 1B	5A Z 00	5B [00	5C \ 00	5D] 00	5E ^ 00	5F _ 00
96 6	60 ` 00	61 a 04	62 b 04	63 c 04	64 d 04	65 e 04	66 f 04	67 g 00	68 h 00	69 i 00	6A j 00	6B k 00	6C l 00	6D m 00	6E n 1B	6F o 00
112 7	70 p 00	71 q 00	72 r 00	73 s 00	74 t 00	75 u 00	76 v 00	77 w 00	78 x 00	79 y 1B	7A z 00	7B { 00	7C | 00	7D } 00	7E ~ 00	7F DEL 00
128 8	80 00	81 00	82 00	83 00	84 00	85 00	86 00	87 00	88 00	89 00	8A 00	8B 00	8C 00	8D 00	8E 00	8F 00
144 9	90 00	91 00	92 00	93 00	94 00	95 00	96 00	97 00	98 00	99 00	9A 00	9B 00	9C 00	9D 00	9E 00	9F 00
160 A	A0 00	A1 00	A2 00	A3 00	A4 00	A5 00	A6 00	A7 00	A8 00	A9 00	AA 00	AB 00	AC 00	AD 00	AE 00	AF 00
176 B	B0 00	B1 00	B2 00	B3 00	B4 00	B5 00	B6 00	B7 00	B8 00	B9 00	BA 00	BB 00	BC 00	BD 00	BE 00	BF 00
192 C	C0 00	C1 00	C2 00	C3 00	C4 00	C5 00	C6 00	C7 00	C8 00	C9 00	CA 00	CB 00	CC 00	CD 00	CE 00	CF 00
208 D	D0 00	D1 00	D2 00	D3 00	D4 00	D5 00	D6 00	D7 00	D8 00	D9 00	DA 00	DB 00	DC 00	DD 00	DE 00	DF 00
224 E	E0 00	E1 00	E2 00	E3 00	E4 00	E5 00	E6 00	E7 00	E8 00	E9 00	EA 00	EB 00	EC 00	ED 00	EE 00	EF 00
240 F	F0 00	F1 00	F2 00	F3 00	F4 00	F5 00	F6 00	F7 00	F8 00	F9 00	FA 00	FB 00	FC 00	FD 00	FE 00	FF 00

ASCII from DSC (Tables 2 & 3)

LS	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0 0	20 SP 06	20 SP 01	0C FF 02	0A LF 03	2D - 00	0D CR 05	2D - 00	2D - 00	3E ^ 00	3C < 00	5B [00	5D] 00	29) 00	28 (00	7D } 00	7B { 00
16 1	20 SP 00	3D = 1D	27 ' 00	22 " 00	2F / 00	5C \ 00	7C | 00	99 ¦ 00	3F ? 00	21 ! 1E	24 $ 00	9B ¢ 12	2D - 00	2D - 00	2D - 00	2D - 00
32 2	30 0 00	31 1 00	32 2 00	33 3 00	34 4 00	35 5 00	36 6 00	37 7 00	38 8 00	39 9 00	2D - 00	7E ~! 00	23 # 00	40 @ 00	25 % 00	5F _ 00
48 3	26 & 00	2D - 00	2E . 00	2C , 00	3A : 00	2B + 00	5E ^ 00	2D - 00	2D - 00	2D - 00	5E ^ 00	7E ~! 00	2D - 00	60 ` 00	27 ' 00	2D - 00
64 4	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00
80 5	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00
96 6	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00
112 7	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00
128 8	61 a 00	62 b 00	63 c 00	64 d 00	65 e 00	66 f 00	67 g 00	68 h 00	69 i 1C	6A j 00	6B k 00	6C l 00	6D m 00	6E n 00	6F o 00	70 p 00
144 9	71 q 00	72 r 00	73 s 00	74 t 00	75 u 00	76 v 00	77 w 00	78 x 00	79 y 00	7A z 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00
160 A	41 A 00	42 B 00	43 C 00	44 D 00	45 E 00	46 F 00	47 G 00	48 H 00	49 I 00	4A J 00	4B K 00	4C L 00	4D M 00	4E N 00	4F O 00	50 P 00
176 B	51 Q 00	52 R 00	53 S 00	54 T 00	55 U 00	56 V 00	57 W 00	58 X 00	59 Y 00	5A Z 00	2D - 00	2D - 00	2D - 00	2D - 00	3B ; 00	2A * 00
192 C	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 19	20 SP 19	20 SP 19	20 SP 19
208 D	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 19	20 SP 19	20 SP 19	20 SP 19
224 E	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 19	20 SP 19	20 SP 19	20 SP 19
240 F	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 18	20 SP 19	20 SP 19	20 SP 19	20 SP 19

ASCII from SCS (Tables 4 & 5)

LS	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0 0 0	20 1A	20 SP 00	20 SP 00	20 SP 00	0A 04	09 09	20 SP 00	20 SP 00	1B 14	20 SP 00	20 SP 00	0A 0B	0C 02	0D CR 05	20 SP 00	20 SP 00
16 1	20 SP 00	20 SP 00	20 SP 00	20 SP 00	20 SP 00	0A 03	08 08	20 SP 00	20 SP 00	20 SP 01	20 SP 00	20 SP 00	20 SP 00	20 SP 00	20 SP 0E	20 SP 00
32 2	20 SP 00	20 SP 00	20 SP 00	20 SP 00	20 SP 00	0A LF 0A	20 SP 00	1B ESC 00	20 SP 00	20 SP 00	20 SP 00	20 SP 00	20 SP 00	20 SP 00	20 SP 00	07 BEL 07
48 3	20 SP 00	20 SP 00	20 SP 00	20 SP 00	20 SP 00	20 15	20 16	20 SP 00	20 SP 00	20 SP 00	20 SP 00	20 SP 10	20 SP 00	20 SP 00	20 SP 00	20 SP 00
64 4	20 SP 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	9B ¢ 12	2E . 00	3C < 00	28 (00	2B + 00	7C | 00
80 5	26 & 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	21 ! 1E	24 $ 00	2A * 00	29) 00	3B ; 00	5E ^ 00
96 6	2D - 00	2F / 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	7C | 00	2C , 00	25 % 00	5F _ 00	3E > 00	3F ? 00
112 7	20 - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	60 ` 00	3A : 00	23 # 00	40 @ 00	27 ' 00	3D = 1D	22 " 00
128 8	2D - 00	61 a 00	62 b 00	63 c 00	64 d 00	65 e 00	66 f 00	67 g 00	68 h 00	69 i 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00
144 9	2D - 00	6A j 00	6B k 00	6C l 00	6D m 00	6E n 00	6F o 00	70 p 00	71 q 00	72 r 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D 00
160 A	2D - 00	7E *! 00	73 s 00	74 t 00	75 u 00	76 v 00	77 w 00	78 x 00	79 y 00	7A z 00	2D - 00	2D - 00	2D - 00	5B [00	2D - 00	2D - 00
176 B	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	5D] 00	2D - 00	2D - 00
192 C	7B { 00	41 A 00	42 B 00	43 C 00	44 D 00	45 E 00	46 F 00	47 G 00	48 H 00	49 I 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00
208 D	7D } 00	4A J 00	4B K 00	4C L 00	4D M 00	4E N 00	4F O 00	50 P 00	51 Q 00	52 R 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00
224 E	5C \ 00	2D - 00	53 S 00	54 T 00	55 U 00	56 V 00	57 W 00	58 X 00	59 Y 00	5A Z 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00
240 F	30 0 00	31 1 00	32 2 00	33 3 00	34 4 00	35 5 00	36 6 00	37 7 00	38 8 00	39 9 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00	2D - 00

EBCDIC from ASCII (Tables 6 & 7)

LS	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0 0	00 00	01 00	02 00	03 00	37 00	2D 00	15 00	2F BEL 00	16 BS 00	05 00	25 LF 00	0B 00	0C FF 00	0D CR 00	0E 00	0F 00
16 1	10 00	11 00	12 00	13 00	3C 00	3D 00	32 00	26 00	18 00	19 EM 00	3F 00	27 ESC 00	22 00	1D 00	1E 00	1F 00
32 2	40 SP 00	5A ! 00	7F " 00	7B # 00	5B $ 00	6C % 00	50 & 00	7D ' 00	4D (00	5D) 00	5C * 00	4E + 00	6B , 00	60 - 00	4B . 00	61 / 00
48 3	F0 0 00	F1 1 00	F2 2 00	F3 3 00	F4 4 00	F5 5 00	F6 6 00	F7 7 00	F8 8 00	F9 9 00	7A : 00	5E ; 00	4C < 00	7E = 00	6E > 00	6F ? 00
64 4	7C @ 00	C1 A 00	C2 B 00	C3 C 00	C4 D 00	C5 E 00	C6 F 00	C7 G 00	C8 H 00	C9 I 00	D1 J 00	D2 K 00	D3 L 00	D4 M 00	D5 N 00	D6 O 00
80 5	D7 P 00	D8 Q 00	D9 R 00	E2 S 00	E3 T 00	E4 U 00	E5 V 00	E6 W 00	E7 X 00	E8 Y 00	E9 Z 00	AD [00	E0 \ 00	BD] 00	B5 ^ 00	6D _ 00
96 6	79 00	81 a 00	82 b 00	83 c 00	84 d 00	85 e 00	86 f 00	87 g 00	88 h 00	89 i 00	91 j 00	92 k 00	93 l 00	94 m 00	95 n 00	96 o 00
112 7	97 p 00	98 q 00	99 r 00	A2 s 00	A3 t 00	A4 u 00	A5 v 00	A6 w 00	A7 x 00	A8 y 00	A9 z 00	C0 { 00	4F 00	D0 } 00	A1 ~ 00	07 00
128 8	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00
144 9	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00
160 A	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00
176 B	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00
192 C	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00
208 D	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00
224 E	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00
240 F	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00

EBCDIC from DSC (Tables 8 & 9)

LS	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0 0 0	40 SP 00	40 SP 01	0C 02	15 03	60 - 00	0D CR 05	ED 00	EE 00	6E > 00	4C < 00	AD [00	BD] 00	5D) 00	4D (00	D0 } 00	C0 { 00
16 1	40 SP 00	7E = 1D	7D ' 00	7F " 00	61 / 00	E0 \ 00	4F | 00	6A ¦ 00	6F ? 00	5A ! 1E	5B $ 00	4A ¢ 12	43 00	44 00	45 00	46 00
32 2	F0 0 00	F1 1 00	F2 2 00	F3 3 00	F4 4 00	F5 5 00	F6 6 00	F7 7 00	F8 8 00	F9 9 00	47 00	48 00	7B # 00	7C @ 00	6C % 00	6D 00
48 3	50 & 00	60 - 00	4B . 00	6B , 00	7A : 00	4E + 00	5F 00	49 00	51 00	52 00	53 00	A1 ~ ! 00	54 00	79 00	55 00	56 00
64 4	57 00	58 00	59 00	62 00	63 00	64 00	65 00	66 00	67 00	68 00	69 00	70 00	CE 00	CF - 00	DD 00	DE 00
80 5	75 00	76 00	77 00	78 00	80 00	8A 00	8B { 00	8C < 00	8D (* 00	8E + * 00	8F 00	90 00	9A 00	9B } 00	9C 00	9D) * 00
96 6	9E + 00	9F 00	A0 _ * 00	AA 00	AB 00	AC 00	41 00	AE 00	AF 00	B0 0 * 00	B1 1 * 00	B2 2 * 00	B3 3 * 00	B4 4 * 00	B5 5 * 00	B6 6 * 00
112 7	B7 7 * 00	B8 8 * 00	B9 9 * 00	BA 00	BB 00	BC 00	42 00	BE 00	BF 00	CA 00	CB 00	CC 00	CD 00	DF 00	DB 00	DC 00
128 8	81 a 00	82 b 00	83 c 00	84 d 00	85 e 00	86 f 00	87 g 00	88 h 00	89 i 00	91 j 00	92 k 00	93 l 00	94 m 00	95 n 00	96 o 00	97 p 00
144 9	98 q 00	99 r 00	A2 s 00	A3 t 00	A4 u 00	A5 v 00	A6 w 00	A7 x 00	A8 y 00	A9 z 00	E1 00	EA 00	EB 00	EC 00	EF 00	FE 00
160 A	C1 A 00	C2 B 00	C3 C 00	C4 D 00	C5 E 00	C6 F 00	C7 G 00	C8 H 00	C9 I 00	D1 J 00	D2 K 00	D3 L 00	D4 M 00	D5 N 00	D6 O 00	D7 P 00
176 B	D8 Q 00	D9 R 00	E2 S 00	E3 T 00	E4 U 00	E5 V 00	E6 W 00	E7 X 00	E8 Y 00	E9 Z 00	FA 00	FB 00	FC 00	FD 00	5E ; 00	5C * 00
192 C	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 19	40 SP 19	40 SP 19	40 SP 19
208 D	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 19	40 SP 19	40 SP 19	40 SP 19
224 E	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 19	40 SP 19	40 SP 19	40 SP 19
240 F	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 18	40 SP 19	40 SP 19	40 SP 19	40 SP 19

EBCDIC from SCS (Tables A & B)

LS	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0 0 0	00 1A	01 00	02 00	03 00	04 04	05 HT 09	06 00	07 00	08 GE 14	09 00	0A 00	0B VT 0B	0C FF 02	0D CR 05	0E 00	0F 00
16 1	10 00	11 00	12 00	13 00	14 00	15 NL 03	16 BS 08	17 00	18 00	19 EM 01	1A 00	1B 00	1C 00	1D 00	1E IRS 0E	1F 00
32 2	20 00	21 00	22 00	23 00	24 00	25 LF 0A	26 00	27 00	28 SA 00	29 00	2A 00	2B ESC 10	2C 00	2D 00	2E 00	2F 00
48 3	30 00	31 00	32 00	33 00	34 00	35 TRN 15	36 16	37 00	38 00	39 00	3A 00	3B 00	3C 00	3D 00	3E 00	3F 00
64 4	40 SP 00	41 00	42 00	43 00	44 00	45 00	46 00	47 00	48 00	49 00	4A ¢ 12	4B . 00	4C < 00	4D (00	4E + 00	4F | 00
80 5	50 & 00	51 00	52 00	53 00	54 00	55 1/2 00	56 1/4 00	57 00	58 00	59 00	5A ! 1E	5B $ 00	5C * 00	5D) 00	5E ; 00	5F \ 00
96 6	60 - 00	61 / 00	62 00	63 00	64 00	65 00	66 00	67 00	68 00	69 00	6A | 00	6B , 00	6C % 00	6D - 00	6E > 00	6F ? 00
112 7	70 00	71 00	72 00	73 00	74 00	75 00	76 00	77 00	78 00	79 ` 00	7A : 00	7B # 00	7C @ 00	7D ' 00	7E = 1D	7F " 00
128 8	80 00	81 a 00	82 b 00	83 c 00	84 d 00	85 e 00	86 f 00	87 g 00	88 h 00	89 i 00	8A 00	8B { 00	8C < 00	8D (* 00	8E +* 00	8F 00
144 9	90 00	91 j 00	92 k 00	93 l 00	94 m 00	95 n 00	96 o 00	97 p 00	98 q 00	99 r 00	9A 00	9B } 00	9C 00	9D)* 00	9E + 00	9F 00
160 A	A0 _* 00	A1 ~! 00	A2 s 00	A3 t 00	A4 u 00	A5 v 00	A6 w 00	A7 x 00	A8 y 00	A9 z 00	AA 00	AB 00	AC 00	AD [00	AE > 00	AF 00
176 B	B0 0* 00	B1 1* 00	B2 2* 00	B3 3* 00	B4 4* 00	B5 5* 00	B6 6* 00	B7 7* 00	B8 8* 00	B9 9* 00	BA 00	BB 00	BC 00	BD] 00	BE 00	BF _ 00
192 C	C0 { 00	C1 A 00	C2 B 00	C3 C 00	C4 D 00	C5 E 00	C6 F 00	C7 G 00	C8 H 00	C9 I 00	CA 00	CB 00	CC 00	CD 00	CE 00	CF 00
208 D	D0 } 00	D1 J 00	D2 K 00	D3 L 00	D4 M 00	D5 N 00	D6 O 00	D7 P 00	D8 Q 00	D9 R 00	DA 00	DB 00	DC 00	DD 00	DE 00	DF 00
224 E	E0 \ 00	E1 00	E2 S 00	E3 T 00	E4 U 00	E5 V 00	E6 W 00	E7 X 00	E8 Y 00	E9 Z 00	EA 00	EB 00	EC 00	ED 00	EE 00	EF 00
240 F	F0 0 00	F1 1 00	F2 2 00	F3 3 00	F4 4 00	F5 5 00	F6 6 00	F7 7 00	F8 8 00	F9 9 00	FA 00	FB 00	FC 00	FD 00	FE 00	FF 00

ASCII from DSC APL (Tables C & D)

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	0	20 00	20 01	0C 02	0A 03	FF 00	0D 05	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00
16	1	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00
32	2	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00
48	3	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00
64	4	FF 00	A1 00	E7 < 00	E8 00	E9 00	F0 00	F1 00	F2 00	F3 00	F5 00	F7 00	A0 00	AD 00	C2 00	AC - 00	5B [00
80	5	AE > 00	AF o 00	B0 00	B1 00	B2 00	B3 00	B4 00	B6 00	5C \ 00	B8 00	F9 00	C3 00	A9 00	5D] 00	BE 00	7C | 00
96	6	7D } 00	A3 A 00	A4 B 00	A5 C 00	A6 D 00	A7 E 00	A8 F 00	F8 G 00	AA H 00	AB I 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00
112	7	7B { 00	BA J 00	BB K 00	C0 L 00	C1 M 00	BD N 00	BC O 00	C4 P 00	C5 Q 00	C6 R 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00
128	8	FC 00	FF 00	C7 S 00	C8 T 00	C9 U 00	D0 V 00	D1 W 00	D2 X 00	D3 Y 00	D4 Z 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00
144	9	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00
160	A	FF 00	FF 00	E6 00	9B 00	ED 00	EE 00	FB 00	FD 00	EF 00	E1 00	CA 00	CB 00	5E 00	E4 00	CC 00	CF 00
176	B	FF 00	FF 00	9E 00	21 ! 00	FF 00	FF 00	DC 00	DD 00	FF 00	FF 00	DE 00	DF 00	FF 00	B5 ~ 00	EA 00	EB 00
192	C	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00
208	D	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00
224	E	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00
2FF	F	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00	FF 00

ASCII from SCS APL (Tables E & F)

LS	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00 0	FF	FF	FF	FF	FF	05	FF	FF	FF	FF	FF	05	05	05	FF	FF
	1A	00	00	00	04	09	00	00	14	00	00	0B	02	05	00	00
16 1	FF	FF	FF	FF	FF	05	05	FF	FF	05	FF	FF	FF	FF	05	FF
	00	00	00	00	00	03	08	00	00	01	00	00	00	00	0E	00
32 2	FF	FF	FF	FF	FF	05	FF	1B	05	FF	FF	05	FF	FF	FF	FF
	00	00	00	00	00	0A	00	00	00	00	00	10	00	00	00	00
48 3	FF	FF	FF	FF	FF	05	80	81	82	83	84	85	86	87	88	89
	00	00	00	00	00	15	16	00	00	00	00	00	00	00	00	00
64 4	8A	A3	A4	A5	A6	A7	A8	F8	AA	AB	A2	8B	8C	8D	8E	8F
	00	00	00	00	00	00	00	00	00	00	12	00	00	00	00	00
80 5	CE	BA	BB	C0	C1	BD	BC	C4	C5	C6	EC	FF	FF	FF	FF	F4
	00	00	00	00	00	00	00	00	00	00	1E	00	00	00	00	00
96 6	FF	FF	C7	C8	C9	D0	D1	D2	D3	D4	FF	FF	FF	FF	FF	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
112 7	FF	5E	9B	FF	FF	FF	FF	FF	E4	FF	FF	FF	FF	FF	FF	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1D	00
128 8	B5	AF	FF	FF	FF	FF	FF	FF	FF	FF	A1	E6	E7	E8	E9	F0
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
144 9	F1	FF	FF	FF	FF	FF	FF	FF	FF	FF	F2	F3	90	F5	F6	F7
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
160 A	A0	AF	2D	E0	6E	FF	FF	FF	FF	FF	AD	C2	AC	5B	AE	9F
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
176 B	B0	B1	B2	B3	B4	FF	B6	5C	B8	FF	F9	C3	A9	5D	BE	7C
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
192 C	7B	FF	E2	2B	FF	FF	92	AC	FF	FF	CA	CB	FF	CC	FF	CF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
208 D	7D	FF	FF	2B	FF	FF	91	A9	FF	FF	9E	21	DC	DD	DE	DF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
224 E	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	EA	EB	EC	ED	EE	EF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
2FF F	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FB	FC	FD	E1	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

EBCDIC from DSC APL (Tables G & H)

LS		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
000	0	00	00	0C FF	05 HT	00	00	00	00	00	00	00	00	32	39	00	00 {
		00	01	02	03	00	05	00	00	00	00	00	00	00	00	00	00
16	1	00	7E =	00	00	33	00	00	00	37	00	00	00	00	00	00	00 -
		00	1D	00	00	00	00	00	00	00	1E	00	12	00	00	00	00
32	2	3F	40 SP	5B $	5C *	5D)	5E ;	5F \	60 -	7B #	7C @	00	00	00	00	35 TRN	36 _
		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
48	3	31	00	30	34	38	7D '	00	00	00	00	00	00	00	00	00	00 -
		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
64	4	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
80	5	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
96	6	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
112	7	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
128	8	61 /	62	63	64	65	66	67	68	69	6A ¦	6B ,	6C %	6D -	6E >	6F ?	70
		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
144	9	71	72	73	74	75	76	77	78	79 `	7A :	00	00	00	00	00	00
		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
160	A	41	42	43	44	45	46	47	48	49	4A ¢	4B .	4C <	4D (	4E +	4F ¦	50 &
		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
176	B	51	52	53	54	55 1/2	56 1/4	57	58	59	5A !	00	00	00	00	00	00
		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
192	C	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
		18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19
208	D	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
		18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19
224	E	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
		18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19
240	F	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
		18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19

EBCDIC from SCS APL (Tables I & J)

LS	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MS	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0 0	00 1A	01 00	02 00	03 00	04 04	05 HT 09	06 00	07 00	08 GE 14	09 00	0A 00	0B VT 0B	0C FF 02	0D CR 05	0E 00	0F 00
16 1	10 00	11 00	12 00	13 00	14 00	15 NL 03	16 BS 08	17 00	18 00	19 EM 01	1A 00	1B 00	1C 00	1D 00	1E IRS 0E	1F 00
32 2	20 00	21 00	22 00	23 00	24 00	25 LF 0A	26 00	27 00	28 SA 00	29 00	2A 00	2B ESC 10	2C 00	2D 00	2E 00	2F 00
48 3	30 00	31 00	32 00	33 00	34 00	35 TRN 15	36 16	37 00	38 00	39 00	3A 00	3B 00	3C 00	3D 00	3E 00	3F 00
64 4	40 SP 00	41 00	42 00	43 00	44 00	45 00	46 00	47 00	48 00	49 00	4A ¢ 12	4B . 00	4C < 00	4D (00	4E + 00	4F | 00
80 5	50 & 00	51 00	52 00	53 00	54 00	55 1/2 00	56 1/4 00	57 00	58 00	59 00	5A ! 1E	5B $ 00	5C * 00	5D) 00	5E ; 00	5F \ 00
96 6	60 - 00	61 / 00	62 00	63 00	64 00	65 00	66 00	67 00	68 00	69 00	6A | 00	6B , 00	6C % 00	6D - 00	6E > 00	6F ? 00
112 7	70 00	71 00	72 00	73 00	74 00	75 00	76 00	77 00	78 00	79 ` 00	7A : 00	7B # 00	7C @ 00	7D ' 00	7E = 1D	7F " 00
128 8	80 00	81 a 00	82 b 00	83 c 00	84 d 00	85 e 00	86 f 00	87 g 00	88 h 00	89 i 00	8A 00	8B { 00	8C < 00	8D (* 00	8E +* 00	8F 00
144 9	90 00	91 j 00	92 k 00	93 l 00	94 m 00	95 n 00	96 o 00	97 p 00	98 q 00	99 r 00	9A 00	9B } 00	9C 00	9D)* 00	9E + 00	9F 00
160 A	A0 _ * 00	A1 ~ ! 00	A2 s 00	A3 t 00	A4 u 00	A5 v 00	A6 w 00	A7 x 00	A8 y 00	A9 z 00	AA 00	AB 00	AC 00	AD [00	AE > 00	AF 00
176 B	B0 0 * 00	B1 1 * 00	B2 2 * 00	B3 3 * 00	B4 4 * 00	B5 5 * 00	B6 6 * 00	B7 7 * 00	B8 8 * 00	B9 9 * 00	BA 00	BB 00	BC 00	BD] 00	BE 00	BF _ 00
192 C	C0 { 00	C1 A 00	C2 B 00	C3 C 00	C4 D 00	C5 E 00	C6 F 00	C7 G 00	C8 H 00	C9 I 00	CA 00	CB 00	CC 00	CD 00	CE 00	CF 00
208 D	D0 } 00	D1 J 00	D2 K 00	D3 L 00	D4 M 00	D5 N 00	D6 O 00	D7 P 00	D8 Q 00	D9 R 00	DA 00	DB 00	DC 00	DD 00	DE 00	DF 00
224 E	E0 \ 00	E1 00	E2 S 00	E3 T 00	E4 U 00	E5 V 00	E6 W 00	E7 X 00	E8 Y 00	E9 Z 00	EA 00	EB 00	EC 00	ED 00	EE 00	EF 00
240 F	F0 0 00	F1 1 00	F2 2 00	F3 3 00	F4 4 00	F5 5 00	F6 6 00	F7 7 00	F8 8 00	F9 9 00	FA 00	FB 00	FC 00	FD 00	FE 00	FF 00

COAX HOST CONSIDERATIONS

The ALLY can process data from a variety of IBM host systems. This section discusses how to ensure compatibility between the ALLY and the host system.

System Configuration

The coax host software generation requirements of the 6287 ALLY are generally the same as the requirements for an IBM 3287 or 3289 printer with SCS support. Except where stated otherwise, the coax host software system requirements are the same as for an IBM 3174, 3274 or 3276 control unit with 3287 or 3289 printers attached.

To function properly, the ALLY/printer combination must be defined to the coax host system as a 3287 printer with a 4K maximum physical buffer and/or with whatever other features are required by the application and are supported by the ALLY. The ALLY does not support 3287-type options such as Program Symbols.

The ALLY is classified as a "Category A" device, and it can be attached to an IBM 4300 system with an integral Display Printer Adapter (DPA) or to an IBM 3174, 3274 and 3276 control unit configured with a Type A device adapter. The ALLY does not emulate a Category B device, and it will not work if attached to a Type B device adapter.

(Devices such as CRTs and printers that connect to IBM 3270 control units are classified as either Category A or Category B devices. All new control units are configured with Type A device adapters. The Category B devices are those that are supported by IBM 3271 and 3272 control units configured with Type B device adapters. 3274 control units can also be configured with Type B device adapters for support of Category B devices.)

Category A Devices	Category B Devices
3262 Line Printer	3277 Display Station
3278 Display Station	3284 Character Printer
3279 Color Display Station	3286 Character Printer
3287 Character Printer	3288 Line Printer
3289 Line Printer	

VTAM and Network Control Program Requirements

The 3174, 3274 or 3276 control unit to which the ALLY is attached must be defined as a type 2 physical unit and the logical unit (type 1 or 3) definition must be included for each ALLY to be attached. The following is an example of log mode entry tables for DSC and SCS that may be used with the ALLY. If necessary, consult with the Company System Manager regarding specific requirements for the system, environment and applications.

```
DSC2K MODEENTLOGMODE=DSC2K
                        BIND USED FOR APPLICATION SESSIONS
FMPROF=X'03'            FUNCTION MANAGEMENT PROFILE
TSPROF=X'03'            TRANSMISSION SERVICES PROFILE
PRIPROT=X'B1'           PRIMARY PROTOCOL
SECPROT=X'90'           SECONDARY PROTOCOL
COMPROT=X'3080'         COMMON PROTOCOL
RUSIZES=X'8787'         PRI RUSIZE=1024, SEC RUSIZE=1024
PSERVIC=X'030000000000185018507F00'
                        LU SERVICES PROFILE

SCS MODEENT LOGMODE=SCS
                        BIND USED FOR APPLICATION SESSIONS
FMPROF=X'03'            FUNCTION MANAGEMENT PROFILE
TSPROF=X'03'            TRANSMISSION SERVICES PROFILE
PRIPROT=X'B1'           PRIMARY PROTOCOL
SECPROT=X'90'           SECONDARY PROTOCOL
COMPROT=X'3080'         COMMON PROTOCOL
RUSIZES=X'87C6'         PRI RUSIZE-768, SEC RUSIZE=1024
PSNDPAC=X'01'           PRIMARY SEND PACING COUNT
SRCVPAC=X'01'           SECONDARY RECEIVE PACING COUNT
PSERVIC=X'01000000E100000000000000'
                        LU SERVICES PROFILE
```

APL Support

When using APL, the log mode entry tables above will be the same except for the last line, "PSERVIC=X'… ." In DSC, a change must be made to the byte following the "X'03." In SCS, a change must be made to the byte following the "X'01." The second byte (00) must be changed to another value, depending upon the device for which the user's application was written. The following table indicates the appropriate replacement value.

00 = For applications written for a device with old APL and without Extended Data Stream capability.

20 = For applications written for a VSCS printer (VM only).

40 = For applications written for a device with new APL.

80 = For applications written for a device with Extended Data Stream capability.

C0 = For applications written for a device with new APL and Extended Data Stream capability.

Extended Attribute Buffer Support

The ALLY supports the Extended Attribute Buffer (EAB) feature found in many IBM 3287 printers. This feature “extends” the number of characters available for transmission to the printer. These characters are found in the following Translate Table:

APL from DSC

Refer to the Translate and Function Table Report in the Appendix for specific table values.

To use this feature, the ALLY must have Option #50 set to 02 (for a 2K physical buffer with EAB support) or 03 (for a 4K physical buffer with EAB support). Also refer to the APL Support section above.

SCS DATA STREAMS

General Information

SNA character string (SCS) controls are EBCDIC codes embedded by the host system in a document and used for formatting the data sent to devices such as printers and CRT displays. The AGILE 6287 ALLY achieves its emulation of IBM printers by translating the SCS codes into PFSs (programmable function strings) that the printer can use to format data.

To use SCS controls, the ALLY must be defined to the host computer as an SNA Type 1 logical unit. Type 1 logical units use SCS codes to control data formatting.

Presentation Surface: SNA Character String Definitions

Devices that use SCS data formatting can be represented logically by a two-dimensional area called the presentation surface. The SCS control codes direct the formatting of data on a presentation surface.

The presentation surface can be viewed as a two-dimensional matrix of character positions. Each character position is referenced by line and column coordinates. The presentation surface represents a single page of printed output.

- Presentation Surface Width and Depth determine the maximum physical dimensions of the page (maximum number of characters per line, maximum number of lines per page).
- Margins are the logical boundaries within which data will actually be printed. If the data sent by the control unit exceeds these margins, the data may not be printed.
- Maximum Presentation Line is the number of the last physical line on the page.
- Maximum Presentation Position is the number of the rightmost character position on the physical page.
- Presentation Position is the line and column number of the current position on the page. The presentation position indicates where the next character will be printed on the page.

SCS Commands Supported by the ALLY

Application programs running on the host computer generate data streams that contain both the data to be printed and the SCS commands that control the positioning of the data on the page, as indicated below. This section discusses how to use the SCS commands supported by the AGILE 6287 ALLY.

Backspace (BS) — 16h

The Backspace command moves the presentation position horizontally one position to the left. If already at the leftmost position, this command results in no operation. Upon receipt of an SCS 16h in the data stream, the ALLY will send an ASCII BS (08h) to printer, if the print position is not already at the left margin.

End of Message (EM) — 19h

An End of Message generates a new line, except when it occurs in the first printing column, dependent upon the setting of Option #16.

Form Feed (FF) — 0Ch

The Form Feed command moves the presentation position to the top and left margins of the next page.

Graphic Escape (GE) — 08h

Then Graphic Escape command instructs the ALLY to translate the subsequent character using the APL from SCS table.

Horizontal Tab (HT) — 05h

The Horizontal Tab command moves the presentation position horizontally to the next tab stop to the right. The horizontal tab stops are determined by the Set Horizontal Format command. Tab commands are translated into the appropriate number of spaces and sent to the printer. If there are no horizontal tab stops to the right of the current position, the HT is treated as a space character.

Interchange File Separator (IFS) — 1Ch

One of four Interchange Separator Commands used to delimit information strings in SCS data streams. The ALLY interprets it as a space.

Interchange Group Separator (IGS) — 1Dh

The ALLY interprets this Interchange Separator as a space.

Interchange Record Separator (IRS) — 1Eh

The ALLY interprets this Interchange Separator as a new line.

Interchange Unit Separator (IUS) — 1Fh

The ALLY interprets this Interchange Separator as a space.

Line Feed (LF) — 25h

The Line Feed command moves the presentation position down to the next line. The column position remains the same. Option #15 (SCS line spacing) may cause the ALLY to move down more than one line.

Null — 00h

The Null command is converted to a space by the ALLY.

Set Horizontal Format (SHF) — 2BC1h

The Set Horizontal Format command is used to set left and right margins, horizontal tab stops that are used by the horizontal tab command, and to set the maximum presentation position for the page.

Note: The SHF command will override the configuration settings of Options 11 and 12.

The SHF command has multiple parameters in the following format:

(SHF)(CNT)(MPP)(LM)(RM)(T1)...(TN) Where:

SHF	The Set Horizontal Format command code = 2BC1h
CNT	A Count of the number of bytes in this command string, including the count byte.
MPP	The maximum width of the print line. Default is the line length of the physical device.
LM	The character position of the Left Margin. LM is also the first horizontal tab stop. The LM value must be less than or equal to MPP. The default is 1.

RM The character position of the Right Margin. The value of the RM must be greater than LM and less than or equal to MPP.

Note: 3287- and 3289-compatible devices ignore the RM setting.

T1-TN The character positions of the horizontal tab stops, if any. Valid tab stops are less than or equal to the value of MPP. The tab stops do not have to be in any particular order.

Note: All parameters are single byte binary numbers.

Set Line Density (SLD) — 2BC6h

The Set Line Density command is used to set the vertical line spacing to 3, 4, 6 or 8 lines per inch. The ALLY accepts this command and sends the proper programmable function string to the printer. If the assigned PFS is empty, the command is ignored, and no data is output to the printer.

Set Vertical Format (SVF) — 2BC2h

The Set Vertical Format command is used to set top and bottom page margins, vertical tab stops that are used by the vertical tab command, and to set the maximum presentation line for the page.

Note: The SVF command will override the configuration settings of Options 13 and 14.

The SVF command has multiple parameters in the following format:

(SVF)(CNT)(MPL)(TM)(BM)(T1)...(TN) Where:

SVF The Set Vertical Format command code = 2BC2h

CNT A Count of the number of bytes in this command string, including the count byte.

MPL The length of the page. 1-127 are valid.

TM The line number of the Top Margin for the page. TM is also the first vertical tab stop. The TM value will be set to the default value of 1.

BM The line number of the Bottom Margin of the page. When this line number is exceeded, the printer automatically skips to the next page. BM must be less than or equal to MPL. The default value is MPL.

T1-TN The line numbers of the vertical tab stop settings, if any. Valid tab stops are greater than or equal to TM and less than or equal to BM. The tab stops must be listed in ascending order.

Note: All parameters are single byte binary numbers.

Transparent (TRN) — 35h

The Transparent command indicates the start of transparent data. This data is not scanned for SCS control codes. The command is followed by a count byte that indicates the number of bytes of transparent data to follow.

Note: This command can be disabled by setting the configuration of Option #60 to a value of 00.

The command has the following format:

(TRN)(CNT) Where:

TRN is the Transparent command code — 35h.

CNT is a single binary byte denoting the number of bytes in the transparent block. The Count value does not include the count byte.

The Transparent command is especially important because it gives the user the ability to generate any possible 8 bit command or data byte to be output to the attached device. Many of the extended 8 bit ASCII command codes used by printers and plotters must be transmitted as transparent data streams because they cannot be generated or passed through the IBM system without being modified. Each byte of data is sent to the printer without translation. For example, the following 8 bit EBCDIC codes are the RESET command for a Xerox laser printer:

35031B2B58

35 is the transparent command code, 03 is the count of the data bytes to be sent to the attached device, and 1B, 2B and 58 are the three bytes to be sent to the attached device.

Vertical Tab (VT) — 0Bh

The Vertical Tab command moves the presentation position down to the next vertical tab stop position. The vertical tab stops are determined by the Set Vertical Format command. If no vertical tab stop exists below the current line, the VT is treated as a line feed.

SCS Command Summary

SCS Command	Code	Description
Backspace (BS)	16h	Move PP left 1 position
Carriage Return (CR)	0Dh	Move PP to left margin
End of Message (EM)	19h	End of Message
Form Feed (FF)	0Ch	Skip to next page
Graphic Escape	08h	Translate next character with APL from SCS table
Horizontal Tab (HT)	05h	Move PP right to next tab stop
Interchange File Sep. (IFS)	1Ch	Space
Interchange Group Sep. (IGS)	1Dh	Space
Interchange Record Sep. (IRS)	1Eh	New line
Interchange Unit Sep. (IUS)	1Fh	Space
Line Feed (LF)	25h	Move PP down to next line
New Line (NL)	15h	Send CR/LF to printer
Null	00h	Space
Set Line Density (SLD)	2BC6h	Set vertical line spacing
Set Horizontal Format (SHF)	2BC1h	Set horizontal margins and tabs
Set Vertical Format (SVF)	2BC2h	Set vertical margins and tabs
Transparency (TRN)	35h	Pass following data (after the count byte) without translation
Vertical Channel Select (VCS)	04h	Send CR/LF to printer
Vertical Tab (VT)	0Bh	Move PP down to next vertical tab

SNA Printer Exception Conditions/Sense Codes

Exception conditions in SNA are reported by sending a negative response to the sender of the data. The negative response contains a sense code that describes the type of exception condition that occurred. Some of these conditions are errors, and some are just temporary exceptions.

The following is a list of SNA sense codes that can be sent to the host as the result of an exception condition involving a printer. Sense codes are made up of two bytes of information. The first byte describes the class of exception that occurred (10h for Request Errors, 08h for Request Reject). The second byte describes the specific condition.

Request Errors = 10h

05h = Parameter Error. This indicates an invalid SCS parameter in the data stream. This condition is usually the result of a programming error in the software that is building the SCS data stream. It may also be caused by sending an unsupported SCS command.

Request Reject = 08h

01h = Resource Not Available. Either the printer is configured for local use, or an outbound pacing overrun has occurred. This is a network configuration problem that should be referred to the systems programmer.

02h = Intervention Required. Either the printer is out of paper, or a paper jam has occurred. This condition is temporary and can be cleared by the remote terminal operator.

11h = Break. The operator pressed the cancel switch while the printer was in the middle of a chain of data. The chain may be restarted under host software control.

14h = Bracket Bid Reject — (RTR to Follow). The printer is temporarily busy doing a Local Copy. The printer will send an RTR command when it is no longer busy, then printing can continue.

1Ch = Request Not Executable. The requested function cannot be executed because of a permanent error condition in the printer.

31h = LU Component Disconnected. The device is powered off, or the coaxial cable is not connected to the 3270 control unit. If the ALLY is powered on and connected, it may be necessary to power down and power up to reestablish communication between the ALLY and the system.

DSC DATA STREAMS

General Information

The DSC (Data Stream Compatibility) character set is found in non-SNA environments. It has a limited number of control characters, which are explained below.

Carriage Return (CR) — 05h

This command moves the presentation position to the left margin. See Option #21 in Configuration for setting a left margin value other than 1.

End of Message (EM) — 01h

The End of Message command terminates printing, and it may also send a new line to the printer, depending upon the settings of Options 26 and 27, and upon whether or not the current print position is column 1. Here is a table listing all of the possible results:

OPTION 26	OPTION 27	COLUMN	RESULT
00	00	1	No new line
00	00	>1	Send new line
00	01	1	Send new line
00	01	>1	Send new line
01	00	1	No new line
01	00	>1	Send new line
01	01	1	Send new line
01	01	>1	Send new line

Form Feed (FF) — 02h

The Form Feed command moves the presentation position to the top and left margins of the next page.

New Line (NL) — 03h

The New Line command moves the presentation position to the next line and left margin of the page. If the line count exceeds the bottom margin, the ALLY will send an FF to the printer, and the print position will be the left and top margins of the next page.

XEROX APPLICATIONS

General Information

Xerox printers supported by the ALLY include the following models: 2700, 3700, 4010, 4011, 4030, 4045, 4197, 4213, 4220, 4235 and 4700. The ALLY has a number of special features that support Xerox printer functions.

Normally, the ALLY controls the formatting of documents received from the IBM host by using the SCS (SNA Character String) commands embedded in the document. The ALLY translates the SCS codes into sequences of PFSs (programmable function strings).

If the user chooses a value of 00 (the default) for Option #00, the ALLY will automatically program the PFSs for resetting, bolding, underlining and overstriking appropriately for Xerox printers. If the user selects a value of 02 for Option #00, special escape sequences for a Xerox 4213 will be programmed.

The ALLY also supports Xerox transparency, triggered by 36h in the data stream. Refer to Option #61 in Section 3 — Configuration for details on Xerox 36h transparency. Additionally, PFSs %61-%63 are reserved for Xerox applications that require special tray commands (refer to Section 4 — Programmable Function Strings).

Other special Xerox features supported include Metacode, UDKs (user-defined keys) and XPAF. ALLY implementation of these features is described below.

User-Defined Keys (UDKs)

The ALLY offers special support for Xerox printers in XDPM mode, also referred to as XES mode or UDK mode. XES mode is the native Xerox print mode for Xerox 2700, 3700, 4030, 4045 and 4213 printers. The XDPM mode on the 4235 also provides the XES command set.

Commands that control these printers are always preceded by an escape character. The escape character is sometimes not a legal character in a mainframe environment. Therefore, UDKs (or User-Defined Keys) were implemented to allow any one of 256 different characters to be assigned as the escape character. The ALLY keeps track of which character is currently being used as the UDK.

XPAF Support

XPAF (Xerox Printer Access Facility) accepts Advanced Function Printing Data Stream (AFPDS) data and converts it for use by Xerox printers (2700, 3700, 4030, 4045, etc.). When installed for use with one of these printers, XPAF expects to see a 3287-like device (such as the ALLY) at the end of the coax cable.

The ALLY is capable of supporting two important XPAF features. These are EBCDIC fonts and EBCDIC graphic windows. Originally intended for EBCDIC printers, these sequences can be sent to an ASCII printer when attached to the ALLY. These data types are sometimes corrupted by host forms control. The AGILE 6287 ALLY takes this into consideration and strips away any forms control that might corrupt these data types.

The ALLY contains special translate tables to accommodate this feature. (These are not related to the user-definable translate and function tables referred to elsewhere in this manual. They are located in ROM and are unchangeable.) When either a font or graphic window is detected, these translate tables are in effect. At the end of the font or graphic window, the translate table is switched to the one in effect before the graphic window or font was detected.

Xerox Graphic Windows

When the ALLY sees (UDK)gw, a graphic window is being processed. The (UDK) is the user-defined key. Please refer to the Xerox printer reference manual for further information on this escape sequence. If the user's application requires this feature, and if the user would like to use the printer in ASCII mode, Option #73 — Xerox graphic window support should be set to 01 (enabled).

Note: If Option #02 is set to 01 (EBCDIC), this option should be disabled.

Xerox EBCDIC Font Downloads

This feature was developed to eliminate the need for both EBCDIC and ASCII fonts to be resident on the mainframe, and at the same time allow the protocol converter to be in ASCII output mode at all times.

When the ALLY sees (UDK)+A or (UDK)+F, a font is being sent by the host. Fonts are terminated by a sequence of ten or more "Ts." Please refer to the Xerox printer reference manual for further information on this escape sequence. If the user's application requires this feature, and if the user would like to use the printer in ASCII mode, Option #74 — Allow EBCDIC font downloads should be set to 01 (enabled).

Note: If Option #02 is set to 01 (EBCDIC), this option should be disabled.

Metacode Support

Some Xerox printers are capable of accepting Metacode data. The Xerox 4235 is a Metacode-capable printer, for example. The data seen by the ALLY and the printer are identical when this type of data is detected. Metacode data is triggered by a 35h in the data stream, immediately followed by a count byte, then the data itself. The data is not translated in this sequence. Here is the host data as it might appear:

35 10 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F

With the Metacode option turned on, the printer sees the identical data stream.

With the Metacode option turned off, the 35 and the count byte (10) are eliminated:

40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F

Refer to Option #72 in Section 3 — Configuration. Users with applications that require a Metacode-capable printer should enable this option.

6287 ULTRA COMPATIBILITY

General Information

The 6287 ALLY allows users to program the ALLY with data streams originally used to program other AGILE products, including the 6287 ULTRA, 6287 IC and 6287 IC+ (although this section will use the ULTRA to refer to all three products). Customers who are either upgrading their protocol converters from the ULTRA to the ALLY, or who are adding one or more ALLY units to an environment with ULTRA units, can program both devices with the same data stream.

6287 ULTRA Configuration Compatibility

The ALLY will accept configuration commands intended for the ULTRA and execute the equivalent ALLY commands.

The ALLY mimics two different ways of programming the ULTRA configuration options:

- Off-line coax host configuration using Trigger 1 - Question Mark (¢?)
- On-line coax host configuration using Trigger 1 - Question Mark - Trigger 1 - Trigger 1 - Question Mark (¢?¢¢?)

The following ULTRA programmable function string programming is supported:

- Off-line coax host PFS configuration using Trigger 1 - Percent Sign (¢%)
- On-line coax host PFS configuration using Trigger 1 - Question Mark - Trigger 1 - Trigger 1 - Percent Sign (¢?¢¢%)

Translate tables can be edited with the following ULTRA data streams:

- Off-line coax host translate table downloading using Trigger 1 - Exclamation Point (¢!)
- On-line coax host translate table downloading using Trigger 1 - Question Mark - Trigger 1 - Trigger 1 - Exclamation Point (¢?¢¢!)

Dip Switch Emulation

The ALLY does not have dip switches. The MODE selector button on the ALLY is used to enter an Extended Mode that serves as the logical equivalent of placing dip switch B7 in the ON (down) position and pressing the Reset button on the ULTRA.

Extended Mode D3 on the ALLY is used as the logical equivalent of ULTRA Host Configuration Mode. This is required for any off-line coax host configuration, PFS editing or translate table downloading to take place.

First, the ALLY MODE selector button must be pressed until the LED reads "D." After 2 seconds, the LED will display a "0." The user must then press the MODE selector button until the LED reads "3." This will put the ALLY into Extended Mode D3, although the LED will display a "0." After the configuration changes are made, normal operation will resume after the user resets the unit by pressing the MODE selector button until the LED reads "3."

For on-line coax host configuration using Trigger 1 - Question Mark - Trigger 1 (¢?¢), the unit can remain in normal operating mode (Mode 0). However, configuration mode must be exited by using the termination sequence Trigger 1 - Question Mark - Trigger 1 (¢?¢).

Configuration Options

This section lists each ULTRA configuration option and describes how the equivalent ALLY option(s), if any, will be affected by ULTRA configuration commands in the data stream. It also indicates how configuration changes will be reflected in the ALLY General Configuration Report.

1 — Column Width

Any change to ULTRA Option #1 will affect both ALLY Option #12 — SCS right margin and Option #22 — DSC right margin. The decimal entry in the ULTRA command is executed as though it were the equivalent ALLY hexadecimal value. The General Configuration Report will display the decimal value.

2 — Lines Per Page

Any change to ULTRA Option #2 will affect both ALLY Option #14 — SCS bottom margin and Option #24 — DSC bottom margin. The decimal entry in the ULTRA command is executed as though it were the equivalent ALLY hexadecimal value. The General Configuration Report will display the decimal value.

3 — Line Spacing

Any change to ULTRA Option #3 will affect both ALLY Option #15 — SCS line spacing and Option #25 — DSC line spacing. The ALLY will accept any value between 1 and 9 (executed as though it were the equivalent ALLY value between 01 and 09, although only one digit will be displayed in the General Configuration Report.)

4 — Local Copy Null Line Suppression

This option is equivalent to ALLY Option #32. A “Y” value is executed as though it were an ALLY value of 01, and an “N” value is executed as an ALLY value of 00. The General Configuration Report will display “yes” or “no.”

5 — Xerox 36 Hex Transparency

This option is equivalent to ALLY Option #61. A "Y" value is executed as though it were an ALLY value of 01, and an "N" value is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

6 — Form Feed Before Local Copy

This option is equivalent to ALLY Option #30. A "Y" value is executed as though it were an ALLY value of 01, and an "N" value is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

7 — Form Feed After Local Copy

This option is equivalent to ALLY Option #31. A "Y" value is executed as though it were an ALLY value of 01, and an "N" value is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

8 — New Line Order

This option has no ALLY equivalent.

9 — PA Key Usage

This option has no equivalent in the ALLY, because PA key usage is handled automatically. If the PFS (ALLY PFS %59 or %60) contains data, the data is sent to the printer. If the PFS does not contain data, the PA key is sent to the host.

10 — Output in ASCII or EBCDIC

This option is equivalent to ALLY Option #02. An "A" or "C" value is executed as though it were an ALLY value of 00, and a "B" value is executed as an ALLY value of 01. ULTRA Option #10-C, which in the ULTRA will cause the output to switch between ASCII and EBCDIC depending upon whether the data is coming from an alternate host or a coax host, is irrelevant for the ALLY, because the ALLY does not support an alternate host. The General Configuration Report will display either "0=ASCII" or "1=EBCDIC."

11 — APL Output

APL is used in conjunction with EAB. As such, this option, in conjunction with ULTRA Option #20, will define the value of ALLY Option #50. A value of "N" is executed as though it were an ALLY value of 00 or 01, and a value of "Y" is executed as an ALLY value of 02 or 03, depending upon the setting of ULTRA Option #20. The General Configuration Report will display "0=2k," "1=4k," "2=2kEAB" or "3=4kEAB."

12 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

13 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

14 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

15 — Bold Print Emulation

The equivalent ALLY option is Option #70. A value of "A" or "B" is executed as though it were an ALLY value of 01, and a value of "C" is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

16 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

17 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

18 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

19 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

20 — Physical Buffer Size

EAB is used in conjunction with APL. As such, this option, in conjunction with ULTRA Option #11, will define the value of ALLY Option #50. Option #20 only determines the physical buffer size, because the setting of Option #11 will override the setting of ALLY Option #50 as it pertains to EAB/APL. A value of "A" is executed as though it were an ALLY value of 00. A value of "B" is executed as an ALLY value of 02. A value of "C" is executed as a value of 01. A value of "D" is executed as a value of 03. The General Configuration Report will display "0=2k," "1=4k," "2=2kEAB" or "3=4kEAB."

21 — Logical Buffer Size

This option is equivalent to ALLY Option #51. A value of "A" is executed as though it were an ALLY value of 00, a value of "B" is executed as an ALLY value of 01, a value of "C" is executed as a value of 02, a value of "D" is executed as a value of 03, and a value of "E" is executed as a value of 04. The General Configuration Report will display "0=960," "1=1920," "2=2560," "3=3440" or "4=3564."

22 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

23 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

24 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

25 — Centronics or Dataproducts Parallel

This option has no equivalent in the ALLY, because the ALLY supports only Centronics parallel interfacing.

26 — Intervention Required

If this option is set to a value of "N," ALLY Option #52 is set to 00. The General Configuration Report will display a "0." If this option is set to "Y," the setting of ALLY Option #52 is determined by ULTRA Option #27.

27 — Intervention Required Delay

If ULTRA Option #26 is set to "Y," the setting of this option determines the value of ALLY Option #52. The ULTRA decimal value is executed as though it were the equivalent ALLY hexadecimal value. The General Configuration Report will display the decimal number of minutes selected by this option.

Note: The smallest delay allowed by the ALLY is 1 minute, while the ULTRA can send an Intervention Required message immediately. If the ULTRA configuration command is set to 0 (immediate), it is executed as though it were an ALLY value of 01 (1 minute).

28 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

29 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

30 — Pseudo Transparency Mode (PTM) Selection

This option is equivalent to ALLY Option #62. A value of "A" is executed as though it were an ALLY value of 02, and a value of "B" is executed as an ALLY value of 01. The General Configuration Report will display either "0=disabled," "1=one trigger method" or "2=two trigger method."

Note: Since the ULTRA does not provide the option of disabling pseudo transparency, pseudo transparency cannot be disabled with an ULTRA configuration command.

31 — Discard PTM Terminating Delimiter

This option is equivalent to ALLY Option #67. A value of "Y" is executed as though it were an ALLY value of 01, and a value of "N" is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

Note: The default value of the ULTRA is "No." The ALLY default value is "Yes."

32 — DSC Trigger 1

This option is the equivalent of ALLY Option #63.

33 — DSC Trigger 2

This option is the equivalent of ALLY Option #64.

34 — SCS Trigger 1

This option is the equivalent of ALLY Option #65.

35 — SCS Trigger 2

This option is the equivalent of ALLY Option #66.

36 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

37 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

38 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

39 — Non-Transparency Trigger 1 Output

This command has no effect in the ALLY, because unlike the ULTRA, the ALLY has separate translate and function tables.

40 — Alternate Host Lockout Duration

This option has no equivalent in the ALLY, because the ALLY does not support an alternate host.

41 — Serial Alternate Host CTS Enabled

This option has no equivalent in the ALLY, because the ALLY does not support an alternate host.

42 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

43 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

44 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

45 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

46 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

47 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

48 — Continuous Bell Ringing

This option is equivalent to ALLY Option #75. A value of "Y," "B," "C" or "D" is executed as though it were an ALLY value of 01, and a value of "N" or "A" is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

Note: Only bell ringing at the printer is supported, because the ALLY is not equipped with a bell.

49 — Eliminate DSC C0 05 Header

This option is equivalent to ALLY Option #76. A value of "Y" is executed as though it were an ALLY value of 01, and a value of "N" is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

50 — Alternate Host Enable/Disable

This option has no equivalent in the ALLY, because the ALLY does not support an alternate host.

51 — DSC EM Generates CR/LF in Infinite Line Length

This option is equivalent to ALLY Option #26. A value of "Y" is executed as though it were an ALLY value of 01, and a value of "N" is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

52 — SCS EM Always Generates CR/LF

This option is equivalent to ALLY Option #16. A value of "Y" is executed as though it were an ALLY value of 01, and a value of "N" is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

53 — Ignore IBM 35 Hex Transparency

This option is equivalent to ALLY Option #60. A value of "Y" is executed as though it were an ALLY value of 00, and a value of "N" is executed as an ALLY value of 01. The General Configuration Report will display "yes" or "no."

Note: This option is different in the ALLY than it is in the ULTRA, in that the ULTRA asks "Ignore?" while the ALLY asks "Allow?" As such, an ULTRA "Yes" becomes a "No" in the ALLY.

54 — Power On Reset (POR) After 60 Seconds

This option has no functional equivalent in the ALLY, because the user cannot change the POR delay. POR occurs every tenth of a second.

55 — MD-Laser Support

This option is equivalent to ALLY Option #71. A value of "Y" is executed as though it were an ALLY value of 01, and a value of "N" is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

56 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

57 — DSC NL at EM Even If in Column 1

This option is equivalent to ALLY Option #27. A value of "Y" is executed as though it were an ALLY value of 01, and a value of "N" is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

58 — Metacode Support

This option is equivalent to ALLY Option #72. A value of "Y" is executed as though it were an ALLY value of 01, and a value of "N" is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

59 — Laserpage Support

This option is equivalent to ALLY Option #78. A value of "Y" is executed as though it were an ALLY value of 01, and a value of "N" is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

60 — Xerox Graphic Window Support

This option is equivalent to ALLY Option #73. A value of "Y" is executed as though it were an ALLY value of 01, and a value of "N" is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

61 — Reserved

This option is reserved in the current ULTRA firmware, and it has no equivalent in the ALLY.

62 — Allow EBCDIC Font Downloading

This option is equivalent to ALLY Option #74. A value of "Y" is executed as though it were an ALLY value of 01, and a value of "N" is executed as an ALLY value of 00. The General Configuration Report will display "yes" or "no."

PFS Downloading

This section lists each ULTRA programmable function string and describes how each equivalent ALLY PFS, if any, will be affected by ULTRA PFS definitions downloaded in the data stream.

Note: The ALLY does not support ULTRA PFS definitions that include a plus sign (+) used to execute multiple PFSs with a single PFS trigger.

0 — Power On Sequence

The contents of this PFS definition will be inserted in ALLY PFS %00 — Power On.

1 — 6 LPI

The contents of this PFS definition will be inserted in ALLY PFS %10 — Set Line Density to 6 LPI.

2 — 8 LPI

The contents of this PFS definition will be inserted in ALLY PFS %11 — Set Line Density to 8 LPI.

3 — DisplayWrite 370 Overstriking On

The contents of this PFS definition will be inserted in ALLY PFS %04 — Overstriking On.

4 — DisplayWrite 370 Overstriking Off

The contents of this PFS definition will be inserted in ALLY PFS %05 — Overstriking Off.

5 — DisplayWrite 370 Underlining On

The contents of this PFS definition will be inserted in ALLY PFS %06 — Underlining On.

6 — DisplayWrite 370 Underlining Off

The contents of this PFS definition will be inserted in ALLY PFS %07 — Underlining Off.

7 — PA1 Key

The contents of this PFS definition will be inserted in ALLY PFS %59 — Mode 1 PFS.

8 — PA2 Key

The contents of this PFS definition will be inserted in ALLY PFS %60 — Mode 2 PFS.

9 — DisplayWrite 370 Bolding On

The contents of this PFS definition will be inserted in ALLY PFS %02 — Bolding On.

A — DisplayWrite 370 Bolding Off

The contents of this PFS definition will be inserted in ALLY PFS %03 — Bolding Off.

B — Coax Host PFS

The contents of this PFS definition will be inserted in ALLY PFS %12 — Switch to Coax Host.

C — Alternate Host PFS

This PFS has no equivalent in the ALLY, because the ALLY does not support an alternate host.

D — Custom Banner

The contents of this PFS definition will be inserted in ALLY PFS %20 — Reserved. There is no standard ALLY equivalent to this PFS. This PFS will be sent to the printer only when it is triggered by the user in the data stream.

E — Begin Bracket

The contents of this PFS definition will be inserted in ALLY PFS %21 — Reserved. There is no standard ALLY equivalent to this PFS. This PFS will be sent to the printer only when it is triggered by the user in the data stream.

F — System Status Available

The contents of this PFS definition will be inserted in ALLY PFS %22 — Reserved. There is no standard ALLY equivalent to this PFS. This PFS will be sent to the printer only when it is triggered by the user in the data stream.

G — Tray 1

The contents of this PFS definition will be inserted in ALLY PFS %31 — Tray 1.

H — Tray 2

The contents of this PFS definition will be inserted in ALLY PFS %32 — Tray 2.

I — Tray 3

The contents of this PFS definition will be inserted in ALLY PFS %33 — Tray 3.

J — Manual Feed

The contents of this PFS definition will be inserted in ALLY PFS %34 — Envelope Tray 1.

K — Envelope Tray

The contents of this PFS definition will be inserted in ALLY PFS %35 — Envelope Tray 2.

Accessing PFSs from the Host

The ALLY supports the use of ULTRA data streams that contain PFS triggers used to force an escape sequence from the host. When the ALLY receives a Cent Sign - Ampersand - PFS# sequence (¢&#), the appropriate PFS sequence is sent to the printer.

For example, if the ALLY receives the command ¢&1 (the ULTRA command to set line density to 6 LPI), it sends the corresponding ALLY command to set line density to 6 LPI (!ALLY!>10;).

Translate Table Downloading

This section lists each ULTRA translate table and describes how each equivalent ALLY translate table, if any, will be affected by ULTRA translate tables downloaded in the data stream.

Note: It is recommended that users do not change the value of any non-printable character in any translate table without first contacting AGILE technical support.

1 — DSC to ASCII

Table 1 is equivalent to ALLY Table 2 — ASCII from DSC.

2 — SCS to ASCII

Table 2 is equivalent to ALLY Table 4 — ASCII from SCS.

3 — ASCII to ASCII

Table 3 is equivalent to ALLY Table 0 — ASCII from ASCII.

4 — DSC to EBCDIC

Table 4 is equivalent to ALLY Table 8 — EBCDIC from DSC.

5 — SCS to EBCDIC

Table 5 is equivalent to ALLY Table A — EBCDIC from SCS.

6 — ASCII to EBCDIC

Table 6 is equivalent to ALLY Table 6 — EBCDIC from ASCII.

7 — DSC to APL

Table 7 is equivalent to ALLY Table C — ASCII from DSC APL.

8 — SCS to APL

Table 8 is equivalent to ALLY Table E — ASCII from SCS APL.

9 — Reserved (SCS font download table)

Table 9 is reserved in the current ULTRA firmware version, and it has no ALLY equivalent.

A — Reserved (DSC font download table)

Table A is reserved in the current ULTRA firmware version, and it has no ALLY equivalent.

B — Reserved (not used)

Table B is reserved in the current ULTRA firmware version, and it has no ALLY equivalent.

C — Reserved (not used)

Table C is reserved in the current ULTRA firmware version, and it has no ALLY equivalent.

APPENDIX

General Information

The Appendix contains samples of the General Configuration Report, Programmable Function String Report, Translate and Function Table Report, Printer Test, Plotter Test, Host Diagnostic Report, a Hexadecimal to Decimal Conversion Chart and a Pin-out chart of the ALLY ports.

General Configuration Report

The following is a sample of the General Configuration Report with the factory defaults selected. Options that are not factory defaults would be preceded by an asterisk (*) in an actual report. Use Mode 5 from the front panel of the ALLY to send the printer a report of the current general configuration.

```
AGILE 6287 ALLY Version 6.00, Style  1  10-02-1995
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General Configuration Report                              Page  1


Printer Output (Group 00)

  00 - Printer Type - 3=Other
  01 - Output Type - 0=Parallel
  02 - Character Set - 0=ASCII
  03 - Plotter Support - HP 7550

SCS Page Formatting (Group 10)

  11 - SCS left margin -   1
  12 - SCS right margin - 132
  13 - SCS top margin -   1
  14 - SCS bottom margin -   0
  15 - SCS line spacing -   1
  16 - SCS EM ignored if in column 1 - no

DSC Page Formatting (Group 20)

  21 - DSC left margin -   1
  22 - DSC right margin - 132
  23 - DSC top margin -   1
  24 - DSC bottom margin -   0
  25 - DSC line spacing -   1
  26 - DSC EM generates CR/LF even in infinite line length - no
  27 - DSC EM generates CR/LF even if in column 1 - no

Local Copy Page Formatting (Group 30)

  30 - FF before Local Copy - no
  31 - FF after Local Copy - yes
  32 - Local Copy blank line suppression - yes

Serial Port Parameters (Group 40)

  41 - Baud Rate - 4=9600
  42 - Parity - 0=none
  43 - Word length (data bits) -   8
  44 - Stop bits -   1
  45 - Flow control (handshaking) - 2=RTS/CTS

Host Parameters (Group 50)

  50 - Physical buffer size - 1=4k
```

```
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General Configuration Report                              Page  2


  51 - Logical buffer size - 3=3440
  52 - Intervention Required status report delay -  10
  54 - LU1 bracketing enabled - no
  57 - Alternate Bind Processing - no

Transparency Modes (Group 60)

  60 - Allow IBM 35h transparency - yes
  61 - Allow Xerox 36h transparency - no
  62 - Pseudo transparency - 2=two trigger method
  63 - DSC PTM trigger 1 - 1B
  64 - DSC PTM trigger 2 - 1A
  65 - SCS PTM trigger 1 - 4A
  66 - SCS PTM trigger 2 - 5B
  67 - Discard transparency terminator - no
  68 - Specify DSC transparency terminator - 00
  69 - Specify SCS transparency terminator - 00

Custom Configuration (Group 70)

  70 - DisplayWrite 370 support - yes
  71 - MD-Laser support - no
  72 - Metacode support - no
  73 - Xerox graphic window support - no
  74 - Allow EBCDIC font downloads - no
  75 - Continuous bell ringing - no
  76 - Eliminate C0 05 header - no
  77 - CR with each FF - yes
  78 - Laserpage support - no
  79 - Continuous program mode - no
```

Programmable Function String Report

These three pages contain sample Programmable Function String Reports. Use Mode 7 from the front panel of the ALLY to send a report of the current PFS configuration.

The PFS values shown on this page are for a Xerox type printer (Choice 00 in General Configuration Option #00). If the user has selected "None" for printer type in Option #00 (Choice 03, the default), and if the user has not defined any PFSs, the report will not print, because no PFSs have been defined.

Note: The comments to the right are translations of the hexadecimal values; they are not printed in the actual report.

```
AGILE 6287 ALLY Version 6.00, Style  1  10-02-1995
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Programmable Function String Report                    Page  1

PFS %00 Power On
     1B 2B 58 0D 0A                                    Esc+X CR LF
PFS %01 Printer Reset
     1B 2B 58 0D 0A                                    Esc+X CR LF
PFS %02 Bolding On
     1B 62                                             Esc b
PFS %03 Bolding Off
     1B 70                                             Esc p
PFS %04 Overstriking On
     1B 7A 6F 00                                       Esc zo [null]
PFS %05 Overstriking Off
     1B 7A 70                                          Esc z p
PFS %06 Underlining On
     1B 75                                             Esc u
PFS %07 Underlining Off
     1B 77                                             Esc w
```

This page displays the report generated if the printer type selected in Option #00 is a Hewlett-Packard (PCL) printer (Choice 01).

```
AGILE 6287 ALLY Version 6.00, Style  1  10-02-1995
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Programmable Function String Report                    Page  1

PFS %00 Power On
     1B 45                                             Esc E
PFS %01 Printer Reset
     1B 45                                             Esc E
PFS %02 Bolding On
     1B 28 73 33 42                                    Esc +s3B
PFS %03 Bolding Off
     1B 28 73 30 42                                    Esc +s0B
PFS %06 Underlining On
     1B 26 64 44                                       Esc &dD
PFS %07 Underlining Off
     1B 26 64 40                                       Esc &d@
PFS %08 Set line density to 3 lpi
     1B 26 6C 33 44                                    Esc &l3D
PFS %09 Set line density to 4 lpi
     1B 26 6C 34 44                                    Esc &l4D
PFS %10 Set line density to 6 lpi
     1B 26 6C 36 44                                    Esc &l6D
PFS %11 Set line density to 8 lpi
     1B 26 6C 38 44                                    Esc &l8D
```

This page displays the report generated if the printer type selected in Option #00 is a Xerox 4213 printer (Choice 02).

```
AGILE 6287 ALLY Version 6.00, Style  1  10-02-1995
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Programmable Function String Report                    Page  1

PFS %00 Power On
     3D 4D 43 4B 3D 20 52 45 53 45 54          =MCK= RESET
     2F 45 4E 44 0D 0A                         /END CR LF
PFS %01 Printer Reset
     3D 4D 43 4B 3D 20 52 45 53 45 54          =MCK= RESET
     2F 45 4E 44 0D 0A                         /END CR LF
PFS %12 Switch to Coax Host
     3D 4D 43 4B 3D 20 45 4D 55 4C 41          =MCK= EMULA
     54 45 2F 58 44 43 53 2F 45 4E 44          TE/XDCS/END
     0D 0A                                     CR LF
PFS %14 Switch to Parallel Port 1
     3D 4D 43 4B 3D 20 45 4D 55 4C 41          =MCK= EMULA
     54 45 2F 50 4F 53 54 53 43 52 49          TE/POSTSCRI
     50 54 2F 45 4E 44 0D 0A                   PT/END CR LF
PFS %16 Switch to Parallel Port 2
     3D 4D 43 4B 3D 20 45 4D 55 4C 41          =MCK= EMULA
     54 45 2F 50 4F 53 54 53 43 52 49          TE/POSTSCRI
     50 54 2F 45 4E 44 0D 0A                   PT/END CR LF
PFS %23 Switch to Serial Port 1
     3D 4D 43 4B 3D 20 45 4D 55 4C 41          =MCK= EMULA
     54 45 2F 50 43 4C 2F 45 4E 44 0D          TE/PCL/END CR
     0A                                        LF
PFS %25 Switch to Serial Port 2
     3D 4D 43 4B 3D 20 45 4D 55 4C 41          =MCK= EMULA
     54 45 2F 50 43 4C 2F 45 4E 44 0D          TE/PCL/END CR
     0A                                        LF
PFS %59 PA1 PFS
     3D 4D 43 4B 3D 20 45 4D 55 4C 41          =MCK= EMULA
     54 45 2F 50 4F 53 54 53 43 52 49          TE/POSTSCRI
     50 54 2F 45 4E 44 0D 0A                   PT/END CR LF
PFS %59 PA2 PFS
     3D 4D 43 4B 3D 20 45 4D 55 4C 41          =MCK= EMULA
     54 45 2F 50 43 4C 2F 45 4E 44 0D          TE/PCL/END CR
     0A                                        LF
```

Translate and Function Table Report

The following pages contain a sample of the Translate and Function Table Report with all factory defaults selected. This report prints all translate tables and function tables in their current configuration. To send this report to the printer, use Mode 6 from the front panel of the ALLY.

```
AGILE 6287 ALLY Version 6.00, Style  1  10-02-1995
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Translate and Function Table Report                          Page  1

ASCII from ASCII (Tables 0&1)

    _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F
 0_ 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
    00 00 00 00 00 00 00 00 00 00 0A 00 02 05 00 00
 1_ 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 2_ 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F
    00 1E 00 00 1A 1F 00 00 00 00 19 00 00 00 00 00
 3_ 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F
    06 06 06 06 06 06 06 06 06 06 00 10 00 1D 00 00
 4_ 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F
    00 04 04 04 04 04 04 00 00 00 00 00 00 00 1B 00
 5_ 50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F
    00 00 00 00 00 00 00 00 00 1B 00 00 00 00 00 00
 6_ 60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F
    00 04 04 04 04 04 04 00 00 00 00 00 00 00 1B 00
 7_ 70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F
    00 00 00 00 00 00 00 00 00 1B 00 00 00 00 00 00
 8_ 80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 9_ 90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 A_ A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 B_ B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 C_ C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 D_ D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 E_ E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 F_ F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

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Translate and Function Table Report Page 2

ASCII from DSC (Tables 2&3)

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	20	20	0C	0A	2D	0D	2D	2D	3E	3C	5B	5D	29	28	7D	7B
	06	01	02	03	00	05	00	00	00	00	00	00	00	00	00	00
1_	20	3D	27	22	2F	5C	7C	99	3F	21	24	9B	2D	2D	2D	2D
	00	1D	00	00	00	00	00	00	00	1E	00	12	00	00	00	00
2_	30	31	32	33	34	35	36	37	38	39	2D	7E	23	40	25	5F
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3_	26	2D	2E	2C	3A	2B	5E	2D	2D	2D	5E	7E	2D	60	27	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
4_	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
5_	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
6_	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
7_	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
8_	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F	70
	00	00	00	00	00	00	00	00	1C	00	00	00	00	00	00	00
9_	71	72	73	74	75	76	77	78	79	7A	2D	2D	2D	2D	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
A_	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F	50
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
B_	51	52	53	54	55	56	57	58	59	5A	2D	2D	2D	2D	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
C_	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19
D_	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19
E_	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19
F_	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19

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Translate and Function Table Report Page 3

ASCII from SCS (Tables 4&5)

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	20	20	20	20	0A	09	20	20	20	20	20	0A	0C	0D	20	20
	1A	00	00	00	04	09	00	00	14	00	00	0B	02	05	00	00
1_	20	20	20	20	20	0A	08	20	20	20	20	20	20	20	20	20
	00	00	00	00	00	03	08	00	00	01	00	00	00	00	0E	00
2_	20	20	20	20	20	0A	20	1B	20	20	20	20	20	20	20	07
	00	00	00	00	00	0A	00	00	00	00	00	10	00	00	00	07
3_	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	00	00	00	00	00	15	16	00	00	00	00	00	00	00	00	00
4_	20	2D	2D	2D	2D	2D	2D	2D	2D	2D	9B	2E	3C	28	2B	7C
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	12
5_	26	2D	2D	2D	2D	2D	2D	2D	2D	2D	21	24	2A	29	3B	5E
	00	00	00	00	00	00	00	00	00	00	1E	00	00	00	00	00
6_	2D	2F	2D	2D	2D	2D	2D	2D	2D	2D	7C	2C	25	5F	3E	3F
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
7_	2D	2D	2D	2D	2D	2D	2D	2D	2D	60	3A	23	40	27	3D	22
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1D	00
8_	2D	61	62	63	64	65	66	67	68	69	2D	2D	2D	2D	2D	2D
	00	00	00	00	00	00	00	00	00	1C	00	00	00	00	00	00
9_	2D	6A	6B	6C	6D	6E	6F	70	71	72	2D	2D	2D	2D	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
A_	2D	7E	73	74	75	76	77	78	79	7A	2D	2D	2D	5B	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
B_	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	5D	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
C_	7B	41	42	43	44	45	46	47	48	49	2D	2D	2D	2D	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
D_	7D	4A	4B	4C	4D	4E	4F	50	51	52	2D	2D	2D	2D	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
E_	5C	2D	53	54	55	56	57	58	59	5A	2D	2D	2D	2D	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
F_	30	31	32	33	34	35	36	37	38	39	2D	2D	2D	2D	2D	2D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

```
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Translate and Function Table Report                        Page  4

EBCDIC from ASCII (Tables 6&7)

    _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F
 0_ 00 01 02 03 37 2D 15 2F 16 05 25 0B 0C 0D 0E 0F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 1_ 10 11 12 13 3C 3D 32 26 18 19 3F 27 22 1D 1E 1F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 2_ 40 5A 7F 7B 5B 6C 50 7D 4D 5D 5C 4E 6B 60 4B 61
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 3_ F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 7A 5E 4C 7E 6E 6F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 4_ 7C C1 C2 C3 C4 C5 C6 C7 C8 C9 D1 D2 D3 D4 D5 D6
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 5_ D7 D8 D9 E2 E3 E4 E5 E6 E7 E8 E9 AD E0 BD B5 6D
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 6_ 79 81 82 83 84 85 86 87 88 89 91 92 93 94 95 96
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 7_ 97 98 99 A2 A3 A4 A5 A6 A7 A8 A9 C0 4F D0 A1 07
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 8_ 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 9_ 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 A_ 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 B_ 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 C_ 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 D_ 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 E_ 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 F_ 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

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Translate and Function Table Report Page 5

EBCDIC from DSC (Tables 8&9)

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	40	40	0C	15	60	0D	ED	EE	6E	4C	AD	BD	5D	4D	D0	C0
	06	01	02	03	00	05	00	00	00	00	00	00	00	00	00	00
1_	40	7E	7D	7F	61	E0	4F	6A	6F	5A	5B	4A	43	44	45	46
	00	1D	00	00	00	00	00	00	00	1E	00	12	00	00	00	00
2_	F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	47	48	7B	7C	6C	6D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3_	50	60	4B	6B	7A	4E	5F	49	51	52	53	A1	54	79	55	56
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
4_	57	58	59	62	63	64	65	66	67	68	69	70	CE	CF	DD	DE
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
5_	75	76	77	78	80	8A	8B	8C	8D	8E	8F	90	9A	9B	9C	9D
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
6_	9E	9F	A0	AA	AB	AC	41	AE	AF	B0	B1	B2	B3	B4	B5	B6
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
7_	B7	B8	B9	BA	BB	BC	42	BE	BF	CA	CB	CC	CD	DF	DB	DC
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
8_	81	82	83	84	85	86	87	88	89	91	92	93	94	95	96	97
	00	00	00	00	00	00	00	00	1C	00	00	00	00	00	00	00
9_	98	99	A2	A3	A4	A5	A6	A7	A8	A9	E1	EA	EB	EC	EF	FE
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
A_	C1	C2	C3	C4	C5	C6	C7	C8	C9	D1	D2	D3	D4	D5	D6	D7
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
B_	D8	D9	E2	E3	E4	E5	E6	E7	E8	E9	FA	FB	FC	FD	5E	5C
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
C_	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19
D_	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19
E_	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19
F_	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19

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Translate and Function Table Report                        Page  6

EBCDIC from SCS (Tables A&B)

    _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F
 0_ 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
    1A 00 00 00 04 09 00 00 14 00 00 0B 02 05 00 00
 1_ 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
    00 00 00 00 00 03 08 00 00 01 00 00 00 00 0E 00
 2_ 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F
    00 00 00 00 00 0A 00 00 00 00 00 10 00 00 00 00
 3_ 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F
    00 00 00 00 00 15 16 00 00 00 00 00 00 00 00 00
 4_ 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F
    00 00 00 00 00 00 00 00 00 00 12 00 00 00 00 00
 5_ 50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F
    00 00 00 00 00 00 00 00 00 00 1E 00 00 00 00 00
 6_ 60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 7_ 70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 1D 00
 8_ 80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F
    00 00 00 00 00 00 00 00 00 1C 00 00 00 00 00 00
 9_ 90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 A_ A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 B_ B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 C_ C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 D_ D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 E_ E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 F_ F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

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Translate and Function Table Report Page 7

ASCII from DSC APL (Tables C&D)

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	20	20	0C	0A	FF	0D	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
	00	01	02	03	00	05	00	00	00	00	00	00	00	00	00	00
1_	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
2_	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3_	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
4_	FF	A1	E7	E8	E9	F0	F1	F2	F3	F5	F7	A0	AD	C2	AC	5B
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
5_	AE	AF	B0	B1	B2	B3	B4	B6	5C	B8	F9	C3	A9	5D	BE	7C
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
6_	7D	A3	A4	A5	A6	A7	A8	F8	AA	AB	FF	FF	FF	FF	FF	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
7_	7B	BA	BB	C0	C1	BD	BC	C4	C5	C6	FF	FF	FF	FF	F6	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
8_	FC	FF	C7	C8	C9	D0	D1	D2	D3	D4	FF	FF	FF	FF	FF	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
9_	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
A_	FF	FF	E6	9B	ED	EE	FB	FD	EF	E1	CA	CB	5E	E4	CC	CF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
B_	FF	FF	9E	21	FF	FF	DC	DD	FF	FF	DE	DF	FF	B5	EA	EB
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
C_	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
D_	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
E_	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
F_	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

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Translate and Function Table Report                        Page  8

ASCII from SCS APL (Tables E&F)

    _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F
 0_ FF FF FF FF FF 05 FF FF FF FF FF 05 05 05 FF FF
    1A 00 00 00 04 09 00 00 14 00 00 0B 02 05 00 00
 1_ FF FF FF FF FF 05 05 FF FF 05 FE FF FF FF 05 FF
    00 00 00 00 00 03 08 00 00 01 00 00 00 00 0E 00
 2_ FF FF FF FF FF 05 FF 1B 05 FF FF 05 FF FF FF FF
    00 00 00 00 00 0A 00 00 00 00 00 10 00 00 00 00
 3_ FF FF FF FF FF 05 80 81 82 83 84 85 86 87 88 89
    00 00 00 00 00 15 16 00 00 00 00 00 00 00 00 00
 4_ 8A A3 A4 A5 A6 A7 A8 F8 AA AB A2 8B 8C 8D 8E 8F
    00 00 00 00 00 00 00 00 00 00 12 00 00 00 00 00
 5_ CE BA BB C0 C1 BD BC C4 C5 C6 EC FF FF FF FF F4
    00 00 00 00 00 00 00 00 00 00 1E 00 00 00 00 00
 6_ FF FF C7 C8 C9 D0 D1 D2 D3 D4 FF FF FF FF FF FF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 7_ FF 5E 9B FF FF FF FF FF E4 FF FF FF FF FF FF FF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 1D 00
 8_ B5 AF FF FF FF FF FF FF FF FF A1 E6 E7 E8 E9 F0
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 9_ F1 FF FF FF FF FF FF FF FF FF F2 F3 90 F5 F6 F7
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 A_ A0 AF 2D E0 6E FF FF FF FF FF AD C2 AC 5B AE 9F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 B_ B0 B1 B2 B3 B4 FF B6 5C B8 FF F9 C3 A9 5D BE 7C
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 C_ 7B FF E2 2B FF FF 92 AC FF FF CA CB FF CC FF CF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 D_ 7D FF FF 2B FF FF 91 A9 FF FF 9E 21 DC DD DE DF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 E_ FF FF FF FF FF FF FF FF FF FF EA EB EC ED EE EF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 F_ FF FF FF FF FF FF FF FF FF FF FF FB FC FD E1 FF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

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Translate and Function Table Report Page 9

EBCDIC from DSC APL (Tables G&H)

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	00	00	0C	05	00	00	00	00	00	00	00	00	32	39	00	00
	00	01	02	03	00	05	00	00	00	00	00	00	00	00	00	00
1_	00	7E	00	00	33	00	00	00	37	00	00	00	00	00	00	00
	00	1D	00	00	00	00	00	00	00	1E	00	12	00	00	00	00
2_	3F	40	5B	5C	5D	5E	5F	60	7B	7C	00	00	00	00	35	36
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3_	31	00	30	34	38	7D	00	00	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
4_	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
5_	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
6_	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
7_	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
8_	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D	6E	6F	70
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
9_	71	72	73	74	75	76	77	78	79	7A	00	00	00	00	00	00
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
A_	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F	50
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
B_	51	52	53	54	55	56	57	58	59	5A	00	00	00	00	00	00
	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
C_	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19
D_	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19
E_	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19
F_	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19

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Translate and Function Table Report                    Page  10

EBCDIC from SCS APL (Tables I&J)

    _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F
 0_ 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
    1A 00 00 00 04 09 00 00 14 00 00 0B 02 05 00 00
 1_ 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
    00 00 00 00 00 03 08 00 00 01 00 00 00 00 0E 00
 2_ 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F
    00 00 00 00 00 0A 00 00 00 00 00 10 00 00 00 00
 3_ 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F
    00 00 00 00 00 15 16 00 00 00 00 00 00 00 00 00
 4_ 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F
    00 00 00 00 00 00 00 00 00 00 12 00 00 00 00 00
 5_ 50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F
    00 00 00 00 00 00 00 00 00 00 1E 00 00 00 00 00
 6_ 60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 7_ 70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 1D 00
 8_ 80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E 8F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 9_ 90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E 9F
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 A_ A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE AF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 B_ B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE BF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 C_ C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE CF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 D_ D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE DF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 E_ E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE EF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 F_ F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE FF
    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

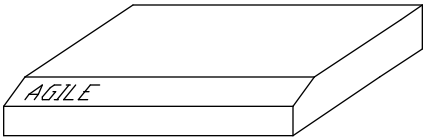
Printer Test Report

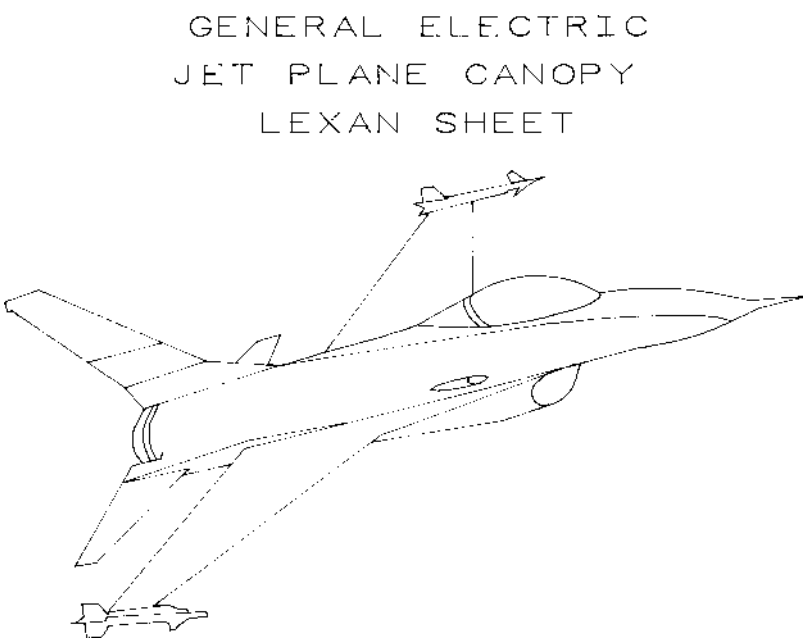
This page contains a sample Printer Test Report. A printer test checks the connection between the ALLY and the printer. To conduct this test, the ALLY sends the printer a continuous stream of characters, including alphabetic, numeric and special characters. Use Mode 8 on the front panel to send this test to the printer. The ALLY must be powered down to stop this operation.

```
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_‘abcdefghijklmnopqrstuvwxyz{|}~
```

Plotter Test Report

This page contains two sample Plotter Test Reports. The top image is an HPGL plotter test. The bottom image is a Zeta (GML) plotter test. A plotter test checks the connection between the ALLY and the plotter. Use Mode 9 on the front panel to send this test to the plotter.





Host Diagnostic Report

The following pages contain a sample Host Diagnostic Report. This report is useful for analyzing data streams. The data presented by this report is printed as it was sent by the establishment controller, unaltered by the ALLY. Use Mode F from the front panel to enter Host Diagnostic Mode. The ALLY must be powered down to halt this operation.

```
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Host Diagnostic Report                                          Page  1

     _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F

0000 00 00 00 00 00 00 00 00 00 00 00 00 1F 10 00 00
0010 00 15 00 50 07 81 03 05 50 00 00 00 00 00 00 00
0020 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0030 00 00 FF 00 FF 00 FF 00 FF 00 FF 00 FF 00 FF 00
0040 00 00 00 00 00 00 00 00 00 00 04 31 74 CC 00 00

     _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F

0050 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0060 10 E8 2F 2F 2F 2F 2F 2F 2F 2F 2F 2F 2F 2F 2F 2F

          _  _  _  _  _  _  _  _  _  _  _  _  _  _
0070 10 23 21 27 24 10 B3 84 92 93 10 AC 84 8D 94 10
       3  1  7  4     T  e  s  t     M  e  n  u
0080 2F 2F 2F 2F 2F 2F 2F 2F 2F 2F 2F 2F 2F 2F E0 10

      _  _  _  _  _  _  _  _  _  _  _  _  _  _
0090 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

00A0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

00B0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

00C0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

00D0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

00E0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

00F0 10 10 10 10 10 B3 84 92 93 10 10 10 10 10 10 A3
                     T  e  s  t                     D
0100 84 92 82 91 88 8F 93 88 8E 8D 10 10 10 10 10 10
      e  s  c  r  i  p  t  i  o  n
0110 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0120 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0130 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0140 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0150 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0160 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0170 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10
```

```
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Host Diagnostic Report                                          Page  2

     _0 _1 _2 _3 _4 _5 _ _7 _8 _9 _A _B _C _D _E _F

0180 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0190 10 10 10 10 10 10 10 20 10 10 10 10 10 10 10 B3
                          0                       T
01A0 84 91 8C 88 8D 80 8B 10 82 87 84 82 8A 10 10 10
      e  r  m  i  n  a  l     c  h  e  c  k
01B0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

01C0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

01D0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

01E0 10 10 10 10 10 10 10 21 10 10 10 10 10 10 10 A3
                          1                       D
01F0 88 92 8F 8B 80 98 10 84 95 84 8D 93 10 8B 8E 86
      i  s  p  l  a  y     e  v  e  n  t     l  o  g
0200 92 10 80 8D 83 10 91 84 92 8F 8E 8D 92 84 10 93
      s     a  n  d     r  e  s  p  o  n  s  e     t
0210 88 8C 84 10 8B 8E 86 10 10 10 10 10 10 10 10 10
      i  m  e     l  o  g
0220 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0230 10 10 10 10 10 10 10 22 10 10 10 10 10 10 10 A3
                          2                       D
0240 88 92 8F 8B 80 98 10 82 8E 8D 85 88 86 94 91 80
      i  s  p  l  a  y     c  o  n  f  i  g  u  r  a
0250 93 88 8E 8D 10 8F 80 8D 84 8B 92 10 10 10 10 10
      t  i  o  n     p  a  n  e  l  s
0260 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0270 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0280 10 10 10 10 10 10 10 23 10 10 10 10 10 10 10 23
                          3                       3
0290 22 27 20 10 83 84 95 88 82 84 10 92 93 80 93 94
      2  7  0     d  e  v  i  c  e     s  t  a  t  u
02A0 92 10 88 8D 85 8E 91 8C 80 93 88 8E 8D 10 10 10
      s     i  n  f  o  r  m  a  t  i  o  n
02B0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

02C0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

02D0 10 10 10 10 10 10 10 24 10 10 10 10 10 10 10 B1
                          4                       R
```

```
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Host Diagnostic Report                                          Page  3

     _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F

02E0 84 92 84 93 10 8B 8E 86 92 10 80 8D 83 10 82 80
      e  s  e  t     l  o  g  s     a  n  d     c  a
02F0 81 8B 84 10 84 91 91 8E 91 92 10 10 10 10 10 10
      b  l  e     e  r  r  o  r  s
0300 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0310 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0320 10 10 10 10 10 10 10 25 10 10 10 10 10 10 10 A3
                        5                          D
0330 88 92 8F 8B 80 98 10 95 88 93 80 8B 10 83 80 93
      i  s  p  l  a  y     v  i  t  a  l     d  a  t
0340 80 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10
      a
0350 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0360 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0370 10 10 10 10 10 10 10 26 10 10 10 10 10 10 10 A3
                        6                          D
0380 88 92 8F 8B 80 98 10 A2 8E 8D 93 91 8E 8B 10 A0
      i  s  p  l  a  y     C  o  n  t  r  o  l     A
0390 91 84 80 92 10 10 10 10 10 10 10 10 10 10 10 10
      r  e  a  s
03A0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

03B0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

03C0 10 10 10 10 10 10 10 27 10 10 10 10 10 10 10 A2
                        7                          C
03D0 8E 8B 8E 91 10 82 8E 8D 95 84 91 86 84 8D 82 84
      o  l  o  r     c  o  n  v  e  r  g  e  n  c  e
03E0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

03F0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0400 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0410 10 10 10 10 10 10 10 28 10 10 10 10 10 10 10 A4
                        8                          E
0420 97 93 84 8D 83 84 83 10 85 94 8D 82 93 88 8E 8D
      x  t  e  n  d  e  d     f  u  n  c  t  i  o  n
0430 92 10 80 8D 83 10 8F 91 8E 86 91 80 8C 10 92 98
      s     a  n  d     p  r  o  g  r  a  m     s  y
```

```
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Host Diagnostic Report                                          Page  4

     _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F

0440 8C 81 8E 8B 92 10 10 10 10 10 10 10 10 10 10 10
      m  b  o  l  s
0450 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0460 10 10 10 10 10 10 10 29 10 10 10 10 10 10 10 B3
                           9                       T
0470 8E 8A 84 8D 31 B1 88 8D 86 10 93 84 92 93 92 10
      o  k  e  n  -  R  i  n  g     t  e  s  t  s
0480 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0490 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

04A0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

04B0 10 10 10 10 10 10 21 20 10 10 10 10 10 10 10 AF
                        1  0                       P
04C0 8E 91 93 10 96 91 80 8F 10 93 84 92 93 92 10 10
      o  r  t     w  r  a  p     t  e  s  t  s
04D0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

04E0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

04F0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0500 10 10 10 10 10 10 21 21 10 10 10 10 10 10 10 B3
                        1  1                       T
0510 91 80 82 84 10 82 8E 8D 93 91 8E 8B 10 10 10 10
      r  a  c  e     c  o  n  t  r  o  l
0520 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0530 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0540 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0550 10 10 10 10 10 10 21 22 10 10 10 10 10 10 10 A0
                        1  2                       A
0560 92 98 8D 82 87 91 8E 8D 8E 94 92 10 84 8C 94 8B
      s  y  n  c  h  r  o  n  o  u  s     e  m  u  l
0570 80 93 88 8E 8D 10 80 83 80 8F 93 84 91 10 93 84
      a  t  i  o  n     a  d  a  p  t  e  r     t  e
0580 92 93 92 10 10 10 10 10 10 10 10 10 10 10 10 10
      s  t  s
0590 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10
```

```
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Host Diagnostic Report                                          Page  5

     _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F

05A0 10 10 10 10 10 10 10 A0 10 10 10 10 10 10 10 A0
                            A                     A
05B0 8B 84 91 93 92 10 10 10 10 10 10 10 10 10 10 10
      l  e  r  t  s
05C0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

05D0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

05E0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

05F0 10 10 10 10 10 10 10 A3 33 8D 10 10 10 10 10 A3
                            D  ,  n                 D
0600 94 8C 8F 10 83 84 95 88 82 84 10 8E 8D 10 8F 8E
      u  m  p     d  e  v  i  c  e     o  n     p  o
0610 91 93 10 8D 10 0D 8D 11 20 31 23 21 0C 10 10 10
      r  t     n     (  n  =  0  -  3  1  )
0620 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0630 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0640 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0650 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0660 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0670 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0680 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0690 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

06A0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

06B0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

06C0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

06D0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

06E0 E0 B2 84 8B 84 82 93 10 B3 84 92 93 BE 10 8F 91
        S  e  l  e  c  t     T  e  s  t  ;     p  r
06F0 84 92 92 10 A4 AD B3 A4 B1 10 11 11 11 08 C0 10
      e  s  s     E  N  T  E  R     =  =  =  >
```

```
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Host Diagnostic Report                                          Page  6

     _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F
     _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F

0700 10 10 10 10 10 10 10 10 10 10 00 00 00 00 00 00

0710 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0720 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

0730 E8 24 26 21 24 31 A8 8D 95 80 8B 88 83 10 88 8D
         4  6  1  4  -  I  n  v  a  l  i  d     i  n
0740 8F 94 93 10 10 10 10 10 10 10 10 10 10 10 10 10
      p  u  t
0750 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0760 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0770 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

0780 E0 AF A5 34 E0 23 11 B0 94 88 93 10 10 10 EC 27
         P  F  :     3  =  Q  u  i  t              7
0790 11 A1 80 82 8A 10 10 10 EC EC 11 A5 96 83 10 10
      =  B  a  c  k                 =  F  w  d
07A0 10 EC 21 22 11 B3 84 92 93 10 AC 84 8D 94 10 10
           1  2  =  T  e  s  t     M  e  n  u
07B0 10 E0 10 10 10 10 10 10 10 10 10 10 10 10 10 10

07C0 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10

07D0 E0
```

```
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Host Diagnostic Report                                    Page  7

     _0 _1 _2 _3 _4 _5 _6 _7 _8 _9 _A _B _C _D _E _F

0000 00 04 00 00 00 00 00 00 00 00 00 00 1F 10 00 00
0010 00 00 00 00 00 00 02 00 50 00 00 00 00 00 00 00
0020 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0030 00 00 FF 00 FF 00 FF 00 FF 00 FF 00 FF 00 FF 00
0040 00 00 00 00 00 00 00 00 00 00 04 31 74 CC 00 00
```

Hexadecimal to Decimal Conversion Chart

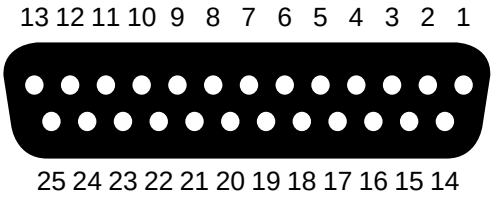
This chart illustrates the conversion of decimal values to their hexadecimal equivalents. Since configuration options must be entered in hexadecimal, this chart is useful for setting page margins, etc. The characters in the top row represent the least significant hexadecimal digit. The characters in the left column represent the most significant hexadecimal digit. To use the chart, find the decimal number in the body of the chart. Move across the chart to the left and find the most significant digit of the equivalent hexadecimal value. Move up the chart from the decimal value to find the least significant digit of the equivalent hexadecimal value. Combine the most significant and least significant digits to form the hexadecimal value.

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1_	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2_	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3_	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4_	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5_	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6_	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7_	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8_	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9_	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A_	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
B_	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C_	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D_	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E_	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F_	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Pin-out Charts

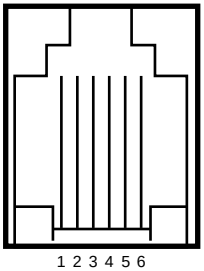
These charts illustrate the pin-outs of each of the ALLY PLUS I/O ports.

Parallel Ports



1 = Strobe	6 = Data 5	11 = Busy
2 = Data 1	7 = Data 6	12 = Printer Error
3 = Data 2	8 = Data 7	13 = Select
4 = Data 3	9 = Data 8	15 = Fault
5 = Data 4	10 = Acknowledge	16 = Init

Serial Ports



1 = NC

2 = TXD → (Transmit Data)

3 = RXD ← (Receive Data)

4 = CTS → (Clear To Send)

5 = RTS ← (Ready To Send)

6 = GND (Ground)

GLOSSARY

A

AC adapter	Converts alternating current to direct current.
AFP	Advanced Function Printing.
AFPDS	Advanced Function Printing Data Stream.
APL	A Programming Language.
ASCII	American Standard Code for Information Interchange. A 7-bit standard character code used for interchanging data between communications equipment.

B

Backspace	Moves the print position one column to the left.
Battery-backed RAM	A non-volatile temporary means of storage. The ALLY uses it to store configuration parameters.
Baud rate	A unit for measuring serial data transmission speed.
Binary	A base 2 numbering system.
Bit	A binary digit. The smallest unit of binary information. Either a 0 or a 1.
BM	Bottom margin.
BNC connector	A type of coaxial cable end.
Bold	A typestyle in which the strokes of the characters are thicker than normal.
Bottom margin	The last line on which the ALLY will allow a character to be printed.
Break	An interruption of a transmission.
BS	Backspace.
Buffer	A block of internal memory that stores information until it is ready to be used.

Byte	A unit of information consisting of eight binary bits. Character codes are often represented in bytes.

C

C0 05 header	Two DSC characters that some applications send to the printer.
Carriage Return	A control character that (unless set to be interpreted as a line end) causes the printer to begin printing at the left margin of the current line.
Centronics	The printer manufacturer that produced the parallel interface that is now the industry standard. Also used to refer to the interface itself.
Cluster controller	A down-line processor that collects data from a number of low-speed devices, then transmits the concentrated data over a single communications channel.
CNT	Count. The number of bytes in a command string.
Coax	Coaxial cable. The type of cable used to interface the ALLY with the controller. Standard RG62 A/U coax is recommended for use in the 3270 IDS.
Column	The vertical members of one line of an array.
COM port	The serial port on a PC.
COM port adapter	A cable adapter that allows a standard DB-25 serial cable to be connected to the RJ-12 serial port of the ALLY.
Configuration	To assemble a collection of hardware and software into a system and to adjust each of the parts so they work together.
Control code	A byte of information representing a print instruction (e.g., a tab).

Control Unit	The portion of the CPU that directs the step-by-step operation of the entire computing system.
Count byte	A byte that indicates the number of bytes to follow in an escape sequence.
CPI	Characters per inch.
CR	Carriage return.
CR/LF	Carriage return/line feed.
CRT	Cathode ray tube. A video display terminal.
CTS	Clear to send. A hardware handshaking method in serial interfacing.

D

Data bits	Word length. The number of data bits in a word.
Data stream	Information transmitted between the host system and the ALLY.
DB-25	A plug with 25 male or female pins, most commonly used with a serial interface.
Decimal	A base 10 numbering system.
Default	Formatting configurations that are present and are used automatically when no other information is available.
Delimit	To mark the beginning and end of a character string.
Diagnostic	A routine designed to verify the operation of a system and to find a malfunction in a device.
DisplayWrite 370	An IBM word processing application that supports bolding, underlining and overstriking.
DPA	Display printer adapter.
DSC	Data stream compatible. A pre-SNA protocol.

E

EAB	Extended Attribute Buffer. A feature found in many IBM 3287 printers that "extends" the number of characters available for transmission to the printer.
EBCDIC	Extended Binary Coded Decimal Interchange Code. An eight bit character code.
EC	Establishment controller.
EM character	End of message marker.
Emulation	A hardware or software product imitating the function of another hardware or software product.
End of Message	A character that represents the last character of a message.
EPROM	Erasable programmable read-only memory. The storage medium for the ALLY firmware.
Esc	Escape control character. A non-graphic (unimaged) code that signals the transmission of control information to the ALLY.
Esc c1 - c3	Escape sequences used by certain Xerox applications for printer tray selection.
Establishment controller	See "cluster controller."
Exception condition	A printing problem in an SNA environment.
Extended ASCII	Some printer manufacturers have implemented their own version of 8 bit transmission. Extended ASCII allows 128 additional characters to be displayed by the printer.

F

FCC	Federal Communications Commission.
FF	Form feed.

Firmware	The pre-programmed EPROMs installed in the ALLY (the internal software).
Flow control	Serial communication handshaking.
Form feed	A control code that instructs the printer to process the current page and print it; a page end. The physical transport of paper to the beginning of a new page.

G

GDDM	Graphical Data Display Manager. An IBM graphics software product.
GML	Graphic Machine Language.
Graphic Windows	A feature of Xerox printers.

H

Handshaking	An exchange of signals between two devices in a computer network, as a prelude to a data exchange. The method of flow control used in serial interfacing.
Hardware	Any physical device in a computer network.
Hewlett-Packard	A California company that produces a wide range of computer equipment and peripherals.
Hexadecimal	A base 16 numbering system. Numbers are represented using digits 0-9 and letters A-F.
Horizontal tab	Moves the presentation position horizontally to the next tab stop to the right.
Host	The system that transmits information to the ALLY. IBM coax host.
HP	Hewlett-Packard.
HPGL	Hewlett-Packard Graphics Language. A language used to transfer graphic information to an HP or HP-compatible plotter.

HT	Horizontal tab.

I

IBM	The world's largest manufacturer of computing equipment.
IBM 35 Hex transparency	A standard form of transparency used in SCS data streams.
IFS	Interchange file separator.
IGS	Interchange group separator.
Infinite line length	An ALLY feature that allows printing past the default of 132 characters per line for printers that support this capability.
Infinite page length	An ALLY setting that allows the host application to perform page control.
Initialization	To preset to proper starting values.
Input	The introduction of data from an input device to the computer's main memory.
Input device	A unit used to enter data.
Interchange separator	A command used to delimit information strings in SCS data streams (IFS, IGS, IRS, IUS).
Interface	The method by which different types of devices are linked to each other for communication (e.g., serial, parallel, coax).
Intervention required	The message sent to the host system when an error condition exists at the printer (e.g., paper jam).
Invalid character	In hexadecimal, any character other than numerals 0-9 and letters A-F.
IR	Intervention required.
IRS	Interchange record separator.
IUS	Interchange unit separator.

L

Laserpage	A mainframe software product that allows high-resolution AFP-generated text and graphics to be printed on Xerox and Hewlett-Packard printers without installing IBM PSF.
Least significant digit	The digit representing the least value (e.g., in 1024, the 4 is the least significant).
LED	Light emitting diode. Emits light when voltage is applied. Used on the ALLY front panel to indicate modes.
Left margin	The number of the first column at which a character can be printed on a page.
LF	Line feed.
Line density	Vertical spacing, or the number of lines per inch that can be printed on a page.
Line Feed	A control code that advances the print position down by one line.
LM	Left margin.
Local Copy	A screen print operation from a coax-attached terminal that goes directly through the controller to the ALLY and the printer.
Log mode entry	Interface information required by the host for each attached device.
Logical buffer	RAM used to display a displayable or printable image.
Logical Unit Number	A number assigned to a physical device for identification purposes.
LU1	Logical Unit Type 1 (SCS compatible).
LU3	Logical Unit Type 3 (DSC compatible).

M

Mainframe	A large, expensive computer generally used for information processing in large businesses, colleges and other organizations. The largest, fastest and most expensive class of computers.
Margin	The number of spaces between the edges of a page and the beginning of text.
Maximum presentation line	The number of the last physical line on the page.
Maximum presentation position	The number of the rightmost character position on the physical page.
Metacode	A Xerox printer command code.
Mode	A method of controlling the ALLY using a pushbutton on the front panel. The mode number is indicated by a seven-segment LED.
Most significant digit	The digit representing the greatest value (e.g., in 1024, the 1 is the most significant).
MPL	Maximum presentation line.
MPP	Maximum presentation position.

N

New Line	A printer operation consisting of a carriage return (CR) and a line feed (LF).
NL	New line.
Normal operating mode	The ALLY mode in which host data may be accepted.
Null	00h. Output by the ALLY as a space.
Null line	A line in the data stream containing only null characters.

O

One-trigger	A form of pseudo transparency that uses a single trigger character followed by a count byte that indicates the length of the escape sequence.
Option	An ALLY configuration parameter for which the user can make a choice.
Output	Data transferred from a computer's internal storage to an output device.
Output device	A unit that takes data output from a computer and presents it in the form desired by the user.
Overstrike	A DisplayWrite 370 function in which two characters may be printed in the same presentation position.

P

PA1	Program attention key 1.
PA2	Program attention key 2.
Page control	The method by which page boundaries (margins) are determined. Page control may be done either by the host application or by the ALLY.
Parallel interface	8 bits of a byte are transmitted simultaneously through 8 parallel wires.
Parity	A bit added to a data word that is used for error checking. Simple parity can be either odd or even.
PFS	Programmable function string.
Plotter	An output unit that graphs data by automatically controlled pens.
POR	Power on reset.
Power on reset	The method by which a peripheral device announces to the host that it is ready.
Presentation line	The number of the line that is the current presentation position.

Presentation position	The line and column number of the current position on the page.
Presentation surface	Represents a single page of printed output.
Printer	An output device that produces hard copy output.
Program attention key	Found on displays and printers, these keys inform the host of operator actions.
Programmable function string	An instruction string used by the ALLY to activate printer features.
Protocol	A set of rules governing the format of data and the control of information interchange between two communicating devices.
Protocol converter	A device that takes input in one data communications format and outputs the data in another communications format.
Pseudo transparency	A form of transparency used by the ALLY and available in both SCS and DSC data streams. One-trigger and two-trigger methods are provided.
PSF	Print Services Facility.
PTM	Pseudo transparency mode.

R

RAM	Random access memory. Used for temporary storage of information.
Rasterizer	A device that converts an image sequentially line by line, instead of by vector.
Reset	To return components to a specified static state.
RG62 A/U	Standard coaxial cable interface used by host systems.
Right margin	The last column at which data can be printed on a page.

RJ-12	A serial interface using standard modular telephone jacks.
RM	Right margin.
ROM	Read-only memory.
RTS	Ready to send. A hardware handshaking method in serial interfacing.

S

SCS	SNA character string. EBCDIC control codes that are used to format data.
Sense codes	An SNA code that describes an exception condition.
Serial interface	A type of interface in which bytes are transmitted one bit at a time over a single wire, and which can function over great distances.
Set horizontal format	The SCS command that describes left and right margins and horizontal tab stops.
Set vertical format	The SCS command that describes top and bottom margins and vertical tab stops.
SHF	Set horizontal format.
SLD	Set line density.
Slow poll mode	A device connected to an establishment controller may enter this mode when communication with the EC has ceased.
SNA	System network architecture. An IBM communication standard.
Space	A print position where no character is printed.
Stop bits	A bit or group of bits that indicates the end of a data word and defines the space between data words.
SVF	Set vertical format.

System printer	The printer designated as the primary printer in a mainframe environment.

T

T1-Tn	The character positions of the horizontal or vertical tab settings, if any.
Tab	A carriage control that specifies output columns and rows.
Terminator	A character or sequence of characters that indicates the end of a data string that is variable in length.
TM	Top margin.
Top margin	The topmost position on a page where a character can be printed.
Translate tables	Look-up tables used by the ALLY to translate data input into the desired data output.
Transparency	A method of embedding unprinted printer control code escape sequences in a host data stream using normally printable characters.
Trigger	The character(s) that indicates the beginning of a transparent command.
TRN	Transparency.
Two-trigger	A type of pseudo transparency that uses a sequence of two normally printable characters as the trigger, and which is ended with a terminator.

U

UDK	User-defined key. Feature used in Xerox laser printers to define a substitute escape character.
ULTRA	An AGILE protocol converter that allows industry standard serial and parallel ASCII and EBCDIC printers to be attached to a 3270-type controller and to serial and parallel alternate hosts.

V

VCS	Vertical channel select.
Vertical channel select	An SCS command that the ALLY outputs as one or more CR/LF sequences.
Vertical Tab	Moves the presentation position down to the next vertical tab stop.
VT	Vertical tab.
VTAM	Virtual telecommunications access method.

W

Word length	The number of data bits in a word.

X

XDPM	Xerox Decentralized Print Mode.
Xerox	A large manufacturer of computers, printers, peripherals and other electronic equipment.
Xerox 36 Hex transparency	A form of transparency used by some Xerox applications in which the trigger is 36h.
XES	The native print mode for Xerox 2700, 3700, 4030, 4045 and 4213 printers. Also available on 4235 printers in XDPM mode.
XON/XOFF	Serial communication handshake protocol using ASCII DC1/DC3 character codes. A “software” handshake protocol.
XPAF	Xerox Printer Access Facility.

Z

Zeta	A plotter manufacturer.