A **Raytheon** E-Systems Company

THE AML/E Library

Planning Guide

Document number: 600139-C
Published: 10 Oct 1996

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Introduction

Overview

This manual contains information that outlines the AML/E library [1]. The topics discussed in this section of the manual are:

- Overview
- Intended Audience
- Organization
- Associated Documents
- Assistance

Intended Audience

This manual is prepared for salespersons and prospective purchasers of the AML/E library.

Organization

This manual contains chapters detailing the AML/E library. The chapters include:

Chapter 1	Introduction - Describes the overview, intended audience, organization, associated documents, and where to acquire additional assistance.
Chapter 2	System Description - Describes general information about the AML/E library components.
Chapter 3	System Specifications - Describes the physical and electrical specifications of the AML/E library components.
Chapter 4	System Configuration - Describes the structure of the basic AML/E library and optional components available for the AML/E library.
Chapter 5	Survey Data - Provides space for planning physical, electrical, and environmental requirements. This information is required by the installation team.

1. AML/E is a trademark of EMASS, Inc. Throughout the remainder of this document, we refer to AML/E library as AML/E

Associated Documents

600025	AML/E Maintenance Guide
600026	AML/E Operator Guide
600027	AML/E Installation Guide
600300	AML Hardware Configuration Information
600302	Product Order Information
600307	AMASS Documentation Set
600308-01	VolServ Documentation Set (for SGI)
600308-02	VolServ Documentation Set (for SUN)
600309	FileServ Documentation Set (for SGI)
600255-01	FileServ Documentation Set (for Convex)
600333	HCC-MVS Documentation Set
600336	DataMgr Documentation Set

Assistance

If questions cannot be solved with the aid of this document or the immediate salesperson, contact the EMASS Technical Assistance Center (ETAC).

- United States 1-800-827-3822 (1-800-TAP-ETAC)
- Germany 0-130-817-021
- United Kingdom 0-800-893-179

2

System Description

Overview

The EMASS Automated Media Library (AML) is a fully automated, robotic media library that offers an enterprise solution to data management and backup. An example of an AML/E configuration is shown in Figure 2-1.

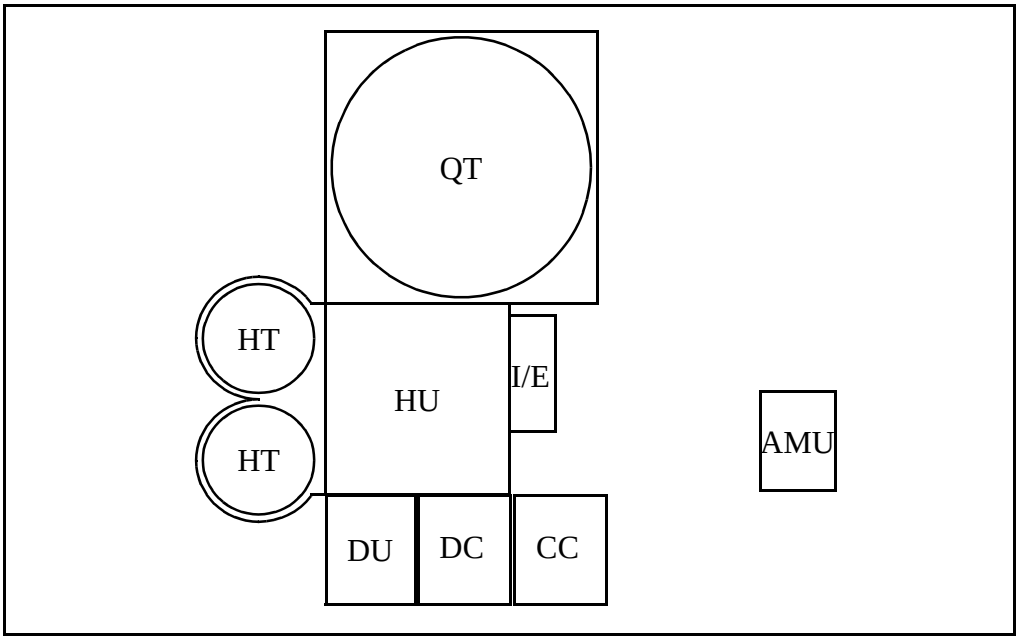

Figure 2-1 AML/E Example Configuration

The AML/E configuration legend is as follows:

QT	Quadro Tower
HT	Hexa Tower
HU	Handling Unit Robot
I/E	Insert/Eject Unit (I/EF)
DU	Drive Unit
DC	Optional Drive Control (if required for drive unit)
CC	Control Cabinet
AMU	Archive Management Unit (AMU)

System Operational Flow

Major system operational components include the following:

- Host
- AMU
- Controller

The basic operational philosophy of the AML/E is that the host system is always the master. During normal processing, all commands originate from the host system.

When the host software determines that a media library action is necessary, it creates the appropriate command string and sends it to the AMU for processing. The AMU receives and interprets the host command then issues appropriate commands to the Controller hardware.

The Controller hardware provides the movement signals for the Handling Unit and Storage Segments. After completing the actions, the Controller hardware returns status to the AMU. When all Controller status is returned, the AMU reports an overall result to the host system.

Hardware Components

The main hardware components of the AML/E library are the:

- AMU
- Handling Unit
- Storage Segments
- Control Cabinet
- Insert/Eject (I/E) Unit
- Modem

AMU

The AMU is the central interface of the AML/E library. The AMU maintains a copy of the library drives and media information in a relational database. During normal operations, the host computer directs the AML/E library. The AMU hardware and software components operate transparently.

Hardware Component

AMU hardware consists of:

- a computer with a color monitor, a mouse, and a keyboard
- a Token Ring, Ethernet, or FDDI Adapter
- an ARTIC control interface card

— and / or —

- a 3270 emulation card

— and / or —

- Dual Asynchronous Adapter

Software Component

The AMU software components are:

- OS / 2 Operating System
- Communication Manager / 2, TCP / IP
- Database Manager / 2
- AMU Archive Management Software (AMS). For additional information, refer to *Archive Management Software Support* on page 2-18.

Handling Unit

The Handling Unit accomplishes the mechanical access to the physical library storage and the drives via a robot. See Figure 2-2. The Handling Unit executes the AMU commands and returns status messages.

Figure 2-2 Handling Unit

Robot

Media movements are performed by a robot. The robot is equipped with a multimedia gripper and a laser barcode scanner. See Figure 2-3. Typical movements include moving media into and out of the library, storing and retrieving media within the library, mounting and dismounting media from drive units, and scanning media barcode labels.

Components of the robot system include:

- Multimedia gripper
- Laser barcode scanner
- Robot X Axis platform
- Robot Y Axis column

Figure 2-3 Robot Gripper with Barcode Scanner

Storage Segment

The AML/E product line consists of a family of storage components that can be combined to provide a storage solution with the optimal balance between capacity and performance. The family includes the Quadro Tower, Hexa Tower, and Linear Racks.

Quadro Tower

A Quadro Tower provides the largest media density in a library. See Figure 2-4. The AML/E library can be configured to include up to two Quadro Towers.

Each Quadro Tower consists of:

- eight storage surfaces within the main rotating tower
- 24 additional storage surfaces arrayed on four independent rotating auxiliary towers
- the number of positions per row depends on the media type

Figure 2-4 Quadro Tower

Hexa Tower

Hexa Towers are ideally suited for large media libraries.The AML/E media library can contain a maximum of two Hexa Towers enclosures for a total of four Hexa Towers. See Figure 2-5.

Each Hexa Tower consists of:

- six storage surfaces within the main rotating tower
- the number of media positions per row depends on the media type

Figure 2-5 Hexa Tower

Linear Racks

Linear Racks are suited for smaller media libraries. See Figure 2-6. Two Linear Racks are maximum. Each Linear Rack consists of:

- three segments
- the number of positions per row depends on the media type

Figure 2-6 Linear Rack

Control Cabinet

Movement control signals are provided by the Control Cabinet. See Figure 2-7. The control cabinet contains:

- Drive amplifier and power supply
- Rho control unit
- Power distribution panel
- Interface modem
- Frequency converters
- Connector Panel

Figure 2-7 Control Cabinet

Universal Drive Cabinet

The Universal Cabinet is designed to house drive unit and optional drive controllers. See Figure 2-8.

Figure 2-8 Universal Cabinet

Insert/Eject Unit

Media are inserted into and ejected from the AML/E through the I/E Unit. The media are loaded by an operator into bins. The capacity of the bins are determined by the type of media.

The I/E Unit incorporates a media depository that stores unidentified volumes, defective media, and used cleaning devices. See Figure 2-9.

Figure 2-9 Insert/Eject Unit

Software Components

EMASS software organizes and manages the AML/E. This software makes automated data manipulation possible without interfering with the performance of host system. EMASS software automatically receives messages, coordinates tasks, manages and updates the library database, and provides recovery from media errors.

EMASS software can be tailored for many different library configurations. In addition, it can be reconfigured to accommodate an expanding library.

MVS Support

Unlimited MVS system images support is provided by Host Control Component (HCC-MVS) software. This software integrates transparently with MVS S/370, S/390, and Sysplex environments.

Host Control Component (HCC) Software

Media functions are routed from the host computer to the AMU AMS software. Media functions supported by HCC software include the following:

- Mount/Keep operations
- Volume insertion/ejection
- Administration of media transport cleaning
- Media label initialization and verification
- Automatic reply to outstanding Write to Operator with Reply (WTOR)
- Scratch media management

Communications functions between the host and AMU AMS software are provided by the following means:

- Local or remote VTAM LU2 (standard 3270 support)
- EXCP standard console communication (local NON-SNA 3x74 control unit)
- LU6.2 (APPC via Token-Ring or Ethernet adapter)

Minimum software requirements to support EMASS software in the MVS environment include the following:

- MVS-SP1.3.6 for JES2
- MVS-SP2.2 for JES3
- SMP/E
- Assembler H
- Standard MVS utilities

Additional detailed information is provided in the part number *600333 HCC-MVS Documentation Set* manuals.

UNIX Support

Software solutions to accessing a media libraries are implemented through the UNIX virtual file system layer.

AMASS Software

AMASS software presents the AML/E library as a single on-line logical device with a single mounted filesystem. The movement and mounting of volumes are transparent to the user. The AMASS software provides the following features:

- Implemented as a virtual file system (VFS) layer of the host operating system
- File and directory information resides in an on-line database provided through standard UNIX utilities
- Automatic allocation of volume space
- Access to and administration of files are
- Raw cache partitioning provides high performance and simultaneous access by multiusers and applications

Files are accessible across the network through standard communication protocol. The protocols include:

- NFS
- TCP/IP
- RCP
- FTP
- Telnet
- HYPERchannel

Requirements to support AMASS software are platform dependent. Additional detailed information is provided in the part number *600307 AMASS Documentation Set* manuals.

DataMgr Software

DataMgr is an integrated, layered, file migration application that requires and operates with AMASS software. DataMgr provides the following features:

- Fully distributed architecture
- File migration from expensive magnetic disk space to inexpensive storage media
- Transparent access to the migrated files
- Convenient access to migrated data during reloads
- Flexible migration policies determine the criteria for file relocation
- File replication across distributed servers
- Multi-tier migration

Additional detailed information is provided in the part number *600336 DataMgr Documentation Set* manuals.

FileServ Software

FileServ software balances on-line media with stored library media for quick access to data. The FileServ software provides the following features:

- The data on the media is accessed via standard UNIX operations using filesystem(s) as tracking points
- Tracks multiple users of the same file to prevent multiple mount actions
- File migration from expensive magnetic disk space to inexpensive storage media
- Transparent access to the migrated files
- Flexible migration policies determine the criteria for file relocation
- Media error are retained as a means to identify suspect defective media

Files are accessible across the centralized or distributed environments through:

- Ethernet
- FDDI
- HYPERchannel
- UltraNet®

Requirements to support FileServ software are platform dependent. Additional detailed information is provided in the part number *600309 FileServ Documentation Set (for SGI)* manuals and the part number *600255-01 FileServ Documentation Set (for Convex)* manuals.

VolServ Software

VolServ software handles volume manipulation by class of data and media migration. The Volserv software provides the following features:

- Provides a robotic independent interface to a variety of robotic systems
- Determines on-line or stored media volume location
- Issues manual or robotic commands to retrieve and mount media
- Allows multiple clients to share a single media library
- User defined classes of media can share a media library
- Supports multiple media types
- Pools drives to allow drives to shared among clients
- User defined migration policy allows media to be migrated between on-line and off-line storage

Once a media volume is mounted, the files are accessible across the centralized or distributed environments through:

- Ethernet
- FDDI
- HYPERchannel
- UltraNet®

Requirements to support VolServ software are platform dependent. Additional detailed information is provided in the part number *600308-01 VolServ Documentation Set (for SGI)* and the part number *600308-02 VolServ Documentation Set (for SUN)* manuals.

DAS software

The distributed AML Server (DAS) is a software product with both client and server components. The server software modules support the OS/2 operating system platform and the client software modules support UNIX/AIX operating system platforms. They communicate from the UNIX/AIX clients to the OS/2 DAS server (AMU controller PC) across a TCP/IP connected network.

DAS allows client systems to request actions on selected media within the AML system. DAS performs the following requested actions:

- mounts media in a driver
- dismounts media from a drive
- inserts media into the library
- ejects media from the library

Requirements to support DAS software are platform dependent.

Archive Management Software Support

Operating in the OS/2 environment, AMU software consists of five proprietary operational processes and two proprietary utility processes. The task of each of the seven processes are listed below:

- Communication with host computer, robot control, Quadro Tower control, and Hexa Tower control
- Management of the library catalog using Source Query Language (SQL) database
- Kernel logic converts host commands into control commands
- User interface for operator requests
- Log and trace connection
- Database backup facility
- Remote file transfer

In normal (Automatic) operating mode, the host computer directs the AML/E and the AMU software operates transparently. Usually, commands are only input at the AMU console through the Graphical User Interface (GUI) for direct operator intervention.

3

System Specification

Overview

This section contains the following information for the AML/E library:

- Physical Specifications
- Electrical Specifications
- Performance Specifications
- Environmental Specification
- Regulatory Specifications
- Media Quantity Specifications
- Flooring Requirement
- Barcode Requirement

Physical Specifications

Table 3-1 lists the key physical information for the components of the AML/E library.

Table 3-1 AML/E Component Physical Dimensions

Device	Height	Width	Depth	Maximum Weight	Load
AMU	44 inches	24 inches	24 inches	60 lbs	negligible
Handling Unit	80 3/4 inches	57 inches	57 inches	959 lbs	43 lbs/sq ft
	95 5/8 inches	57 inches	57 inches	1047 lbs	47 lbs/sq ft
	110 3/4 inches	57 inches	57 inches	1135 lbs	51 lbs/sq ft
Handling Unit with I/E Unit	80 3/4 inches	57 inches	68 inches	1369 lbs	51 lbs/sq ft
	95 5/8 inches	57 inches	68 inches	1457 lbs	55 lbs/sq ft
	110 3/4 inches	57 inches	68 inches	1545 lbs	58 lbs/sq ft
Handling Unit with I/E Unit and Linear Rack	80 3/4 inches	57 inches	68 inches	1667 lbs	62 lbs/sq ft
	95 5/8 inches	57 inches	68 inches	1843 lbs	69 lbs/sq ft
	110 3/4 inches	57 inches	68 inches	2019 lbs	75 lbs/sq ft

Table 3-1 AML/E Component Physical Dimensions (Continued)

Device	Height	Width	Depth	Maximum Weight	Load
Quadro Tower	80 3/4 inches	88 inches	88 inches	7187 lbs	134 lbs / sq ft
	95 5/8 inches	88 inches	88 inches	7939 lbs	148 lbs / sq ft
	110 3/4 inches	88 inches	88 inches	8686 lbs	162 lbs / sq ft
Hexa Tower	80 3/4 inches	73 inches	37 1/2 inches	893 lbs	44 lbs / sq ft
	95 5/8 inches	73 inches	37 1/2 inches	1098 lbs	58 lbs / sq ft
	110 3/4 inches	73 inches	37 1/2 inches	1120 lbs	59 lbs / sq ft
Control Cabinet	73 inches	24 inches	24 inches	551 lbs	138 lbs / sq ft
Universal Drive Cabinet	77 3/4 inches	24 5/8 inches	36 inches	985 lbs [a]	75 lbs / sq ft

a. Includes the weight of the heaviest available drive.

Electrical Specifications

Table 3-2 lists the key electrical information for the components of the AML/E library.

Table 3-2 AML/E Component Electrical Specifications

Device	Voltage (Single Phase)	kVA	AMP	BTU	Receptacle
AMU	120 VAC	0.15	2	762	L5-15R
Handling Unit	208 VAC	0.1	0.5	305	Control cabinet
Quadro Tower	208 VAC	0.03	0.14	91	Control cabinet
Hexa Tower	208 VAC	0.03	0.14	91	Control cabinet
Linear Rack	Not Applicable				
Control Cabinet	208 VAC	0.4	1.9	1219	L6-20R
I/E Unit	208 VAC	0.01	0.05	30	Control cabinet
Universal Drive Cabinet [a]	208 VAC	0.01	0.05	30	L6-15R
	120 VAC	0.01	0.05	30	L5-15R

a. Drives not included.

Table 3-3 AML/E Drive Component Electrical Specification

Device	Voltage (Single Phase)	AMP	BTU
EMASS 8490	120 VAC	5	225
EMASS 8590	120 VAC	3	1024
EMASS DLT4002	120 VAC	2	340
EMASS DTF1242	120 VAC	3	598
EMASS ER90	120 VAC	2	1760

Performance Specifications

Table 3-4 lists the key performance information for the AML/E library.

Table 3-4 AML/E Performance Specifications

Avg Actions per Hour	Peak Actions per Hour	Avg Time to Present Media	Max Time to Present Media	Pick Time
300	400	2.5 seconds	6 seconds	3 seconds

Environmental Specifications

Table 3-5 lists the key environmental information for the AML/E library.

Table 3-5 AML/E Environmental Specifications

Temperature	Humidity	Altitude
Minimum to Maximum: 60° - 90° F (16° - 32° C) Recommended: 70° - 75° F (21° - 24° C)	Minimum to Maximum: 15 - 75 percent Recommended: 45 -65 percent	No limit

Regulatory Specifications

Table 3-6 lists the key safety and electromagnetic regulatory information for the AML/E library.

Table 3-6 AML/E Regulatory Specifications

Safety			EMC - EMI	
North America		Europe	North America	Europe
UL	CSA	TUV Rhineland	FCC, Part 15	CE Mark
UL1950 - ITE	C22.2 #950	EN60950	Class A	Class A

Media Quantity Specifications

Table 3-7 lists the quantity of media contained by the storage devices for the AML/E library. Refer to the part number *600300 AML Hardware Configuration Information* manual for the amount of data that can be stored.

Table 3-7 AML/E Component Media Quantity Specifications

Media	Device Height	Media Quantity		
		Quadro Tower	Hexa Tower	Linear Rack
Half-Inch Cartridge	80 3/4 inches	3840	720	360
	95 5/8 inches	4800	900	450
	110 3/4 inches	5760	1080	540
D-2 small Cassette	80 3/4 inches	1344	252	126
	95 5/8 inches	1728	324	162
	110 3/4 inches	2112	396	198
D-2 Medium Cassette	80 3/4 inches	960	180	90
	95 5/8 inches	1152	216	108
	110 3/4 inches	1344	252	126
ST-120 Cassette	80 3/4 inches	1792	336	168
	95 5/8 inches	2048	384	192
	110 3/4 inches	2560	480	240
DLT Cartridge	80 3/4 inches	2816	528	264
	95 5/8 inches	3584	672	336
	110 3/4 inches	4096	768	384
8-MM Cartridge	80 3/4 inches	3456	648	324
	95 5/8 inches	4320	810	405
	110 3/4 inches	5184	972	486
4-MM Cartridge	80 3/4 inches	4928	924	462
	95 5/8 inches	6336	1188	594
	110 3/4 inches	7744	1452	726

Table 3-7 AML/E Component Media Quantity Specifications (Continued)

Media	Device Height	Media Quantity		
		Quadro Tower	Hexa Tower	Linear Rack
Optical Disk 512	80 3/4 inches	2816	528	264
	95 5/8 inches	3872	726	363
	110 3/4 inches	4576	858	429
Optical Disk Reflection	80 3/4 inches	3072	576	288
	95 5/8 inches	4224	792	396
	110 3/4 inches	4992	936	468
DTF small Cartridge	80 3/4 inches	2048	384	192
	95 5/8 inches	2560	480	240
	110 3/4 inches	3072	576	288
DTF medium Cartridge	80 3/4 inches	1280	240	120
	95 5/8 inches	1536	288	144
	110 3/4 inches	1792	336	168

Flooring Requirements

In addition to being dust-free, physically, chemically, and acoustically appropriate, the flooring must meet the insulation resistance specifications. The insulation resistance between the floor surface and earth ground must be 1×10^5 to 1×10^8 ohms to prevent system failure or electrical shock. Sufficient resistance is achieved by using antistatic, nonconducting floor tile with a resistance of 1×10^6 to 1×10^9 ohms. Provide an appropriate connection to the metal portion of the ground plate as necessary to ensure the insulation resistance.

Barcode Requirements

Barcode scanning of individual media labels is accurate if the labels meets the ANSI MH10.8M-1983 standard and other additional requirements. The requirements are:

- ANSI MH10.8M-1983 Standard
    - Number of digits: 6
    - Background reflection: at least 25 percent
    - Print contrast: at least 75 percent
    - Ratio: at least 2.2
    - Module: 250 mm
    - Print tolerance: ± 57 mm
- Additional Requirements
    - Length of the rest zones: 5.25 mm ± 0.25 mm
    - No black marks can be present in the intermediate spaces or rest zones
    - No white areas may be present on the bars
    - Bars should read in a uniform direction. Nonuniform reading directions are feasible in principle, but have a detrimental effect on performance
    - Each label should be applied in the upper right corner of the tape cartridge recess (when oriented vertically)
- Quality Testing

Compliance with these specifications can be checked and documented with the Ergilaser 3000 High Density bar code measuring device that is manufactured by the Laetus Company.

4

System Configuration

Overview

This section of the manual solicits the information necessary to configure an AML/E library. Detailed information about drive, media, and storage support for the AML/E is located in the document number *600300 AML Hardware Configuration Information* manual. Order information for the AML/E components is located in the document number *600302 Product Order Information* manual.

System Heights

Check (✔) the requested system height.

_____ $80\ ^{3}/_{4}$ inches (2.05 meters)
_____ $95\ ^{5}/_{8}$ inches (2.43 meters)
_____ $110\ ^{3}/_{4}$ inches (2.8 meters)

Storage Types

Enter the quantity of the desired storage type.

_____ Quadro Tower (maximum 2)
_____ Hexa Tower (maximum 4)
_____ Linear Rack (maximum 2 with 3 segments each)

Media Types

Enter the quantity of the desired media type (maximum 3).

_____ 3480 / 3490E
_____ EMASS 8490
_____ EMASS 8590
_____ OD512
_____ OD-R
_____ D2S
_____ D2M
_____ VHS
_____ DLT
_____ 8mm
_____ 4mm
_____ DTF small
_____ DTF medium
_____ other _____

Drive Types

Enter the quantity of the desired drive types (maximum 4) and if the drive requires a rack mount.

Quantity	Type	Supported (Yes or No)	Rack Mount (Yes or No)
	Fujitsu 3490E	Yes	
	EMASS 8490	Yes	
	IBM 3490 C1A	Yes	
	IBM 3490 C2A	Yes	
	EMASS 8590	Yes	
	MountainGate 2150	Yes	
	ER90 HiPPI	Yes	
	ER90 IPI	Yes	
	Exabyte 8mm	Yes	
	Exabyte 4mm	Yes	
	HP OD	Yes	
	EMASS 4002	Yes	
	OTR	Yes	
	DTF 1242	Yes	
	non-EMASS drive		

Insert/Eject Types

Check (✔) the requested type of Insert / Eject Unit.

_____ 4 box (Standard)

_____ 2 box (Standard)

_____ 4 box (D2 / DTF)

_____ 2 box (D2 / DTF)

Insert/Eject Handling Rack

Enter the quantity of the media type handling racks. Refer to *Media Types* on page 4-4 for the chosen media types.

_____ Media type 1
_____ Media type 2
_____ Media type 3

Media Segments

Enter the quantity of the media segments. Refer to *Media Types* on page 4-4 for the chosen media type.

_____ Media type 1
_____ Media type 2
_____ Media type 3

Universal Drive Cabinets

Enter the quantity of the desired drive cabinets (maximum 4).

_____ None
_____ Drive Cabinet(s)

Backup AMU

If a backup AMU is desired, check (✔) the desired type of data switch.

_____ Automatic Data Switch _____ Manual Data Switch

Modem

Check (✔) if a modem is desired.

_____ Yes _____ No

Lexan Panels

Check (✔) the desired Lexan panels.

_____ None
_____ Full side Lexan panel
_____ 19"rack close out Lexan panel
_____ Full side and 19" rack close out Lexan panels

Software Types

Check (✔) the requested type of software.

_____ HCC-MVS
_____ AMASS
_____ AMASS with DataMgr
_____ FileServ
_____ VolServ
_____ DAS
_____ Other _____

Host Connection

Check (✔) the requested type of connection.

_____ Ethernet
_____ Token Ring
_____ Coax
_____ FDDI
_____ Special _____

Communication Software

Check (✔) if Remote Access communication software is desired (CM/2 and TCP/IP are include with the system).

_____ Remote Access

Special Engineering Request

Check (✔) any desired special engineering requirements.

_____ None
_____ Hardware
_____ Software

Customer System Layout

Sketch the customer's system layout or cut and paste from the examples in Figure 4-3 on page 4-10. Figure 4-2 on page 4-10 represents a configuration example.

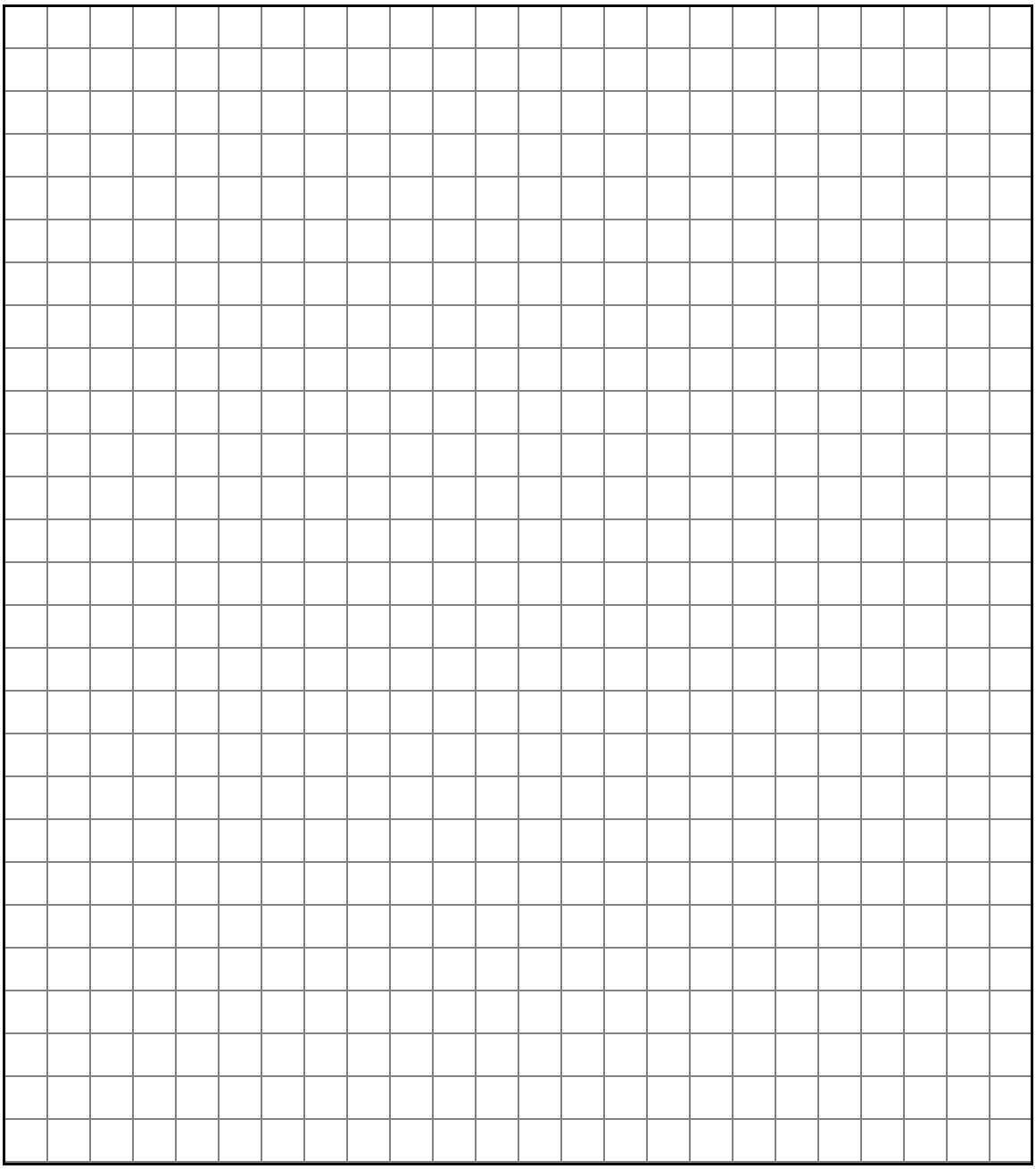

Figure 4-1 Customer AML/E Configuration Layout Scale: 1/4" = 1'

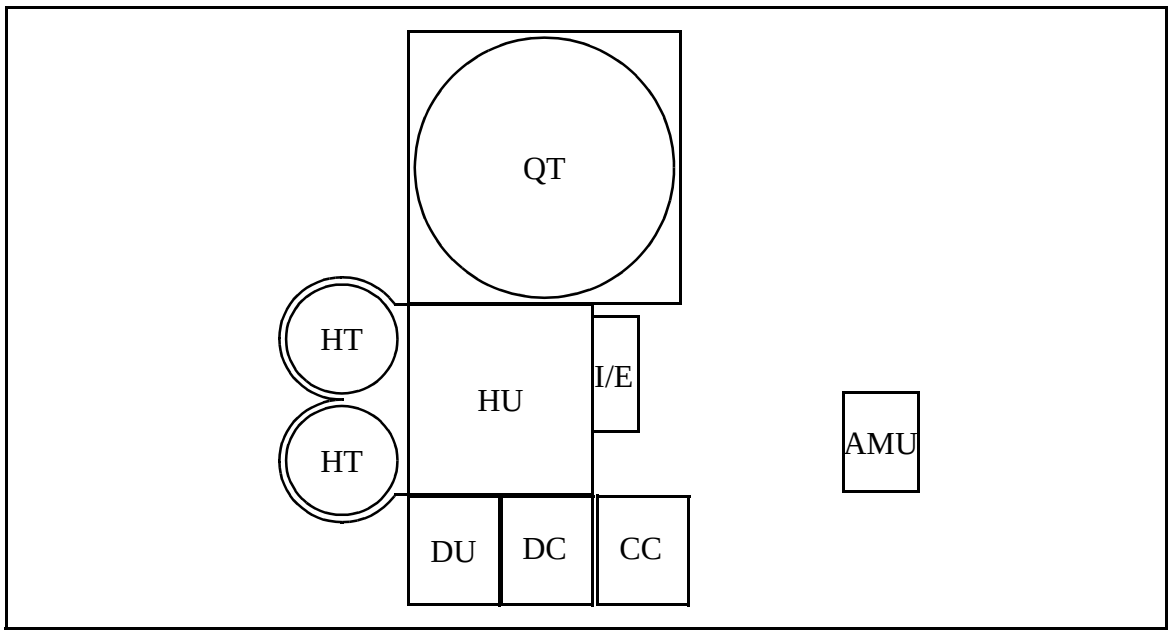

Figure 4-2 Example AML/E Configuration

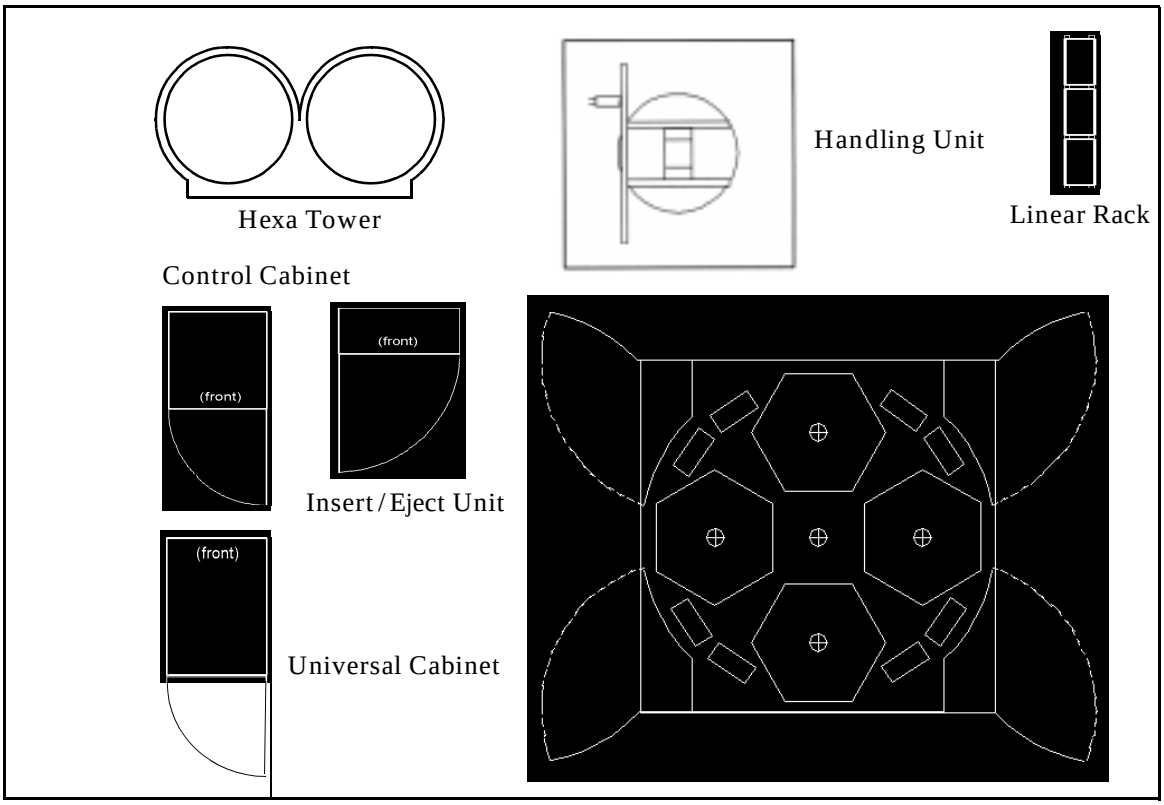

Figure 4-3 Cutout Examples Scale: 1/4" = 1'

5

Survey Data

Overview

This section solicits pertinent information about the delivery site. Record all requested general information.

General Information

Place any additional information in *Additional Comments* on page 5-12.

Customer Name: _____

_____

Mailing Address: _____

_____

_____

_____

_____

Sales Contact: _____

Telephone: _____

EMASS Sales Rep: _____

EMASS Account Mgr: _____

Shipping Address: _____

_____

_____

Installation Contact: _____

_____

Telephone: _____

Target Installation Date: _____

Target Operational Date: _____

Physical Environment

Place any additional information in *Additional Comments* on page 5-12.

Room Dimension: _____

_____

_____

Ceiling Height: _____

_____

_____

Ceiling Projection: _____

_____

_____

Floor Type: _____

_____

_____

Floor Load Capacity:

Fire Protection:

Customer Room Layout

Sketch the approximate measurements of the AML/E library room and any obstructions.

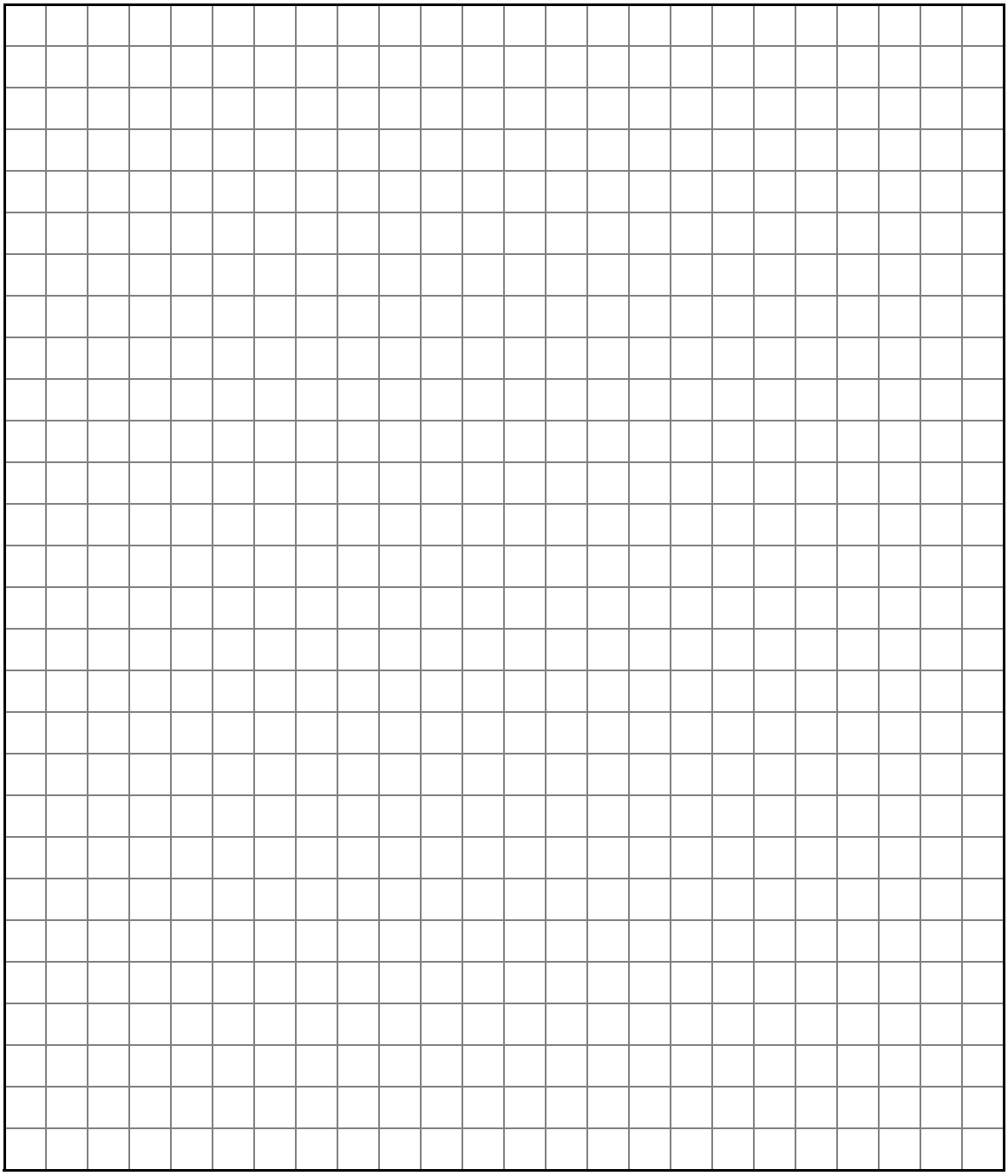

Figure 5-1 Room Layout

Scale: 1/4" = 1’

Site Preparation

The following customer supplied circuits are necessary for the proper installation and operation of the AML/E library.

Power Circuits

Refer to *Electrical Specifications* on page 3-5

Note
This information must be conveyed to the customer to enable site preparation before installation.

208 VAC, single phase, 20A, circuit terminated in a NEMA L6-20R receptacle.

208 VAC, single phase, 15A, circuit terminated in a NEMA L6-15R receptacle.

120 VAC, single phase, 15A, circuit terminated in a NEMA L5-15R receptacle.

Telephone Connection

Refer to *Modem* on page 4-7.

Note
This information must be conveyed to the customer to enable site preparation before installation.

Standard B1 analog telephone line terminating in an RJ-11 connector. Each AMU requires a separate line for the diagnostic modem.

Customer Building Layout

Sketch the building layout that indicates the route from the loading dock to equipment final destination. Indicate obstructions.

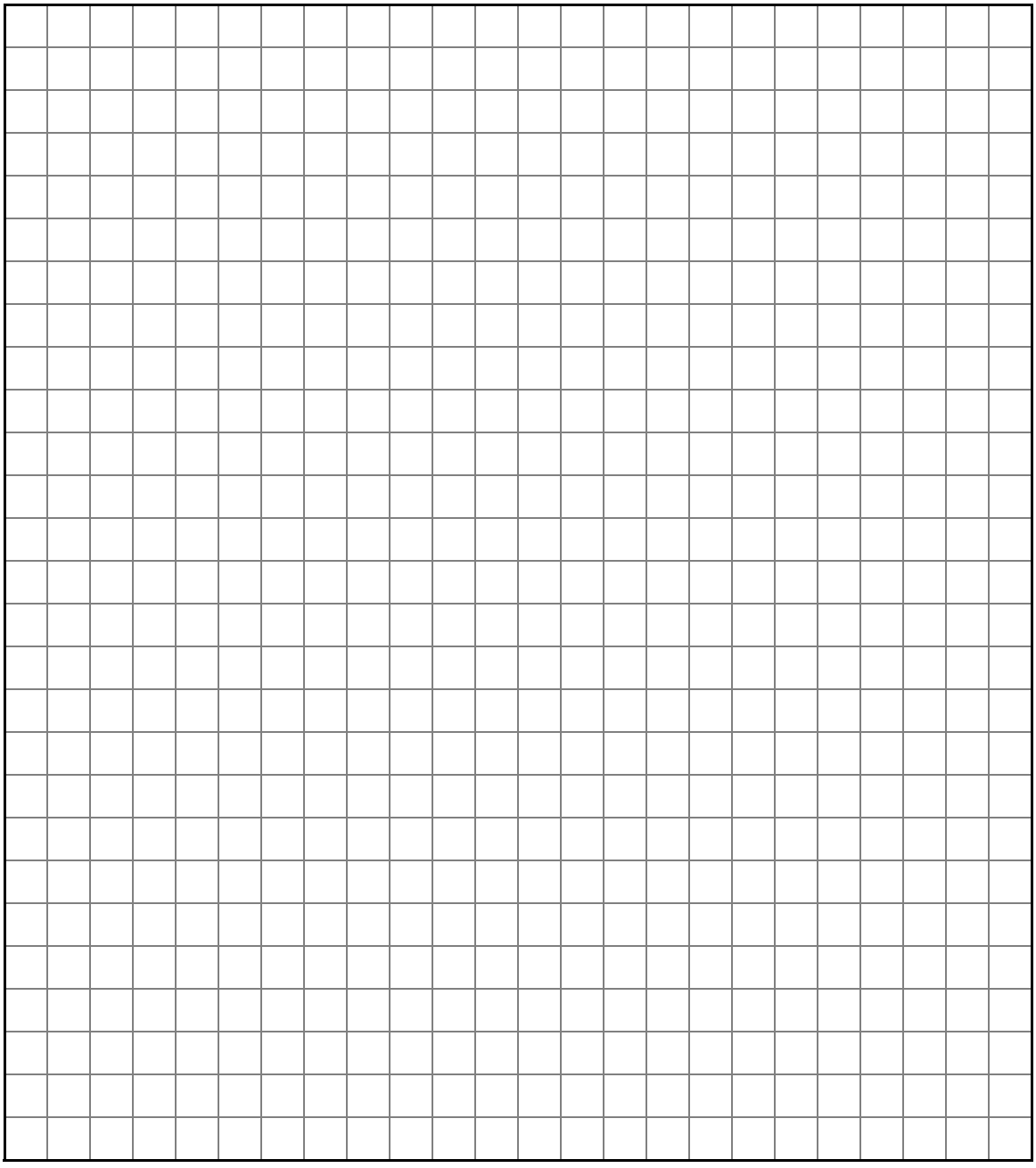

Figure 5-2 Building Scale

Grid = 1/4", No Scale

Access Conditions

Access to AML/E library room (elevator, stairs, door widths, etc.):

Dimensions and Location of Smallest Door or Opening:

Loading Dock Specifications (dock height, type of ramps, weather protection, etc.):

Semitrailer Accessibility (Y or N): _____

Preferred/Required Local Carrier Company:

Where Can Trailer Be Left for Staging?

Availability of Material Handling Equipment:

Location for Uncrating:

Preferred Time of Day for Unloading and Moving Materials:

Off Hours / Weekends Accessibility for Installation Team:

Procedure for Obtaining Building Passes:

Procedure for Scheduling the Elevator, Loading Dock, etc.:

Waste Disposal Considerations:

Bargaining Unit Considerations:

Other Considerations:

Additional Comments

Record any additional information from other pages. For reference purposes, note the page number with the information. Add and number additional sheets as necessary.