

# **K-02a**

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## **ELECTRICIAN TRAINING**

### **SKILL DEVELOPMENT GUIDE**

**PLC (Allen-Bradley)  
K-02a: Back Up Software**

**Issued 01/01/98**



## Task Preview

### Back Up Software

PLC programs are backed up as a routine operating procedure, when a change has been made to the program, or possibly after a power interruption. Before loading or restoring a program, you will change the processor's mode from REM RUN to REM PROG. You must use the FILE UTIL functions to select and copy the file to the floppy disk. After backing up the software, return the PLC to the RUN Mode. To verify that the file has been backed up, compare the size of the file on the floppy to the file on the PLC.

If a backup copy of the PLC program is needed but is not available, reprogramming could be required. This could result in extensive downtime.

### How your skills will be checked

The Skill Check will require you to back up software. All tools, materials, and resources will be available. The Evaluator will verify that your demonstration meets the skill objective by observing or measuring each task standard. You must demonstrate safe work practices during the Skill Check. Contact your Evaluator whenever you are ready for the Skill Check.



## **Skill Objective**

After a power interruption, a program modification, or as a routine operating procedure, back up the software.

### **Task Standards**

1. A backup copy of the file must exist on a floppy disk and/or hard drive.
2. After completing the backup, you return the machine to the RUN mode.

## What You Will Need

This section contains the safety information, tools, and resources you will need before backing up software.



- Follow all Caterpillar Facility Safety Standards when performing this task in the plant.
- Use caution when working around the PLC; high voltage is present on the inside of the PLC cabinet door and near the input/output (I/O) chassis.
- Be careful when working near moving or rotating machinery.
- Wear safety glasses and hearing protection in assembly and production areas.
- Stay in full view of the area that the PLC station controls.
- Inform the Operators that the PLC-controlled machine will be down until you backup the software.



- PC equipped with PLC software
- PLC
- Offline PC equipped with Allen-Bradley PLC-5 software with offline capability
- Floppy disk(s)
- Interconnect cable
- Processor Keyswitch Key (if the processor is not in the REM position)
- Password (if necessary)



- Plant Engineering Standards
- Electrical Standards
- Safe Job Procedures



## Task Steps

### Back Up Software

1. **Using the interconnect cable, connect the PC to the PLC.**
  - When connecting to a 5/15 or 5/25 - Connect the PC cable to the PEER COMM INTFC communication port (that is for the programming terminal) on the front panel of the PLC.
  - When connecting to a 5/40 - Connect the PC cable to the Data Highway+ communication port Channel 1A on the front panel on the PLC. If communication is not established, connect to the Channel 2A.
2. **Turn the PC power on.**
  - The ALLEN-BRADLEY MAIN MENU INTERFACE screen displays.
  - If the PC boots up to DOS, perform these steps: At the C:\ prompt, type **cd\ipds**. Press <Enter>. Type **abmenu** and then press <Enter>. The ALLEN-BRADLEY MAIN MENU INTERFACE screen displays.
3. **Press the <PLC-5> function key.**
  - The system displays the PLC-5 PROGRAMMING SOFTWARE screen. This is the main menu for the programming software.
  - There are two paths for connecting to the PLC. You can go through the WHO screens or go directly online to the PLC station. When you are operating at a stand-alone station, you can go directly online. Electricians frequently use the WHO screens when the PC is connected to a data highway. If the PC is connected to a highway, go to step 4. If not, go to step 6.
4. **Press the <Who> function key.**
  - The DH+ NETWORK MENU displays.
5. **Press the <Who Active> function key.**
  - The WHO ACTIVE - ACTIVE STATION IDENTIFICATION screen displays the stations on the highway.

**6. Go online.**

- Cursor to the PLC station you need to connect to, using the arrow keys.
- Press the <Online Program> function key. The “Working” message flashes. The PROGRAM DIRECTORY FOR PROCESSOR screen displays. “ONLINE” appears on the top line, to the right of the processor’s name. You are now connected to the PLC.

**Note:** You can back up a program in either the RUN Mode or the PROG Mode, however, PROG Mode is the preferred mode.

**7. Change to the PROG mode.**

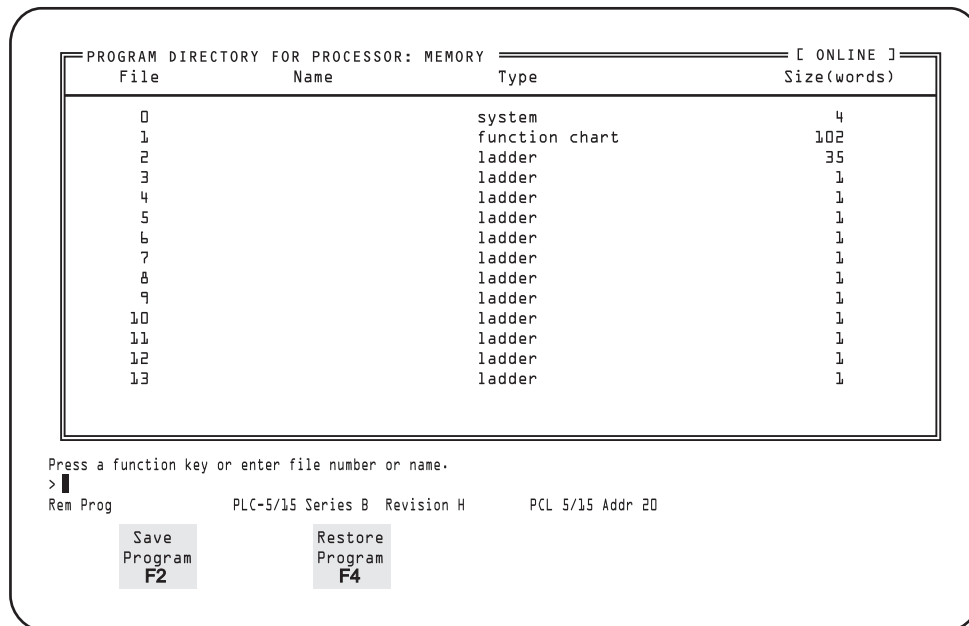
- Press the <Proc Functns> function key.
- Press the <Change Mode> function key.
- Press the <Program Mode> function key. The screen prompt will ask “Change Processor Mode to PROGRAM?”
- Press the <Yes> function key.

**8. Press <Esc> two times.**

- The Processor Functions screen displays, and then the PROGRAM DIRECTORY FOR PROCESSOR screen displays.

**9. Press the <Save Restore> function key.**

□ The SAVE AND RESTORE screen displays. See *Figure 2-1*.



**Figure 2-1**  
**SAVE AND RESTORE Screen**

□ The screen prompt will ask you if you want to save the program or restore the program.

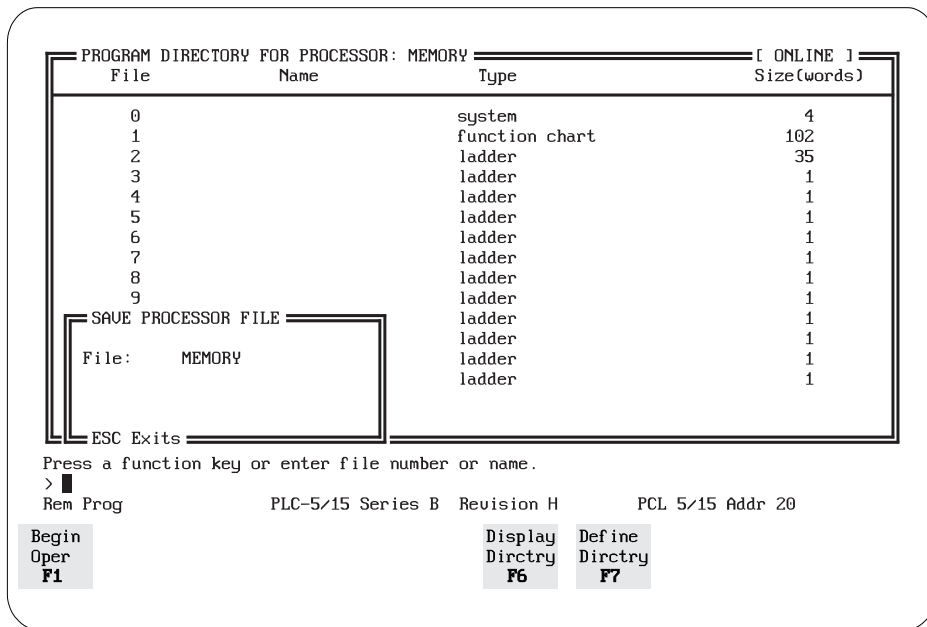
**10. Press the <Save Program> function key.**

□ A dialog box displays the name of the file.

□ The yellow prompt message informs you that the “FILE ALREADY EXISTS”. If the file has never been backed up, this message will not appear.



- The screen displays three options: <Begin Oper>, <Display Dirctry>, and <Define Dirctry>. See Figure 2-2.



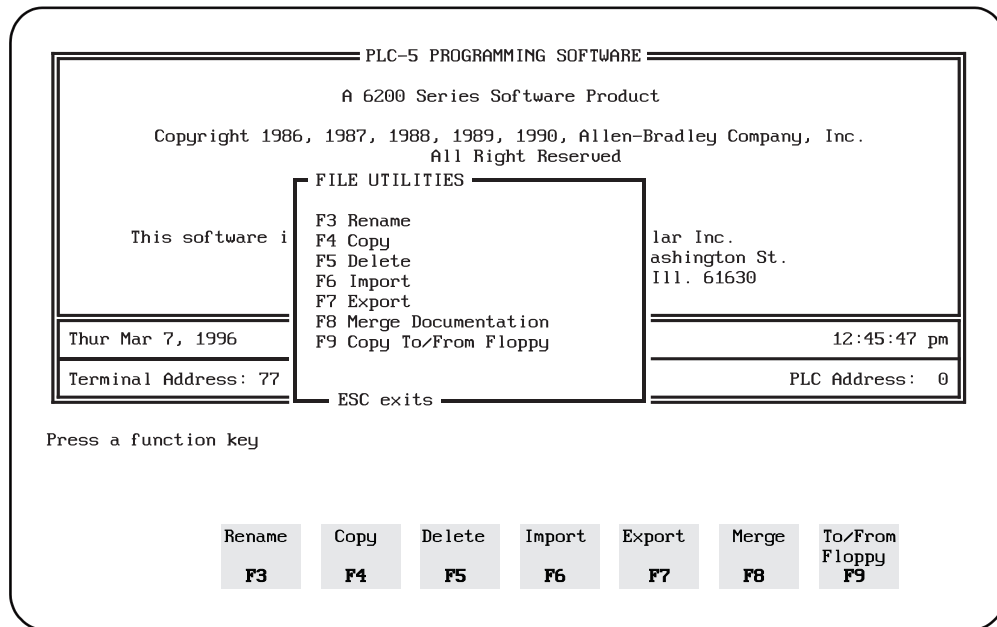
**Figure 2-2**  
**SAVE PROGRAM Screen**

**11. Press the <Begin Oper> function key.**

- The save process begins. After all the files are saved, the UTIL screen displays the summary information.
- Press any key to continue. The PROGRAM DIRECTORY FOR PROCESSOR screen displays.
- Press the <Return to Menu> function key. The PLC-5 PROGRAMMING SOFTWARE screen displays.
- If you are only saving to hard disk, go to step 16. If you are saving to a floppy, go to step 12.

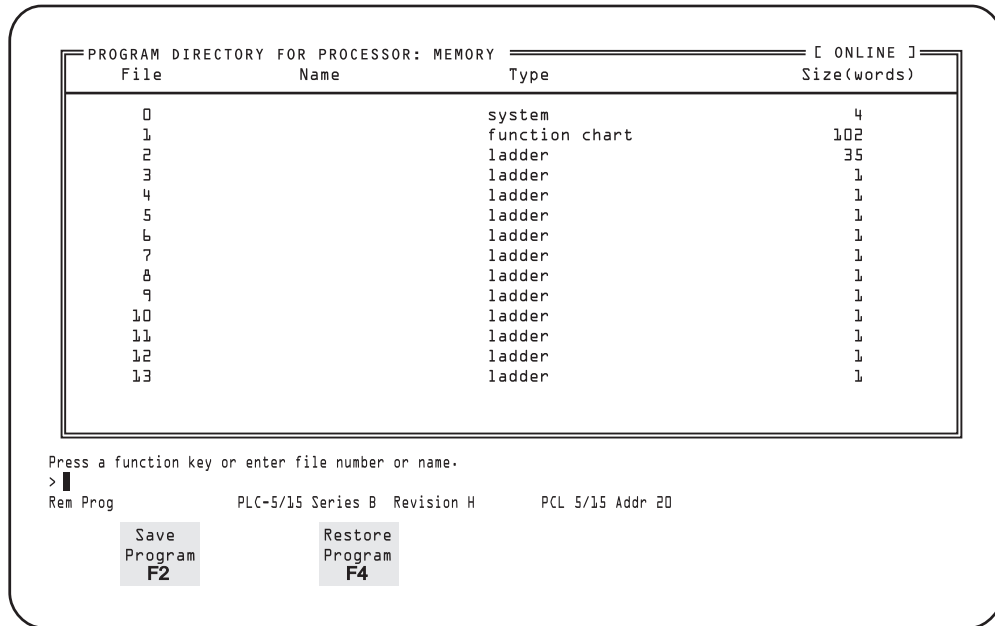
**12. Select the files that you need to copy onto the floppy disk.**

- Press the <File Utils> function key. The FILE UTILITIES MENU screen displays. See Figure 2-3.



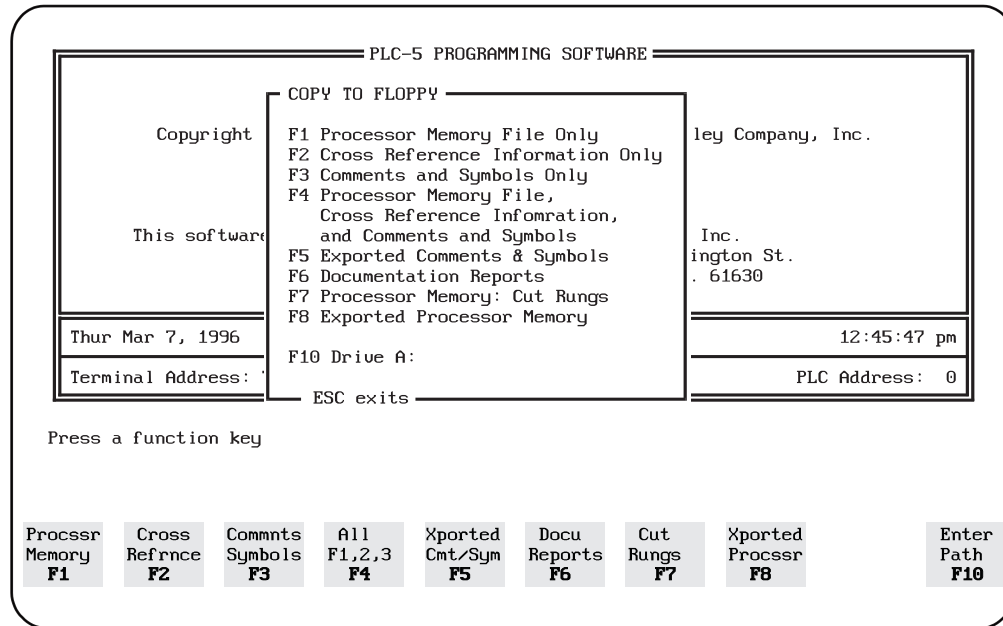
**Figure 2-3**  
**FILE UTILITIES MENU Screen**

- q Press the <Copy To/From Floppy> function key. COPY TO/FROM FLOPPY screen displays. See Figure 2-4.



**Figure 2-4**  
**COPY TO/FROM FLOPPY Screen**

- q Press the <To Floppy> function key. The COPY TO FLOPPY screen displays. See Figure 2-5.



**Figure 2-5  
COPY TO FLOPPY Screen**

- q Press the <All F1, 2, 3, F4> function key. This function key selects all the documentation and ladder logic files. The screen displays two dialog boxes: COPY PROCESSOR AND COMMENTS and a list of all the processor files that have been saved on that PC.
- q Move the cursor to the file you want to copy and press the <Select Source> function key. Note the size of the file for comparison later. The name of the file is now displayed in the COPY PROCESSOR AND COMMENTS dialog box. Verify the file name and destination drive.

**13. Load the disk in the floppy drive.**

**14. Back up the software.**

- q Press the <Begin Oper> function key. The yellow “Working” message flashes. The backup is complete when the message stops flashing.

**15. Press <Esc> two times.**

□ The PLC-5 PROGRAMMING SOFTWARE screen displays.

**16. Press the <Online Program> function key.**

□ The PROGRAM DIRECTORY FOR PROCESSOR screen displays.

**17. Return the processor to the RUN Mode.**

□ Press the <Proc Functns> function key.

□ Press the <Change Mode> function key. The screen displays three options: <PROG>, <TEST>, or <RUN>.

□ Press the <RUN Mode> function key. The program asks you whether or not you want to change modes.

□ Press the <Yes> function key. The green “REM RUN” message displays.

**18. Press the <Esc> key two times.**

□ The PROGRAM DIRECTORY FOR PROCESSOR screen displays.

**19. Exit the PLC-5 software.**

□ Press the <Return to Menu> function key. The PLC-5 PROGRAMMING SOFTWARE screen displays.

□ Press the <Exit Sys> function key. The ALLEN-BRADLEY MAIN MENU INTERFACE screen displays.

**20. Disconnect the PC from the PLC processor.**

□ Power down the PC.

□ Remove the interconnect cable from the PLC communication port.

**21. Have your Trainer verify that the software was backed up.**

□ Load the floppy disk into an offline PC.

□ Compare the size of the file noted in step 12 to the size of the file on the floppy disk.



## Concept Check

### Backing Up Software

Answer the following questions to check your understanding of backing up software. Circle the correct answer in each question. Then compare your responses with the answers at the bottom of this page. Some of the questions may have more than one correct answer. If you have difficulty answering a question, review the Skill Development Guide or ask your Trainer for assistance.

1. The “FILE ALREADY EXISTS” screen prompt displays when you select a file to save that has previously been saved.
  - a. True
  - b. False
  
2. When you want to select all the documentation and ladder logic files associated with a processor, which function key do you press?
  - a. <Commnts Symbols>
  - b. <Procscr Memory>
  - c. <Xported Procscr>
  - d. <All F1, 2, 3, F4>
  
3. After selecting a file to copy, verify the file name and destination drive by reading the information displayed in the dialog box titled
  - a. PROCESSOR.
  - b. COPY PROCESSOR AND COMMENTS.
  - c. COPY TO/FROM FLOPPY.
  - d. SAVE PROCESSOR FILE.

4. As a safety measure, you should to be in full view of the area that the PLC station controls.
  - a. True
  - b. False

Answers: (1. a 2. d 3. b 4. a)

### **Next Step**

If you are ready to demonstrate the task now, ask your Evaluator or Trainer to schedule the Skill Check. However, if you need to practice some of the steps first, continue to the next section.



## **Practice**

The following practice will help prepare you for the Skill Check. Ask your Trainer to set up the practice for you. After you complete a practice, ask your Trainer to check your work.

### **Practice**

Your Trainer will designate a PLC location and will provide you with a PC and a floppy disk. Practice backing up the software. Your Trainer will ask you to copy specific files from the PLC program. After backing up the software, use an offline PC to verify that you have copied the file. Your Trainer will ask you to compare the size of the file on the floppy to the size of the program file.

Be prepared to demonstrate safe work practices during this activity.

### **Practice Objective**

You should copy the specified program file to the correct destination drive. Using an offline PC, you should view the file size and compare it to the size of the file you copied at the PLC location. You should demonstrate safe work practices during the task steps.

## **Next Step**

Continue to practice until you are ready for the Skill Check. When you are ready to demonstrate the task, ask your Evaluator or Trainer to schedule the Skill Check.