

# ADJUSTABLE FREQUENCY DRIVES

SERIES 9000 AF DRIVES

**SVLoad™ Application**

Loading Application and Option Software

- Instruction Sheet



**Cutler-Hammer**

**EAT•N**



# SVLoad Application Instruction Sheet

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Because of the variety of uses for this equipment and because of the differences between this solid-state equipment and electromechanical equipment, the user of and those responsible for applying this equipment must satisfy themselves as to the acceptability of each application and use of the equipment. In no event will EATON Cutler-Hammer be responsible or liable for indirect or consequential damages from the use or application of this equipment.

## 1. Introduction

The SVLoad application is a PC tool used for loading new software into SV9000 drives.

Three kinds of software files can be loaded by SVLoad application:

- **System software** (\*.bin files) — used to update an SV9000 drive's operating system software
- **Option card software** (\*.bin files) — used to update option card software.
- **Application software** (\*.hex files) — used to updated or add applications

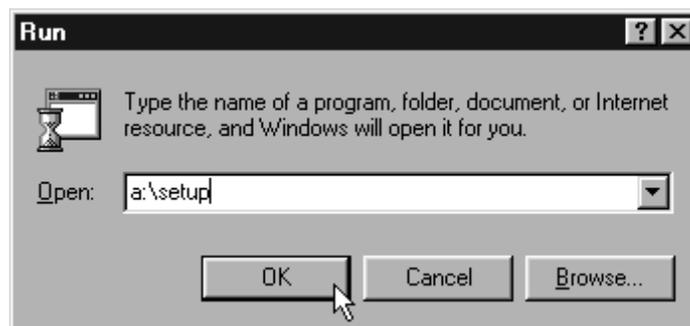
This manual will cover installation of the SVLoad Application and use of the SVLoad software to update option card software and download application files to Series 9000 drives. For information on how to install system software using the SVLoad application, refer to the "SVLoad Application: Installing System Software" instruction sheet [publication number TD.08H.26.T.E].

## 2. Installing the SVLoad Application

1. In a Windows 95, Windows 98 or Windows NT operating system, click on the "Start" button.
2. Click on "Run" to open the Run dialog.



3. Insert the SVLoad installation diskette into the diskette drive.
4. Type "A:\Setup" where "A" is the letter of the diskette drive.
5. Click on the OK button to start the SVLoad setup program.



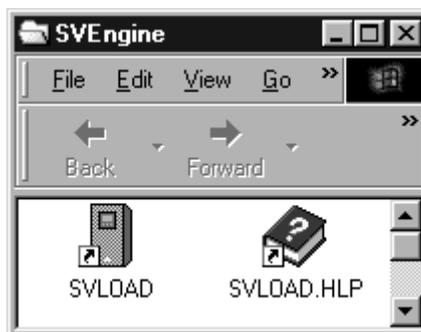
- Choose the drive letter to which you wish to install the SVLoad program.
- Click on the "Continue" button.



- When the application has finished loading, a confirmation screen will display. Click on the OK button.



- A window containing an icon for the SVLoad software will be displayed on your screen.



### 3. Loading Software

#### 3.1 SVLoad Tool Screen Definitions

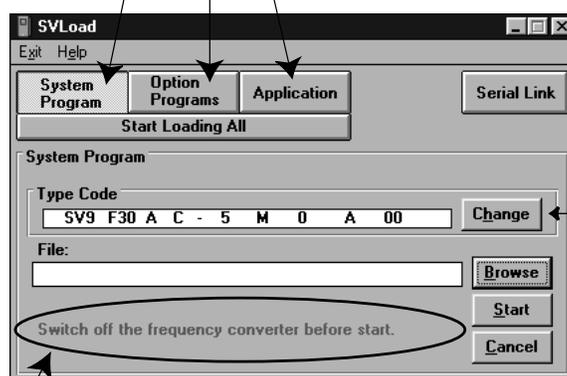
The SVLoad tool icon, pictured below, is used to run the SVLoad application.



**Figure 1: The SVLoad Program Icon**

For screen definitions, see figures 2-5 below.

The system, option and application buttons are used to change to the system, option, and application screens.



Use the Serial Link button to set up communication between your computer and the drive

Use the Change button to identify the type of drive that the system software will be loaded on. (only used when loading system software)

Follow the instructions in this area while loading system, option, or application files

**Figure 2: Start-up Screen**

	<p><b>CAUTION: Equipment Damage Hazard.</b></p> <p>Do not use the "Start Loading All" button when loading only application and option software to the drive. Loading incorrect system software to the drive may void the drive's warranty. For more information on installing system software, see the "SVLoad Application: Installing System Software" instruction sheet.</p>
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The system, option and application buttons are used to change to the system, option, and application screens.

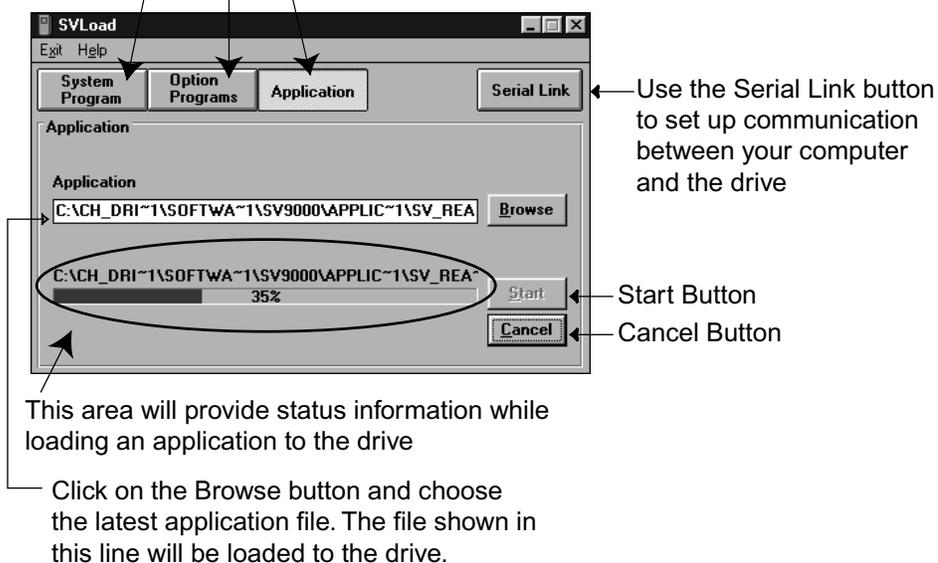


Figure 3: Application Screen

The system, option and application buttons are used to change to the system, option, and application screens.

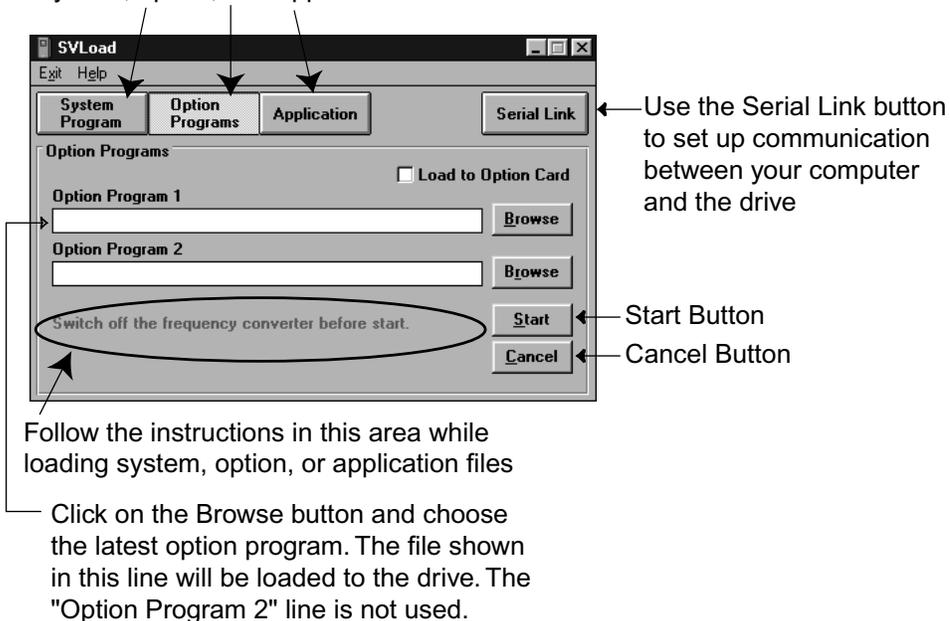
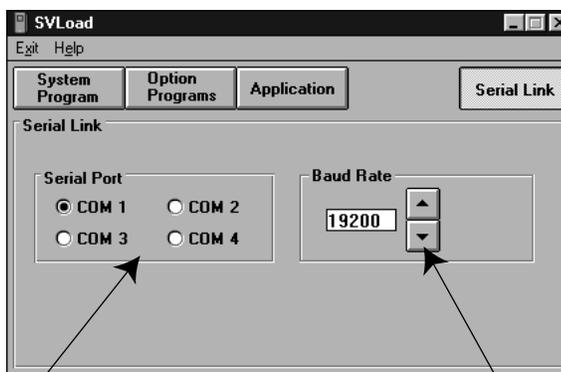


Figure 4: Option Programs Screen



Choose the COM port that the SVDrive cable is plugged into.

Choose the baud rate for loading software. 19200 baud is the recommended baud rate. Choose lower baud rates in electrically noisy environments.

Figure 5: Serial Link Setup Screen

### 3.2 Establishing Communication



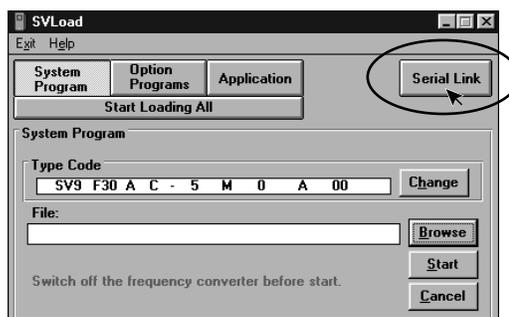
**CAUTION: Equipment Damage Hazard.**

Do not use any cable other than SVDrive cable. Using an incorrect of communication cable may cause computer or drive failure.

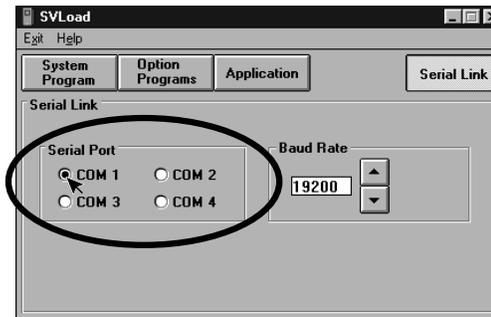
1. Plug the SVDrive cable into an unused serial communication port on the computer. Instructions for making an SVDrive cable are included in the “Constructing an SVDrive Cable” section.
2. Unplug the keypad or keypad cable from the Series 9000 drive.
3. Plug the SVDrive cable into the Series 9000 drive communication port that the keypad or keypad cable had been plugged into.
4. Run the SVLoad software by clicking on the SVLoad icon.



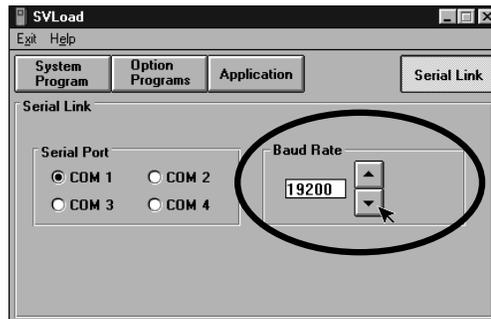
5. Click on the “Serial Link” button.



6. Select the COM port of the computer that the SVDrive cable is plugged into.



7. Set the baud rate to match the computer and drive specifications.



Note: The baud rate is selectable between 1200 baud and 115200 baud. The recommended baud rate setting is 19200; however in magnetically clean environments, higher baud rates will be acceptable. If the “Too many retransmissions” error is generated, lower the baud rate.

8. Click on the System, Option Software, or Application button according to the type of software you wish to load. (see instructions below)

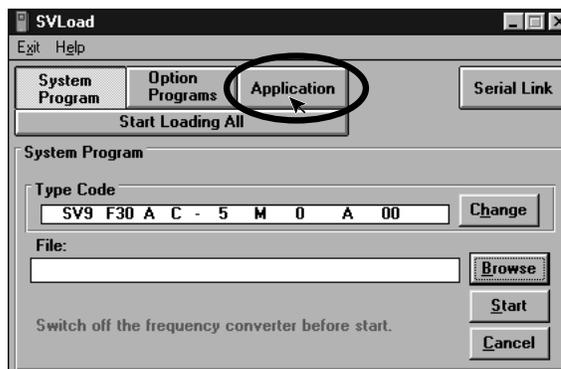
### 3.3 Loading Application Software

1. Run the SVLoad software by clicking on the SVLoad icon.

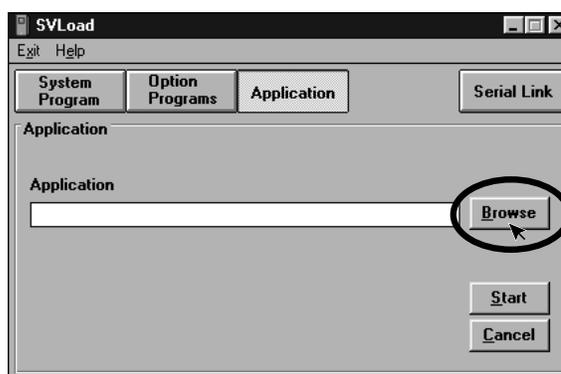


2. Establish communication between your computer and the Series 9000 drive. For information on how to set up communications, see the section of this manual titled “Establishing Communication.”

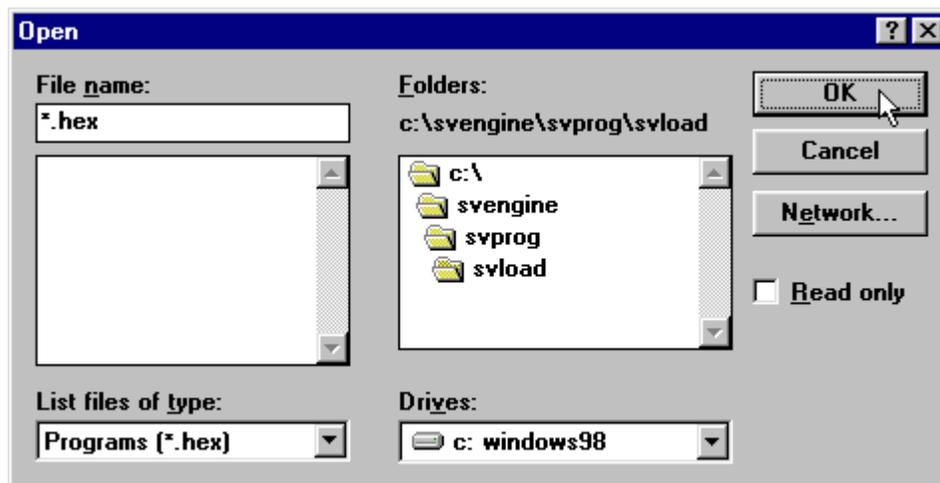
- Click on the "Application" button.



- Click on the "Browse" button.



- Find and choose the application software file (\*.hex) you wish to install.
- Click the "OK" button in the find dialog.

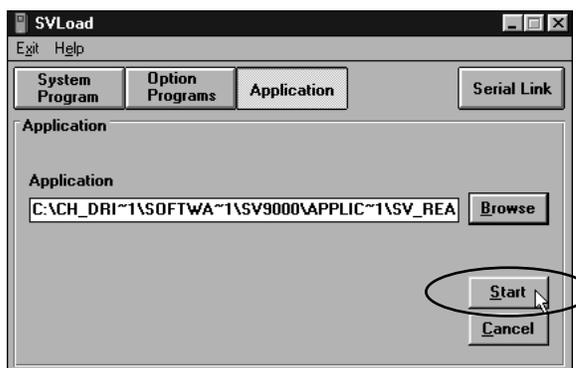


- Check that the file name shown in the SVLoad application is the appropriate file.
- Apply power to the drive.

9. Verify that the drive is stopped.

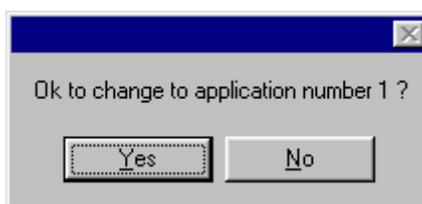
	<p><b>WARNING: Personal Injury Hazard.</b> When loading software to the drive, observe all safety precautions required while the drive is running. Because the drive has power while loading software, an unexpected start may occur.</p>
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10. Click on the SVLoad application screen “Start” button.

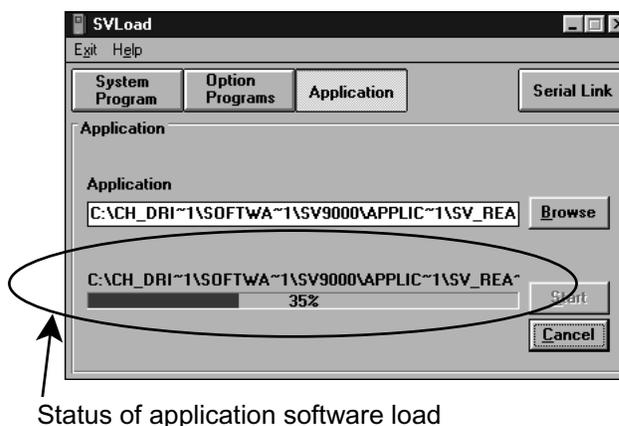


	<p><b>CAUTION: Equipment Damage Hazard.</b> Before clicking OK to change the application (below), be sure that there are no active inputs to the drive. An active input in application 1 could cause the drive to start when the application changes, due to differing I/O definitions.</p>
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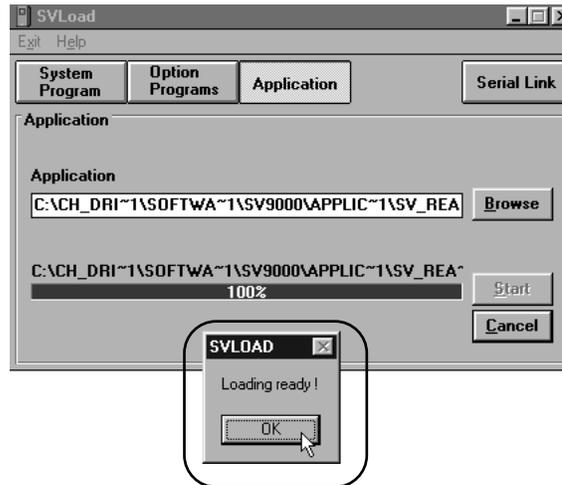
11. If a special application is currently selected in the drive, the following dialog will appear. Click on the “Yes” button to continue loading the new application.



12. A status bar will be shown in the lower part of the screen, as below:



- When loading is finished, a confirmation screen is displayed. Click the OK button to exit.



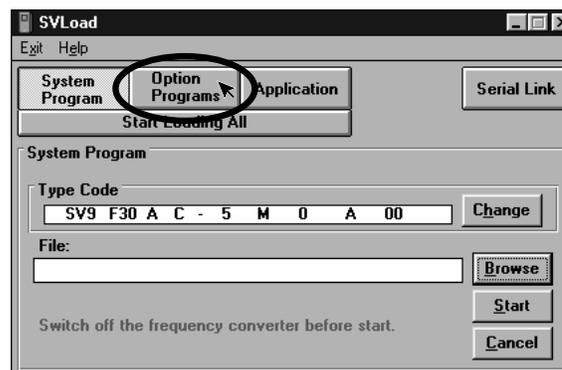
- If any application other than Basic is needed, the drive must be set to use the desired application by changing the drive's Application Selection Parameter [P0.1] to the desired application number. For more information on how to change the drive's selected application, see the application manual.

### 3.4 Loading Option software

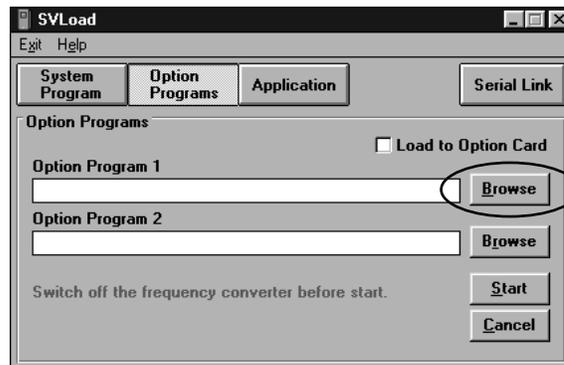
- Run the SVLoad software by clicking on the SVLoad icon.



- Establish communication between your computer and the Series 9000 drive. For information on how to set up communications, see the section of this manual titled "Establishing Communication."
- Click on the "Option Programs" button.

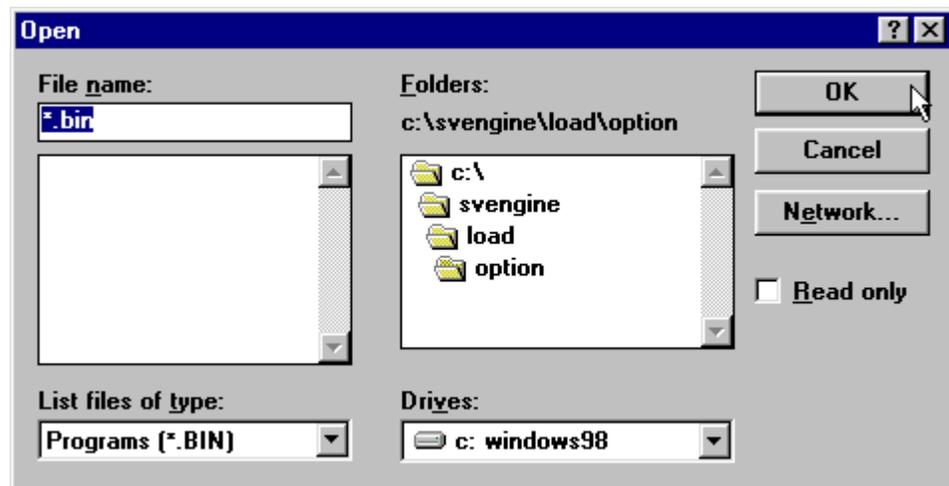


- Click on the “Browse” button to the right of the “Option Program 1” box.



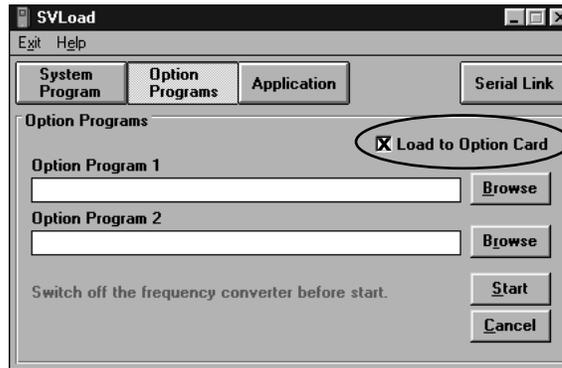
Note: The “Option Program 2” text box should be left blank, as it is not used.

- Find and choose the option software file (\*.bin) you wish to install.
- Click the “OK” button in the find dialog.



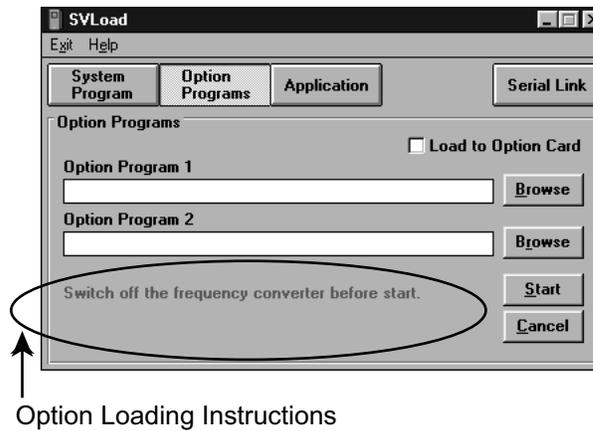
- Check that the file name shown in the “Option Program 1” text box is the appropriate file.

8. If the option software should be loaded to an option board, check the “Load to Option Card” box.

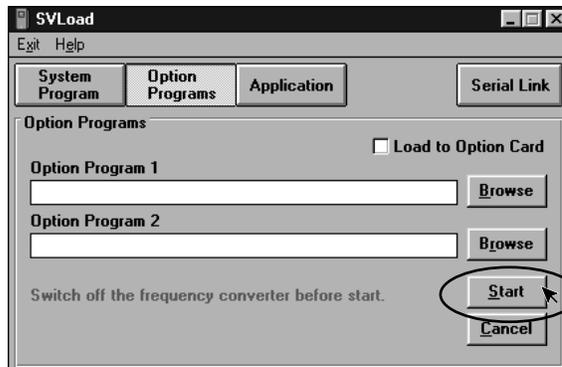


**Important:** The “Load to Option Card” box must be checked for the software to reside on the option board. If the box is left blank, the option software will load, but only to the drive and not to the option board where it is needed.

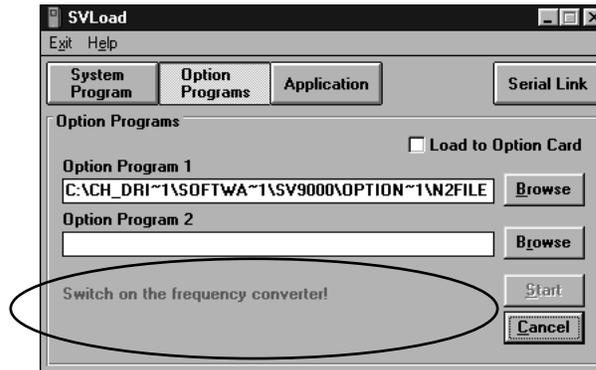
9. Follow the instructions shown in the lower half of the Option Programs window.



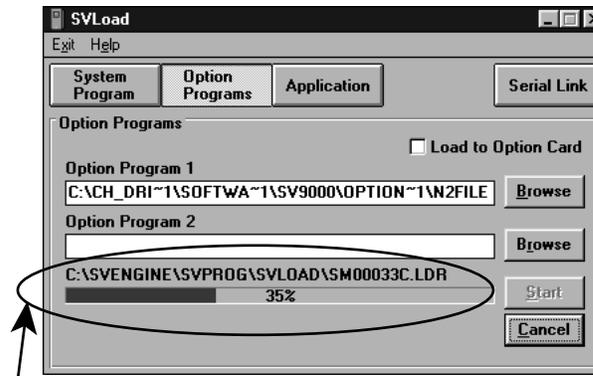
10. Click on the “Start” button.



11. Follow additional instructions shown in the lower half of the Option Programs window.

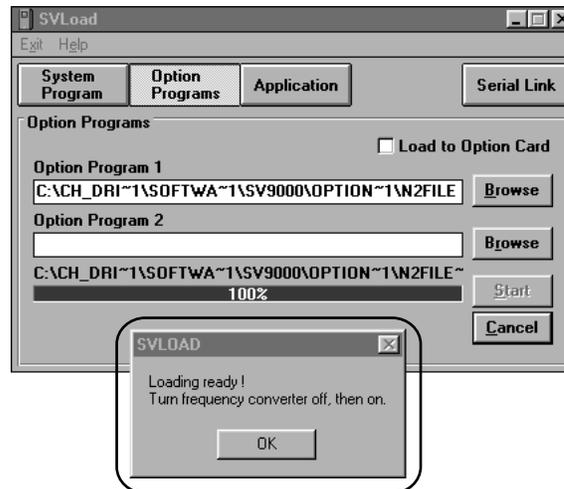


12. A status bar will be shown in the lower part of the screen, as below:



Status of Option Software Load

13. When loading is finished, a confirmation screen is displayed. Cycle power to the drive, then click the OK button to complete option program installation.



## 4. Constructing an SVDrive Cable

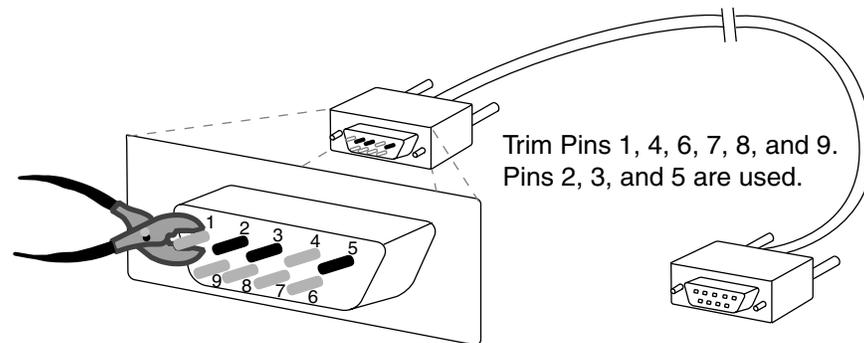
### 4.1 Method 1 Instructions: Modifying an Existing Serial Cable

#### Materials and Tools Needed

- RS232 Straight-through 9-pin serial cable less than 10ft. long
- Small wire clippers

#### Instructions

Using the drawing below, identify and trim the male pins numbered 1, 4, 6, 7, 8, and 9.



Data is carried on pins 2, 3, and 5.

### 4.2 Method 2 Instructions: Making an SVDrive Cable

#### Materials and Tools Needed

- 3-wire RS-232 communication cable (shielded cable recommended); less than 10ft. long
- 1 female 9-pin D-sub connector
- 1 male 9-pin D-sub connector
- Solder gun and solder

#### Instructions

1. Solder one wire to each end of pins 2, 3, and 5, and the shield wire to one side of the D-sub frame.

5

2. Assemble the D-sub connector covers over the soldered wires.

## 5. Troubleshooting

Error Message	Cause/Solution
"Too many retransmissions"	<i>Cause:</i> Noise interference with communication; <i>Solution:</i> Set baud rate to a lower value. See the "Establishing Communication" section.
"Device unavailable. Select another port."	<i>Cause:</i> Serial communication port selected is not a valid port or is in use by another application <i>Solution:</i> Close other applications that may be using the selected port to communicate or select another port to use with the drive. See the "Establishing Communication" section.
"Connection to frequency converter doesn't work"	<i>Cause:</i> Disconnected communication cable at the computer or at the drive; <i>Solution:</i> Reconnect the communication cable at the drive and the computer, then restart the SVLoad application. See "Establishing Communication" section.
"Too many transmission errors"	<i>Cause:</i> Noise interference with communication; <i>Solution:</i> Set baud rate to a lower value. See "Establishing Communication" section.

For technical support contact your Cutler-Hammer distributor or the  
Cutler-Hammer AF Drives Product Integrity Center at 1-800-322-4986