

AIMS Software

Users Guide

**For the AMS 3015 Factory Automation Cell
(AmadaMation System)**

Amada America, Inc.

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AIMS ope 200504

Preface

This document covers the use of the AIMS software version 2, and should be used along with the manuals listed in Chapter 12.

Equipment Identification

Model Designation	Name	Comment
FO 3015	Gemini	Laser cutting system
LST 3015A	Shuttle	Transports pallet from load/unload position into the Gemini.
AMS 3015-10T	Material Tower	Stores blank material and/or finished sheets.
AMS3015 L/UL	L/UL	Moves material blanks from loading table to the shuttle, parts and scrap from shuttle to next stage.
Apelio III 2510V	Apelio	Combination punch/laser machine.
		Load/unload for Apelio

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***Warning: Carefully read and familiarize yourself with this manual to obtain a thorough knowledge of the machine operation and maintenance. Be sure to follow the instructions to ensure proper procedures and prevent injuries and accidents. Do not operate the machine by guesswork – keep the manual at hand and refer to it whenever you are not sure of how to perform any procedure.**

NOTICE: This manual is prepared as a guide for the operation of the software and system.

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If you do not fully understand any information or instruction in this manual, contact Amada America, Inc. at 1-800-626-6612 prior to commencing any machine operations.

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Chapter 1: Introduction

1 Introduction

Thank you for purchasing your AMS 3015 Factory Automation Cell, also known as the AmadaMation System. This manual provides instruction on how to use the AIMS software which directs program scheduling and cell operation.

* Cautions

Read the instructions in this manual before using the machine. Keep a copy of the manual near the machine so that users can refer to it during operations.

Do not guess or use your own judgment when you are not sure how to use the machine. If in doubt consult the manual or contact Amada Technical Support.

Read the manual carefully and operate the machine properly.

Follow the instructions and warnings written in this manual.

Do not exceed the capacity of the machine.

Do not restructure the machine or change the operational circuit.

Do not remove the safety features from the machine.

Operate the machine within the operational capacity described in this manual.

1.1 Intended Audience

This document is for users of the AIMS software and AmadaMation System.

Use of the software is covered. For documents covering machine operation and other topics, see page 12-5.

2 How This Manual is Organized

Chapter 4 actually covers “using the software”.

You may need to read (or refer to) some of the other chapters to understand Chapter 4, though. Please take the time to browse the manual, to get a feel for layout and what information is here for you.

Startup and shutdown(of the software) are in chapter 7, as are some related topics. The Table of Contents and Index should help you find the information you need.

The overall software includes the AIMS software and various supporting programs. Those are in separate chapters so you can find them easily.

3 Skills required:

This document assumes a user with basic PC/Windows® familiarity, including use of keyboard and mouse.

Information may be displayed on more than one window or pane within a window. The user must be capable of locating and displaying windows, identifying and re-sizing panes, and so forth.

As an example: the user should be capable of finding and running Windows® Help.

3.1 Mouse usage

Mouse usage in the AIMS tree follows Windows® standard usage.

The mouse may be configured for right-handed or left-handed use. This document refers to the buttons as if the mouse is set for right-handed use.

“Click” or “Left-click” means “click the primary button”

“Right-click” means “click the secondary button”.

- For more information: see Windows® Help, in some of the following areas:

Getting Started, “Using a Mouse”

Index, “right-clicking”

3.2 Controls and Selectors

Several kinds of controls are used in the AIMS software. They include buttons, check boxes, drop-down selection lists, and others. These operate in the usual Windows® manner.

3.2.1 Check boxes

Figure 1 shows check boxes, with one selected.

Click a check box to set a checkmark in it. Click a checked box to remove the checkmark.

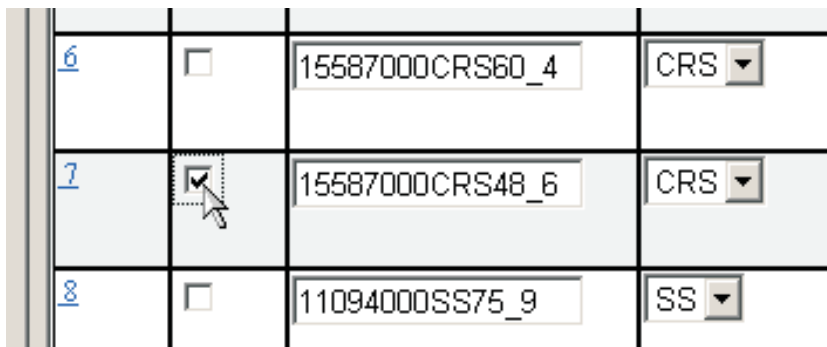
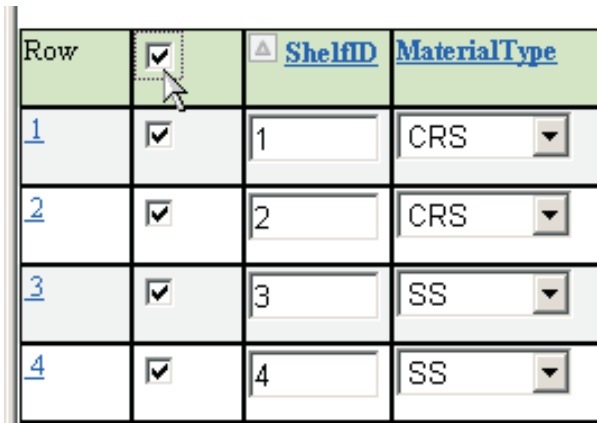


Figure 1: Check boxes

Any number of check boxes may be selected at once. To select or de-select all items, click the check box at the top of the column. (Figure 2)



Row	<input checked="" type="checkbox"/>	ShelfID	MaterialType
1	<input checked="" type="checkbox"/>	1	CRS
2	<input checked="" type="checkbox"/>	2	CRS
3	<input checked="" type="checkbox"/>	3	SS
4	<input checked="" type="checkbox"/>	4	SS

Figure 2: Check boxes all selected

3.2.2 Sorting by columns

In most data listings, the column headings may be clicked to sort the data by that column. Clicking a heading repeatedly will toggle between sort directions. Column widths may be resized by clicking and dragging the split between the column headings.

Chapter 2: System Overview

The AIMS software package provides overall control and scheduling of the AMS 3015 Factory Automation Cell. The software can also provide control and scheduling for one or more Apelio cells.

1 Machines

The AMS 3015 Factory Automation Cell includes the following:

One or more of the FO 3015 Gemini lasers, each with a LST 3015A Shuttle

The AMS3015 L/UL to transport material between each Gemini's LST 3015A and the load/unload station(s).

The load/unload stations(s) may include one or more of the following:

Material Tower (Various models available)

Transport cart, Stationary cart, Over/Under cart.

The system may include other support equipment.

A single-laser, dual-tower system is shown in Figure 1.

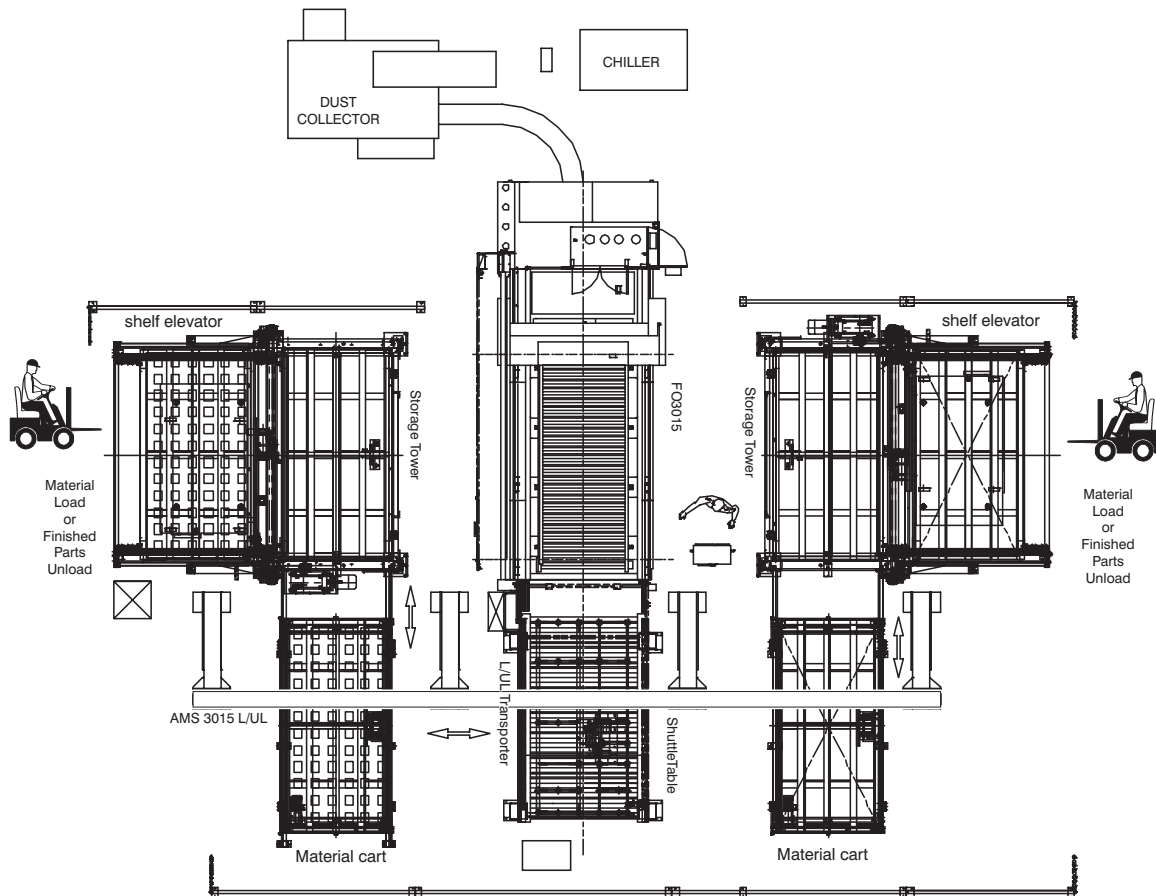


Figure 3: Basic System, Plan View

1.1 Material towers:

In concept, each tower may be used for any combination of blank material storage and cut parts storage. In practice, usually one tower will be designated for blank material storage, and another for parts.

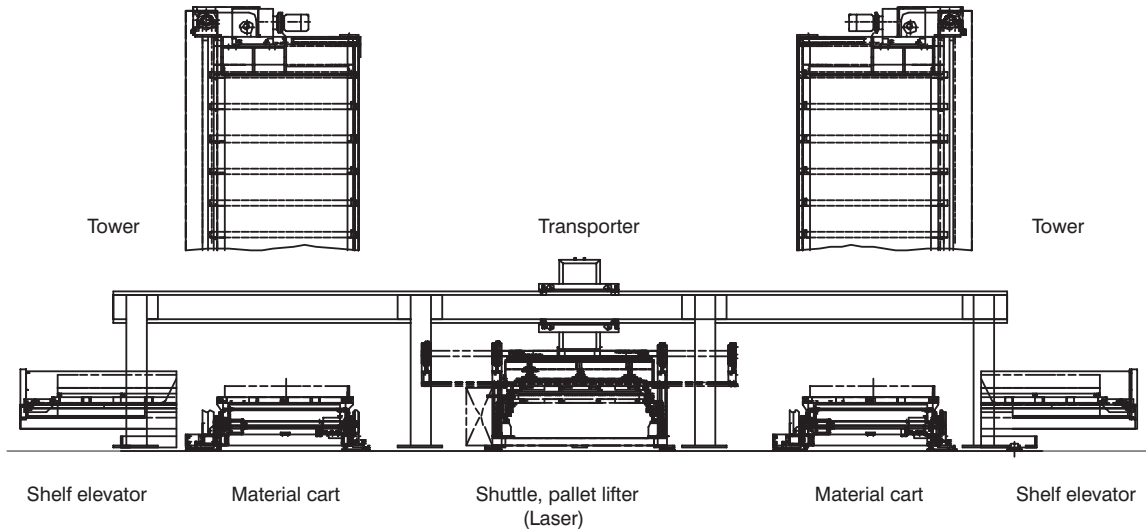


Figure 4: Basic System, Front view

2 Other Machines

The system may include one or more Apelio© punch-laser machines and supporting equipment. The Apelio is a combination machine, but is called a “turret” in this manual. (Turret punch press)

3 Software

The AIMS Software provides scheduling and production control for the AMS 3015 Factory Automation Cell. Material process information, raw material, programmed part files, and other related information is managed in the software. Nesting and scheduling is provided, for efficient material and machine utilization.

3.1 Overview of Modules

The software is comprised of a number of “modules”, each performing one or many tasks.

A browser-based user interface is provided for most of the tasks you need to perform. System status can be observed, parts and lots can be added, edited, and so forth. The Alite Parts and Lots Utility is provided for importing large numbers of parts, lots, or sheets into the AIMS system. (See chapter 6 for more information.) A number of software modules operate “behind the scenes”. This manual does not cover those modules in depth.

3.2 AIMS Browser

This is the primary "user interface" for the AIMS software. The display screens depicted in Chapter 3 belong to the "browser interface". Custom software running along with Internet Explorer® provides display and control of the software system.

3.3 Scheduling Server

This module handles scheduling of production. Below is a general description of how it works, and many of the factors that affect scheduling.

- **Note: Scheduler works the same way whether AIMS is in Manual or Auto mode.**

- 1 Scheduler always considers these basic grouping criteria:
 - Material type
 - Thickness
 - Machine type (laser or turret?)
 - Laser setup ID (laser only)
 - Compatible turret (turret machine only)
- 2 Scheduler also consider these optional grouping criteria (set on AIMS):
 - Attended / Unattended part (if SchedulerIgnoreAttended = false)
 - EarliestDueDate (if SchedulerIgnoreEarliestDueDate = false)
 - Cutting condition (if SchedulerIgnoreCuttingConditions = false)
- 3 Scheduler also group by priority:
 - Priority 1 is highest. Each lot with priority 1 is a group by itself
 - Lots with priority 2 will group with other lots priority 2 or lower
 - Priority 3 is lower than 2, but work the same way as priority 2.
 - Priority 0 is lowest, (nothing special)
- 4 For each priority, Scheduler find the "best" sequence based on:
 - Group's execution time
 - Group's weighted average due date (weighted by part quantity)
 - Earliest due date (if SchedulerIgnoreEarliestDueDate = false)
 - Operation schedules (shifts) of the machines.
 - Schedule starting time (usually now)
 - Scheduler Algorithm

In a nutshell, the Scheduler's algorithm finds all possible sequence of groups. For each sequence, it calculates a score based on the group information listed above. Then it compares all scores and pick the sequence with the best score.

3.4 Nesting Server

Nesting Server is an interface between AIMS and Amnest. It hands files off to Amnest for timestudy and/or nesting, and provides the results back to AIMS.

3.5 Amnest

The Amnest software provides timestudy, nesting, and other services to AIMS. Manuals and training are available for the Amnest software package. See chapter 12 for more information.

Chapter 3: Displays and Controls

The AIMS software consists of a main display window, and several programs working “behind the scenes”.

1 Main display window

This section introduces the main control areas. Detailed descriptions are in section 2, beginning on page 3–4.

The main display window includes display selectors, the AIMS “tree”, and the main display area. (See Figure 5 below.)

1.0.1 Splitters

These are dividers between different functional areas of the screen. To adjust the position of any of them, just click on the splitter and drag it to a new location. Hold the mouse button down while dragging, and release it when done.

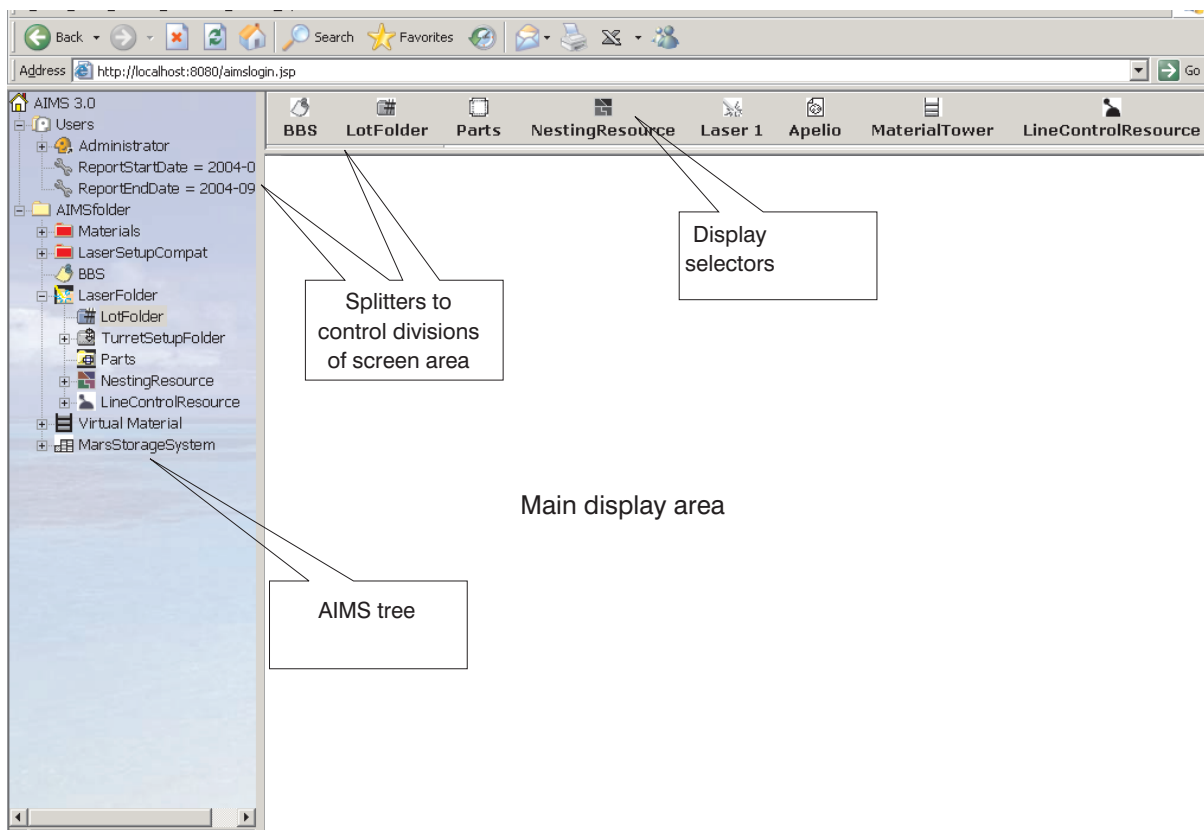


Figure 5: Main window

In addition to these displays, other windows may be shown for data input/editing, or to display information.

1.1 AIMS Tree

The AIMS tree (see figures 5, 6) provides an expandable view of the resources known to AIMS.

Context (right-click) menus¹ provide access to functions such as Open for each item. (See page 4 in this chapter for illustrations and explanations)

1.2 Display selectors

These controls may be clicked to activate the associated display. The displays include Parts, Lots, Line Control, Material Tower, Nesting, Bulletin Board, Laser 1. If a second laser is included in the system, a “Laser 2” control will be provided.

Display Selector	function	notes
Parts	Displays list of PARTS in the main display area.	Parts are added to the listing using this window, or by using the .
Lots (or LotFolder)	Displays list of LOTS in the main display area.	New lots can be created, existing lots can be edited.
Line Control	Displays list of sheets recently processed in the main display area.	May also display as LineControlResource
Material Tower	Displays each shelf's material type and quantity in the main display area.	Can add/correct material type, size, and quantity in each shelf.
Nesting	Displays LOTS or GROUPS in the main display area.	This is where user can manually group LOTS
BBS or Bulletin Board	Displays alarm history, other useful information about system.	
Laser 1	Displays information about Laser 1 in the main display area.	Show/set laser setup information.
Laser 2	Displays information about Laser 2 in the main display area.	Same as Laser 1 (only displayed on two-laser systems)
Apelio (orTurret)	Displays information about Turret 1 in the main display area.	Show/set turret setup information.
Calendar²	Displays schedule/shift information for system. (Machine availability)	Day of week, hours of the day, shift information for each machine.

1 For discussion of mouse usage, see page 1-2.

2 May only appear on AIMS Tree, and not as selector icon.

1.3 Main display area

This is below the display selectors and the horizontal split bar. The main area is used to display a list of items or the details of a selected item.

The screenshot shows a web browser window displaying a list of lots. The browser title is "maui/maui/BasicServer.object - Microsoft Internet Explorer" and the address bar shows "http://localhost:8080/aimslogin.jsp". The left sidebar contains a tree view of folders including "Users", "AIMSFolder", "LaserFolder", "LotFolder", "TurretSetupFolder", "Parts", "Nesting", "LCR1", "LCR2", "LCR3", "SMMaterialFolder", "MRP SOAP Controller", "ISC Controller", "Virtual Material", and "StorageSystem". The main display area shows a table of lots with the following data:

	ProductionItem			OrderID	ExternalOrderID	Quantity
1	11094000CRS48_B	Set Object	Web Display	Display	348	10
2	11094000CRS48_B_KL	Set Object	Web Display	Display	351	11094000CRS48_B_KL
3	11094000CRS48_B_KL	Set Object	Web Display	Display	355	fillertest
4	15587000CRS48_M	Set Object	Web Display	Display	358	10
5	15869000CRS60_S	Set Object	Web Display	Display	357	5
6	1830112004092001_11	Set Object	Web Display	Display	356	120110-20050318-1
7	al	Set Object	Web Display	Display	345	testing_bbb
8	al_VIP	Set Object	Web Display	Display	347	eeeeee

Below the table, there are buttons for "filter", "Search", "Execute", "Setup", "Remove", "RemoveAll", "Refresh", "AddRow", "ReCompute", and "Find".

Figure 6: Main window, showing lots




2 Control Details

This section describes each major control and screen, and provides a brief description of its purpose and/or use.

2.1 The AIMS Tree

The AIMS tree is used like the "folder list" in Windows®. The following is a brief introduction. For more help, see page 12-5.

Figure 7 shows the tree mostly "collapsed".

Nodes (represented by graphic icons) are preceded by a  symbol to indicate that more information is available. In figure 7, the AIMSfolder and LaserFolder nodes have already been expanded. The "Nesting", LineControlResource, and LotFolder" nodes are exposed, among others. These nodes all indicate that further information is available in each category. Click the  symbol to "expand" the topic and display the information within it. It will change to a  symbol, with the subsidiary items displayed below it.

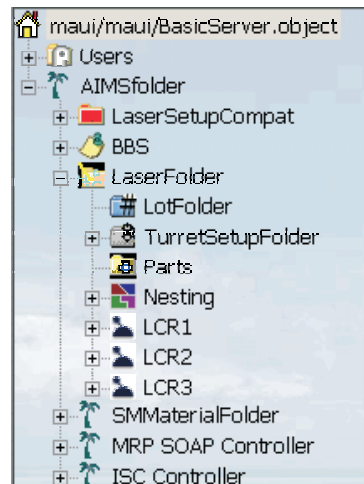


Figure 7: AIMS Tree collapsed

- Note on the AIMS Tree

The locations of items within the AIMS Tree may change somewhat as the software is improved. The figures are intended to serve as examples for the user.

- Note on illustrations

In many cases, more than one node or icon will be depicted when only one is actually referred to. This is to give the reader a better visual reference to locate the icon or node in the tree.

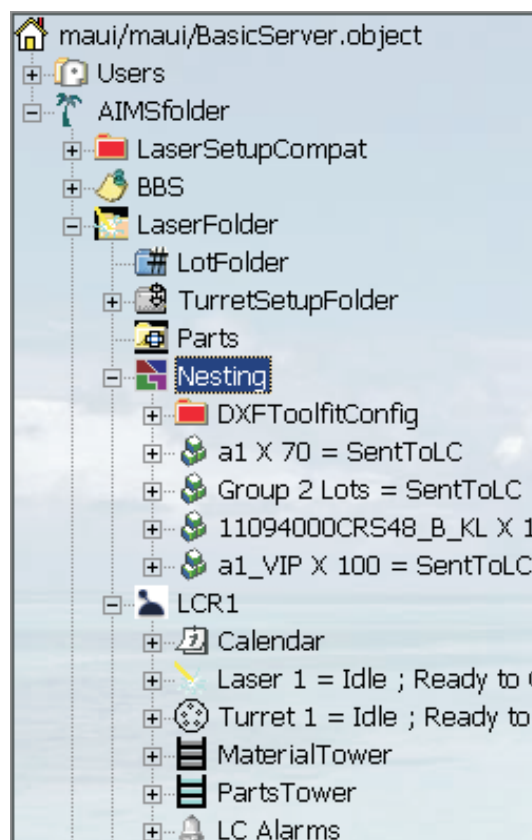






















Figure 8: AIMS Tree partially expanded

2.1.1 Icons used in Tree

The main icons used in the Tree are listed below.

Note that a number of icons have the same shape, but are different colors. Those colors are noted in the following list.

Icon	Caption	Purpose
	LotFolder	Contains listing and data for all defined Lots.
	NestRes	Nesting results (success/failure, etc.)
	(Nesting task name)	Green: Completed nesting task. (Sheet created)
	(Nesting task name)	Yellow: In-process nesting task.
	LCR1	Line Control Resource - contains nested Sheets.
	Laser (1 or 2)	Contains setup and job information for selected machine.
	Calendar	Defines shift schedules.
	Turret (1 or 2)	Contains setup and job information for selected machine.
	MaterialTower	Gray: Contains blank material information.
	PartsTower	Cyan: Contains successfully processed sheets.
	(various)	Indicates normal (non-alarm) condition.
	(various)	Indicates active alarm condition.
	(Sheet ID)	Blue: Sheet ready to be processed.
	(Sheet ID)	Yellow: Sheet being processed
	(Sheet ID)	Green: Sheet which has been processed.
	(Sheet ID)	Grey: Sheet failed/abandoned.
	BBS	Provides alarms history.
	Users	Group of all users.
	(username)	Logged-in user.
	(username)	Listed user.

2.2 Parts page

This page lists the parts which have been brought into the AIMS database, with associated information. The details of a selected part may be edited from this page.

2.2.1 Names of Parts

Each **Part** record relates an NC-program file or DXF file with material type, thickness, and related information.

The Part record refers to an NC-program file or DXF file. The files may be on disk, or in a Mini-SDD database. The part **name** doesn't need to be the same as the NC-program name. When selecting parts to create Lots, you use the part name, not the NC-program or DXF file name.

2.2.2 How to display the Parts page

This page can be displayed by clicking the selector on the main page, or by right-clicking on **parts** in the AIMS tree, and selecting **Open**.

If the selector is used, the Parts page will open in the main display window.

If the right-click method is used, a new page will open.

Opening a new page will provide a larger working area. Depending on user preferences, monitor size and resolution, this may reduce scrolling to access the entire page. If the system has multiple monitors, you may be able to display the new page on the second monitor.

2.2.3 Information on the Parts page

Name of item	Content	Note
Material type	Name of material	Drop-down allows selection of defined material types
Material thickness	Numerical value of sheet thickness in thousandths of an inch.	No decimal point allowed. Min = 30 Max = 1000
Time study	Display of computed timestudy value in seconds	COMPUTE button provided to update value
NC-program filename	Actual path and filename ³	Can file-browse to change or confirm.
Nesting can rotate	True/false in dropdown	According to part requirements such as grain direction, part size, etc.
180FlipAllowed	true/false	As with rotation.
Unattended operation OK?	True/false in dropdown	According to confidence in process or other requirements

³ May be called NestingGCodeFilename

Name of item	Content	Note
PrimaryMachine	FO/Apelio in dropdown	To control workflow in systems with multiple machine types.
Name	Name of Part	Defaults to the part's filename
LaserCuttingCondition	0/1	0=std, 1=CleanCut
CompatibleTurrets	Names of "standard turrets" having compatible tooling loads	AIMS will scan the G-code file and determine these.

2.2.4 Controls on the Parts page.

Filter

Launches the Filters page. See page 29 for information.

Search

Displays the advanced "regular expression" search page. A "Help" link is provided for use of search expressions.

Add Mini-SDD Part

Creates a blank row for a new part from a mini-SDD database.

Add Local Part

Creates a blank row for a new part where the part G-code or DXF code is located "locally". (This could be on either a local computer or a network drive.)

Setup

Use only with instructions from Amada Software Support.

Remove

Removes a selected part or parts.

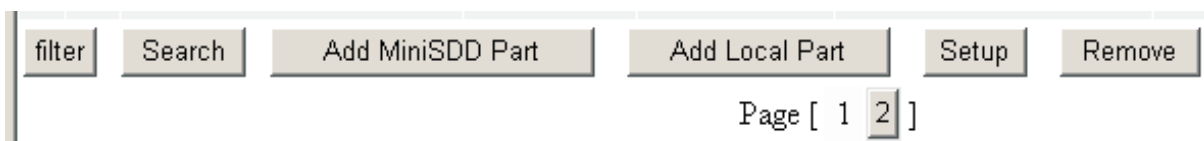


Figure 9: Parts controls 1/2

Remove All

Removes all parts from database.

Refresh

Re-displays the page with the most current information.

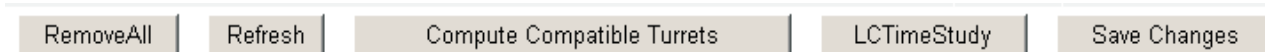


Figure 10: Parts controls 2/2

Compute Compatible Turrets

Compares selected parts against available turrets. Updates each selected parts with names of any compatible turrets.

LCTimeStudy

Performs/updates timestudy on selected parts.

Save Changes

Saves any changes in the page back to the database.

Sheetmetal Parts						
Parts						
Page [1 2]						
	<input type="checkbox"/>	<u>Name</u>	<u>MaterialType</u>	<u>MetalThickness</u>	<u>LCTimeStudy</u>	<u>NestingGCodeFilename</u>
1	<input type="checkbox"/>	11094000CRS48_B	CRS	60	75 <input type="button" value="Compute"/>	C:\AIMS\sampleParts\laserParts\l...
2	<input type="checkbox"/>	15587000CRS48_M	CRS	60	30 <input type="button" value="Compute"/>	C:\AIMS\sampleParts\laserParts\l...
3	<input type="checkbox"/>	15869000CRS60_S	CRS	60	23 <input type="button" value="Compute"/>	C:\AIMS\sampleParts\laserParts\l...

Figure 11: Parts page 1/2

2.2.5 To view (plot) a part

A part can be displayed by either clicking the **Display** button on the parts listing. (See Figure 13 on Page 9)

This launches the G-Code Simulator to display the part file. See chapter 5 for use of the G-Code Simulator.

Parts

Page [1 2]

dy	NestingGCodeFilename	FileType
Compute	C:\AIMS\sampleParts\laserParts\11094000CRS48_B.NC <input type="text"/> <input type="button" value="Browse..."/> <input type="button" value="Display"/>	LocalFile
Compute	C:\AIMS\sampleParts\laserParts\15587000CRS48_M.NC <input type="text"/> <input type="button" value="Browse..."/> <input type="button" value="Display"/>	LocalFile
Compute	C:\AIMS\sampleParts\laserParts\15869000CRS60_S.NC <input type="text"/> <input type="button" value="Browse..."/>	LocalFile

Figure 13: Parts page 2/2

2.2.6 Adding parts to the Database

Parts may be added one-by-one from the Parts page. To add more than a very few parts at one time, the Alite Parts and Lots Utility should be used. (See page 6-1.)

Adding Parts with AIMS:

Display the parts listing page, then select “Add Local Part”.

Page [1 2]

	<input type="checkbox"/>	Name	MaterialType	MetalThickness	LCTimeStudy	NestingGCodeFilename
1	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> <input type="button" value="Compute"/>	
2	<input type="checkbox"/>	11094000CRS48_B	CRS	60	75 <input type="button" value="Compute"/>	C:\AIMS\sam

Figure 12: Parts page with new row created

Find the newly created row, and enter the name, thickness. Click the Material Type drop down and select the correct material⁴.

Use the **browse** button on the part row to open a browse window. Select the G-code part file (on disk), and click the **Open** button. Then fill in the material thickness, the part name if desired, and select the other parameters from the drop-downs as needed.

If nothing is entered for part name, the G-code filename will be used.

Click **Save Changes** when finished.

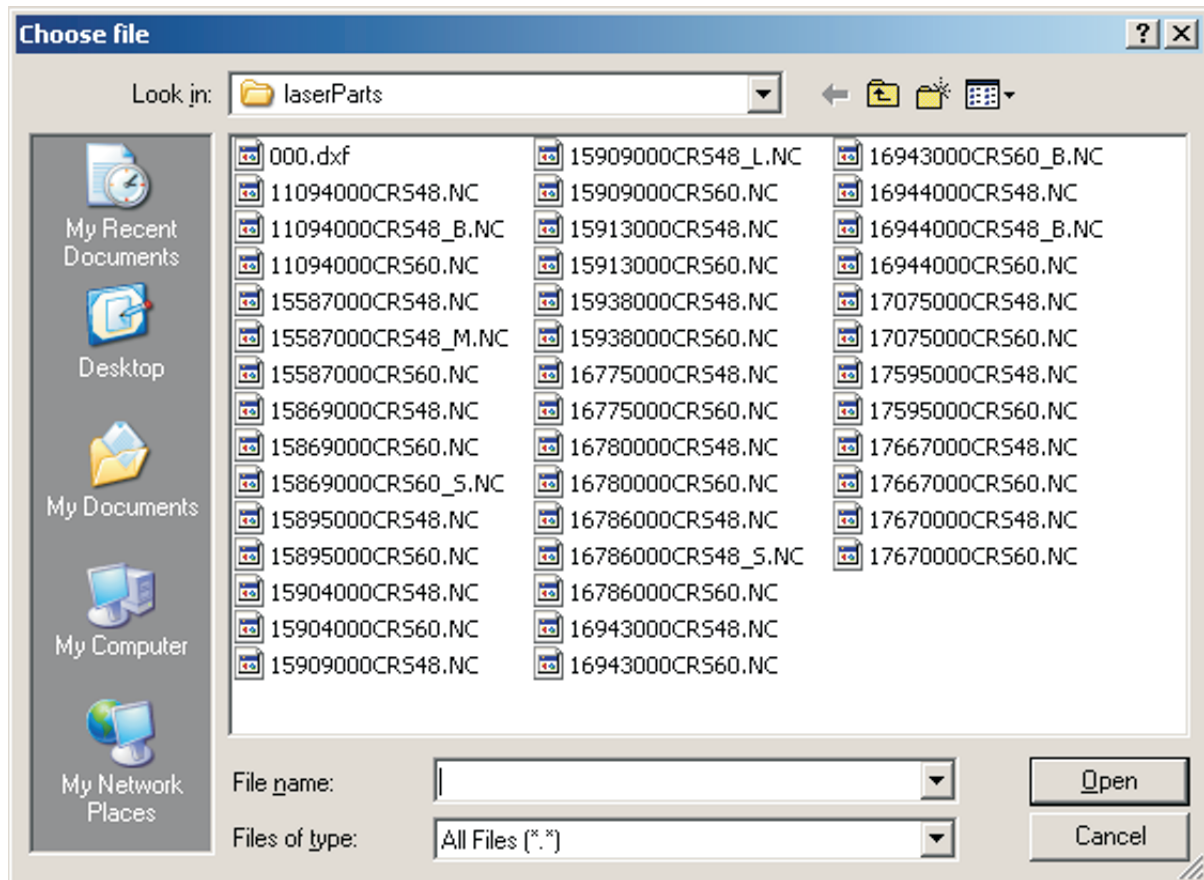


Figure 14: File Browse window

4 The “material type” must be defined beforehand, from the LineControlResource > SheetMetalMaterialTable item in the AIMS tree. If the material is not defined yet, just fill out the other items and save the record. You can add the material later, then edit the part record and select the correct material.

2.3 Lots page

This page may be titled “LotsFolder”.

A “Lot” specifies a part, the quantity needed of that part, and a schedule of when it is needed.

The Lots page displays the lots which have been brought into the database.

The actual quantities in process are also listed here.

The name of the lot can be different from the part name.

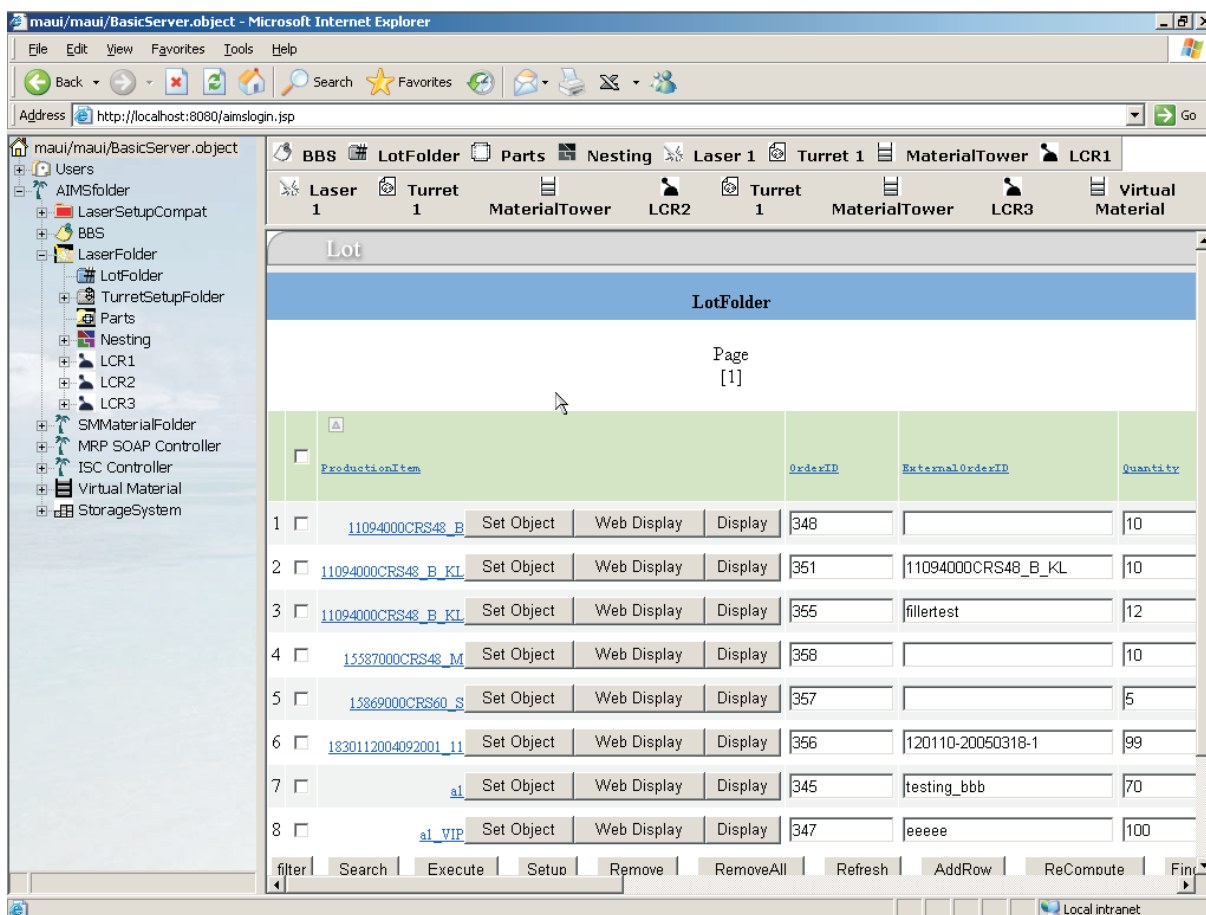


Figure 15: Lots page

2.3.1 How to display the Lots page

This page can be displayed by clicking the **LotFolder** selector on the main page, or by right-clicking on **LotFolder** in the AIMS tree, and selecting **Open**.

If the selector is used, the Parts page will open in the main display window.

If the right-click method is used, a new page will open.

2.3.2 Information displayed on the Lots page

Name of item	Content	Note
Order ID	Name or ID# of the Lot	Can be numeric or text
Part name	Name of the part specified in the Lot.	Click to display Part information.
Quantity	Number of parts to make up this lot	
Quantity done	Number of parts delivered to the parts tower.	
Quantity committed, not done	Number of parts nested into sheets for production	
Quantity failed	Number of parts attempted but not produced ***	
Due date	When are the parts needed?	
Earliest Due date	When can the parts be first accepted?	
Priority	How "hot" is this job?	1 = "now, exclusive" 2 = "today, with others ok" 3~9 = priority within date constraints.

2.3.3 Controls on the Lots page

Set Object

Button on page, one for each lot. Displays list of Parts for use in selected Lot. May be used when creating a new Lot, or to select a different Part for a particular Lot.

Display

Displays the Part information in the main display area.

2.3.4 Controls at the bottom of the Lots page

Filter

Allows user to display items meeting certain criteria. (See page 4-8)

Search

Displays the advanced “regular expression” search page. A “Help” link is provided for use of search expressions.

Execute

Directs AIMS to nest and process the selected lots immediately.

Setup

Use only with direction from Amada Technical Support.

Remove

Removes (deletes) the selected Lots.

RemoveAll

CAUTION: Removes all lots from the AIMS database.

Refresh

Re-displays page with most recent information.

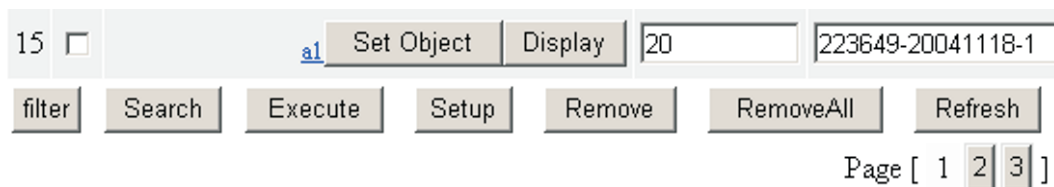


Figure 16: Lots controls 1/2

Add Row

Creates blank row, first step in adding new Lot from within AIMS.

Figure 17: Lots controls 2/2

ReCompute

Directs AIMS to look at all lots and evaluate/re-compute production schedule.

Find

Creates a "trace" of the selected lot This allows the user to determine where the lot is in the system.

Print

Not used

Save Changes

Saves any edits or changes on the page back to the database.

2.3.5 Adding new Lots to the database

Lots may be added one-by-one from the Lots page, using the Add button.

To add more than a very few Lots at one time, the Alite Parts and Lots Utility should be used. (See page 6-1.)

From the Lots page:

Display the LotsFolder page, then select "Add row".

Select the part, using the **Set Object** button. Set the other parameters as needed.

Click **Save Changes** when finished.

2.4 Material Tower page

This page shows the material type, size, and quantities in the storage tower.

Row	<input type="checkbox"/>	▲ ShelfID	MaterialType	Thickness	Quantity	SizeX	SizeY	MinMat
1	<input type="checkbox"/>	1	CRS ▼	48	72	120000	60000	0
2	<input type="checkbox"/>	2	CRS ▼	60	81	120000	60000	0
3	<input type="checkbox"/>	3	SS ▼	48	100	120000	60000	0
4	<input type="checkbox"/>	4	SS ▼	75	48	120000	60000	0
5	<input type="checkbox"/>	5	SS ▼	60	20	120000	60000	0

Figure 18: Material Tower (left side)

2.4.1 How to display the Material Tower page

This page can be displayed by clicking the selector on the main page, or by right-clicking on **MaterialTower** in the AIMS tree, and selecting **Open**.

If the selector is used, the Material tower page will open in the main display window. (See page 8-10)

If the right-click method is used, a new page will open.

Type	Thickness	Quantity	SizeX	SizeY	MinMatUtilizationAllowed	Trimming
	48	72	120000	60000	0	200
	60	81	120000	60000	0	200
	48	100	120000	60000	0	200
	75	48	120000	60000	0	200
	60	20	120000	60000	0	200

Figure 19: Material Tower (right side)

2.4.2 Information displayed on the Material Tower page

Name of item	Content	Note
ShelfID	Shelf Number	
MaterialType	Drop-down selection of defined material names	
Thickness	thickness in thousandths of an inch.	No decimal point allowed Minimum = 30 Maximum = 1000
Quantity	Number of sheets present in shelf	Number adjusted for material used
SizeX	Sheet size in X-direction	Same units as thickness. Maximum 120000
SizeY	Sheet size in Y-direction	Same units as thickness. Maximum 60000
Min material utilization	0=ignore, other value is minimum percentage utilization.	Ex: 20='must use 20% of the sheet or no-go"
Trimming	Space to leave blank (un-used) around periphery of sheet.	Distance in in thousandths of an inch.

- **Material Utilization**

Minimum utilization is ignored in the following cases:

- 1 Due date is same day or in the past.
- 2 Priority is 1 or 2

2.4.3 Controls on the Material Tower page



Figure 20: Tower controls

Filter

Allows user to display only the shelves meeting certain criteria. (See page 4-8)

Search

Displays the advanced “regular expression” search page. A “Help” link is provided for use of search expressions.

Setup

See Maintenance, chapter 8.

Refresh

Re-display the page with the most current information.

Save Changes

Saves the displayed information to the AIMS database. Use after setting or changing the material load in one or several shelves.

2.5 Nesting page

The Nesting page displays Lots which have been scheduled for processing.

11	<input type="checkbox"/>	15909000CRS48_L X15	Lot 13 15909000CRS48_L X15	Abandoned	Nesting Ap
12	<input type="checkbox"/>	15909000CRS48_L X15	Lot 13 15909000CRS48_L X15	Abandoned	Nesting Ap
13	<input type="checkbox"/>	15909000CRS48_L X15		Abandoned	
14	<input type="checkbox"/>	15909000CRS48_L X15	Lot 13 15909000CRS48_L X15	Abandoned	Nesting Ap
15	<input type="checkbox"/>	15909000CRS48_L X25	Lot 33 15909000CRS48_L X25	Complete	SentToLC

filter Search Nest Now Group UnGroup

Page [1 2 3]

Figure 21: Nesting Resource page

2.5.1 How to display the Nesting page

This page can be displayed by clicking the **Nesting** selector on the main page, or by right-clicking on **Nesting** in the AIMS tree, and selecting **Open**.

If the selector is used, the Parts page will open in the main display window.

If the right-click method is used, a new page will open

2.5.2 Information displayed on the Nesting page

Name of item	Content	Note
Lot	Name or ID# of the Lot	Can be numeric or text
Status	Completed / not started	
Description	Explains status item	Sent to LC / Cannot Nest / Group <i>n</i> / ???
Priority		
EstStartDate		
EstCompletionDate		
EstExecutionTime		
InventoryProductionList		

2.5.3 How to display a single Nesting Resource

Click the **Lot** name to display the resource in the main display area. (See fig. 22).

15	<input type="checkbox"/>	15909000CRS48_L X 25	Lot 33 15909000CRS48_L X 25	Complete	SentToLC
----	--------------------------	-------------------------	---	----------	----------

Figure 22: Nesting Lot name

2.5.4 Controls on the Nesting page

The system can be set for manual scheduling and grouping of Lots.

To select between manual and automatic operations, see page 8-6.

The following buttons are provided for manual control or override of the nesting sequence. They are illustrated in two groups here for readability.

Filter

Display only items meeting certain conditions. (See page 4-8)

Search

Displays the advanced “regular expression” search page. A “Help” link is provided for use of search expressions.

Nest Now

Forces system to nest selected items.

Group

Select two or more Lots with compatible material and process requirements, then activate the Group button to join them together for nesting and processing purposes.

UnGroup

Breaks an existing group back into Lots.

AutoSchedule

Sends the selected Lots (or groups of Lots) to the Nesting Scheduler.

Setup

See Maintenance, chapter 8.

Remove

Removes any selected items from the Nesting page.

Refresh

Re-display page with most current information.

Save Changes

Save any changes on the page back to the database.



Figure 24: Nesting controls(left side)



Figure 23: Nesting controls(right side)

2.5.5 Adding new Nesting Resources to the database

It is not necessary to “add new resources” to this page. These resources are handled by AIMS in the course of processing **lots**.

2.6 Line Control page

This page may also be titled “LineControlResource”.

Like the Nesting page, there is no need to manually add resources to this page.

2.6.1 How to display the Line Control page

This page can be displayed by clicking the selector on the main page, or by right-clicking on **LineControlResource** in the AIMS tree, and selecting **Open**.

If the selector is used, the Line Control page will open in the main display window.

If the right-click method is used, a new page will open.

LineControlResource								
Page [1]								
	<input type="checkbox"/>	Name	Status	Description	Priority	EstStartDate	EstCompletionDate	EstB...
1	<input type="checkbox"/>	Sheet 434.2 1659252004112401.LCD	Not Starti		435	2004-11-30 08:40:25	2004-11-30 08:48:01	0:07
2	<input type="checkbox"/>	Sheet 436 1659252004112402.LCD	Not Starti		436	2004-11-30 08:48:01	2004-11-30 08:51:08	0:03
3	<input type="checkbox"/>	Sheet 437 1659252004112403.LCD	Not Starti		437	2004-11-30 08:51:08	2004-11-30 08:52:01	0:00
4	<input type="checkbox"/>	Sheet 61 1752112004111102.LCD	Complete	DONE1	61	2004-11-11 18:04:38	2004-11-11 18:10:02	0:05

filter Search Execute Setup Remove RemoveAll Refresh Print Save Changes

Page [1]

Figure 25: Line Control Resource page

2.6.2 Information displayed on the Line Control page

This page lists each nested sheet along with complete scheduling information. (See figure 25 on page 21.)

2.6.3 Controls on the Line Control page

Filter

Display only items meeting certain conditions. (See page 4-8)

Search

Displays the advanced “regular expression” search page. A “Help” link is provided for use of search expressions.

Execute

Send selected items to the machine immediately.

Setup

See Maintenance, chapter 8.

Remove

Remove selected sheets.

RemoveAll

Remove all sheets. A confirmation prompt is displayed:

This will remove all data from LineControlResource
with **OK** and **Cancel** buttons.

Refresh

Re-display the page with latest information.

Print

Prints the job to the default printer using G-Code Simulator.

Save Changes

Save any changes on the page back to the database.

2.6.4 How to display a single Line Control item

Find the sheet in the AIMS tree under LineControlResource. Expand the node (click the +) and the information is displayed in the tree. (See fig. 26)

2.6.5 Adding new Line Control items to the database

It is not necessary to “add new resources” to this page. These resources are handled by AIMS in the course of processing nested sheets.

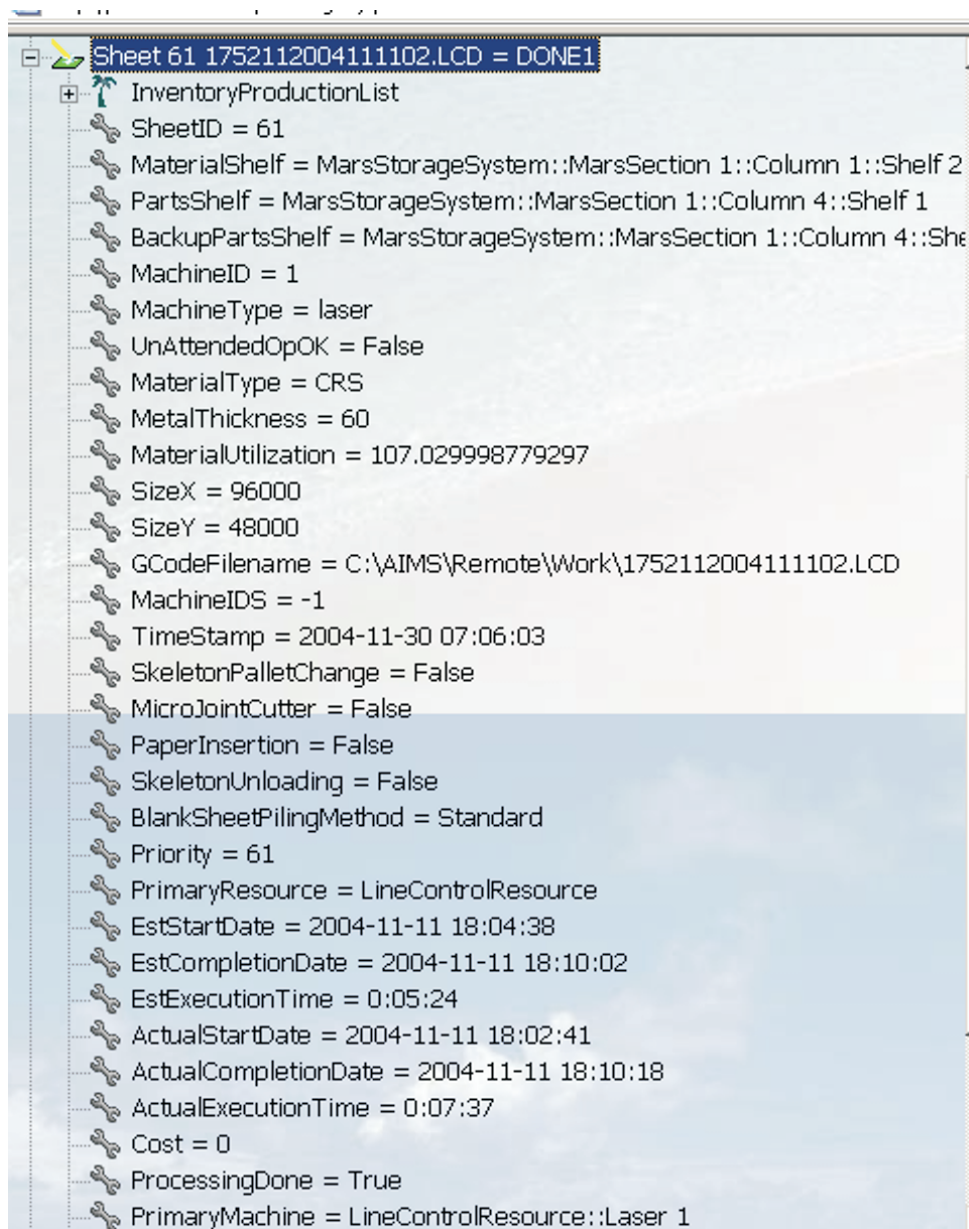


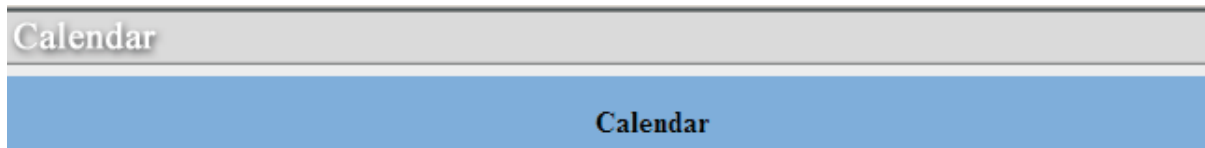
Figure 26: Line Control task

2.7 Calendar pages

The Calendar contains shift schedules for the machines.

AIMS uses shift information to determine when parts can and should be scheduled for timely production.

Name of item	Content	Note
Resource Code	Name of machine	Laser or turret
Date	Which days of the week does this shift apply to	
Preference	number	1=most preferred
ShiftCode	begintime-endtime	24 hour format
Quantity	How many machines share this shift	(how many are attended.)



1

<input type="checkbox"/>	<input type="text" value="ResourceCode"/>	<input type="text" value="Date"/>	<input type="text" value="Preference"/>	<input type="text" value="ShiftCode"/>	<input type="text" value="Quantity"/>
<u>1</u> <input type="checkbox"/>	<input type="text" value="laser"/>	<input type="text" value="mon-fri"/>	<input type="text" value="1"/>	<input type="text" value="04:00-22:00"/>	<input type="text" value="2"/>
<u>2</u> <input type="checkbox"/>	<input type="text" value="turret"/>	<input type="text" value="mon-fri"/>	<input type="text" value="1"/>	<input type="text" value="04:00-22:00"/>	<input type="text" value="1"/>

Figure 27: Calendar page

2.8 Laser pages

Several laser-related and material-related pages are used. This chapter will briefly describe them, and a more complete explanation with examples will be found in the Operations chapter.

The laser pages are listed in the AIMS tree as shown in figure 28.

The purpose of each page is listed below.

Page	purpose	How to activate
Laser	Display current task, provide access to laser setup.	Click the Laser1 or Laser2 selector.
Laser setup	Tell AIMS which defined laser setup a laser is using.	Click the SETUP button on the Laser page.
Laser setup definition	Defines a “laser setup”	From AIMS tree
Process capability page	Defines materials each laser setup can process	From AIMS tree
SheetMetalMaterialTable	Material name definition	From AIMS tree

2.8.1 Cutting Data overview

AIMS looks at the material name and thickness of each lot, and looks in the process capability list to determine which setup(s) can be used for that lot. AIMS then checks to see if any lasers have one of the useable setups.

Lots can be processed if there is correct material and laser setup at the same time, and if they can be finished after the earliest start date and before the due date.

If the correct material and/or laser setup is not available for a lot, such that it may become late, an alarm is signalled.

2.8.2 About Material Naming

Since different shops may choose different designations for materials, AIMS is designed to accept almost any arbitrary name. See the appendix for specific limitations in naming.

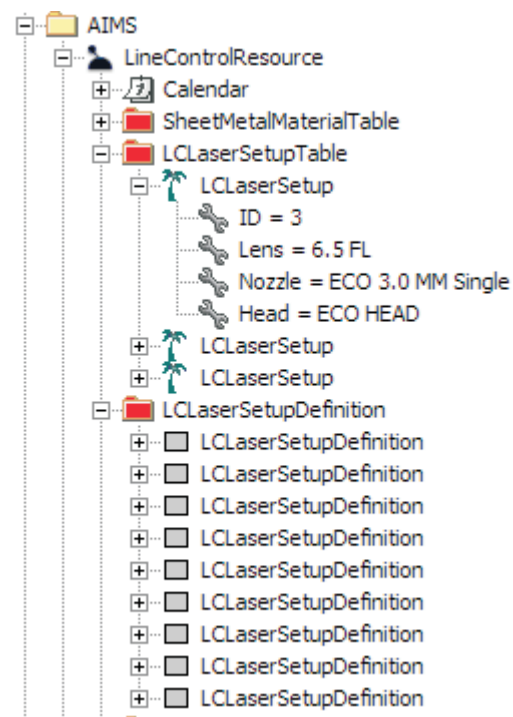


Figure 28: Tree showing laser setup

2.9 Laser Page

The laser page shows the task (sheet) running on the selected laser.
The various laser setup and cutting data setup functions are covered in Chapter 8.

Laser							
LCLaser							
1							
<input type="checkbox"/>	<input type="checkbox"/> Lot	Status	Description	Priority	EstStartDate	EstCompletionDate	EstExecute
<u>1</u>	<input type="checkbox"/>	In Progress Committed	FO1	57	2003-09-11 09:03:25	2003-09-11 09:11:44	0:8:19

Figure 29: Laser page

2.9.1 Controls on the LCLaser page

Setup

The SETUP button displays the Laser Setup page. (See Maintenance, Chapter 8.)

Remove

Not used.

Filter

Not used.

Refresh

Re-display the page with most current information.

Add Row

Not used.

Save Changes

Not used.

2.10 BBS page

The BBS (Bulletin Board) page displays alarm history and related information.

Bulletin Board							
BBS							
1							
<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> Critical	DateTime	Type	Source	Status	WhenStatus	
1	<input type="checkbox"/>	2003-09-10 12:22:39	Alarm	LC Alarms	Closed		
2	<input type="checkbox"/>	2003-09-02 07:54:08	Warning	LaserSetupsIncompatible			
3	<input type="checkbox"/>	2003-09-10 12:21:24	Alarm	LC Alarms	Closed		
4	<input type="checkbox"/>	2003-09-10 12:22:10	Alarm	LC Alarms	Closed		
5	<input type="checkbox"/>	2003-08-11 14:07:47	Warning	LaserSetupsIncompatible			
6	<input type="checkbox"/>	2003-08-05 12:12:43	Alarm	LC Alarms	Closed		

Figure 30: BBS page (1)

Name of item	Content	Note
Critical	Severity of alarm	
DateTime	When the alarm is signalled	
Type	Alarm or Warning	
Source	AIMS or system	
Status	Closed or not	
WhenStatusChanged	When alarm is corrected	
ChangedBy		
Action		
Last Action taken		
Subject		
Body		
Document		
Audio		
Video		

<u>WasChanged</u>	<u>ChangedBy</u>	<u>Action</u>	<u>WhenLastActionTaken</u>	<u>Subject</u>	
<input type="checkbox"/>		Cleared		T-Car Process Exces	DM440
<input type="checkbox"/>				LaserSetupsIncompa	No cor
<input type="checkbox"/>		Cleared		Mutiple Pick Up	DM440
<input type="checkbox"/>		Cleared		Pick Up Failure	DM440
<input type="checkbox"/>				LaserSetupsIncompa	No cor
<input type="checkbox"/>		Cleared		Emeraency stop butt	DM440

Figure 31: BBS page (2)

<u>Subject</u>	<u>Body</u>	<u>Document</u>	<u>Audio</u>	<u>Video</u>
Car Process Exces	DM4402 7			
userSetupsIncompa	No compatible laser			
mutiple Pick Up	DM4401 7			
ck Up Failure	DM4401 6			
userSetupsIncompa	No compatible laser			
mergency stop butt	DM4400 0			

Figure 32: BBS page (3)

2.11 Filters page

Purpose: A Filter may be set to “filter out” items from a display. Each filter consists of a data category, an operator, and a value to compare against. Several filters may be set, to find information from large lists of items.

For example, material thickness can be compared against a thickness value to hide all materials equal to .060” or less.

Figure 33: Filters page

2.11.1 How to display the Filters page

Click the **FILTER** button, found on the **Lots**, **Nesting**, **Material Tower**, and **Line Control.Resource** pages.

2.11.2 Information shown on the Filters page

Name of item	Content	Note
Column	Drop-down list showing valid data columns to be tested.	Contents depend on the page (Lots, etc) that the Filters page is called from.
Operator	Drop-down listing the various comparison operators available.	Operators include <, <=, =, >=, >.
Value	Value to be compared against each record.	

Sections 2.11.4, 2.11.5 have more information about columns and operators

2.11.3 Controls on the Filter page

Remove Selected

Removes any filters which are selected (checked).

Add

Adds filter to the active list.

Close Window

Closes the Filters page, leaving filters active.

Any filter set applies to that page alone.

- **Note: Filters only apply until one of the display selectors on the Main Display Window is used.**

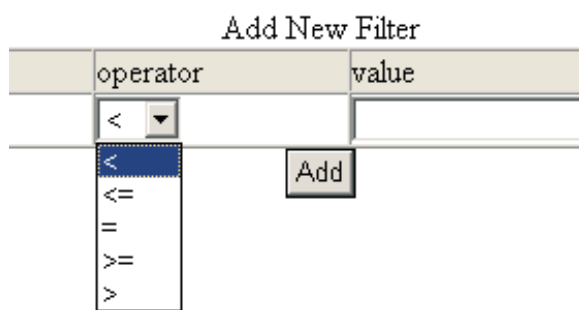


Figure 34: Filters - Operators list

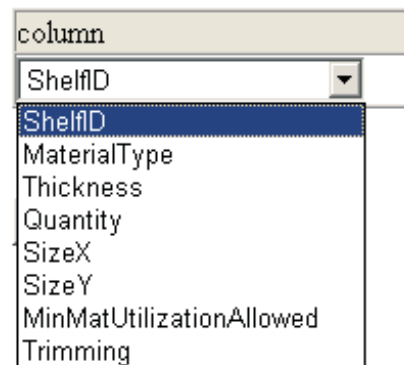


Figure 35: Filters - column list

2.11.4 Operators

[column] < [value]	Hide all records where the data in [column] is less than [value].
[column] <= [value]	Hide all records where the data in [column] is less than or equal to [value].
[column] = [value]	Hide all records where the data in [column] is the same as [value]
[column] => [value]	Hide all records where the data in [column] is more than or equal to [value].
[column] > [value]	Hide all records where the data in [column] is more than [value].

2.11.5 Columns

The “columns” refer to the type of information displayed in each column of the data pages. For example, on the Lots page, columns include ProductionItem, OrderID, Quantity, Done, etc.

- **Remember: The items that match-up in the test are hidden from you.**

Example filters		
Data page	Purpose	Example filter
Material tower	To show material that is 1/4” and thicker	thickness < 250
Lots folder	Show Lots having high priority	Priority > 2
Lots folder	Show Lots due before a certain date, where {date} is in the form yyyy-mm-dd	DueDate => {date}

2.11.6 Adding a filter

Follow these steps to create a filter:

- 1 Select the page containing the data (“data page”) to view/filter.
- 2 Click the **Filter** button.
- 3 On the Filters page, select the category to test under **column**.
- 4 Select the **operator** (conditional test) to use from the drop-down list.
- 5 Type or paste the **value** to test or compare against.
- 6 Click the **Add** button.

Steps 3, 4, 5 may be done in any order.

Steps 3, 4, 5, 6 may be repeated to set multiple filters.

Click the **Close Window** button to return to the data page.

Click the **Refresh** button on the data page to display filtered data.

2.11.7 Removing a filter

- 1 Select the page containing the data (“data page”) to view/filter.
- 2 Click the **Filter** button.
- 3 Click the checkboxes of each filter to remove.
- 4 Click the **Remove Selected** button.

Additional filters may be set while the Filters page is open.

Click the **Close Window** button to return to the data page.

Click the **Refresh** button on the data page to display filtered data.

2.11.8 Removing all filters

To remove all filters on the main screen, click the **display selector** for that page.
To remove all filters on a separate data page, close it and re-display it.
Or, select the Filter page, select all filters, and use the **Remove Selected** button as above.

Chapter 4: Operation

This chapter focuses on primary operations—getting the system to sequence parts and process them efficiently, and output them to the rest of the plant.

1 Operational overview

Part programs are created in an external programming system. (This may be an Amada programming system, or a third-party programming system. The G-code files are imported or added to the AIMS database.

An AIMS “Part” includes the G-code plus information defining the material type, whether the part is rotatable, if it can be flipped, if it may be run unattended, etc. Parts may be set up using the AIMS browser, or the Importer program (see chapter 6), or by other means.

See pages 6-6, 11-1 for more information about parts and associated pages and controls.

To schedule parts for processing, you create Lot(s), giving them due dates, quantity, priority, etc. Each Lot can contain only one part.

See pages 6-11, 11-1 for more information about lots and associated pages and controls.

Make sure material is available in tower, and make sure that AIMS has correct information as to material type, thickness, size, location, and quantity.

The AIMS software will nest and sequence lots onto sheets for processing, and operate the system to transfer blanks into the laser(s) and cut sheets out to the tower or other delivery system.

The user can manually create Groups of Lots on the Nesting page, or just let AIMS handle grouping and nesting.

1.1 Materials and processes

The AIMS software distinguishes setups and materials by material names. For example, it would consider HRS-WS to be different material than HRS.

- **Note: AIMS will not use a material unless it has the exact same name and thickness as the part calls for.**

Laser Setups

Laser setups are defined

1.2 System Scheduling

Parts are scheduled according to due dates and priorities.

The AIMS software will schedule jobs according to machine and shift availability. If a Part may be run unattended, then it can be scheduled any time a machine is available. Since AIMS is connected to the AMS 3015 Factory Automation Cell, it “knows” when each unit is on-line and ready for work.

If a Part can't be run unattended, then any sheet containing it will be scheduled entirely within defined shifts.

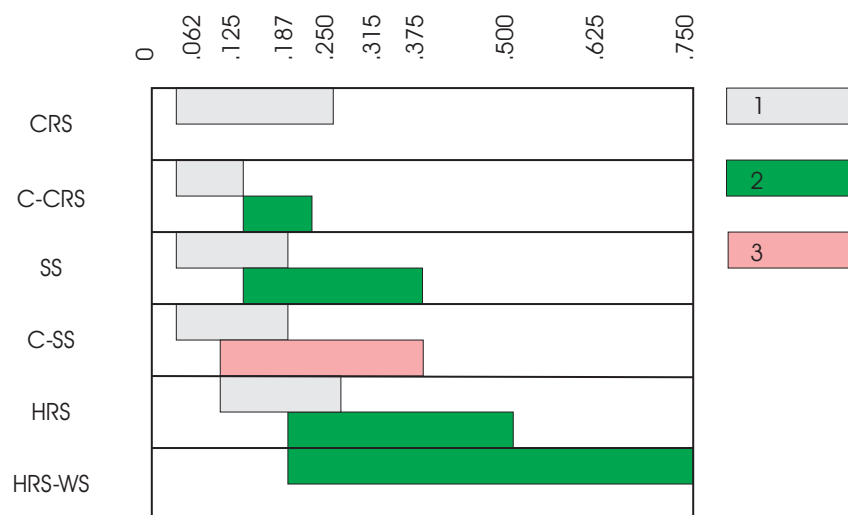


Figure 36: Example of material type/thickness/process

1.2.1 Priorities

Aside from calendar-based scheduling, the user can place numeric priorities to control scheduling.

Priority	Meaning (applied to Lot)	Comments
1	Nest and run immediately	Does not nest with other lots.
2	Run by end of day.	May nest with other Lots eligible for production on that day.
3~9	Progressively lower priorities, but ahead of non-prioritized lots.	Date priority will override numeric priority. ("Prime directive" is "don't be late".)
10~	Nest and run according to normal scheduling.	Lower number gives higher priority for execution, but no forced production date.

The user can assign priorities to Lots, Nesting Resources, and Line Control Resources (sheets).

AIMS will schedule parts to minimize lateness. Parts are never run before an "earliest due date" unless the operator sets the lot priority to one.

1.2.2 Defining Shifts

Shifts are defined on the Calendar (see page 3-24).

Time format is **hh:mm:ss** , 24 hour format.

Each shift is defined by workday range, begin-time, and end-time. Each shift record also specifies how many machines are available during that shift.

Time / unit	Formats accepted	Notes
Date (Day of week)	mon, tues, wed, thurs, fri, sat, sun	Ex: mon-fri
ShiftCode (attended shift hours)	hh:mm-hh:mm	24 hour format. Ex: 04:00-22:00
ResourceCode	laser, turret	Must have separate shift listings for lasers and turrets.

1.3 Operations Flowchart

The flowchart shows the general flow of operations when using AIMS.

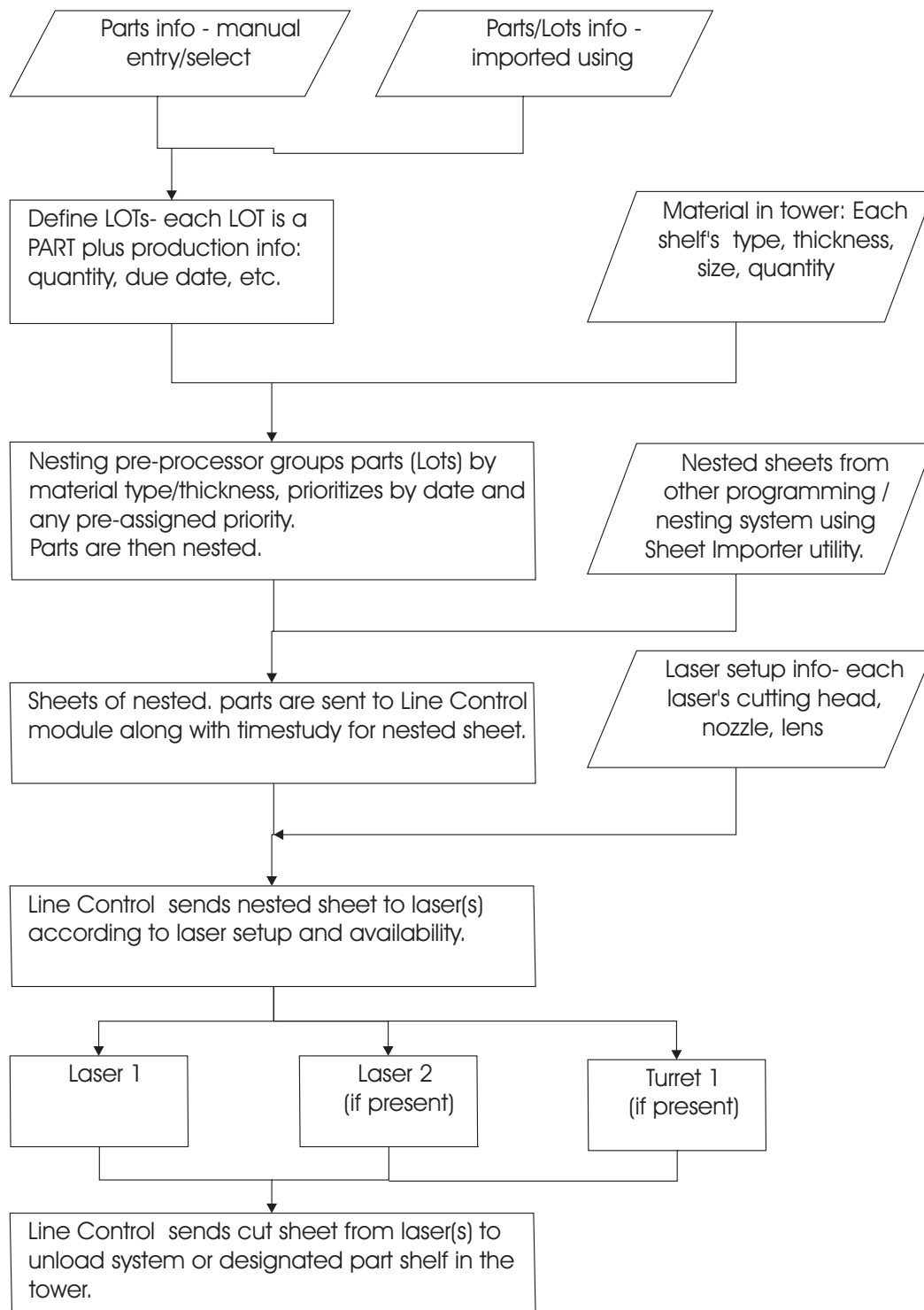


Figure 37: Flow of operation

2 Making Parts

This section presumes that parts have been created/programmed in some external system.

2.1 Starting from Part files

When the G-code or DXF part files are available, they may be added into the AIMS software database using the or by using the Parts page.

***Warning: You must make sure to specify the correct material type and thickness when creating the Part record. There is no cross-checking between the Part database record and the NC code.**

2.1.1 File naming and location

Parts files can be on any local or network folder accessible by the computer running AIMS.

2.2 Working with Parts and Lots

To produce parts, they must be assigned to Lots.

The AIMS software looks at the workload of Lots and determines a production schedule based on shift calendar, date due of each Lot, and so forth.

Lots may be created using the Parts and Lots Importer, (see chapter 6) or the **Lots page** in the AIMS software. (See page 3-11).

To change a defined Lot, either the Parts and Lots Importer or the Lots page may be used.

2.2.1 Nesting

Lots will be nested according to the generated production schedule. They may be viewed on the Nesting page.

2.3 Starting from nested Sheets

Nested sheets may be brought into AIMS for scheduling and execution. The Sheet Importer is provided for this. See Chapter 6 for requirements and use.

2.4 Line Control

The LCR page (Line Control Resource) shows nested sheets and the status/disposition of each. (See page 3-21 for more information)

Records of finished sheets may be removed using this page, if desired. Select the sheets to remove, and click the **Remove** button.

Filters may be used to display only the finished sheets. (See page 4-8 for more information.)

2.5 Material and Parts towers

When material is loaded on a shelf, the corresponding information in the AIMS software must be updated. Likewise, when a parts shelf is unloaded, the corresponding parts tower shelf in the AIMS software must be “emptied”.

2.5.1 Loading Material

Use the autostorage control panel to bring the shelf into load position and put it back when done. The AMS 3015 Operator's manual describes the controls and use of them. When the loaded material is returned to system control, notify the AIMS software as follows:

In the AIMS Tree, open the MaterialTower.¹ You can also just open the shelf to load.

Update the Quantity for each shelf loaded. If the material type, size, or thickness is changed, be sure to set those values too.

Click the “**Save Changes**” button, or right-click the page and select “Save Changes”.

2.5.2 Unloading Parts

Use the autostorage control panel to bring the parts shelf into unload position and put it back when done. The AMS 3015 Operator's manual provides descriptions of the controls and instructions on proper operation. When the empty shelf is returned to system control, notify the AIMS software as follows:

In the AIMS Tree, expand the PartsTower node.

Right-click the icon for the shelf number that you just unloaded, and select **Empty**.

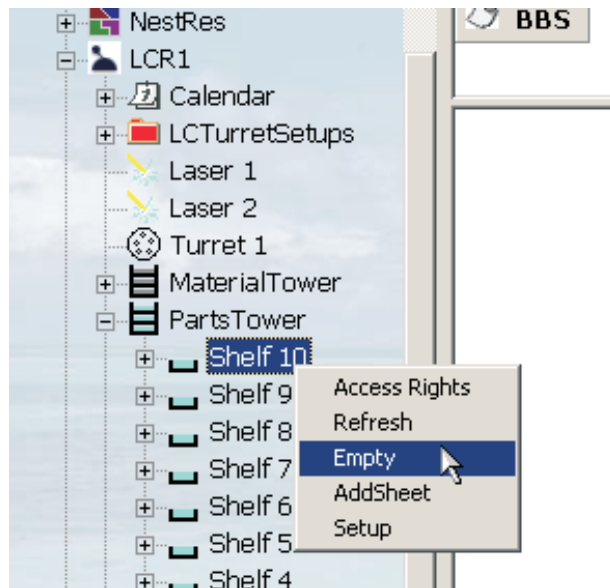


Figure 38: Emptying a parts shelf

¹ Right-click the Material Tower node, and click Open in the menu that pops up.

3 Finding Information

Various tools are provided to help the user find information, or to filter out unwanted items from desired information.

3.1 Tools Available

Within AIMS, the AIMS tree and the various screens are available. On several pages, filters may be used to strip unwanted data from a display.

External tools:

The Alite Parts and Lots Utility, which has a number of tools to relate parts, lots, and program files on disk.

SQL-Yog is a database program for more advanced users. It can be used to examine and modify data.

***Warning: Any modification of the database structure may render the AIMS software inoperative or may cause it to operate incorrectly.**

The database structure must never be modified without approval by Amada Technical Support.

*** Directly editing the database must only be done by trained and qualified personnel.**

3.2 Using Filters

The Filters page is displayed when the FILTER button is activated.

See page 3-29 for a description of the Filters page.

See page 3-31 for some basic examples of filters.

MaterialTower									
1									
Row	<input type="checkbox"/>	ShelfID	MaterialType	Thickness	Quantity	SizeX	SizeY	MinMatUtilizationAllowed	Trimming
1	<input type="checkbox"/>	10						0	200
2	<input type="checkbox"/>	9						0	200
3	<input type="checkbox"/>	8						0	200
4	<input type="checkbox"/>	7						0	200
5	<input type="checkbox"/>	6						0	200
6	<input type="checkbox"/>	5	SS	60	34	120000	60000	0	200
7	<input type="checkbox"/>	4	SS	75	49	120000	60000	0	200
8	<input type="checkbox"/>	3	SS	48	100	120000	60000	0	200
9	<input type="checkbox"/>	2	CRS	60	22	120000	60000	0	200
10	<input type="checkbox"/>	1	CRS	48	38	120000	60000	0	200

Figure 39: Filters example 1 - material page unfiltered

Example: To show only shelves having SS, filter materials out that are “less than SS” and those that are “more than SS”.

Filters - Microsoft Internet Explorer

Filters - Select information to filter out

	<input type="checkbox"/>	column	operator	value
0	<input type="checkbox"/>	MaterialType	<	SS
1	<input type="checkbox"/>	MaterialType	>	SS

Add New Filter

column	operator	value
ShelfID	<	

Figure 40: Filters to show only SS

After setting the filters and refreshing the data page, only the filtered data will be visible. (Data which was not filtered out)

Figure 41 shows the Materials page with the filters of figure 40 in effect.

MaterialTower								
1								
Row	<input type="checkbox"/>	▲ ShelfID	MaterialType	Thickness	Quantity	SizeX	SizeY	MinMatUtilizationAllow
7	<input type="checkbox"/>	4	SS	75	50	120000	60000	0
8	<input type="checkbox"/>	3	SS	60	50	120000	60000	0

Figure 41: Material page filtered for only SS

4 Support tasks

Support tasks include documentation, organizing, and related.

4.1 Viewing and printing a nested sheet

Use the AIMS tree to select the sheet of interest, then right-click it.

The menu options include Open, Access Rights, Refresh, Print, and Display.

Select **Display**

This option displays the sheet in the G-Code Simulator.

The G-Code Simulator provides controls to zoom in and out, to print, etc.

See page 5-1 for more information.

Chapter 5: G-Code Simulator

The G-Code simulator (G-Sim) is used to display and print nested sheets.

In addition, it permits line-by-line simulation of the sheet. It only runs the G-code it is started with, and does not permit loading a different G-code file.

The user can zoom in to a particular area or feature.

- **NOTE: G-Sim always prints the sheet as displayed.**

1 Starting the G-Code Simulator

Select a sheet and **Display** it. (See page 4-10) This launches the G-Code Simulator software (G-Sim) and loads the G-code of the selected sheet.

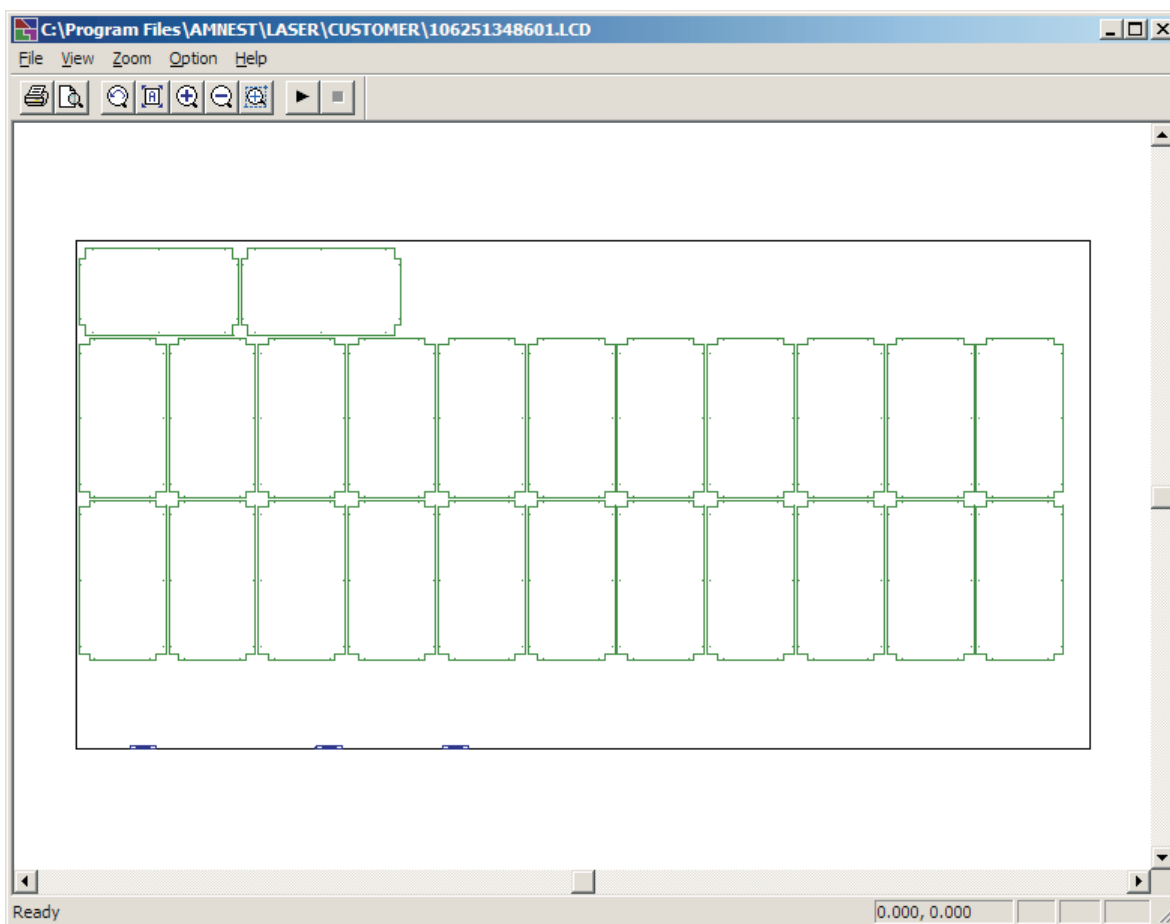


Figure 42: G-Code Simulator main window

1.1 Menu items

Menus for File, View, Zoom, Option (print), and Help (about) are provided.

1.1.1 G-Sim File menu

Save copies any the G-code (with any edits) back to disk.

Save As.. copies the G-code (with any edits) to disk with a new name and/or location.

Print.. activates the Print dialog box. The printer may then be selected and printer options set before printing. Prints the sheet “as displayed”.

Print Preview activates the Print Preview dialog box.

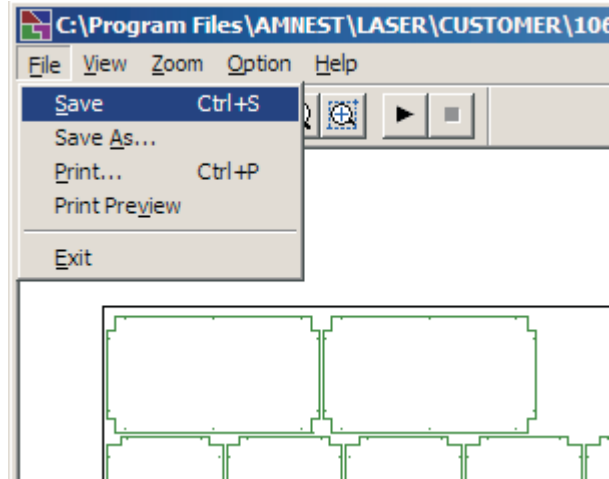


Figure 43: G-Sim File menu

1.1.2 G-Sim View menu

Toolbar displays or hides the row of icons.

Status Bar displays or hides the status bar at the bottom of the G-Code Simulator window.

Step Start has the same effect as clicking the Step Start icon.

Step Cancel has the same effect as clicking the Step Cancel icon.

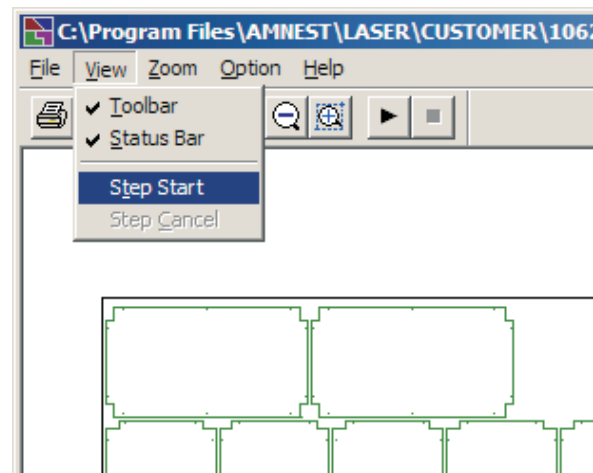


Figure 44: G-Sim View menu

1.1.3 G-Sim Zoom menu

This menu provides controls and lists shortcuts for “zoom” (plot magnification).

This permits close inspection of features, or selection of a particular area to print.

1.1.4 G-Sim Option menu

Set program options here.

1.1.5 G-Sim Help menu

Display software version (about) or program help (if available).

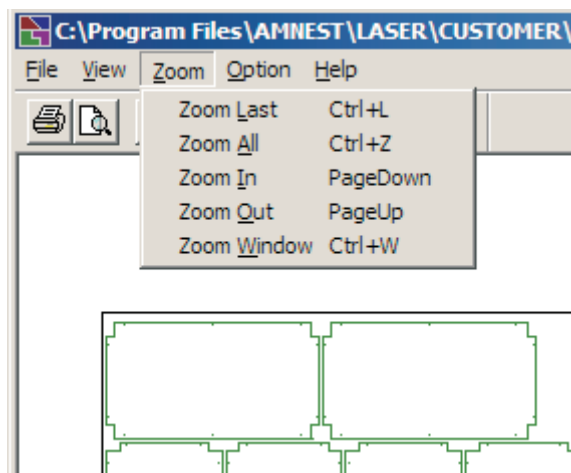


Figure 46: G-Sim Zoom menu

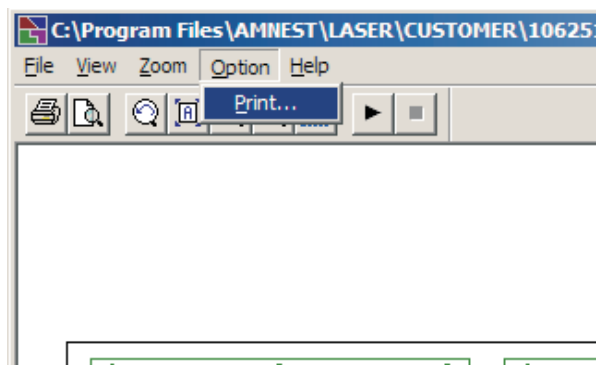


Figure 45: G-Sim Option menu

1.2 Icons

Icons are provided for print, zoom, and simulation control.

The **Print** icon prints the current G-code plot immediately to the current printer

The **Step start** icon launches the G-code window, and **Step Cancel** closes the G-Code window.

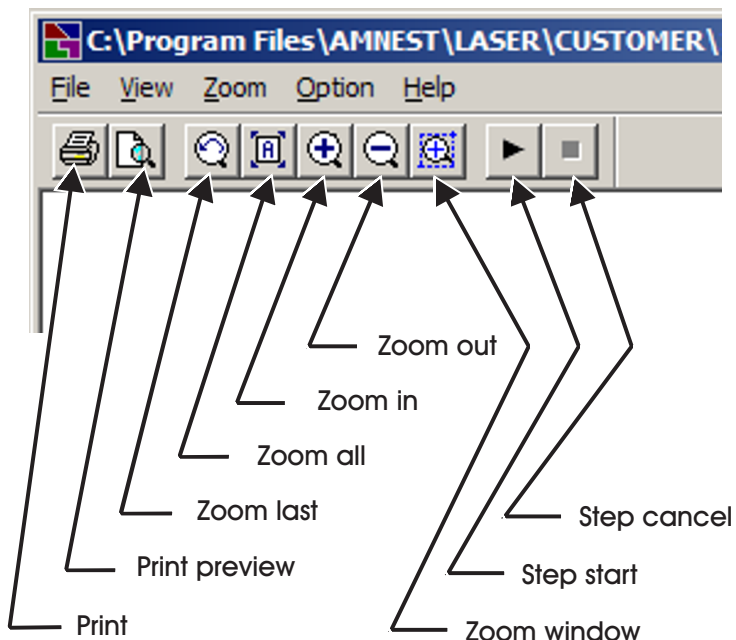


Figure 48: G-Sim icons

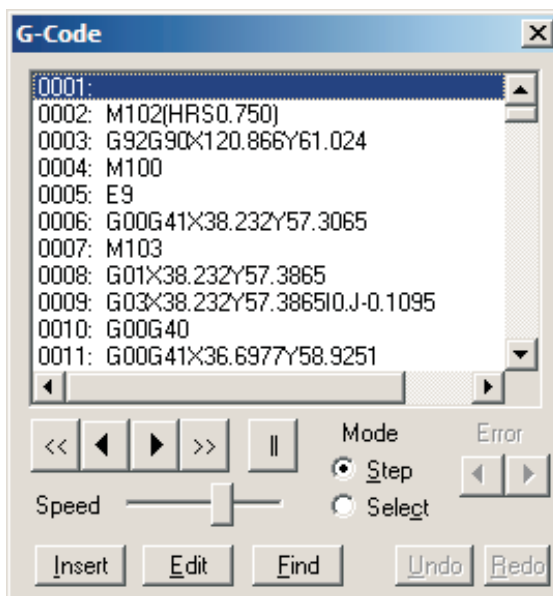


Figure 47: G-code window

Chapter 6: Alite Parts and Lots Utility

The Alite Parts and Lots Utility is the primary tool for managing parts, lots, and sheets. A large inventory of parts can be created and managed, with any portion visible or not visible to the AIMS software.

Parts may be quickly added to the database, and Lots may be easily created from existing parts. It also provides tools for determining which lots contain a particular part, etc.

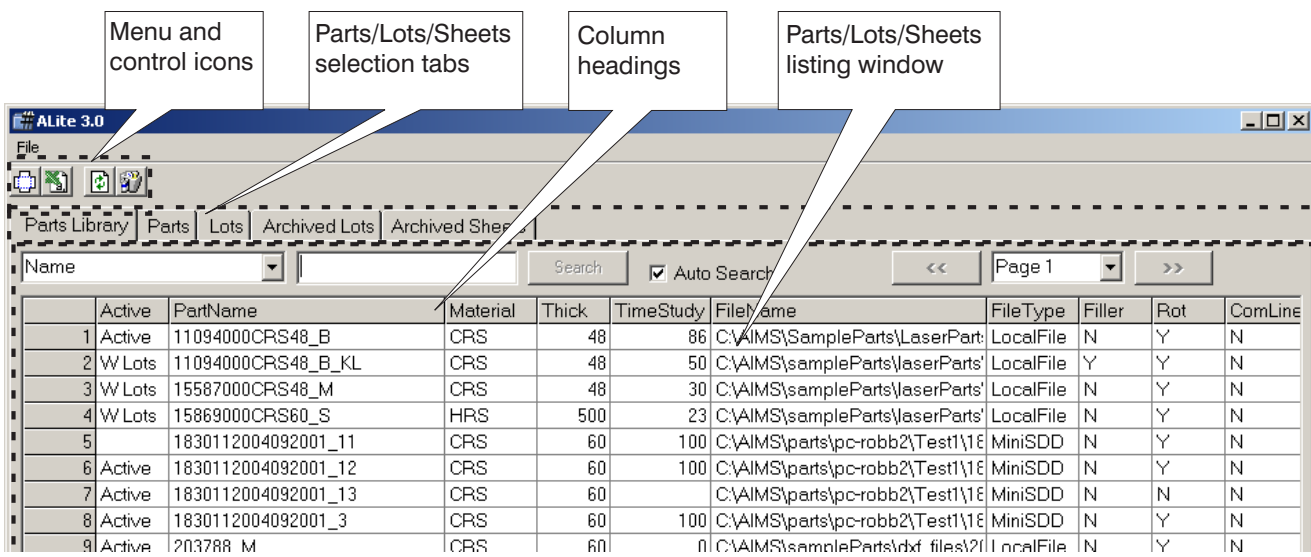


Figure 49: Importer main screen

1 Overview of Alite Parts and Lots Utility

Parts, Lots, and nested sheets may be imported to the AIMS database or exported from it.

Parts may be “active”, which makes them visible to the AIMS software. If they are not “active”, then they are not viewable from AIMS, and are not available for use there. Lots and sheets are “archived” for review/tracking purposes when the export feature is active.

1.1 Data on main screen

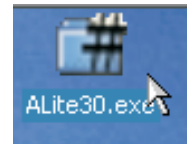
The main screen has tabs to display the Parts Library, Parts, Lots, Archived Lots, and Archived Sheets.

1.2 Parts, Lots, Sheets, and Archives

- The Parts Library lets you store definitions of any number of parts and control which of them are visible to the Parts page in AIMS.
 - Active Parts are visible on the Parts page in Alite and in AIMS.
 - Inactive Parts definitions are not visible outside of the Parts Library.
- The Parts page lists the same parts that are visible from the AIMS windows.
- The Lots page lists Lots available to AIMS.
- Archived Lots are Lots which have been run in AIMS and then exported by Alite to CSV. After export, the lots are moved from the Lots page to the Archived Lots page.
- Archived Sheets are handled just like Lots: after a sheet has been completed and the information exported, the record is moved from AIMS to Alite's Archived Sheets listing.

1.3 Starting the Alite Parts and Lots Utility

An icon or shortcut will be provided to launch the Alite Parts and Lots Utility. Ordinarily, it will be on the Windows® Start Menu or on the Desktop. The location may vary from system to system.



1.4 Controls on main screen

This section describes the controls available on the main screen of the Alite Parts and Lots Utility. Other controls are described further into the chapter.

Many of the controls have “hover” tips. Hold the mouse pointer over a control to see a brief description of purpose or use.

A File menu is provided, four control icons, and a number of page selection tabs.

The File menu provides Setup and Exit selections.

Control icons are available to add parts or lots manually, and to import/export information using “csv” files.

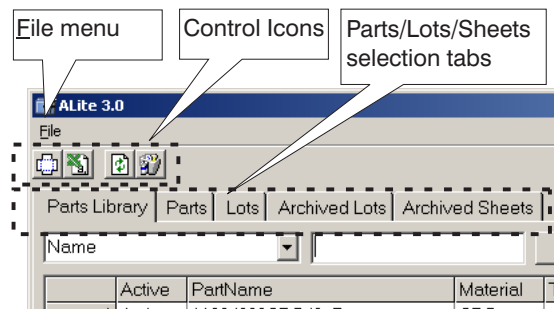


Figure 50: Controls on main screen

Add Parts icon

Creates Part(s) using file names selected in the File browse/select window.



Figure 51: Control Icons



Figure 52: “Add Part(s)” icon

Add Lots button

Creates Lot using selected Parts. Displays window for Lot settings.



Figure 55: “Add Lot” button

CSV Import button

To import or export information. Parts, Lots, and Sheet information can be imported from external program into AIMS. After lots and sheets have run, they can be exported from AIMS to a CSV file for use in an MRP system or other external program. The exporting can be done manually or repeatedly by timer.



Figure 54: CSV Import button

1.5 Parts/Lots listings

The lower portion of the Alite Parts and Lots Utility screen lists parts, lots, archived lots, or archived sheets. Tabs are provided to select which of these are displayed.

File find/display controls

These function much like Windows® Explorer.

Directory browse window

Select location of NC files to add as Parts.

File browse/select window.

Select single or multiple files to add as Parts.

Click on column caption to sort the list by that column.

File Name Filter String

This determines what kinds of files are displayed in the File Browse window.

- **Note: Unlike the “filter” feature in AIMS, this control “selects” file types, rather than “filtering them out”.**

Defaults to show only .GCD, .LCD, and .NC files. Change if desired.

	Active	PartName	Material	T
1	Active	11094000CRS48_B	CRS	
2	W Lots	11094000CRS48_B_KL	CRS	
3	W Lots	15587000CRS48_M	CRS	
4	W Lots	15869000CRS60_S	HRS	
5		1830112004092001_11	CRS	
6	Active	1830112004092001_12	CRS	
7	Active	1830112004092001_13	CRS	
8	Active	1830112004092001_14	CRS	


Figure 53: Importer Parts/Lots tabs

2 Operations

This section describes use of the Alite Parts and Lots Utility.

2.1 Adding Parts



Click the Add Parts icon  browse to the correct location on disk, and select the file(s) to add as Parts. Click the Add Part(s) button.

The new Parts will all have the selected material type, thickness, and other attributes selected. The part names will be based on the G-Code filenames.

Parts settings

Material selector

Select material type for created Lot(s).

Thickness input

Input material thickness for created Lot(s).

Primary Machine selector

Select FO or Apelio machine, as appropriate.

Unattended

Set as appropriate.¹

Rotate allowed

Set as appropriate.

Flip OK

Set as appropriate.

CleanCut

Set as appropriate.

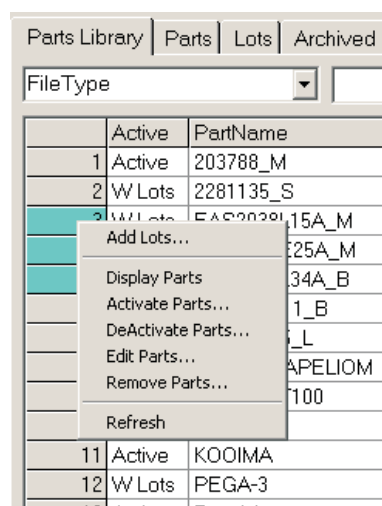


Figure 56: Right-click menu

2.2 Editing Parts Listings

To edit a part, right-click the part name and select Edit.

This opens an edit pane. When finished editing, click the Edit Part button at the bottom of the edit pane.

If a part is active, editing it will create a new part containing the edited information.

¹ Click the box so that a check mark appears to allow that feature.

2.3 Creating Lots from the Parts Library

Select the Parts Library tab.
 Select the Parts to make Lots from.
 Right-click and select **Add lots**.

2.3.1 Selecting parts

To select a single Part, click the row.
 To select multiple parts, you can click and drag to highlight the parts.
 To select parts that aren't all next to each other, hold the CTRL key down and click the numbered area on the left side of each part to select.
 Selected parts will be indicated by the numbered area turning color.
 (See figure 58)

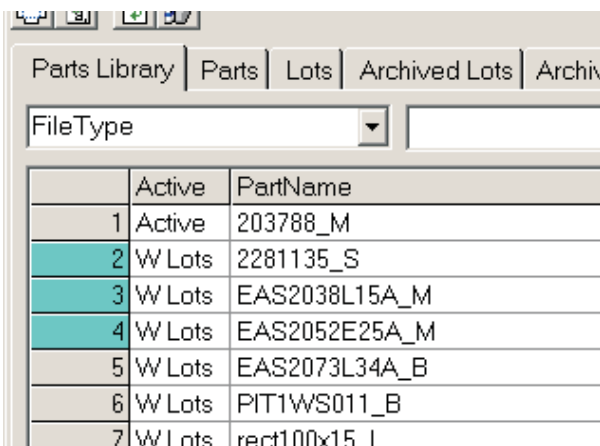


Figure 58: Selecting multiple files

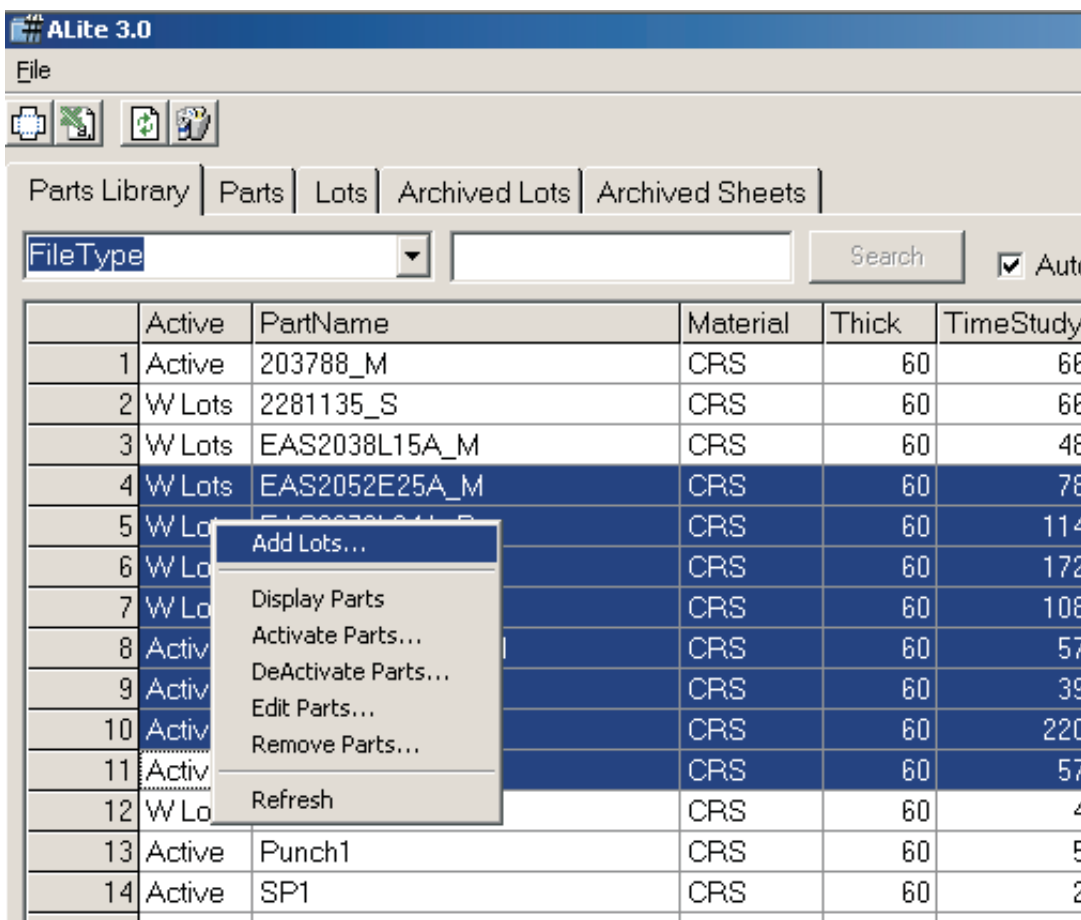


Figure 57: Right-click menu

2.3.2 Lot Parameters

When Add Lots has been selected (above), a new dialog is shown.

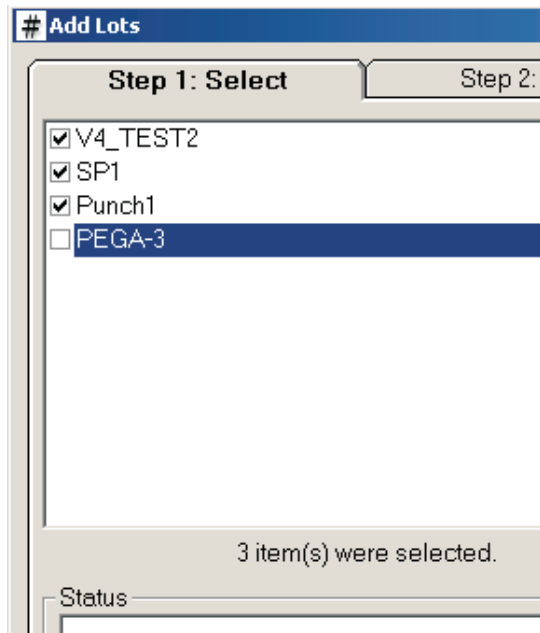


Figure 59: Add Lots dialog, left side

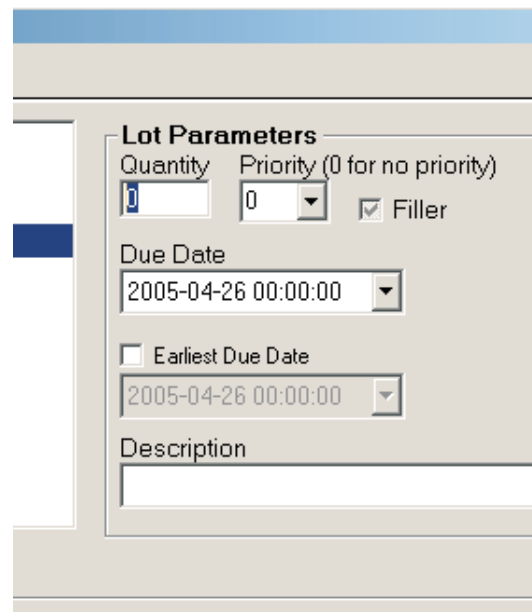


Figure 60: Add Lots dialog, right side

The parts previously selected are listed with checkboxes, so any that aren't wanted can be de-selected here.

Note: The **Add Lots** button is not active when this screen is displayed.

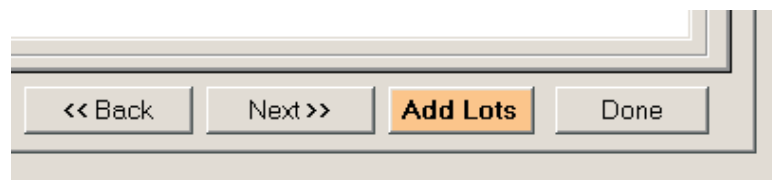


Figure 61: Buttons on Add Lots dialog

Due Date

Set values for newly created Lots. Does not affect Parts creation.

Earliest Due Date

If the Earliest Due Date checkbox is selected, the eEarliest Due Date may be set for the created Lots.

Quantity

Input number of parts for created Lot(s).

Priority

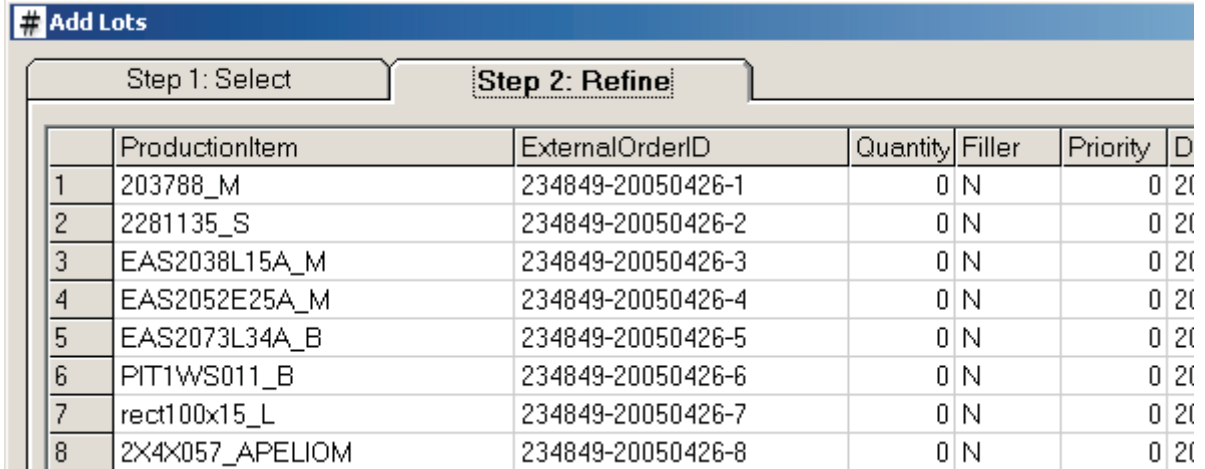
Set a numeric value or 0 (zero) for no priority.

Filler

Check the Filler box if the part may be used as filler on nested sheets.

2.3.3 Refine Lots

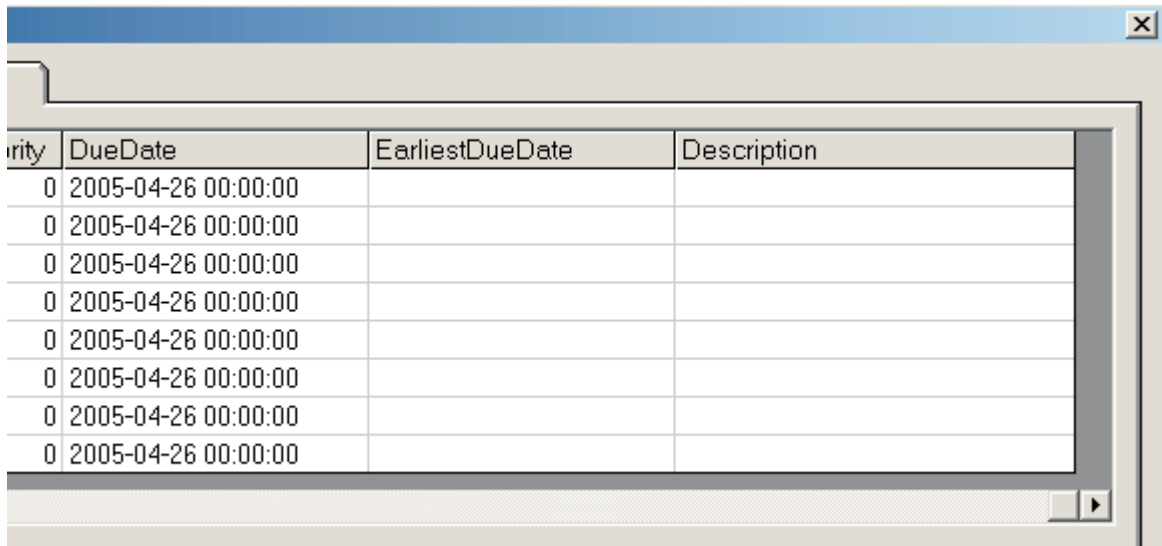
Click the NEXT button to show the **Step 2: Refine** dialog.



	ProductionItem	ExternalOrderID	Quantity	Filler	Priority	D
1	203788_M	234849-20050426-1	0	N	0	20
2	2281135_S	234849-20050426-2	0	N	0	20
3	EAS2038L15A_M	234849-20050426-3	0	N	0	20
4	EAS2052E25A_M	234849-20050426-4	0	N	0	20
5	EAS2073L34A_B	234849-20050426-5	0	N	0	20
6	PIT1WS011_B	234849-20050426-6	0	N	0	20
7	rect100x15_L	234849-20050426-7	0	N	0	20
8	2X4X057_APELIOM	234849-20050426-8	0	N	0	20

Figure 62: Add Lots - Refine (left side)

This dialog provides editable fields for each lot and item. Make any adjustments desired, then click the **Add Lots** button.



Priority	DueDate	EarliestDueDate	Description
0	2005-04-26 00:00:00		
0	2005-04-26 00:00:00		
0	2005-04-26 00:00:00		
0	2005-04-26 00:00:00		
0	2005-04-26 00:00:00		
0	2005-04-26 00:00:00		
0	2005-04-26 00:00:00		
0	2005-04-26 00:00:00		

Figure 63: Add Lots - Refine (right side)

To quit without adding Lots, just click the **Done** button.

2.4 Finding information

In both the Parts pane and the Lots pane, the column headings may be clicked to sort the data by that column. Clicking a heading repeatedly will toggle between sort directions. Column widths may be resized by clicking and dragging the split between the column headings.

2.5 Importing

The Sheet Importer provides a convenient way to add a number of sheets quickly to the AIMS database. It can be used manually or automatically.

3 Manual operation

In manual operation, you specify the file name of the nested sheet, material qualities, and related information.

3.1 Required information

Each entry box must have data present. If values are missing, the software will prompt the user for them when the **Add Sheet** button is clicked.

3.1.1 Controls and data input

For file location and selection, a browse button is provided. For date selection/input, a calendar display is provided. For machine selection, a drop-down selector is provided. Other items are text input boxes.

GCodeFilename selection

Press the browse button (see below) to display a file browse control. The appearance of the control may vary according to the version of Windows and various settings which may be active.

Date selection

To display the calendar, click the DueDate control's down-arrow. The calendar is then displayed.

Select the desired month, then click on the number of the day. The full date will be placed in the DueDate input field.

Machine selection

Click the DefaultMachine down-arrow to display the options, then select the preferred option.

3.1.2 Data items for Manual sheet addition.

Item	Data	Note
GCodeFilename	(Full file name and path of sheet to be imported)	Use browse button to locate file.
Name	Designation of sheet	Automatically filled with bare filename. Change as desired.
Due Date	(Date that the sheet is due)	Click the arrow to display a calendar. (Figure)
EstExecutionTime	Execution time in minutes.	AIMS will use this value in schedule planning.
MaterialType	CRS, HRS, (etc)	As defined in AIMS, same format as shown in Material Tower.
MetalThickness		Used by AIMS in blank material selection.

Item	Data	Note
XSize (inches)		Used by AIMS in blank material selection.
YSize (inches)		Used by AIMS in blank material selection.
UnAttendedOpOK	(1 = ok, 0=not ok)	Used by AIMS in scheduling.

4 **Automatic operation**

In automatic operation, the will import from a “CSV” file containing the necessary information.

Instructions are displayed on the program page.

Use the browse button to locate a file to import.

After selecting the file, you can click **Import Now**, or just enter the time interval and click **Save Settings**.

For information about the CSV file format, call Amada Technical Support.

5 Settings

The settings must be correct for the to properly work with the AIMS database. A table is provided in the Maintenance chapter to record factory settings. If any question arises, or if the settings don't seem to work, please call Amada Technical Support.

Chapter 7: Startup, Shutdown



This chapter details procedures for software startup and shutdown. The software is intended for continuous operation, rather than frequent startup/shutdown.

1 Startup

The software consists of a number of modules, some of which must be started in sequence. Portions of the software should start when Windows® starts up, other portions may need to be started manually.

1.1 Components which Auto-Run

The following components will start with Windows:

Icon	Name	Purpose
	Scheduling Server	Coordinates/schedules operations
	Nesting Server	Nests parts into sheets.
(none)	FireDaemon	Provides support services.
(none)	Tomcat	Provides support services.
(none)	OmniNames	Provides support services.

1.2 Login

The Login screen (figure 64) should be displayed at system startup.

If the login screen does not display automatically, a shortcut may be established on your start menu or desktop. It will launch **Internet Explorer** with the following address:

http://localhost/aimslogin.jsp

Log in using the information provided by Amada or your System Administrator.

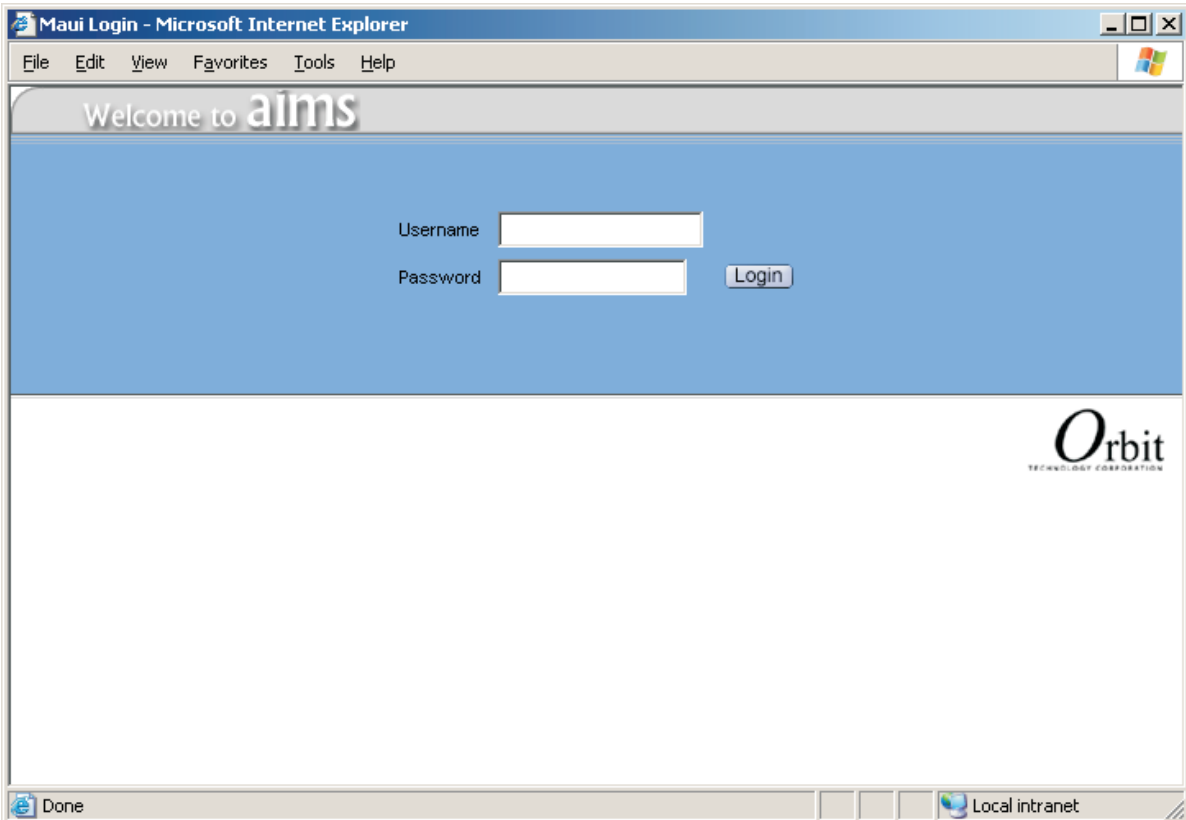


Figure 64: AIMS Login Screen

- **Note: Username and Password are CASE SENSITIVE. If login fails, check the Caps Lock status of your keyboard.**

1.3 AIMS “Load” procedure

The AIMS software must connect to its database, and load information from it. The “load” procedure does this. In some versions of AIMS, it is automatically done when the AIMS browser is started, or when the user logs in.

- **The following procedure is not required on all versions of the software.**

If the buttons appear across the top of the window, try double-clicking the icon shown in figure 67. If the ‘tree’ displays, then the following “load” procedure is not needed.

To perform the “Load” procedure

Once the main display window appears, select the icon in the tree portion of the screen, and right-click it. A "context menu" will appear:

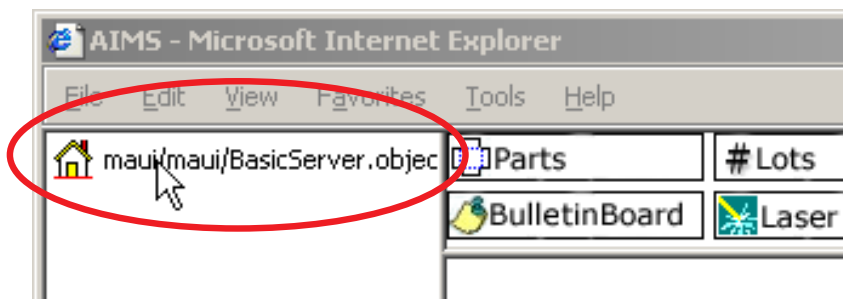


Figure 67: Ready to "load"

- Note: The buttons across the top of the window may not appear until after the “load” procedure.

In the drop-down (context) menu, click **Load**.
(Figure

If a confirmation box appears (Figure 65), click **OK**.

The AIMS tree will then be displayed. If it is fully collapsed (as in Figure 66) then double-click the icon to expand it.

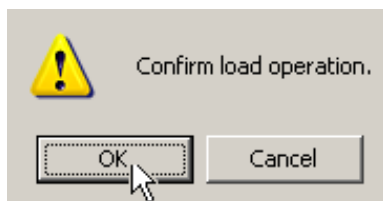


Figure 65: Load confirmation

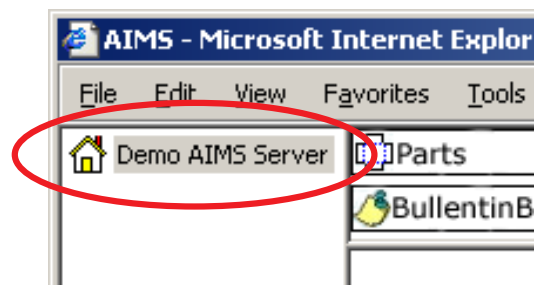


Figure 66: AIMS tree, fully collapsed

2 Shutdown

To shutdown the software, right-click the topmost icon in the AIMS tree, and select “Shutdown”. A confirmation window will appear. Confirm shutdown, and the AIMS window will close.

and closing it. (right-click, select exit.)

A shortcut or script may be provided to shut down the Maui services.

★Warning:

Closing services manually can render Windows® unstable. Do not close services by means of the Windows® Tasklist unless directed to do so by Amada Technical Support or other qualified personnel.

The background applications may be closed by selecting each icon in the menubar

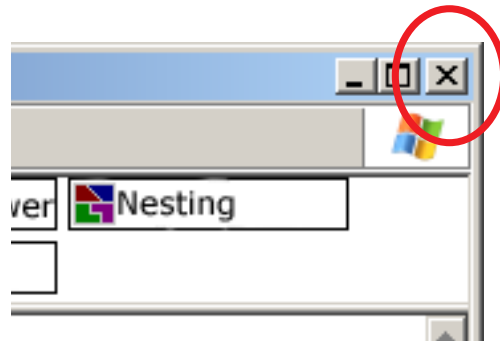


Figure 68: Window "Close box"

Chapter 8: Maintenance

This chapter refers to AIMS software maintenance. Machine maintenance is covered in the machine manuals. (See page 12-5)

1 Configuration

This section covers configuration of the tower and selection of Nesting parameters..

1.1 Tower/Shelf setup

Each tower should display the same number of shelves in AIMS as it physically has. Right-click the **Material tower** or **Parts tower** icon in the AIMS tree and select **Open**. (If present, you can use the selector on the main page) (see page 3-1).

See the section beginning page 3-15 for control details.

1.1.1 Number of shelves

Number of shelves should correspond with physical tower unit.

If the screen shows more or fewer shelves than the tower has, click **Setup** to display the tower setup screen. Input or correct the number of shelves, then click **Save Changes**.

- **NOTE:** For systems without towers, or with only one tower:

Configure a single load or unload station as having one shelf.

Configure a dual load or unload station (having overcart, etc.) as having two shelves.

Row	<input type="checkbox"/>	ShelfID	MaterialType	Thickness	Quantity	SizeX	SizeY	MinMatUtilizationAllowed	Trimming
1	<input type="checkbox"/>	1	CRS	48	72	120000	60000	0	200
2	<input type="checkbox"/>	2	CRS	60	81	120000	60000	0	200
3	<input type="checkbox"/>	3	SS	48	100	120000	60000	0	200
4	<input type="checkbox"/>	4	SS	75	48	120000	60000	0	200
5	<input type="checkbox"/>	5	SS	60	20	120000	60000	0	200
6	<input type="checkbox"/>	6	CRS	60	50	96000	48000	0	200
7	<input type="checkbox"/>	7	SS	75	20	96000	48000	0	200
8	<input type="checkbox"/>	8						0	200
9	<input type="checkbox"/>	9						0	200
10	<input type="checkbox"/>	10	CRS	48	20	96000	48000	0	200

Figure 69: Material tower setup

1.1.2 Shelf specifications

Select a shelf in the AIMS tree, right-click it, and select Setup. The LCMaterialShelf page will open in a new window.

Setting shelf type

A drop-down selector is provided for **type**. Each shelf may be designated as “Material” or Parts”.

- ✱ **Caution:** Not all machine or software configurations permit mixed part/material shelves in a single tower. If in doubt, contact Amada.

1.1.3 Shelf details

Material vs. Parts: The Parts shelf displays with the following items:

Field	contents	note
Type	Parts/Material	Drop-down selector.
Weight Limit	Max weight of material in pounds	Numeric value.
Height Limit	Max material height in inches	Same as material thickness.

Any shelf designated as a Material shelf will not display **Weight Limit** or **Height Limit**.

The **Save Changes** button updates the AIMS database.

Close the window when done.

1.2 Nesting setup

This page presents some of the AIMS software configuration parameters.

To display the Nesting setup page, click the **Setup** button on the NestRes page. You may also right-click on the **NestRes** icon on the AIMS tree, and select **Setup**.

For readability, the screen is displayed on two pages. A listing of the setup items is on page 8-5.

NestingResource	
DBTableName:	<input type="text" value="nestingresource"/>
NestingServerIP:	<input type="text" value="127.0.0.1"/>
NestingLocalPort:	<input type="text" value="76543"/>
SchedulerServerPort:	<input type="text" value="678345"/>
STDTFilename:	<input type="text" value="C:\Program Files\AMNEST\Am"/>
SchedulerIgnoreCuttingConditions:	<input checked="" type="checkbox"/>
SchedulerLaser1:	<input checked="" type="checkbox"/>
ServiceCheckInterval:	<input type="text" value="0:0:5"/>
NestRegardlessOfMaterialExists:	<input checked="" type="checkbox"/>
Multiple Sheet Sizes:	<input type="text" value="Send first sheet size found in VirtualTower or MaterialTower (Default)"/>

[<< Go Back](#)

Figure 70: NEstRes setup 1

Contents of the NestRes setup page		
Name of item	Content	Note
DBTableName	*	
NestingServerIP	*	
NestingLocalPort	*	
SchedulerServerPort	*	
STDTFilename	Dropdown list	Selects "standard turret" to be used in nesting Lots into sheets.
SchedulerIgnoreCutting Conditions	True/False dropdown or checkbox	When selected (or True), ignore the "clean cut" flag in Lots.
SchedulerLaser1	*	
ServiceCheckInterval	time interval hrs:min:sec	Interval for AIMS to check for updates in Lots, Parts, Material, etc.
NestRegardlessOf-MaterialExists	True/False dropdown or checkbox	

DBTableName Verified:

NestingServerPort:

SchedulerServerIP:

SchedulerLocalPort:

SchedulerIgnoreAttended:

SchedulerIgnoreEarliestDueDate:

SchedulerLaser2:

ControlStatus: ▼

Invoke Layout Edit:

Nest One Sheet Size:

Figure 71: NestRes setup2

Contents of the NestRes setup page		
Name of item	Content	Note
Multiple Sheet Sizes	options dropdown	Determines how material sheet sizes are selected when creating nested Sheets.
DBTableName verified	*	
NestingServerPort	*	
SchedulingServerIP	*	
SchedulerLocalPort	*	
SchedulerIgnore-Attended	True/False dropdown or checkbox	When selected (or True), ignore the "attended" flag in Lots.
SchedulerIgnoreEarliest-DueDate	True/False dropdown or checkbox	When selected (or True), ignore the Earliest Due Date in Lots.
SchedulerLaser2	*	
ControlStatus	dropdown selector: Auto/Manual	
Invoke Layout Edit	True/False dropdown or checkbox	When selected (or True), each nest will be presented in the Layout Editor for review.
Nest One Sheet Size	True/False dropdown or checkbox	Selects among several options to govern how materials are used, and if a job can be nested onto more than one sheet size.

* Contact Amada Technical Support for use and settings.

1.3 Line Control Resource setup

This page presents some of the AIMS software configuration parameters.

To display the LCR setup page, click the **Setup** button on the Line Control page.

You may also right-click on the **LineControlResource** icon on the AIMS tree, and select **Setup**.

LineControlResource

DBTableName: linecontrolresource

DBTableNameVerified: linecontrolresource

Number of Lasers: 2

Number of Turrets: 1

Number of MaterialTowers: 1

Number of PartsTowers: 1

SeparateMaterialShelvesForMachines:

AMNC Server URL: 127.0.0.1:51983

AMNC Local Port: 50983

CellControl Server URL: 127.0.0.1:51984

CellControl Local Port: 50984

AutoComputeEstStartDateTime:

UseLCSimulator:

ServiceCheckInterval: 0:0:5

AutoNextSheetLongLeadTime: 0:2:0

AutoNextSheetShortLeadTime: 0:1:30

Pallet Changer:

Configuration: Muza

ControlStatus: Manual

NameAudioFile:

SaveChanges

Refresh

Figure 72: LCR setup screen

Contents of the LCR setup page		
Name of item	Content	Note
Number of Lasers	numeric-dropdown	
Number of Turrets	numeric-dropdown	
Number of Material Towers	numeric-dropdown	
Number of Parts Towers	numeric-dropdown	
Separate material shelves for machines	True/False dropdown or checkbox	
AMNC Server URL	*	
AMNC Local Port	*	
CellControl Server URL	*	
CellControl Local Port	*	
Auto compute est. start date dateTime	True/False dropdown or checkbox	
Use LCsimulator	*	Used for training and development, when not connected to an AmadaMation System.
Service check interval		
AutoNextSheetLong LeadTime	Time in h:m:s format	
AutoNextSheetShort LeadTime	Time in h:m:s format	
Pallet changer	True/False dropdown or checkbox	
configuration	*	
ControlStatus	Manual/Auto dropdown	Selects mode of nesting- /grouping/scheduling. ¹
NameAudioFile	*	

* Contact Amada Technical Support for use and settings.

¹ In Manual, the user must select Lots on the Nesting page, group them if desired, and send them to nest. Auto is the usual and recommended setting.

2 Laser and Process Configuration

The Laser setup pages allow setup of material names, definition of laser setups, and correlation between laser setups and compatible material types/thickness.

2.1 Material Naming

Material names must be consistent on the laser CNC control panel, in Nesting, and in AIMS. One approach is to make Nesting the same as the laser, then make AIMS the same as Nesting.

2.1.1 Coordinating Nesting with the laser

The cutting data file can be transferred from the CNC control panel to the Nesting software's directory, and read into Nesting. This will coordinate material names and cutting data in Nesting with useage on the laser.

2.1.2 Coordinating AIMS with Nesting

2.1.3 More about Material Names

On the laser console, names are shown as ????????????

2.2 Laser Setup Definition page

This page is to define standard laser setups. Figure 73 shows an example with three different laser setups.

Contact Amada for information on setups and cutting data.

***Warning: Incorrect laser setups may cause poor cutting and/or machine damage. Do not deviate from Amada's recommendations without specific reason and great caution.**

Name of item	Content	Note
ID	Setup number	Drop-down to select number
Lens	Name of focus lens	Drop-down to select lens
Nozzle	Name of nozzle	Drop-down to select nozzle
Head	Name of head	Drop-down to select head

LC Laser Setup

LCLaserSetupTable

1

<input type="checkbox"/>	<input type="checkbox"/> <u>I</u> D	<u>L</u> ens	<u>N</u> ozzle	<u>H</u> ead
<u>1</u>	<input type="checkbox"/> 1	6.5 FL	ECO 1.2 MM Single	ECO HEAD
<u>2</u>	<input type="checkbox"/> 2	6.5 FL	WACS 2.5 Double	WACS HEAD
<u>3</u>	<input type="checkbox"/> 3	6.5 FL	ECO 3.0 MM Single	ECO HEAD

Setup Remove Refresh Add Row Update Page

Figure 73: Laser setup definition

2.3 Material Names page

This page is titled “SheetMetalMaterialTable”. To display it, use the “right-click-open” method from the AIMS tree. (See figure 74.)

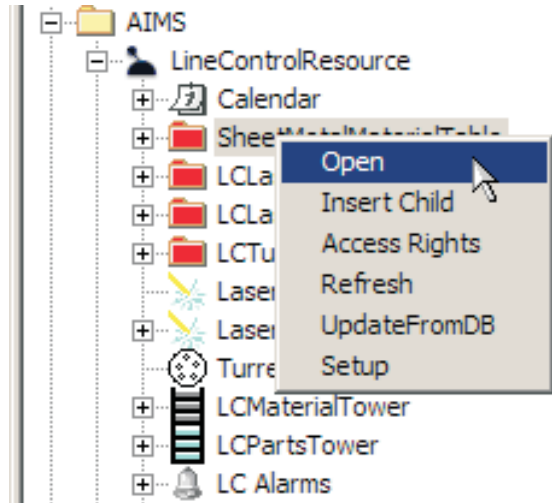


Figure 74: List of materials from tree

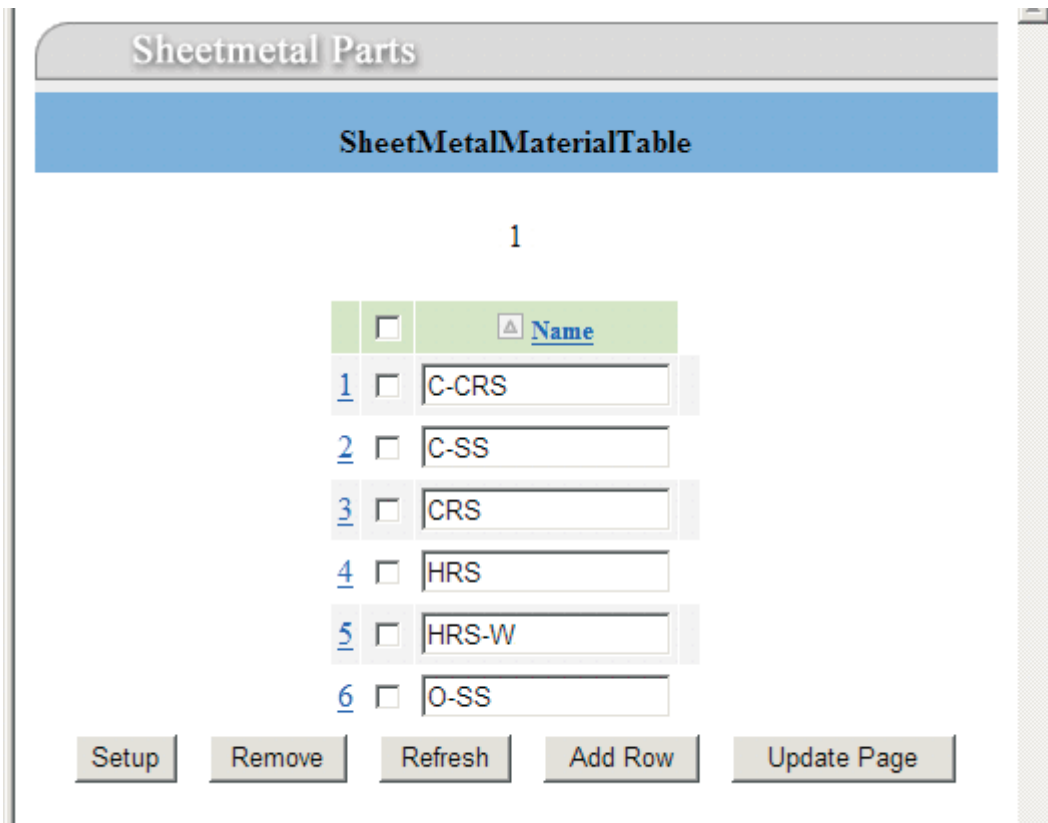


Figure 75: List of material names

2.3.1 Controls on the Material Names page

Setup

Not used.

Remove

Removes a selected item or items.

Refresh

Re-displays the page with the most current information.

Add Row

Creates a blank row for an additional material name.

Update Page

Saves any changes in the page back to the database.

- **Note on creating/editing material names:**

Clicking the index number of a material name will display it in the lower portion of the screen. However, you can also just edit a name on the main screen and **Update Page** to save your edits.

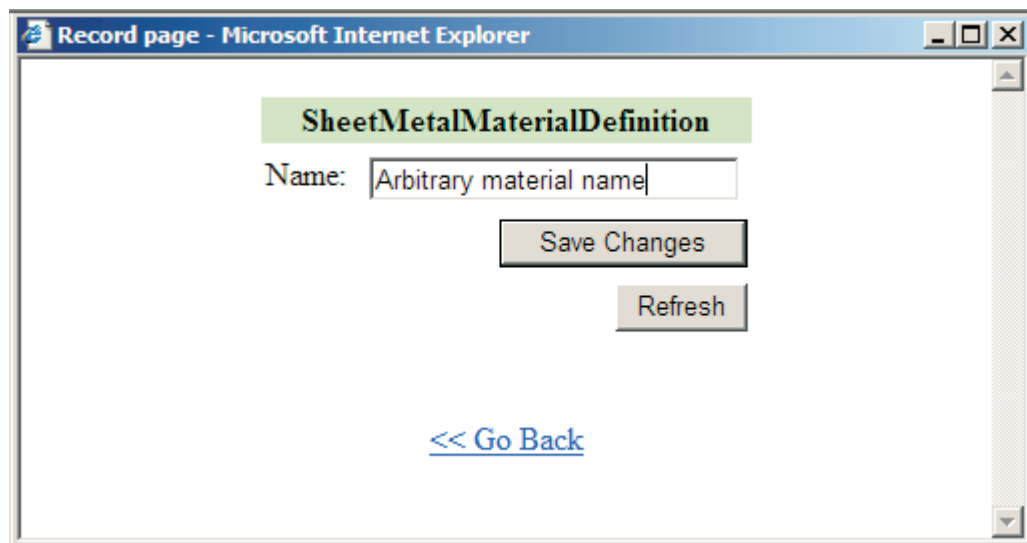


Figure 76: Define material name

2.4 Process capability page

This page names the material types and thicknesses which can be processed with each laser setup. Each row contains:

SetupID, MaterialType, MinThickness, MaxThickness

A separate row is added for each material type and thickness range. If a particular material type and thickness can be processed by two different setups, then a separate row is needed for each combination.

Each material type and thickness must be included in at least one entry.

(This means: you must tell AIMS how to process each type of material, or it can't and won't process it.)

Name of item	Content	Note
SetupID	Setup number	Number of standard laser setup to use for this material and thickness range
MaterialType	Name of material	Drop-down to select material name
LowerThickValue	Thinnest sheet of this material to use this setup with.	
UpperThickValue	Thickest sheet of this material to use this setup with.	

LC Laser Setup

LCLaserSetupDefinition

1

	<input type="checkbox"/>	<input type="text" value="SetupID"/>	<input type="text" value="MaterialType"/>	<input type="text" value="LowerThickValue"/>	<input type="text" value="UpperThickValue"/>
1	<input type="checkbox"/>	<input type="text" value="1"/>	<input type="text" value="HRS"/>	<input type="text" value="60"/>	<input type="text" value="250"/>
2	<input type="checkbox"/>	<input type="text" value="1"/>	<input type="text" value="CRS"/>	<input type="text" value="30"/>	<input type="text" value="250"/>
3	<input type="checkbox"/>	<input type="text" value="1"/>	<input type="text" value="C-CRS"/>	<input type="text" value="30"/>	<input type="text" value="60"/>
4	<input type="checkbox"/>	<input type="text" value="1"/>	<input type="text" value="C-SS"/>	<input type="text" value="30"/>	<input type="text" value="100"/>
5	<input type="checkbox"/>	<input type="text" value="2"/>	<input type="text" value="O-SS"/>	<input type="text" value="250"/>	<input type="text" value="500"/>
6	<input type="checkbox"/>	<input type="text" value="2"/>	<input type="text" value="HRS"/>	<input type="text" value="250"/>	<input type="text" value="750"/>
7	<input type="checkbox"/>	<input type="text" value="2"/>	<input type="text" value="HRS-WACS"/>	<input type="text" value="300"/>	<input type="text" value="800"/>
8	<input type="checkbox"/>	<input type="text" value="3"/>	<input type="text" value="C-CRS"/>	<input type="text" value="40"/>	<input type="text" value="187"/>
9	<input type="checkbox"/>	<input type="text" value="3"/>	<input type="text" value="C-SS"/>	<input type="text" value="100"/>	<input type="text" value="400"/>
10	<input type="checkbox"/>	<input type="text" value="3"/>	<input type="text" value="Arbitrary material name extravagantly long"/>	<input type="text" value="30"/>	<input type="text" value="80"/>

Figure 77: Laser process capability page

2.4.1 Controls on the Process capability page

Setup

Not used.

Remove

Removes a selected item or items.

Refresh

Re-displays the page with the most current information.

Add Row

Creates a blank row for an additional item.

Update Page

Saves any changes in the page back to the database.

3 Utilities

The and the are provided to aid in use of the AIMS Software and the AmadaMation System.

3.1

STDT Folder

This specifies where the “STandarD Turret files are kept. A typical location follows:
C:\Program Files\AMNEST\Amp1e\Perm\

3.2

Versions

From time to time the software package may be revised or updated.
Only a matching version of can be expected to work correctly with the AIMS software.

Setup parameters

The below values should be confirmed at installation time, and any changes recorded.

Parameter	value	date
AIMS Database IP or Hostname	localhost	
AIMS Database port	3306	

Chapter 9: Alarms

Alarms may occur due to errors or problems in any part of the machine tool system, or in the configuration and operation of the AIMS software package. This chapter will focus on alarms generated by the software packages.

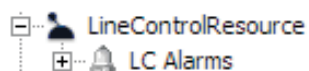
1 AIMS Alarm Handling

System alarms are relayed from the various units to the AIMS software, which then displays and logs the information.

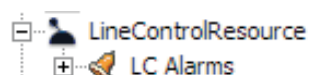
1.1 Alarms display

The system status is indicated by the **Alarms** icons on the tree. These include the LC Alarms icon, and icons for incompatible laser setups, incompatible turret setups, no material, and no space in parts tower. The shape and color of the active icon changes. Alarm information and history is available on the BBS (Bulletin Board) page.

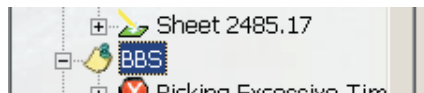
1.1.1 Icon without alarm present:



1.1.2 Icon with alarm active:



1.1.3 BBS node :



1.2 Types of alarms

Alarm type	Page	Note
AIMS internal	2	
System Alarms	3	
Nesting errors	8	

1.3 AIMS errors

“Data conversion error. Possible reasons: JSP pages are using older version of IDL files; JSP pages and MauiServer using different wide character codeset conversion.”);

“Object not exist. Please close this page and try again.”);

“Bad parameter. Possible reason: JSP pages and MauiServer are using different versions of IDL files. Try to deploy JSP using latest IDLs.”);

“Bad operation. Possible reason: JSP pages and MauiServer are using different versions of IDL files. Try to deploy JSP using latest IDLs.”);

“Communication error between CORBA client and Maui server. Please check if the server is running.”);

“Unknown error.”

1.4 System Alarms

DM4400,0,Emergency stop button on
DM4400,1,Motor over load
DM4400,2,Protector Tripped
DM4400,3,Inverter Alarm
DM4400,4,Air Pressure Down
DM4400,5,Servo Alarm
DM4400,6,Loader Forward Overtravel
DM4400,7,Loader Backward Overtravel
DM4400,8,Unloader Forward Overtravel
DM4400,9,Unloader Backward Overtravel
DM4400,10,Fork Upper Overtravel
DM4400,11,:Fork Lower Overtravel
DM4400,12,
DM4400,13,
DM4400,14,
DM4400,15,Control Off
DM4401,0,Pallet protruded on LA unit
DM4401,1,
DM4401,2,
DM4401,3,
DM4401,4,
DM4401,5,
DM4401,6,Pick Up Failure
DM4401,7,Mutiple Pick Up
DM4401,8,Sheet Empty
DM4401,9,
DM4401,10,
DM4401,11,Loading Failure
DM4401,12,Unloading Failure
DM4401,13,
DM4401,14,
DM4401,15,Piling Over
DM4402,0,PLT Changing Excessive Time
DM4402,1,Picking Excessive Time
DM4402,2,Loading Excessive Time
DM4402,3,Unloading Excessive Time
DM4402,4,L T-car Height Over Alarm
DM4402,5,UL T-car Height Over Alarm
DM4402,6,Origin set Excessive Time
DM4402,7,T-Car Process Excessive Time

DM4402,8,Line Stop Pb On(Main Panel)
DM4402,9,Line Stop Pb On From NCT
DM4402,10,Protect Chain Open around Machine
DM4402,11,
DM4402,12,Protect Fence Open
DM4402,13,
DM4402,14,Line Stop PB On(LA)
DM4402,15,Holding On Line Stop
DM4403,0,Loader LS Malfuction
DM4403,1,Origin Pad LS Malfuction
DM4403,2,LA Lifter LS Malfuction
DM4403,3,
DM4403,4,
DM4403,5,
DM4403,6,
DM4403,7,PLC Battery Low
DM4403,8,Display Battery Low
DM4403,9,
DM4403,10,
DM4403,11,
DM4403,12,
DM4403,13,
DM4403,14,L Strage Alarm
DM4403,15,UL Starge Alarm
DM4404,0,#1 FO NC Alarm
DM4404,1,Line Stop from #1 FO
DM4404,2,#1 FO Shuttle Alarm
DM4404,3,
DM4404,4,#2 FO NC Alarm
DM4404,5,Line Stop from #2 FO
DM4404,6,#2 FO Shuttle Alarm
DM4404,7,
DM4404,8,
DM4404,9,
DM4404,10,
DM4404,11,
DM4404,12,
DM4404,13,
DM4404,14,
DM4404,15,
DM4405,0,
DM4405,1,

DM4405,2,
DM4405,3,
DM4405,4,
DM4405,5,
DM4405,6,
DM4405,7,
DM4405,8,
DM4405,9,
DM4405,10,
DM4405,11,
DM4405,12,
DM4405,13,
DM4405,14,
DM4405,15,
DM4406,0,
DM4406,1,
DM4406,2,
DM4406,3,
DM4406,4,
DM4406,5,
DM4406,6,
DM4406,7,
DM4406,8,
DM4406,9,
DM4406,10,
DM4406,11,
DM4406,12,
DM4406,13,
DM4406,14,
DM4406,15,
DM4407,0,
DM4407,1,
DM4407,2,
DM4407,3,
DM4407,4,
DM4407,5,
DM4407,6,
DM4407,7,
DM4407,8,
DM4407,9,
DM4407,10,
DM4407,11,

DM4407,12,
DM4407,13,
DM4407,14,
DM4407,15,
DM4408,0,
DM4408,1,
DM4408,2,
DM4408,3,
DM4408,4,
DM4408,5,
DM4408,6,
DM4408,7,
DM4408,8,
DM4408,9,
DM4408,10,
DM4408,11,
DM4408,12,
DM4408,13,
DM4408,14,
DM4408,15,
DM4409,0,
DM4409,1,
DM4409,2,
DM4409,3,
DM4409,4,
DM4409,5,
DM4409,6,
DM4409,7,
DM4409,8,
DM4409,9,
DM4409,10,
DM4409,11,
DM4409,12,
DM4409,13,
DM4409,14,
DM4409,15,
DM4410,0,
DM4410,1,
DM4410,2,
DM4410,3,
DM4410,4,
DM4410,5,

DM4410,6,
DM4410,7,
DM4410,8,
DM4410,9,
DM4410,10,
DM4410,11,
DM4410,12,
DM4410,13,
DM4410,14,
DM4410,15,
DM4411,0,
DM4411,1,
DM4411,2,
DM4411,3,
DM4411,4,
DM4411,5,
DM4411,6,
DM4411,7,
DM4411,8,
DM4411,9,
DM4411,10,
DM4411,11,
DM4411,12,
DM4411,13,
DM4411,14,
DM4411,15,

1.5 Nesting Errors

- 1 The number of patterns has reached the limit!
 - 2 Not enough sheets available for Nesting!
 - 3 Part size is too big for the selected sheet(s)! Part name:
 - 4 Part size is too big for the selected sheet(s) or part is not allowed to be nested on the lower left corner!
Part name:
 - 5 Improper PX Cutting tool has been selected!
 - 6 No more part to be nested! (Input quantity is less than or equal to nested quantity)
 - 7 The quantity of selected sheet(s) equal 0!
 - 8 Cannot select the best sheet size! Unable to nest all parts in one type of sheet!
 - 9 Corresponding “BLS Correction Data” not found.
No available “GROWTH FACTOR” for the selected sheet(s).
 - 10 Unable to find appropriate location for subpunch(subpunch offset)!
 - 11 NC error:
 - 12 Line No.:
 - 13 Second Line No.:
 - 14 Check the G-code program of, part name:
 - 15 WARNING!! No BLS statement was found in the listed G-Code program. The BLS statement’s format is usually:
BLSX0Y0H__V__ where H and V represent the Horizontal and Vertical dimensions of the part and X and Y are the offset values from the lower left corner of the part. In manual programming insert the BLS statement after the G92 statement.
Please select a desired action to be taken:
Find — Find the part size.
(Only for AMPUNCH-1E generated programs.)
Skip — Skip this part for nesting.
Quit — Quit the NCT Pre-Processor.
Part Name :
 - 16 The system detected format error in the listed G-code program.
Please select a desired action to be taken:
Skip — Skip this part for nesting.
Quit — Quit the NCT Pre-Processor.
Part name :
 - 17 WARNING!! Unmatched Used Tool Station.
The listed station was assigned to a different tool for the previous part(s) or no identical station is available in the turret.
Please select a desired action to be taken:
Reassign — Reassign this tool to another station of the same size.
Add — Add this tool to a station. (Select from the list.)
Skip — Skip this part for nesting. Quit — Quit the NCT Pre-Processor.
- No. Al Key Size Type X-size Y-size Angle Radius DieClr SP-file

- 18 Unable to find tool # or parts dimensions :
 19 Undefined Used Tool Type Warning.
 Station number
 The listed used tool station does not define the tool type.
 Please select a desired action to be taken.
 Skip — Skip this part for nesting.
 Quit — Quit the NCT Pre-Processor.

- 20 File does not exist!!
 21 Invalid quantity value!!
 22 Invalid material!!
 23 Invalid thickness value!!
 24 Invalid sorting bin no.!!
 25 Invalid offset value!!
 26 Improper part rotation!!
 27 Warning !!!

The listed part may be too big or too small for the specified sorting bin.
 Reassign — Reassign a new sorting bin number for this part.
 Ignore — Ignore the warning.
 Skip — Skip this part for nesting.
 Quit — Quit the NCT Pre-Processor.

/* PARTS NAME PARTS NO. PARTS SIZE X, Y BIN */

- 28 WARNING!! Duplicated Tool.
 The listed tool is a duplicated tool.
 Previously the same tool was registered to a different station.
 Please select a desired action to be taken:
 Ignore — Register this tool as a duplicated tool.
 Change — Change this tool to another station.
 Skip — Skip this part for nesting.
 Quit — Quit the NCT Pre-Processor.

No. AI Key Size Type X-size Y-size Angle Radius DieClr SP-file

- 29 Duplicated parts entry.
 30 Clamp position is out of range
 31 Save the tool changes
 32 Exit without saving
 33 Print the tool list
 34 Remove and delete the tool from the list
 35 Help information
 36 Invalid laser machine.
 40 Order the tools by the station Numbers.
 41 Order the tools by the Size of the stations.
 42 Order the tools by the tool Type.
 43 Order the tools by punching Tool-Priority.
 50 Press ENTER to select
 51 Enter the tool type. Press F5 for selection.
 52 Enter the tool's X dimension.
 53 Enter the tool's Y dimension.
 54 Enter the tool's angle inside the turret station.
 55 Enter the tool's radius.

- 56 Enter the tool's die-clearance.
- 57 Enter the special tool file name.
- 60 Press F5 or ENTER for selection.
- 61 Press ENTER to select, use the Arrow keys to scroll
- 62 Use the Arrow keys to move up/down. Press ESC to exit.
- 65 EMS status error
- 66 EMS get segment error
- 67 EMS get page error
- 68 No page available!!
- 69 EMS get handle error
- 70 Invalid cross tool!!
- 71 Invalid rounded rectangle tool!!
- 72 Cannot open special tool file!!
- 73 Cannot read special tool file!!
- 74 Cannot display patterns!!
- 75 Cannot map memory!!
- 76 File does not exist!!
- 77 Cannot open COSTABLE.DAT
- 78 Cannot read COSTABLE.DAT
- 79 Cannot open CONFIG.DAT
- 80 Cannot read CONFIG.DAT
- 81 Cannot read NST.PR
- 82 Cannot transform clipping point to VDC
- 83 No device is open
- 84 Function not defined on this device
- 85 Tool station not found!!
- 86 Invalid tool type
- 87 Cannot place the cursor
- 88 Cannot set cursor
- 89 Cannot open graphic device
- 90 Octo turret CANNOT have Plasma
- 91 Hardcopy - String error
- 92 Hardcopy - Text size error
- 93 Hardcopy - Fatal error!!
- 94 Cannot load GSSCGI
- 95 Not enough memory for CGI
- 96 Inconsistent unit (Machine parameter file / .GMT file)
- 97 Cannot open swap file.
- 98 Cannot write swap file.
- 99 Cannot read swap file.
- 100 Insufficient memory!!
- 101 No used tool!!
- 102 Too many used tools!!
- 110 Invalid tool type!!
- 111 Unknown tool type!!
- 112 Invalid value!!
- 113 Invalid angle value! (value = 0 .. 360)!!
- 114 Invalid X-size or Y-size!!

- 115 Invalid X-size, Y-size or Radius!!
- 116 Invalid die-clearance!!
- 117 Invalid special file!!
- 118 Invalid tool width!!
- 119 No Square tool equal to or larger than 1" (24.5mm) is registered!
(Requirement)
- 120 No Square tool equal to the width of sub-punch tool is registered!
(Requirement)
- 121 There are no parts to be nested!!
Check the QUANTITY of part(s) vs. NESTED.
- 122 No machine parameter file(s)!!
- 123 No registered material data!
- 124 No directories!!!
/* ADDED 05-16-90 for NSTDRAW */
- 125 Insufficient memory to store macros!!
- 126 Can't open .PLI file!!
- 127 Can't read .PLI file!!
- 128 Insufficient memory to store shape data!!
- 129 Can't open .SCH file!!
- 130 Can't read .SCH file!!
/* ADDED 08-19-91 for NSTDRAW */
- 131 Can't open PATTERN file!!
- 132 Can't read PATTERN file!!
- 133 Can't seek PATTERN file!!
- 134 Can't write PATTERN file!!
/* ADDED 12-13-91 FOR SHPDRAW */
- 135 FNPARTS.DAT open error
- 136 FNPARTS.DAT read error
- 137 FNLOC.DAT open error
- 138 FNLOC.DAT read error
/* ADDED 11-28-89 FOR NSTPDRAW */
- 140 NST.PR open error
- 141 NST.PR seek error
- 142 NST.PR read error
- 143 NSTPTRN.DAT open error
- 144 NSTPTRN.DAT seek error
- 145 NSTPTRN.DAT read error
- 146 NSTTMP.DAT open error
- 147 NSTTMP.DAT read error
- 148 NSTLOC.DAT open error
- 149 NSTLOC.DAT read error
/* ____ */
- 150 Save the contents of this window and exit.
- 151 Ignore all the changes and exit the window.
- 152 Print the entire page.
- 153 Plot the high-lighted part on the screen.
- 154 Erase the high-lighted entry line.
- 155 Insert a new line prior to the high-lighted line.

- 156 Clear and erase the entire page.
- 157 Change the directory to retrieve files from other directories.
- 158 Help information.
- 160 Select a different Machine parameter.
- 161 Display the current Machine parameter.
- 162 Set the NESTING Pre/Post Processor parameters.
- 163 Change the tool list (Add, erase, reorder or print.)
- 164 Change the punching priority of tools.
- 165 Select or cancel tools for PX machine's scrap punching and trimming.
- 166 Display the used tool list.
- 167 Enter the File Name. Press F2 for help, F5 for selection.
- 168 Enter the Part Number. Press F2 for help, F5 for selection.
- 169 Enter the required quantity of each part.
- 170 Enter the sorting Bin number. Press F5 for selection.
- 171 Enter YES or NO for the part rotation. Press F5 for selection.
- 172 Enter the material type to be used for nesting. Press F5 for selection.
- 173 Enter the material thickness to be used for nesting. F5 to select.
- 174 Exit the parts selection window.
- 175 Plot the high-lighted part on the screen.
- 176 Display the high-lighted part's G-code.
- 177 Locate a part in this sub-window.
- 178 Help information.
- 179 Exit the machine selection window.
- 180 Help information.
- 181 Exit the material selection window.
- 182 Help information.
- 183 Delete the high-lighted part entry.
- 184 Cancel
- 185 Exit without saving.
- 186 Cancel
- 187 Exit the directory selection window.
- 188 Help information.
- 189 Read the parts data entry from an MRP file.
- 190 Save the current parts entry into an MRP file.
- 191 Enter the File Name or press F5 for selection :
- 192 Enter the File Name to be located:
- 193 This file already exists !Do you want to overwrite it ?
- 194 Enter the nested quantity.
- 195 Enter the Schedule Name :
- 196 Parts priority. Enter 1(highest) through 9(lowest) or 0(OFF).
- 197 This schedule file already exists !Do you want to overwrite it ?
- 198 Delete MRP file.
- 199 Do you really want to delete this file ?
- 200 ERROR: Part's trim is less than the subpunch tool width (Has an improper tool been selected?!). Check the amount of trimming (overlap) on the side shown and also check for a proper tool selection. Check :

- 201 ERROR: Invalid subpunch offset value.
- 202 ERROR: Invalid machine table size.
- 203 ERROR: Invalid subpunch tool dimension value(s).
- 204 ERROR: Improper PX cutting tool is Selected.
- 205 ERROR: Cannot open
- 206 ERROR: Cannot read
- 207 ERROR: Cannot write
- 208 ERROR: Cannot seek
- 210 ERROR: No suitable PX cutting tool was found
- 211 ERROR: No source code returned
- 212 ERROR: Data mismatch ... BADNOTCH.DAT
- 213 ERROR: Invalid trimming value
- 214 ERROR: Invalid sheet size.
- 215 ERROR: Invalid C.A.B. shift value.
- 216 ERROR: Invalid sheet trimming value.
- 217 ERROR: Too many KINDS of parts nested. Unable to process ...
- 218 ERROR: Part sequence number is too large.
- 219 ERROR: Too many parts nested. Unable to process ...
- 220 ERROR: Parts nested too low at bottom.
Check the minimum Y size for G15 scrap unloading of the machine specification and change the amount of "Clamp scrap Y size" parameter.
- 221 ERROR: Invalid part size:
- 222 ERROR: Invalid part's index.
- 223 ERROR: Incorrect notch data
- 224 ERROR: Bad placement of part #
- 225 ERROR: No selected square tool fits between the parts for trimming.
- 226 ERROR: Subpunch to the right of Cutting Area Boundary
- 227 FATAL ERROR: C.A.B. buffer overflow!
- 228 FATAL ERROR: Unmatched case!!
- 229 WARNING!! Scrap X-size is inappropriate for specified sorting bin.
- 230 FATAL ERROR: Impossible ID # read ...
- 231 WARNING!! Invalid clamp position(s) ... The left clamp position must be greater than 10.75" (273.05mm), and the right clamp position must be less than 50.00" (1270.00mm).
- 232 ERROR: Load incomplete (NOTCH.DAT).Too many notches in the part (MAX 20).
- 233 ERROR: Invalid pattern layout!
More than one part has been nested at the same location.
Pattern:
- 234 Invalid number of clamps!! Must have at least 2 clamps set.
- 235 ERROR: Cannot open NSTCLREP.DAT
- 236 Invalid K value for G05!! K value must be 0, 1, or 2.
K value forced to 0.
- 237 Unable to generate G05 with current setting!!!
Re-check your clamp setting and repositioning value in
AMP1E FMS DATASTCLREP.DAT (2nd record).
- 238 ERROR: Invalid sorting type.

239 Maximum scrap length (Unloading Scrap Max. X) is less than the location of right most clamp.

299 FATAL ERROR:

301 Skips the part for nesting.

302 Quits the NCT pre-processor.

309 Use the arrow keys to scroll. Press ENTER to select, ESC to exit.

311 Finds the part size. (Only for AMPUNCH-1E generated programs.)

320 Reassigns this tool to another station of the same size. AUTO SELECTION.

321 Adds the tool to a turret station. MANUAL SELECTION.

330 Reassigns a new sorting bin number for this part.

331 Ignores the warning and uses the same sorting bin number.

340 Ignore the duplication.

341 Change to another station. Select from the list.

400 Enter the parts name. Press F2 for help.

401 Enter the parts X size.

402 Enter the parts Y size.

403 Is this a filler part ? (YES or NO) F5 for selection.

404 Invalid X size value.

405 Invalid Y size value.

406 Warning! Part#: X-size is greater than BLS Y-size.

407 This part will be nested at the lower left corner of sheet when rotated.

/* 600 series reserved for NSTBATCH messages by YAMA */

600 Press ESC key to terminate batch process.

601 Start batch nesting.

602 Go back to main menu.

603 Search for a MRP file.

604 Change MRP directory.

605 Delete data file(s).

606 Display help file.

607 Select all MRP for batch nesting.

608 Cancel all MRP for batch nesting.

609 Show current MRP's data.

610 Show current MRP's nesting result.

611 Change batch nesting parameter.

612 Change nesting parameter.

613 Print out MRP list.

614 Print out current MRP's data.

615 Print out all selected MRPs' data.

616 Delete current MRP.

617 Delete current MRP and its schedule files.

618 Proceed with operation.

619 Show batch nesting error for this file.

620 Batch nesting done.

621 Print out parts' data.

622 No file is selected.

623 F5 for select/cancel.

/* end NSTBATCH message area */

800 Processing ... step 1
 801 Processing ... step 2
 802 Processing ... step 3
 803 Processing ... step 4
 804 Processing ... step 5
 805 Optimizing the punching pattern ...
 806 Sorting the tools...
 807 Processing ... step 6
 808 Processing ... step 7
 809 Processing ... step 8
 810 Processing ... step 9
 811 Creating the pattern's G-Code file ...
 812 Time study calculation in progress ...
 813 Processing ... step A
 814 Processing ... step B
 815 Processing ... step C
 816 Printing Production schedule sheet ...
 817 Creating schedule file ...
 818 Creating parts location information file for drawing and plotting ...
 819 Plotting pattern ...
 820 Creating BLS G-Code file of all patterns ...
 891 Processing ...
 892 Complete.
 893 Incomplete.
 894 Do you really want to quit the process?
 901 Number of Pile_edge over limit.
 902 Number of Line2 over limit.
 903 Number of Line1 over limit.
 904 Illegal number of NSTTMP.DAT record.
 905 Number of selected sheets is over the limit.
 906 No sheet(s) selected.
 907 Number of comb_area is over the limit.
 908 Number of areas is over the limit.
 909 No suitable PX cutting tool was found.
 Check the amount of part's trim and the selection of cutting tool.
 Part:
 910 No SQ tool has been selected!!
 911 Improper BLS clamp location has been set!!
 912 Improper BLS dead zone has been set!!
 950 WARNING!! Changing AI station to non-AI station or non-AI station
 to AI station. Do you want to reassign the used station regardless of
 the station type?
 Please select a desired action to be taken:
 OK — Reassign this tool to another station.
 Cancel — Go to the next option window without changing.
 Data of the used tool and the tool currently in the selected station:
 No. AI Key Size Type X-size Y-size Angle Radius DieClr SP-file

951 WARNING!! The NESTING turret has different tool from the used tool in this station. Do you want to insert new tool into the NESTING turret?

Please select a desired action to be taken:

OK — Insert the new tool into the NESTING turret.

Cancel — Go to the next option window without changing.

Data of the used tool and the tool currently in the NESTING turret:

No.	Al	Key	Size	Type	X-size	Y-size	Angle	Radius	DieClr	SP-file
-----	----	-----	------	------	--------	--------	-------	--------	--------	---------

952 Continue.

953 Cancel.

954 Skip the part for nesting.

955 Checking G-code format.

956 Checking Tool.

957 Converting G-code.

958 Calculating trimming.

959 Generating rotation data.

960 The part cannot be rotated.

961 Quit the Tool Assign Pre-processor.

962 The part rotates 90 degree.

963 The part rotates 180 degree.

964 The part rotates any angles.

966 Please check the clamp position or part size.

967 Reposition data is incorrect for last portion of the big part.

968 The type of the used material does NOT match.

969 Controller of the input part does not match current machine.

970 punch

971 laser

972 Enter Y or N for common line cutting.

973 Cutting sequence, enter P for punch first or O to keep the original.

974 Auto-Index C angle

975 Dead zone error. (DX shear post)

976 Too big scrap. (DX shear post)

977 Too narrow shear cut. (DX shear post)

978 Please select which M-code to use question

From Part or From Machine.

Station M-code

979 Select M-code of the Part.

980 Select M-code of the Machine.

981 Please select which Airblow to use ?

From Part or From Machine.

Station Airblow

982 Format check error in

983 Error no

984 Line no

Chapter 11: Glossary

Following is a list of words and term used in this manual and in the operation of the AMS 3015 Factory Automation Cell.

Term	Meaning	Note
Lot	Specifies a part, the quantity of that part to make, the first and last dates the part can be produced, and other information	
Part	Specifies a G-code program, material type, and thickness. Also specifies if the part may be rotated or flipped for nesting, and primary machine.	Can also use DXF file. Can use names that couldn't be used in a file name.
Database	<i>General:</i> Refers to a file of files used to store information. <i>Specific:</i> Refers to the AIMS data storage, where information about parts, lots, schedules, etc. Is kept.	Database information is stored, retrieved, and used automatically by the AIMS software.
Icon	Small image used in menus and in "trees". (See page 3-5)	Typically provided to aid in distinguishing commands or elements.
Primary machine	Specifies if a part may be produced on the Apelio, or the FO laser.	Generally, the FO can cut anything that the Apelio can cut or punch. However, the FO cannot perform forming operations.
Sheet	Body of G-code ready to cut parts on a material blank. May be created by AIMS nesting, or imported from other programming system.	Database entry includes material source shelf and parts destination shelf.
G-Code	Refers to commands used to operate a machine such as the FO 3015 Gemini.	This is the format that the machine controller can accept directly.
DXF	Specifies a type of drawing file. If created correctly, may be used to define parts.	See nesting documentation for file formats and limitations.
CSV	Specifies a file format. Files used to transfer or import schedule information use a form of CSV file.	Contact Amada Technical Support for details on the file format and content requirements.

Chapter 12: Index and Appendix

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Appendix

1 References

Other documents which apply to the AmadaMation System:

Unit	Function	Manual	Document ID
AmadaMation System	Operation, periodic maintenance	NC Laser Line Operator's Manual	
Gemini	Operation, periodic maintenance	FO 3015 Gemini Operator's Manual	
Gemini	Programming	Laser Programming Manual	
	Operation, periodic maintenance	Gemini Shuttle Users Guide	FO-LST 3015A ope 200305

Other documents which may be helpful.

Title	Comment
Amnest Operator's Manual	Amnest operation: May aid in understanding and correcting part nesting problems.

Revision history

Version	Details
development	6/03-8/03
temporary (September 2003)	Various drafts for temporary and training purposes.
1.0 Dec 2003	Released for AIMS 1.5
1.01 Feb. 2004	Expanded chapter on . Other (minor) revisions.

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