6.0 CONFIGURING RACKS

The Rack Configurator is used to configure racks. With the Rack Configurator, you can create a graphical representation of your hardware installation, both the local (master) rack, and the remote (slave) rack or Remote I/O Head. The actual physical configuration of all modules in each rack and remote I/O system will be shown on the screen, with model numbers and actual names displayed where possible.

You can add modules to a rack, display or modify information about existing modules, move modules to other slots in a rack, remove modules from a rack, and enter DPS drive parameters in the Rack Configuration. Always refer to the instruction manual for the hardware you are configuring for specific configuration information. The Rack Configurator will prompt for details about the module, e.g., drop number and drop depth for Network modules, if applicable.

NOTE: *When configuring a PC3000 rack, it is displayed as a rack with four slots. It acts like a Multibus rack, except that you cannot add, remove, or move modules in the rack.*

The information entered through the Rack Configurator is added to the database only and does not affect either application tasks or the modules themselves. For example, the switches on the faceplate of Interface modules must still be set physically on those modules even though the Rack Configurator prompts for this information to be added to the database and shows the switch setting on the screen after it is added.

You can access the Rack Configurator by selecting Configure Rack from the Rack menu in the System Configurator. An empty AutoMax rack will be displayed on the initial screen when you first start.

The Variable Configurator, which is used to map common memory and I/O to variable names, is accessible from the Rack Configurator menu. Note that the Variable Configurator is described in section 7.

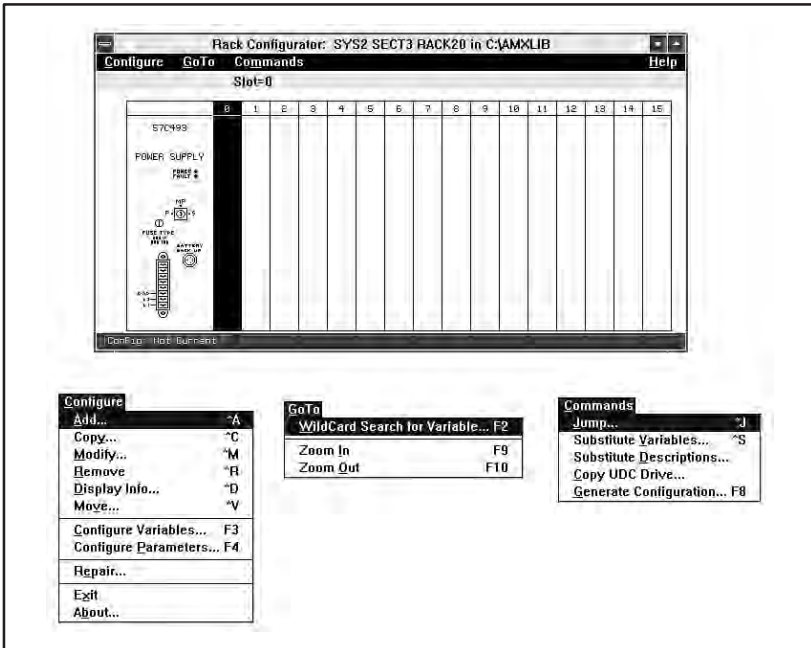See figure 6.1 for the Rack Configurator menus.

Figure 6.1 - Rack Configurator Menus

The remainder of this section describes the Configure and GoTo menu options as follows:

6.1 Adding a Module to a Rack (Configure Menu)

6.2 Adding a Remote I/O Network (Configure Menu)

6.3 Adding a Foreign Module or Other Unsupported Module (Configure Menu)

6.4 Configuring Drive Parameters

6.5 Copying a Module

6.6 Modifying Module Information (Configure Menu)

6.7 Removing a Module from a Rack (Configure Menu)

6.8 Moving a Module to Another Slot in the Rack (Configure Menu)

6.9 Displaying Module Information (Configure Menu)

6.10 Repairing a Rack Configuration (Configure Menu)

6.11 GoTo Menu

6.12 Jumping to Another Rack

6.13 Substituting Variable Names

6.14 Substituting Variable Descriptions

6.15 Copying a UDC Drive

6.16 Generating the Rack Configuration and Drive Parameter Files

6.17 Accessing the Variable Configurator (Configure Menu)

6.1 Adding a Module to a Rack

The Add command on the Configure menu allows you to add modules to a rack. See figures 6.2 and 6.3 for the screens displayed when you are adding a module. Follow the procedure below to add a module to the rack.
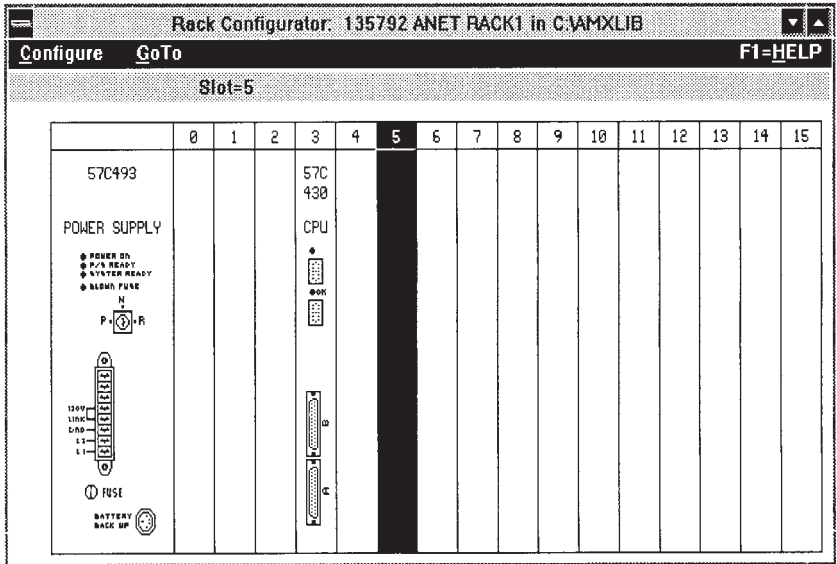

Figure 6.2 - Adding a Module, Part 1

Step 1. Select an empty slot in the rack.

Step 2. Select Add from the Configure menu. A list box with the available modules will be displayed. The first column is a two or three letter code for the module. The second column is the model number of the module. The third column displays the name of the module.

Step 3. Select the module you want to add to the rack. The modules listed below will require you to enter additional information.

M/N 57C431, M/N 57C435
AutoMax Processor Module
When you are adding a Processor module, you will be prompted for the tick rate. The "programmable tick rate" allows you to change the definition of the tick. Changing the tick, changes the time base for tasks. This change allows you to run a task based on a unit of your choice. The programmable tick rate can be set in increments of 0.5 msec. between 0.5 msec and 10.0 msec. For compatibility with earlier Programming Executives, the default tick rate is 5.5 msec. The tick rate is defined separately for each Processor in a rack. The tick rate is transferred when the configuration object code is transferred to the Processor. The tick rate is set on the Processor as soon as the configuration is loaded. See the

AutoMax Processor Module instruction manual (J-3650) for additional information.

M/N 57C404 Network Module
If you are adding a Network module, you will be prompted for a "Network" name in addition to the drop number and depth parameters specified in the Network module instruction manual. The Network is a single letter code that serves as the name for the network.

M/N 57C440 Ethernet Module
If you are adding an Ethernet module, you will be prompted for a logical slot number (the actual slots where Multibus will access the module) when you add the module to a physical slot in the rack. The logical "slot" is either 2 and 3 or 4 and 5. Two slots are needed because the module has 128K of memory and each logical rack slot can access only 64K. Note that there are explicit restrictions about slot location in the Ethernet module manual.

M/N 57C413 Common Memory Module (128K)
M/N 57C423 Common Memory Module (256K)
A Common Memory module can be added to slot 0 in the rack, where it provides storage for common memory variables and bus arbitration for multiple Processor modules. If M/N 57C413 is being used, slot 1 must contain a Processor module, an Ethernet module (configured to use logical slots 2-3 or 4-5), or be empty, because 2 logical slots are required by the Common Memory module. If M/N 57C423 is being used, slots 1-3 must contain Processor modules, an Ethernet module (configured to use logical slots 4-5), or be empty because 4 logical slots are required by the M/N 57C423 Common Memory module.

Either version of the Common Memory module can be used in other even-numbered slots in the rack for memory storage, but in this case it must be added to the rack as two M/N GEN32K generic modules (see section 6.3). Note that M/N 57C423 provides 128K of memory storage, the same as M/N 57C413, when used in an even-numbered slot.

M/N 57C416 Remote I/O Interface Module
See section 6.2 for additional information required to configure the remote I/O system after you have added the Remote I/O module.

Foreign Module or Other Unsupported Module
If the module you want to add is not supported, i.e., not on the list of available modules, see section 6.3.

M/N 57C418 AB Interface Module or
M/N 57C417 AutoMate Interface Module
If you are adding an AB Interface module or AutoMate Interface module, you should enter the drop number as a decimal value. (The same decimal number must be physically set on the faceplate on the actual module.) The module will convert switch settings to octal values internally.

M/N 57C429 R-Net Network Interface Module
If you are adding an R-Net Interface module, you must enter the node number as a hexadecimal value. (The

same hexadecimal number must be physically set on the faceplate on the actual module.)

M/N 57C424 MaxPak III Serial Interface Module
If you are adding a MaxPak III Serial Interface Module, you must enter the drop number. (The same drop number must be physically set on the faceplate on the actual module.)

B/M 57552 Universal Drive Controller Module
The Universal Drive Controller (UDC) module (B/M 57552 and B/M 57652) is used to provide drive control in Distributed Power Systems (DPS). Up to 10 UDC modules can be added to an AutoMax rack. UDC modules can be mixed with other Reliance drive control modules in the same rack. A UDC module can be added to any slot in the rack except slot 0 and those slots already designated as logical slots for an Ethernet module or a Common Memory module. When you add a UDC module to the rack, you must also select the type of drive you want to connect to ports A and B on the module. See the Configuration and Programming instruction manual for your specific drive and regulator type for instructions on how to configure the UDC module and its associated drive components. You can begin entering drive parameters by selecting the Configure Parameters command. See section 6.4 for more information. Note that you will only be able to add B/M 57652 to the rack beginning with V3.5 of the Executive software. B/M 57652 can be used in the rack configuration regardless of whether you have B/M 57552 or B/M 57652 in the rack itself.

Step 4.   Select one of the following: Add Next if you want to add this module and then add another module in the next available slot; Skip Slot if you want to add this module and then leave the next slot empty; OK to add the module and return to the Rack Configurator window; Cancel to return to the Rack Configurator window without adding a module.


```
┌────────────────────── Add Module in slot 6 ──────────────────────┐
│ DI  - 57C400   - 16 Point 115 VAC/DC Digital Input          ▲    │
│ DI  - 57C415   - 16 Point 12-24 VAC/DC Digital Input        ▓    │
│ DI  - 57C419   - 32 Point 5-24 VDC Digital Input            ▓    │
│ DI  - 61C500   - 16 Point 115 VAC/DC Digital Input          ▓    │
│ DI  - 61C515   - 16 Point 12-24 VAC/DC Digital Input        ▓    │
│ DO  - 57C402   - 16 Point 24-115 VAC/DC Digital Output      ▓    │
│ DO  - 57C403   - 16 Point 120 VAC Hi Power Digital Output   ▓    │
│ DO  - 57C420   - 32 Point 5-24 VDC Digital Output                │
│ DO  - 61C503   - 16 Point 120 VAC Hi Power Digital Output   ▼    │
│                                                                  │
│ Description:  ┌─────────────────────────────────────────┐        │
│              │ 16 Point 115 VAC/DC Digital Input        │        │
│              └─────────────────────────────────────────┘        │
│                                                                  │
│    ┌───────────┐   ┌───────────┐   ┌────────┐   ┌──────────┐     │
│    │ Add Next  │   │ Skip Slot │   │   OK   │   │  Cancel  │     │
│    └───────────┘   └───────────┘   └────────┘   └──────────┘     │
└──────────────────────────────────────────────────────────────────┘
```
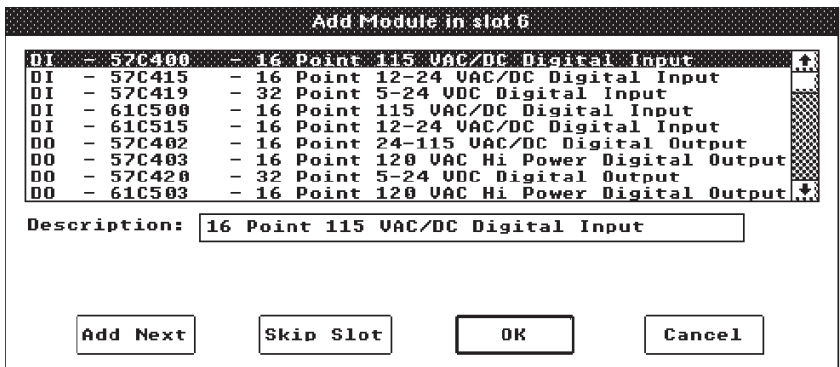
Figure 6.3 - Adding a Module, Part 2

6.2 Adding a Remote I/O Network

The following procedure enables you to add a remote I/O network for a Remote I/O Interface module (M/N 57C416). Remote racks (AutoMax or Shark), Remote I/O Heads, Local I/O Heads, Analog Rails, and I/O Rail modules are all configured using this procedure.

Step 1. Select the Remote I/O Interface module to which you want to add a remote I/O network.

Step 2. Select Zoom In from the GoTo menu. The remote I/O network diagram will be displayed.

Step 3. Select the drop on which to add a remote rack or Head.

Step 4. Select Add from the Configure menu. A dialog box with the available choices will be displayed.

Step 5. Select a remote rack (AutoMax or Shark) or Remote I/O Head. If you select a Shark rack, you must also select a power supply (115/230VAC or 24VDC) for the rack.

Step 6. Select one of the following:

Add Next if you want to add the rack or Head and then add another rack or Head on the next available drop. If you added a Remote Head in step 5, you will go to the first available port where you can configure the Head (see 6.2.2).

Skip slot if you want to leave this slot empty and move to the next available slot.

OK to add the rack or Head.

Cancel to return to the remote I/O network diagram without adding the rack or Head.

Step 7. When you are done, select Zoom Out from the GoTo menu to return to the master rack.
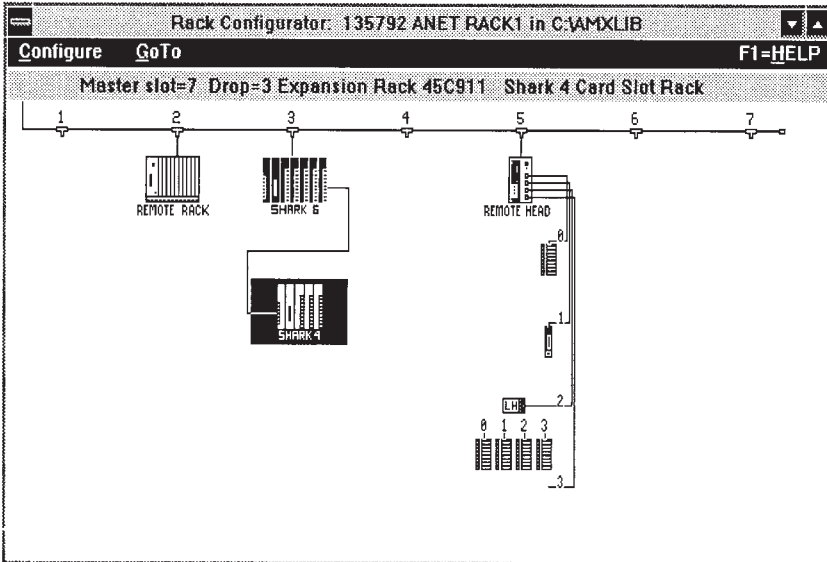

Figure 6.4 - Remote I/O Network Diagram

6.2.1 Configuring a Remote AutoMax Rack

The following procedure enables you to add modules to a remote AutoMax rack.

Step 1.   Select the remote AutoMax rack you want to configure.

Step 2.   Select Zoom In from the GoTo menu. A rack will be displayed containing a Remote I/O module in slot 0.

Step 3.   Select an empty slot in the rack.

Step 4.   Select Add from the Configure menu. A list box with the available modules will be displayed.

Step 5.   Select the module you want to add to the rack.

Step 6.   Select one of the following:

Add Next if you want to add the module and then add another module in the next available slot.

Skip Slot if you want to leave this slot empty and move to the next available slot.

OK to add the module and return to the Remote Rack diagram.

Cancel to return to the Remote Rack diagram without adding a module.

Step 7.   When you are done, select Zoom Out from the GoTo menu to return to the remote I/O network diagram.

6.2.2 Configuring Remote Heads

The following procedure enables you to add Local I/O Heads, digital I/O rails, or Drive Interface modules to ports on a Remote Head.

Step 1.   Select a port on the Remote Head you want to configure.

Step 2.   Select Add from the Configure menu. A list box with the available choices will be displayed.

Step 3.   Select a Local I/O Head, a digital I/O rail, an analog rail, or an Drive Interface module.

Step 4.   Select one of the following: Add Next if you want to add the module and then configure the next port; Skip if you want to leave the port empty and move to the next available port; OK to add the selection; or Cancel to return without adding the selection.

Step 5.   If you added a Local Head, you can then add a digital I/O rail or an interface module to the local ports.

Step 6.   If you added a digital I/O rail, you can zoom in to configure the modules in the rail.

Step 7.   When you are done, select Zoom Out from the GoTo menu to return to the Remote I/O Network diagram.

6.2.3   Configuring a Remote Shark Rack

Use the procedure that follows to add an expansion rack and modules to a remote Shark rack. Only one expansion rack can be added to a main Shark rack, regardless of the size of the main rack. The main rack will contain a Shark Remote I/O Interface module in slot 0 (adjacent to the Power Supply). Therefore, a main rack with "n" slots will have "n-1" slots available for I/O modules. All of the slots in the expansion rack can be used for I/O modules. However, only the first 10 slots of the main and expansion racks combined can contain I/O modules.

Step 1.   Select the remote Shark rack you want to configure.

Step 2.   If you want to add an expansion rack, select the end of the cable that is connected to the Shark rack. An empty square will be highlighted.

Step 3.   Select Add from the Configure menu. A list box with the available Shark racks will be displayed.

Step 4.   Select an expansion rack from the list, and then select a power supply for the expansion rack.

Step 5.   Zoom into the main Shark rack. A rack will be displayed containing a Shark Remote I/O Interface module in slot 0.

Step 6.   Select an empty slot in the rack.

Step 7.   Select Add from the Configure menu. A list box with the available modules will be displayed.

Step 8.   Select the module you want to add to the rack.

Step 9.   Select one of the following:

Add Next if you want the module and then add another module in the next available slot.

Skip if you want to leave the slot empty and move to the next available slot.

OK to add the module and return to the Remote Rack diagram.

Cancel to return to the Remote Rack diagram without adding a module.

Step 10.   Configure the expansion rack in the same manner as the main Shark rack. Note that the slots in the expansion rack are numbered beginning at one greater than the highest slot number in the main rack. Slot 10 is the last slot that may contain an I/O module.

Step 11.   When you are done, select Zoom Out from the GoTo menu to return to the remote I/O network diagram.

6.3 Adding a Foreign Module or Other Unsupported Module

Any foreign module, i.e., non-AutoMax or DCS 5000, must meet strict requirements before it can be used in an AutoMax rack and configured for the rack. See Appendix H for these requirements before attempting to add a foreign module to the rack.

Foreign modules and AutoMax modules that are not supported in this version of the Programming Executive software can be added to the rack as "generic" I/O modules. The generic module should also be used if a currently existing module is enhanced and the existing form does not allow you to configure the view or changed registers. Three generic modules are available, one with 32 registers (GEN32), one with 32,768 registers (GEN32K), and one with 8000H registers in hex (GEN32KH). GEN32K and GEN32KH are available only in the local rack. GEN32 is available in a local rack and in a remote rack.

6.4 Configuring Drive Parameters

The Configure Parameters command on the Configure menu is used to configure drive parameters. This command can be selected only after you have added a Universal Drive Controller (UDC) module to the rack. The UDC Parameter Entry screens can be accessed in two ways. From the main Rack Configurator screen, select the UDC module and then select Configure Parameters from the Configure menu. From the Power Module Interface display screen (accessed by zooming into the UDC module), select Configure Parameters from the Configure menu. Refer to the DC Drive Configuration and Programming instruction manual (S-3006) for detailed descriptions of how to configure the drive parameters.

6.5 Copying a Module

The Copy Module command allows you to copy an existing module (from any library, system, section, and rack), along with its associated hardware (such as remote I/O racks and cards), variables, and parameters, into an empty slot in the rack being configured. No tasks will be copied with the module.

NOTE: *Any duplicate variable names created can be resolved by using the Substitute Variables command (see 6.13). When copying a network module, only local variables will be copied, and all linked variables will be unlinked in the destination module.*

Use the following procedure to copy a module into an empty slot in the rack.

Step 1.   Select an empty slot in the rack.

Step 2.   Select Copy from the Configure menu. The Copy Module dialog box is displayed (see figure 6.5).

Step 3.   Select the module you want to copy by choosing the appropriate drive, library, system, section, rack, and module.

Step 4.   Select OK to copy the module into the rack, or Cancel to return to the Rack Configurator without copying the module.
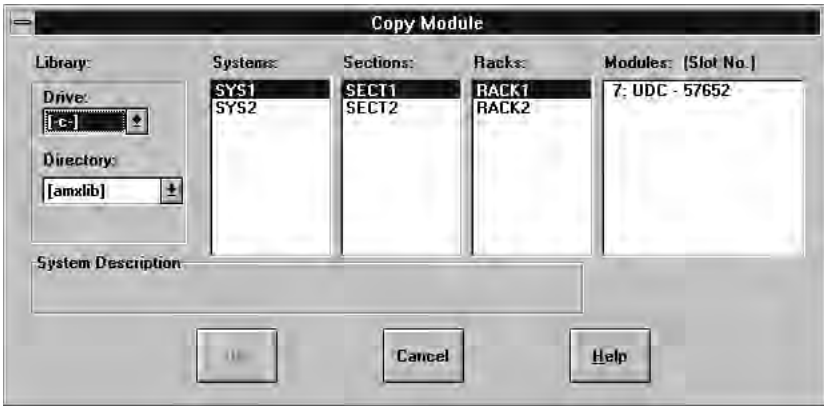
Figure 6.5 - Copy Module Dialog Box

6.6 Modifying Module Information

The following procedure enables you to modify information for the module in the selected slot. See the section below if you want to modify UDC module information. The Modify procedure does not allow you to remove the module from the rack; it only allows you to modify information in the database about the module in the selected slot.

Note carefully that any variables already defined for the module in the Variable Configurator described in section 7 will remain unchanged.

Step 1.   Select the slot containing the module for which you want to modify information.

Step 2.   Select Modify from the Configure menu. A Card Info dialog box will display the information for the requested module.

Step 3.   Modify the desired fields. Any field that is not dimmed can be changed.

Step 4.   Select OK to accept changes or Cancel to return to the Rack Configurator window without executing the changes.

Modifying UDC Module Information

Note that UDC modules cannot be changed to another type of module. If the module is added by mistake, it must be removed before another module can be added. If the drive type of the UDC is changed, the PMI hardware and the parameter information will be reset to the default state of the new drive type.

6.7 Removing a Module from a Rack

The following procedure enables you to remove a module from the rack. Note carefully that any common memory variables or I/O configured for the module will be deleted from the corresponding rack database file. For UDC modules, all attached hardware and parameter descriptions will also be deleted.

If a Remote I/O module is removed from a rack, all of the remote racks, heads, modules, and I/O in the remote racks will be deleted as well.

If a Universal Drive Controller module is removed from a rack, the Power Module Interfaces which are attached to it and all its associated configuration information (hardware and variables) will also be deleted.

If you remove an AutoMax Processor or the Common Memory module (in slot 0) from a rack, the common memory variables configured for the rack will not be deleted until the last remaining Processor or Common Memory module is removed. When the last Processor or Common Memory module is removed, all common memory variables in the rack will also be deleted.

Step 1.   Select the module you want to remove from the rack.

Step 2.   Select Remove from the Configure menu. A dialog box will be displayed for you to confirm the deletion. The module will be removed after confirmation, and its slot in the rack will be empty.

6.8   Moving a Module to Another Slot in the Rack

The following procedure enables you to move the selected module and all hardware attached to it to another slot in the rack. For remote Shark racks, you can move modules from the main Shark rack to the expansion rack, or vice versa. If the new slot contains a module, the modules will swap locations. All of the variables associated with the module(s) are moved with the module(s).

Step 1.   Select the module you want to move.

Step 2.   Select Move from the Configure menu. A dialog box will display the module's present slot and the cursor will appear in the New slot field.

Step 3.   Enter the new slot for the module. If the slot you enter is occupied by another module, the modules will swap slots.

Step 4.   You have the option of backing up the database(s) for the module(s) being moved before they are moved. It is recommended that you do so.

The backup procedure creates a copy of the rack, module, and variable databases in a subdirectory called AMXWORK on the drive designated for temporary working files during the AutoMax Setup procedure. Note that the AMXWORK subdirectory name is reserved by the Programming Executive. If you select to have the databases backed up and an error occurs during the move, you can use the Repair command to correct the rack configuration. See 6.9 for the Repair procedure.

Step 5.   Select OK to begin the move or Cancel to return to the Rack Configurator window without executing the changes.

6.9   Displaying Module Information

The following procedure enables you to display the information for the module in the selected slot, but no changes can be made.

Step 1.   Select the module for which you want information displayed.

Step 2.   Select Display Info from the Configure menu. A dialog box will display information in the database about the selected module.

Step 3.   Select OK to return to the Rack Configurator window.

6.10   Repairing a Rack Configuration

Errors can occur if variables are found in an empty slot or if a module or variables are assigned to non-existent slots. These errors will not be evident until you try to generate the configuration file for downloading to the Processor(s) in the rack or you perform a Verify operation on an application task.

Errors like these can result when a rack is created by the Import procedure, or if the database files are modified outside of the AutoMax Executive software. Any variables (and the module, if present) or local variables with unresolved network-wide names can be removed by using the following procedure.

The Repair option should be used only if the Programming Executive software displays an error message notifying you of an error. Otherwise, this option works in exactly the same way as Remove, which deletes a module and the associated variables.

When you use the Repair option, you will need to enter the slot number referred to in the error message on the screen. If the message refers to slot 99, there has been an error involving common memory variables, which are stored in slot "99" for the purposes of the database. When these variables are configured in the Variable Configurator, they are actually mapped into slots containing Common Memory modules or Processor modules.

Use the following procedure to repair a configuration.

Step 1.   Select Repair from the Configure menu. The Repair dialog box will be displayed.

Step 2.   Select one of the following options:

Delete modules and variables - Deletes the module and all assigned variables for the designated slot.

Delete locals with unresolved network-wide names - deletes Network module variables (the type listed in the Local column in the Variable Configurator for Network modules) that have network-wide names that cannot be found in the network database.

Copy database backups by command - displays four options: Copy Module, Copy Drive, Move Module, Modify Module. The option selected will determine the database in the AMXWORK subdirectory from which the backup files are copied.

Step 3.   Enter the slot number to which the variable(s) are attached as noted in the error message.

Step 4.   Select OK to repair the slot or Cancel to return to the Rack Configurator window without executing the changes.

6.11   GoTo Menu

The GoTo Menu is used to search by name for variables mapped to modules in the rack. It is also used to zoom in and out of the three levels (local rack<-->remote rack or head<-->digital rail) of configuration forms in the Rack Configurator and to access the Variable Configurator from the Rack Configurator.

6.11.1   Locating a Variable by Name

Select Wildcard Search for Variable from the GoTo menu in the Rack Configurator to locate a variable by name. Follow the procedure below to search for a variable.

Step 1.   Enter the variable name without the variable type character. Note that question mark (?) and asterisk (*) wildcard characters are allowed in the search string. For example, you could enter SPD* to find SPD_REF%.

Step 2.   Select the option button indicating whether the variable is a local variable or a network-wide variable.

Step 3.   Select OK to begin the search. A dialog box will be displayed indicating if a match was found, the type and location of the variable found, and the slot number.

Step 4.   Select Yes if you want to search for another match. A dialog box will tell you when there are no additional matches. Selecting OK will return you to the Search for Variable dialog box. You can repeat the search or change the variable name or search mode. Select No to display the form containing the variable name requested. The variable name will be selected.

The search procedure will take you into the Variable Configurator. You can return to the Rack Configurator by zooming out (see section 7.6 for additional information). However, note that upon returning to the Rack Configurator, the module that is selected will be the same one selected before the Search was performed, rather than the module containing the variable that was searched for.

6.11.2   Zooming In and Zooming Out

The Zoom In command will move you to the next lower level (greater detail). If there is another hardware level below the selected module (such as for the Remote I/O module (M/N 57C416), which "contains" the remote I/O network, or the DIgital Rail (M/N 45C1), which contains 2-bit I/O modules), zoom in will always take you to that view. At the lowest hardware level (all other modules), zoom in will access the Variable Configurator described in section 7. To access the Variable Configurator for either the Remote I/O or the Digital Rail modules, use the Configure Variables command, which always accesses the Variable Configurator, regardless of the module selected. The Zoom Out command reverses the process, taking you back to the next higher level. When using a mouse, double-clicking the left button on the module performs a Zoom In command on that module, and

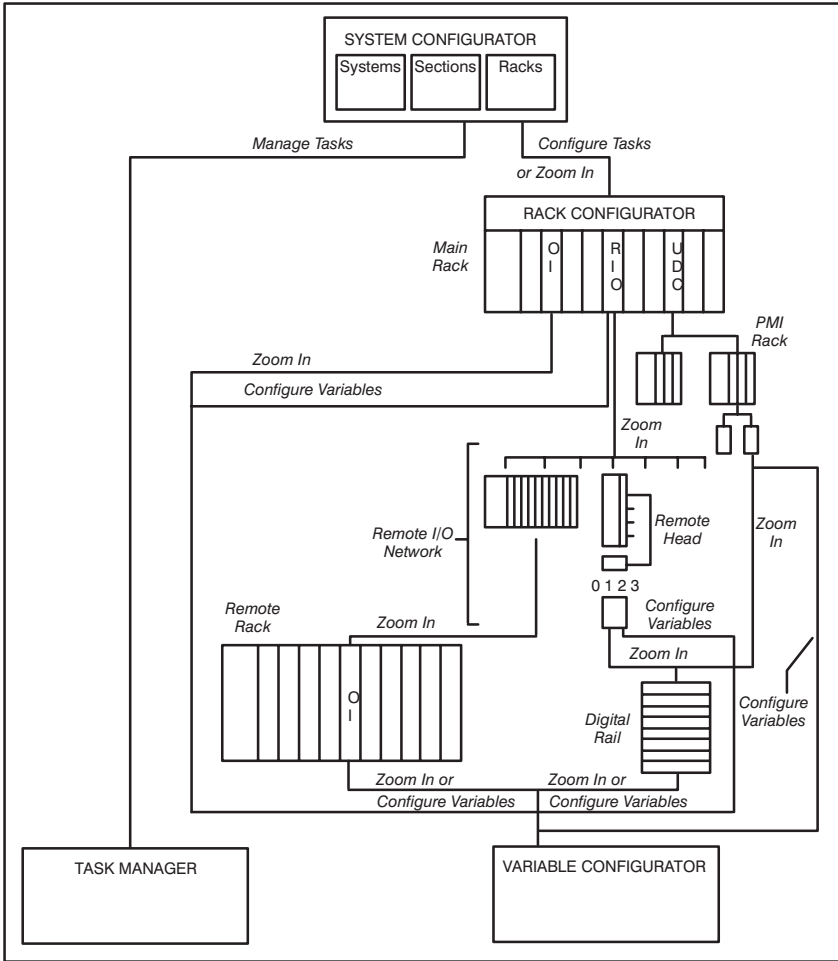double-clicking the right button performs a Zoom Out command. See figure 6.6.

Figure 6.6 - Zoom In

6.11.3   Selecting a Drive (DPS systems only)

If you are configuring a Distributed Power drive system (DPS), the GoTo menu will provide two additional options (Drive A and Drive B) after you have zoomed into a UDC module. The Drive A and Drive B commands can be used to select PMI A or PMI B so that you can you can add analog or digital rails, thumbwheel switches, or LED modules. See the DPS Configuration and Programming instruction manual (S-3006, S-3015, or S- 3016) for detailed information.

6.12   Jumping to Another Rack

Select Jump from the Commands menu in the Rack Configurator to jump to another rack without leaving the Rack Configurator. When you select Jump, the System, Section, Racks dialog box will be displayed. Select the destination rack and press OK to jump to that rack.

6.13   Substituting Variable Names

Select Substitute Variables from the Commands menu in the Rack Configurator to substitute variable names from within the Rack Configurator. This command brings up the Substitute Variables dialog box. It then performs all of the requested substitutions and returns to the Substitute Variables dialog box until you choose Exit. Use the following procedure to substitute variable names.

Step 1.   Select Substitute Variables from the Commands menu. The Substitute Variables dialog box is displayed (see figure 6.7).

Step 2.   Enter information for the following fields:

Search - The variable search string specifies the criteria which are used to locate variables. This field can contain from 1 to 16 characters, and can contain up to three wildcard groups (?, which represents a single character, or *, which represents a string of indeterminate length). The data type character or array dimensions must not be included in the search string.

Substitute - The variable substitute string determines how the original variable name is modified to produce the result string. It can contain from 1 to 16 characters. It can also contain either up to three wildcards (?, which represents a single character, or *, which represents a string of indeterminate length) or up to 3 placeholders.

A placeholder is a designator which marks the location in the substitute string where the substring that matches the corresponding wildcard group in the search string is to be inserted. The format for the placeholder is '\n', where n identifies the ordinal number of the corresponding group of wildcard characters in the search string.

Placeholders must be used in the substitute string instead of the actual wildcard characters when either a group is to be omitted or the relative positions are to change. Wildcards and placeholders cannot be mixed within the same substitute string.

Example: If the search string = "A??*F?H", and the target string = "ABCDEFGH", then the wildcard group "??*" matches the substring "BCDE" and the second wildcard group "?" matches substring "G".

Wildcard format - If the substitute string = "L??*Q?S", then the first wildcard group '??*' identifies the location where substring "BCDE" is to be placed and the second wildcard group '?' identifies where the substring "G" is to be placed.

Placeholder format - If the substitute string = "L\2Q\1S", then the first placeholder '\2' identifies the location where substring "G", representing the second wildcard group, is to be placed, and '\1' identifies where substring "BCDE", representing the first wildcard group, is to be placed.

Range - Enter the slot numbers of the first and last slot in the rack for which the variable substitution will be performed.

Confirm Each Substitute - Check this box if you want to confirm each substitution before it is made.

Step 3.   Select Substitute to make the variable name substitutions, or Exit to return to the Rack Configurator without changing variable names.
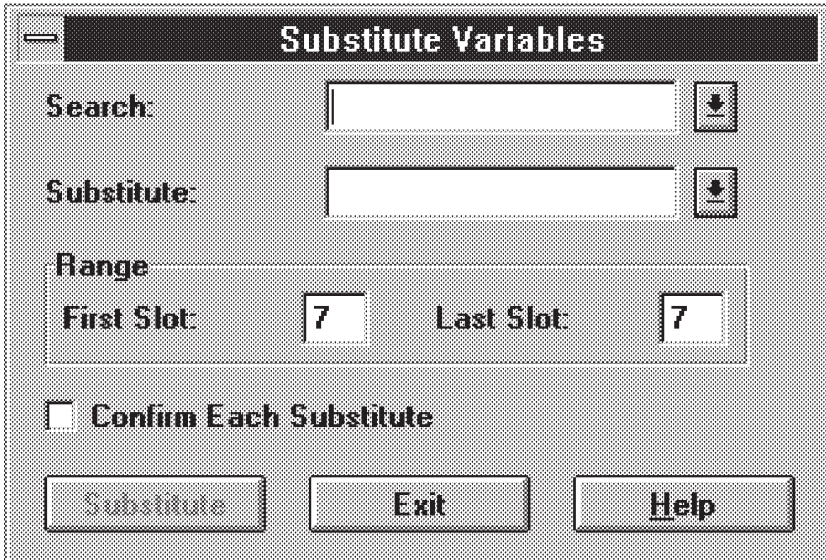

Figure 6.7 - Substitute Variables Dialog Box

6.14   Substituting Variable Descriptions

Select Substitute Descriptions from the Commands menu in the Rack Configurator to substitute variable descriptions from within the Rack Configurator. This command brings up the Substitute Descriptions dialog box. It then performs all of the requested substitutions and returns to the Substitute Descriptions dialog box until you choose Exit. Use the following procedure to substitute variable descriptions.

Step 1.   Select Substitute Descriptions from the Commands menu. The Substitute Descriptions dialog box is displayed (see figure 6.8).

Step 2.   Enter information for the following fields:

Search - The variable description search string specifies the criteria which are used to locate variable descriptions. This field can contain from 1 to 16 characters, and can

contain up to three wildcard groups (?, which represents a single character, or *, which represents a string of indeterminate length). The search on variable descriptions will be case-sensitive.

Substitute - The variable description substitute string determines how the original variable description is modified to produce the result string. It can contain from 1 to 16 characters. It can also contain either up to three wildcards (?, which represents a single character, or *, which represents a string of indeterminate length) or up to 3 placeholders. (See 6.13 for more information on placeholders.)

Range - Enter the slot numbers of the first and last slot in the rack for which the variable description substitutions will be performed.

Confirm Each Substitute - Check this box if you want to confirm each substitution before it is made.

Step 3.   Select Substitute to make the variable description substitutions, or Exit to return to the Rack Configurator without changing variable descriptions.
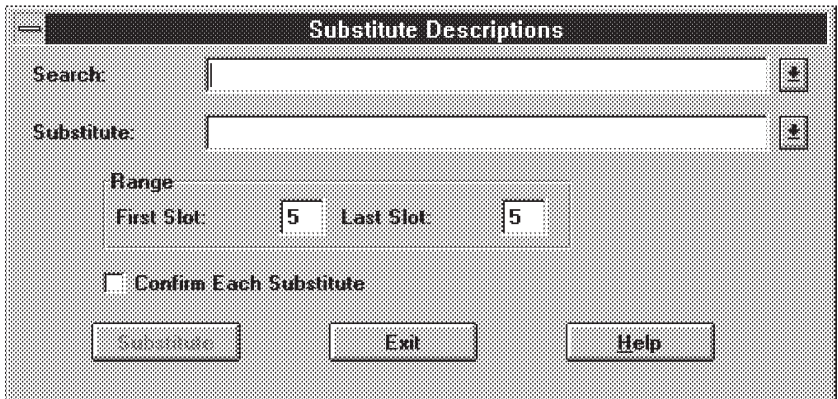

Figure 6.8 - Substitute Descriptions Dialog Box

6.15   Copying a UDC Drive (DPS systems only)

Use the following procedure to copy a UDC drive.

Step 1.   From the Rack Configurator, select the slot containing the target UDC module.

Step 2.   Select Copy UDC Drive from the Commands menu to display the Copy Drive dialog box (see figure 6.9).

Step 3.   Select the drive, library, system, section, rack, and UDC slot that contains the drive you want to copy.

Step 4.   Select the source drive (A or B). The drive type will be displayed automatically.

Step 5.   Select the destination drive (A or B).

Step 6. Select OK to continue, or Cancel to return to the Rack Configurator without copying the UDC drive.
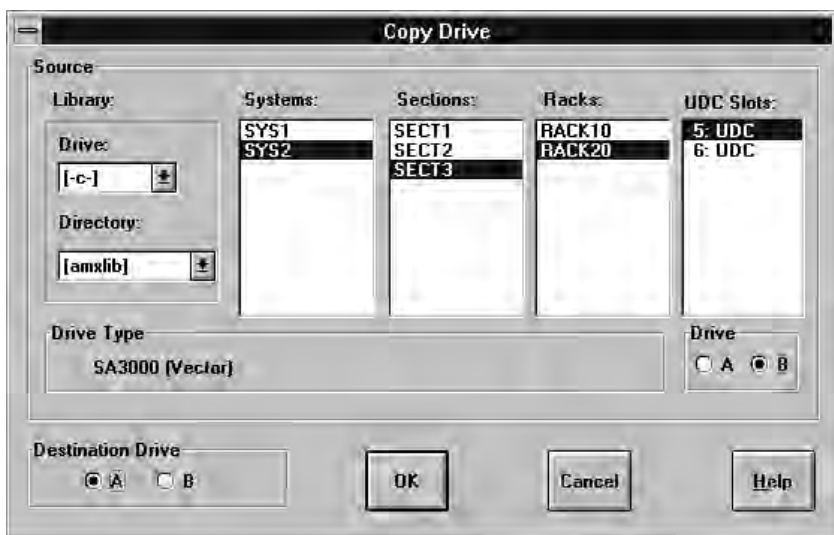

Figure 6.9 - Copy Drive Dialog Box

6.16   Generating the Rack Configuration and Drive Parameter Files

The Generate Configuration command from the Commands menu is used to generate the rack configuration object file or, for UDC modules in the rack, the drive parameter object file. When the Generate Configuration command is selected, the following options will be displayed: Generate Rack Configuration (either standard or mapping I/O locations to memory for testing) and Generate Drive Parameter Files. The next two sections describe these options.

The Transfer command from the On Line menu is used to load the rack configuration object file into the AutoMax Processor. The same command is also used to load the drive parameter object file to the UDC. See section 14.3 for information about loading the drive parameter object files.

6.16.1   Generating the Rack Configuration

The Generate Configuration command can be used to create the object file (.CNF) for the rack configuration. The "generated" (compiled) rack configuration must be loaded onto the Processor(s) in the rack before or at the same time application tasks are loaded. See 14.3 for information about loading the rack configuration file(s). See Appendix D for information about configuration file size limits.

When generating the rack configuration, you have the option of mapping variables to common memory for testing. If you select this option, all variables currently configured as I/O registers or I/O points will be configured as common memory locations. This allows you to

load application tasks into the Processor(s) in the rack and run/monitor them without actually placing I/O modules in the rack, or without connecting the I/O modules in the rack to field devices. The variables can then be monitored through the On-Line command. Loading the configuration using this option will make the configuration take up more room on the Processor than loading without this option. Tasks that depend on hardware interrupts, i.e., that use BASIC language WAIT ON statements, will not run. Note that this option will not necessarily simulate real-world results and that once testing is complete and you connect all field wiring to the rack, you must re-load the configuration without the option.

6.16.2   Generating the Drive Parameter Files

The Generate Configuration command can be used to create the drive parameter object files (.POB) for all UDCs in the rack. To create the drive parameter files, choose the Generate Drive Parameter Files option. A file named PARAMXX.POB will be created, where XX is the slot number of the UDC module. The drive parameters must be loaded onto the UDC(s) in the rack before or at the same time UDC application tasks are loaded. See 14.3 for information about loading the drive parameter files.

You can print the drive parameters for a UDC module by using the Print command from the Rack menu in the System Configurator.

6.17   Accessing the Variable Configurator

After you have configured a rack, select Configure Variables from the Configure menu to access the Variable Configurator. Use the Variable Configurator to assign variable names for I/O on a form designed specifically for each module. Chapter 7 describes the Variable Configurator.