

PC INTERFACE
INSTALLATION INSTRUCTIONS

LectroCount³ RAM



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NOTE: The PC interface described in this manual provides a hardware interface from your LectroCount3 RAM system to your office computer. A software interface is also required. Many suppliers of office software have designed software interfaces that work with the Liquid Controls PC Interface. **If your supplier of office software has not created an interface to the Liquid Controls LectroCount³ RAM System, they should contact Liquid Controls for assistance.**

1. Scope

This manual covers the installation and operation of the following PC Interfaces:

E43102 – PC Interface for PC computers with ISA card slots

E43104 – PC Interface for PC computers with PCI card slots

71316 – PCI card upgrade for existing PC interfaces

82533 – Upgrade Kit for ISA card slots

82534 – Upgrade Kit for PCI card slots

2. Overview

The Liquid Controls PC Interface for the LectroCount³ RAM system is a combination of hardware and software that provides users with the ability to transfer data to and from LectroCount³ RAM Cards and most generally available personal computers.

The product consists of a card reader, a half size PC card, an interface cable, data transfer software and installation software.

RAM Card Reader

The RAM card reader sits upon the desktop near the computer. It has a slot for inserting LectroCount³ RAM cards. The RAM card reader incorporates anti-static features that reduce the chance of electrostatic discharges that can damage electronic equipment. The RAM card reader is designed for indoor use only.

PC Card

The half size PC card is inserted into an open card slot on the personal computer that will be used for data transfer. **Because of the variety of personal computers on the market, the PC card is available in two different versions. One version is designed for ISA card slots. ISA card slots are an industry standard that has been used since the late 1980's until the present. The second version is designed for PCI card slots. The more recent PCI card slots did not come into widespread usage until 1999.** The PCI card slots and contacts are narrower than the ISA versions. There is no obvious way to determine whether your PC has ISA or PCI card slots. Some computers may contain both. Your company's IT department may be able to assist you. Otherwise, you will need to refer to your computer's manufacturer for assistance.

Interface Cable

The supplied interface cable is approximately (4) four feet long. The cable is not standard, and it MAY NOT be extended. The cable will work with either the ISA or PCI PC card.

Data Transfer Software

The data transfer software consists of two DOS executable files that transfer the data to and from the RAM card. LCLOAD.EXE is used to transfer data TO the RAM card and LCREAD.EXE is used to read data FROM the RAM card. The files are provided on the installation software diskettes included with the system. The data to be transferred to the RAM card must be located in a specific file, in a specific location and must be of a specific format. The details are provided in this manual. The data on the RAM card does not reside in a file, but in a series of records that

are unique to Liquid Controls. The data transfer software provides the translation to and from the unique record type to an ASCII file format on the PC.

Installation Software

The installation software is supplied on two floppy diskettes provided with the system. The software contains a number of files. In addition, a CD ROM is supplied with the PCI board systems that contains additional installation software. The installation procedures vary depending on the type of operating system used on your computer. Your computer's HELP tab will identify the type of operating system. Please follow the appropriate installation instructions for your operating system. If your operating system is not listed then it is not currently supported by this product. PC interfaces ARE NOT currently available for the Macintosh or Unix operating systems.

3. Hardware Installation

WARNING : Danger of electrical shock

This step should only be performed by those who are authorized and trained to work on personal computer hardware.

CAUTION: Damage to computer equipment can occur.

This step should only be performed by those who are authorized and trained to work on personal computer hardware.

Computer equipment is sensitive to static discharge. Follow static discharge precautions whenever working with or handling computer equipment.

- 3.1 Turn off the computer, unplug it and open it up.
- 3.2 Locate the card slots along the rear of the computer and identify an open slot. Remove the screw and dust cover for the desired slot from the rear of the computer.
- 3.3 Locate the PC card in the interface kit and remove it from its protective wrapper. Verify that the contact spacing at the bottom of the card matches the contact spacing of the card slot. If the contact spacing does not match, you may need to use a different computer or order the alternate (ISA or PCI) card type. If installing the ISA interface kit (E43102), see note A below.
- 3.4 Insert the PC-card into the open slot in the computer with the cable connector facing toward the uncovered hole in the rear of the computer. Make sure that the card fits all the way down in the slot. Firm pressure is required, but do not use excessive force as this may damage the PC-card or the computer. Use the screw removed from the dust cover and re-insert it into the mounting hole of the PC-card.
- 3.5 Replace the computer cover and screws. Plug the computer back in.
- 3.6 Plug the interface cable supplied with the kit into the PC-card just installed and into the rear of the card reader. Be sure to tighten the screws on the connectors to prevent the cable

from working its way loose. Place the card reader on a table top, in a position that allows users to easily plug-in and remove RAM cards. Be sure that the interface cable and connectors are not strained or pulled in this position.

3.7 Turn the computer power back on.

Note A: If installing ISA interface kit E43102, be sure that the dip switch setting matches the illustration shown in figure 1. The dip switch setting determines the hardware address used. The default setting (as shown) is 0380H. Other hardware addresses can be used, but software modifications are required. Contact Liquid Controls Customer Support for further information.

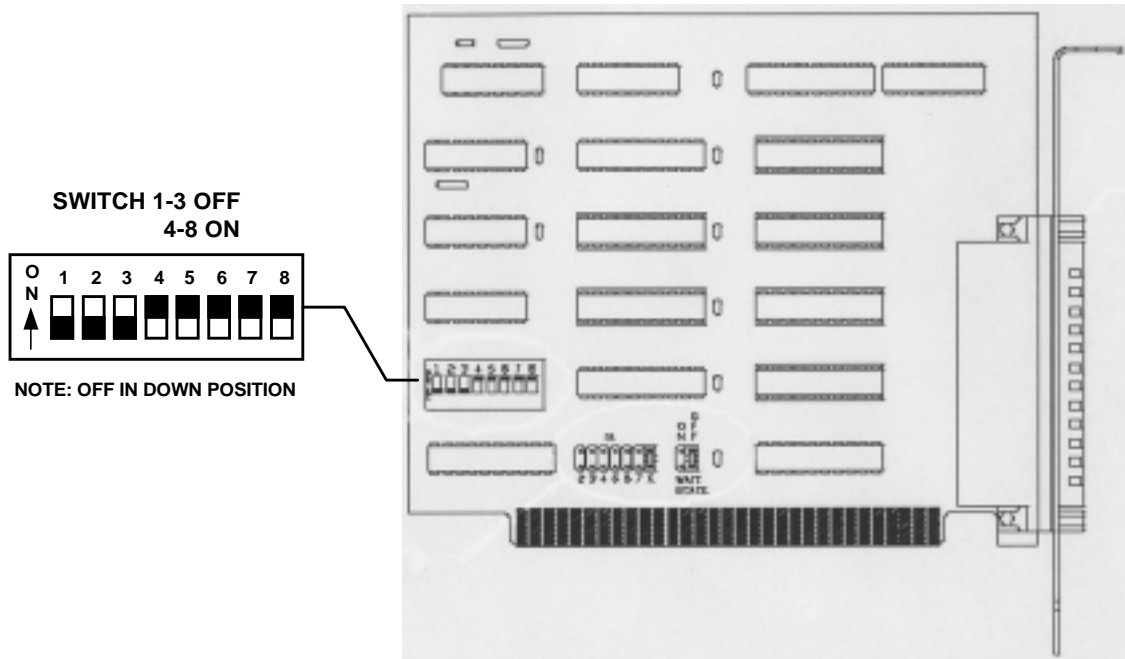


Figure 1

4. Software Installation

This procedure describes how to install the *LectroCount*³ interface software. The installation procedure varies depending upon the hardware installed (ISA or PCI PC-card) as well as the operating system used on your computer. The PC Interface is designed for use with IBM compatibles running a Windows operating system (neither Macintosh nor Unix are supported at this time). Use the HELP menu and the ABOUT tab under “My Computer” to determine your operating system. The supported operating systems are: **Windows 95, Windows 98, Windows NT and Windows 2000.**

The software installation takes place in three steps. First, INSTACAL is installed (this step may be skipped if an ISA Interface is being installed). Second, the LC3 RAM Interface software is installed. Finally, the Port95NT I/O driver library is installed.

LCLOAD, LCREAD, and FLASHRAM are DOS based programs and will be installed in the default directory C:\LC3RAM.

LCLOAD is used to download dispatch records onto the *LectroCount*³ Portable RAM card. LCREAD is used to read the records from the *LectroCount*³ Portable RAM card into a computer file. FLASHRAM is used to download a software program into the *LectroCount*³ Portable RAM card. PORT95NT is used to set up the required software library.

Use the default settings wherever possible for ease of installation. Different windows may appear depending on the computer and how it is setup. In addition, ICONS may be available to allow you to enter a program or window directly.

4.1 Installing and Running INSTACAL Software

NOTE: When installing an ISA interface kit (E43102), skip directly to section 4.2.

- 4.1.1. Turn on the computer and allow the operating system to complete its start-up routine. Do not start any other applications at this time.
- 4.1.2. Insert the ComputerBoards Instacal CD-ROM supplied with your PCI interface kit (E43104 or 71316) into the CD-ROM drive of your computer.

- 4.1.3. From the desktop, Click on **START**
Click on **RUN**
Click on **BROWSE**
Double click on **MY COMPUTER**
Double click on your **CD-ROM** drive
Double click on **AUTORUN.EXE**
Click on **OK**
From the ComputerBoards Menu
click on **Install Instacal**

<p><i>(Alternate method if this sequence does not work in your environment)</i> <i>From the desktop, Click on START</i> <i>Click on RUN</i> <i>Click on BROWSE</i> <i>Double click on MY COMPUTER</i> <i>Double click on your CD-ROM drive</i> <i>Double click on the PROGRAM folder</i> <i>Double click on the DISK 1 folder</i> <i>Double click on SETUP.EXE</i> <i>Click on OK</i></p>
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- 4.1.4. Follow the simple installation instructions as presented on the Instacal program.
 - 4.1.4.1. The Welcome window appears. Click on **Next** for next window.
 - 4.1.4.2. Choose the correct installation option for your operating system. The default is 32 bit Instacal.
Click on **Next** for next window.
 - 4.1.4.3. The Choose Destination Location window appears.
Use the default program folder setting C:\CB\
(Another setting may be used if required. The Program Folder C:\CB\ will be used for reference purposes.)

Click on **Next** for Next window.
 - 4.1.4.4. The Create Program Folder window appears.
Use the default program folder ComputerBoards
(Another setting may be used if required. The Program Folder ComputerBoards will be used for reference purposes.)

Click on **Next** for next window.
(The Instacal program will now be copied from the CD-ROM)

- 4.1.4.5. “Would you like Setup to modify AUTOEXEC.BAT for you?” will appear. Click **YES**. *(This message may not appear in all systems).*
- 4.1.4.6. “Your old AUTOEXEC.BAT will be saved as AUTOEXEC.BAK” will appear. Click **OK**. *(This message may not appear in all systems).*
- 4.1.4.7. *If the “Read Only File Detected” window appears, Click **YES** to overwrite the AUTOEXEC.BAK file.*
- 4.1.4.8. “Would you like to install CBCLIENT ?” will appear. Click **NO**. *(This message may not appear in all systems).*
- 4.1.4.9. “Would you like Setup to modify SYSTEM.INI for you?” will appear. Click **YES**. *(This message may not appear in all systems).*
- 4.1.4.10. “Your old SYSTEM.INI will be saved as SYSTEM.BAK” will appear. Click **OK**. *(This message may not appear in all systems).*
- 4.1.4.11. “Do you want to view the README file now?” will appear. Click **NO**
- 4.1.4.12. “© Yes, I want to restart my computer now” will appear. Click **OK** and restart the computer.
- 4.1.4.13. *If “CANNOT FIND FILE REGSVR32” appears, Click **OK**. (This may occur several times).*
- 4.1.4.14. The ComputerBoards Instacal window will appear after the computer has restarted. Double click on **Instacal** in the ComputerBoards window.

If the ComputerBoards window does not appear, click on:

- **Start**
- **Programs**
- **ComputerBoards**
- **Instacal**

- 4.1.4.15. The Plug and Play Board Detection window will appear and indicate that the PCI-DI024 board was detected. Click on **OK**.
- 4.1.4.16. Click on **Configure** in the **Install** menu. The Board Configuration window will appear.

NOTE: The base address (xxxxh) of the PCI-DI024 board will be shown. This information is required for a later step. Write down this address on a piece of paper. Do not modify any of the settings.

Click on **OK** to exit the Configuration window.

- 4.1.4.17. Click on **FILE** and then **EXIT** to close Instacal
- 4.1.4.18. Click on **EXIT** to close the ComputerBoards windows.

4.1.4.19. Remove the CD-ROM.

4.1.5. Modify the AUTOEXEC.BAT file

4.1.5.1. From the desktop, Click on **START**
Click on **RUN**
In the box, type in the text **SYSEDIT**
Click on **OK**

4.1.5.2. A System Configuration Editor will open and a number of boxes will be displayed on your screen. The box on top will say AUTOEXEC.BAT on the top bar. Use your mouse to click anywhere inside the text area of the box. Then move your cursor down to the first open line at the bottom of the file.

4.1.5.3. Type in the following text:
SET LCBASE=XXXX

Where XXXX is the base address written down in step 4.1.4.16. Do not type the H following the four digit value.

4.1.5.4. Click on the **X** in the upper right hand corner of the System Configuration Editor to close the window.

4.1.5.5. The system will ask you whether you want to save the changes.
Click **YES** to save the changes.

4.1.6 Restart your computer

4.1.6.1. Click on **Start, Shut Down**, activate **Restart** radio button, and click **OK**.

4.1.6.2. If the computer is running under Windows 2000, the next time Windows restarts a screen will appear that reads "Welcome to the Found New Hardware Wizard". To eliminate this from happening again follow this procedure.

4.1.6.2.1. Click **Next**. A screen appears that says "Install Hardware Device Drivers". Activate the radio button that reads "Search for a suitable driver for my device (recommended)".

4.1.6.2.2. Click **Next**. A screen appears that says "Locate Driver Files". Check the box for "CD-ROM drives", and re-insert the Instacal CD-ROM

4.1.6.2.3. Click **Next**. A screen appears that says "Driver File Search Results". Activate the radio button that reads "Disable the Device".

4.1.6.2.4. Click **Finish**. The "Welcome to the Found New Hardware Wizard" screen should not appear the next time the computer is started.

4.1.6.2.5. Remove the CD-ROM.

4.2 Install LC3 Interface Software

The LC3 Interface software is supplied on two 1.44 MB floppy disks.

4.2.1. Insert disk 1.

- 4.2.2. From the desktop, Click on **START**
Click on **RUN**
Click on **BROWSE**
Double click on **MY COMPUTER**
Double click on your **3 ½” FLOPPY** drive
Double click on **SETUP.EXE**
Click on **OK**
- 4.2.3. Follow the simple instructions as presented on the LC3 RAM INTERFACE Setup program
 - 4.2.3.1. “Welcome to the LC3 RAM INTERFACE” Setup window will appear. Click on **OK**.
 - 4.2.3.2. The Create Program Folder window will appear.
Use the default program folder setting C:\LC3RAM\
Click on the **Computer Icon** in the window to continue.

(The LC3 interface program will now be copied from the floppy drive)
(Note: The % Complete bar will not move during installation)
 - 4.2.3.3. *If a “Cancel Setup” question appears, the LC3 RAM INTERFACE is already installed. Click **YES** now if you wish to cancel the setup. Otherwise, Click **NO** to continue
Click **OK** to a series of windows. Temporary installation files will then be removed. Optionally click **YES** or **NO** to remove the log file.*
 - 4.2.3.4. Insert disk 2 when prompted.
Click on **OK** after inserting disk 2.
 - 4.2.3.5. When the “LC3 RAM INTERFACE software loaded successfully” message appears click **OK**.
 - 4.2.3.6. Remove Disk 2 from the floppy drive.

4.3 Install the I/O Driver Library

- 4.3.1. From the desktop, Click on **START**
Click on **RUN**
Click on **BROWSE**
Click on **CANCEL**
Double click on **MY COMPUTER**
Double click on your **C:** drive
Double click on the **LC3RAM** Folder
Double click on **PORT95NT**
Click on **OK**
- 4.3.2. Follow the simple instructions as presented on the I/O Driver Library Setup program
 - 4.3.2.1. “This will install DriverLINX Port I/O Driver. Do you wish to continue?” will appear. Click **YES**

- 4.3.2.2. The “Welcome” window will appear.
Click on **Next**.
- 4.3.2.3. The “Software License Agreement” window will appear.
Click on **YES**.
- 4.3.2.4. The “Readme Information” window will appear.
Click on **Next**.
- 4.3.2.5. The “Choose Destination Location” window will appear.
Use the default program folder setting, C:\Program Files\DlportIO.
(Another setting may be used if required. The Program Folder C:\Program Files\DlportIO will be used for reference purposes.)

Click on **Next** for Next window.
- 4.3.2.6. The “Select Type” window will appear.
Use the default type Typical.
Click **Next**.
- 4.3.2.7. The “Select Program Folder” window will appear.
Use the Program Folder default setting DIPortIO. (Another setting may be used if required. The Program Folder DIPortIO will be used for reference purposes).
Click on **Next**.
- 4.3.2.8. The “Start Copying Files” window will appear.
Click on **Next**.
- 4.3.2.9. The “Setup Complete” window will appear.
Use the default setting “ Yes, I want to restart my computer now”.
Click on **Finish** and restart the computer.
- 4.3.2.10. *If the MS-DOS Prompt window appears,*
*Click **OK**.*
- 4.3.2.11. Click on the **X** in the upper right hand corner of the DIPortIO window to exit.

5. Using the Software Interface

The LectroCount3 software interface is designed to work in conjunction with your office software package. While the PC interface provides a hardware interface to the RAM system, a software interface is also required. Many suppliers of office software have designed software interfaces that work with the PC Interface. If your supplier of office software has not created an interface to the Liquid Controls LC3 RAM system, have them contact Liquid Controls directly. Liquid Controls will supply them with all of the information they will need to create the software bridge. Liquid Controls will also loan out test hardware so that the software interface can be tested in advance.

Your office software interface will generate a dispatch file that is in the form of a specially formatted text file that is named DELLOAD.DAT. The text file must then be converted and

transferred to the RAM card. The DELLOAD.DAT file needs to be located in the same folder as the transfer software supplied by Liquid Controls, typically the LC3RAM folder. The process is completed by inserting a RAM card into the CARD READER and then running the DOS executable LCLOAD.EXE.

The LCLOAD.EXE program will investigate the DELLOAD.DAT file to make sure that the formatting is of the LC approved type. If any errors are discovered during the examination, they are immediately reported in DOS and the process stops. If the formatting is correct, LCLOAD.EXE will then convert and transfer the file to the installed PC Card, which then sends the data via the interface cable to the CARD READER.

Once the data is on the RAM card, the card is removed from the CARD READER and then inserted into a truck mounted Card Reader and Supervisory Console (SC). The data on the RAM card is updated as each delivery is made by the system. At the end of the shift (or the desired delivery period) the RAM card is once again removed from the truck and re-inserted into the office CARD READER. *Note: The RAM card can be removed and reinserted any number of times throughout the shift, but the RAM card must be inserted in the truck mounted Card Reader in order for a delivery to be made.*

The other DOS executable LCREAD.EXE is then used to transfer and convert the RAM card data into a file called DELREAD.DAT which is also (typically) located in the same LC3RAM folder. *Please note that every time a RAM card is read using LCREAD.EXE, the previous DELREAD.DAT file (on the PC) is overwritten with the newly transferred information. The data on the RAM card remains intact until the RAM card is overwritten with a new LCLOAD.EXE or it is reinserted into a truck mounted card reader.*

At this point, the office software (and their software bridge) take over to convert the DELREAD.DAT text file back into information used to generate invoicing, inventory or time management information and reports.

6. LectroCount RAM Card File Structure

DOS files that are loaded to a RAM card by the PC must meet the LectroCount RAM Card file structure format. DOS files that are read in from a RAM card will also conform to a similar file structure format. Files are first subdivided into “records” that contain groups of related information. Various types of records are supported by LectroCount and are designated by a record type number (e.g. a Record Type 1 is a Totalizer Record, a Record Type 6 is a Completed Scheduled Delivery Record, etc.). The complete list of the various standard record types and their contents is found in Appendix A of this manual. Records are secondly subdivided into “fields” containing individual pieces of data relevant to the record (e.g. a delivery total, the time of day, a customer’s name, the street address, etc.). A file to be loaded must be constructed on the PC as groups of valid records, each record consisting of fields enclosed in double quotation marks separated by commas. Likewise, files that are read by the PC must be interpreted as records consisting of fields enclosed in double quotation marks separated by commas. There are two types of fields, numeric fields and text fields. Floating point numeric fields are number strings up to ten digits in length that may include a negative sign and an embedded decimal point. Integer numeric fields are number strings up to ten digits in length that have no sign or decimal point. Text fields are strings that consist of alpha, numeric, and/or punctuation

characters. See Appendix A for text field lengths allowed in each record type. See Appendix B for a specific example. The general record format is as follows:

“#”, “n”, “m”, “value 1”, “value 2”, “value 3”, “value n”, “text 1”, “text 2”, “text 3”, “text m” cr lf

Header Fields:

Record Type Number Field, “#”, (Note: no comma before the first field)
Number of Numeric Fields in Record Field, “n”, (used in load records only)
Number of Text Fields in Record Field, “m”, (used in load records only)

Numeric Fields:

“Value in Numeric Field 1”,
“Value in Numeric Field 2”,
:
:
“Value in Numeric Field n”,

Text Fields:

“Text in Text Field 1”,
“Text in Text Field 2”,
:
:
“Text in Text Field m” (Note: no comma after the last field)

Record Terminators:

Carriage Return
Line Feed

7. Preparing the Load File

The file to be loaded on the RAM card must conform to the following requirements:

- 7.1. The first record in the file must be Record Type 1 – Totalizers. The only significant values sent to the RAM card in the Totalizers are the RAM card ID number (a unique integer you assign to each RAM card), the Total Net Volume This RAM Card, and the Total Gross Volume This RAM Card. These two totalizers will be incremented from the values you load by any new delivery quantities. All other fields should be initialized to “0”. These fields will then be overwritten by totalizer values stored in the host LectroCount unit.
- 7.2. If Record Type 9 – Base Price and Tax Setup and/or Record Type 10 – Discount Schedule Setup are to be loaded to the RAM card they must immediately follow the Record Type 1 – Totalizers in the file.
- 7.3. On certain “custom” versions of LectroCount firmware, other setup records are required. They should follow Records 9 and 10. Contact Liquid Control for record information on any custom record types you are using.
- 7.4. Record Types 2 through 5 – Scheduled Dispatch Records follow in any order desired. Each Scheduled Dispatch Record consists of a product, its pricing, taxing, discounting, and other information about a delivery to be made to a specific customer. If more than one product is to be delivered to the same customer a separate Scheduled Dispatch Record must be created for each product to be delivered. The first Numeric Field of any Scheduled Dispatch Record is an Access Number (typically unique). The LectroCount

operator must enter this Access Number to pull up the Scheduled Dispatch Record that he will deliver to. Therefore, a “directory” of customer names versus Access Numbers must be printed by the dispatcher to provide the operator with access to the proper dispatch record on the RAM card. Record Types 2 through 5 differ only in the type of preset delivery that will be made. The choices are: Record Type 2-Preset Net, 3-Preset Gross, 4-Preset Price, or 5-No Preset. See Appendix A for the details of other fields within these various record types.

- 7.5. On certain “custom” versions of LectroCount firmware, other load record types are allowed and should be inserted in the file. Contact Liquid Control for record information on any custom record types you are using.
- 7.6. Save the prepared file on disk using filename.DAT of your choice or alternatively save it as filename DELLOAD.DAT which is the name that the LCLOAD command line defaults to.

8. Loading the RAM Card

- 8.1. Insert the RAM Card to be loaded into the receptacle pushing it in firmly to make contact with the edge card connector inside.
- 8.2. From a DOS prompt invoke the load routine using command line:
 - 8.2.1. **LCLOAD** (option)
(Assumes that the load file is in DELLOAD.DAT)
 - 8.2.2. **LCLOAD** (option) (filename)
(Assumes that the load file is in your filename)

option	description
/Pnnnn	Set base I/O address to nnnnh
- 8.3. The computer monitor will display the progress of the RAM card loading procedure and any discrepancies it finds in your data file so that they can be corrected.
- 8.4. When the computer monitor indicates the number of records that were successfully loaded, the load process is complete. Extract the RAM card from the receptacle.

9. Reading the RAM Card

- 9.1. After deliveries have been made using the loaded RAM card, information about those deliveries can be retrieved by reading the RAM card contents into a DOS file. Insert the RAM Card to be read into the receptacle pushing it in firmly to make contact with the edge card connector inside.
- 9.2. From a DOS prompt invoke the read routine using command line:
 - 9.2.1. **LCREAD** (options)
(Assumes that the RAM card will be read into DELREAD.DAT)
 - 9.2.2. **LCREAD** (options) (filename)
(Assumes that the RAM card will be read into filename.DAT)

option	description
/T	Reads Totalizers Record only
/S	Reads Totalizers Record and Delivered Records only
/W	Reads Entire RAM card unconditionally
/E-nnn	Set maximum error retries to nnn
/Pnnnn	et base I/O address to nnnnh

- 9.2.3. When the computer monitor indicates the number of records that were successfully read, the read process is complete. Extract the RAM card from the receptacle.

Appendix A: Descriptions of Standard Record Types

Totalizers Record

Header Fields

<u>load field no.</u>	<u>read field no.</u>	<u>Field description</u>	<u>contents of field</u>
1	1	Record Type Number	1
2	N/A	Number of Numeric Fields in Record	31
3	N/A	Number of Text Fields in Record	4

Numeric Fields

<u>load field no.</u>	<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
4	2	RAM card use status	0 - newly loaded 1- usage has begun
5	3	RAM card ID number	unique integer you assign to the RAM card
6	4	Unit ID	filled in by host LectroCount (integer)
7	5	Truck Number	filled in by host LectroCount (integer)
8	6	Miles driven after loading RAM card	filled in by host LectroCount (floating point)
9	7	Current odometer reading	filled in by host LectroCount (floating point)
10	8	Total Net volume this RAM Card	incremented by LectroCount from loaded value
11	9	Total Gross volume this RAM card	incremented by LectroCount from loaded value
12	10	First ticket number after loading RAM card	filled in by host LectroCount (integer)
13	11	Final ticket number before reading RAM card	filled in by host LectroCount (integer)
14	12	Final sale number before reading RAM card	filled in by host LectroCount (integer)
15	13	Final Misc. Trans No. before reading RAM card	filled in by host LectroCount (integer)
16	14	Total Net volume	filled in by host LectroCount from Mode 3 Totals
17	15	Total Gross volume	filled in by host LectroCount from Mode 3 Totals
18	16	Total Sales No Tax	filled in by host LectroCount from Mode 3 Totals
19	17	Cumulative Tax % Category 1	filled in by host LectroCount from Mode 3 Totals
20	18	Cumulative Tax/Unit Category 1	filled in by host LectroCount from Mode 3 Totals
21	19	Cumulative Tax % Category 2	filled in by host LectroCount from Mode 3 Totals
22	20	Cumulative Tax/Unit Category 2	filled in by host LectroCount from Mode 3 Totals
23	21	Sub-total + Category 1 & Category 2 Taxes	filled in by host LectroCount from Mode 3 Totals
24	22	Cumulative Tax % Category 3	filled in by host LectroCount from Mode 3 Totals
25	23	Cumulative Tax/Unit Category 3	filled in by host LectroCount from Mode 3 Totals
26	24	Cumulative Tax % Category 4	filled in by host LectroCount from Mode 3 Totals
27	25	Cumulative Tax/Unit Category 4	filled in by host LectroCount from Mode 3 Totals
28	26	Total Tax	filled in by host LectroCount from Mode 3 Totals
29	27	Total Sales Including Tax	filled in by host LectroCount from Mode 3 Totals
30	28	Total Miscellaneous Charges	filled in by host LectroCount from Mode 3 Totals
31	29	Total Payment Received	filled in by host LectroCount from Mode 3 Totals
32	30	Total Unmetered Volume Delivered	filled in by host LectroCount from Mode 3 Totals
33	31	Total Gross Volume Not Priced	filled in by host LectroCount from Mode 3 Totals
34	32	Total Net Volume Not Priced	filled in by host LectroCount from Mode 3 Totals

Text Fields

<u>load field no.</u>	<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
35	33	Start of Deliveries Date (mm/dd/yy or dd/mm/yy)	filled in by host LectroCount
36	34	Start of Deliveries Time (hh:mm:ss)	filled in by host LectroCount
37	35	End of Deliveries Date (mm/dd/yy or dd/mm/yy)	filled in by host LectroCount
38	36	End of Deliveries Time (hh:mm:ss)	filled in by host LectroCount

Appendix A: Descriptions of Standard Record Types (cont.)

Scheduled Dispatch Record

Header Fields

<u>load field no.</u>	<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
1	1	Record Type Number	2-Preset Net 3-Preset Gross 4-Preset Price 5-No Preset
2	N/A	Number of Numeric Fields in Record	17
3	N/A	Number of Text Fields in Record	8

Numeric Fields

<u>load field no.</u>	<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
4	2	Access Number	Integer for each dispatch record (typically unique)
5	3	Product Code	Your code (integer)
6	4	End Use Code	Your code (integer)
7	5	Preset Amount	0 on Record Type 5
8	6	Price/Unit	Your value (floating point)
9	7	% Tax Category 1	Your value (floating point)
10	8	Tax/Unit Category 1	Your value (floating point)
11	9	% Tax Category 2	Your value (floating point)
12	10	Tax/Unit Category 2	Your value (floating point)
13	11	% Tax on Subtotal + Categories 1&2	Your value (floating point)
14	12	% Tax Category 3	Your value (floating point)
15	13	Tax/Unit Category 3	Your value (floating point)
16	14	% Tax Category 4	Your value (floating point)
17	15	Tax/Unit Category 4	Your value (floating point)
18	16	Volume Discount Flag	0-Disabled 1-Enabled
19	17	Cash Discount Category	0 for None, 1,2, or 3
20	18	Other Charge Amount	Your value (floating point)

Text Fields

<u>load field no.</u>	<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
21	19	Other Charges Description	Your Text (16 Characters)
22	20	Account Number	Your Text (8 Characters)
23	21	Customer Name	Your Text (24 Characters)
24	22	Customer Address	Your Text (24 Characters)
25	23	Customer City, State, Postal Code	Your Text (24 Characters)
26	24	Message	Your Text (24 Characters)
27	25	Message	Your Text (24 Characters)
28	26	Message	Your Text (8 Characters)

Appendix A: Descriptions of Standard Record Types (cont.)

Completed Delivery Record

(writes over the memory space occupied by its corresponding dispatch record)

Header Fields

<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
1	Record Type Number	6-Scheduled 7-Unscheduled
N/A	Number of Numeric Fields in Record	31
N/A	Number of Text Fields in Record	5

Numeric Fields

<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
2	Access Number	Integer from dispatch record (typically unique)
3	Gross Volume Delivered	filled in by host LectroCount (floating point)
4	Net Volume Delivered	filled in by host LectroCount (floating point)
5	Average Temperature This Delivery	filled in by host LectroCount (floating point)
6	Ticket Number	filled in by host LectroCount (integer)
7	Sale Number	filled in by host LectroCount (integer)
8	Operator Number	filled in by host LectroCount (integer)
9	Product Code	filled in by host LectroCount (integer)
10	End Use Code	filled in by host LectroCount (integer)
11	Odometer Start	filled in by host LectroCount (floating point)
12	Odometer Change	filled in by host LectroCount (floating point)
13	Price/Unit	filled in by host LectroCount (floating point)
14	Price of Product No Tax	filled in by host LectroCount (floating point)
15	% Tax Category 1	filled in by host LectroCount (floating point)
16	Tax/Unit Category 1	filled in by host LectroCount (floating point)
17	% Tax Category 2	filled in by host LectroCount (floating point)
18	Tax/Unit Category 2	filled in by host LectroCount (floating point)
19	% Tax on Subtotal + Categories 1&2	filled in by host LectroCount (floating point)
20	% Tax Category 3	filled in by host LectroCount (floating point)
21	Tax/Unit Category 3	filled in by host LectroCount (floating point)
22	% Tax Category 4	filled in by host LectroCount (floating point)
23	Tax/Unit Category 4	filled in by host LectroCount (floating point)
24	Total Tax This Delivery	filled in by host LectroCount (floating point)
25	Volume Discount Applied	filled in by host LectroCount (floating point)
26	Miscellaneous Charge	filled in by host LectroCount (floating point)
27	Grand Total This Delivery	filled in by host LectroCount (floating point)
28	Cash Discount	filled in by host LectroCount (floating point)
29	Payment Received	floating point number input by operator
30	Type of Payment Received	1-Cash, 2-Check, 3-Credit by operator
31	Balance Due	Negative number is credit balance (floating point)
32	% Tank Full	filled in by host LectroCount (floating point)

Text Fields

<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
33	Account Number	Value from dispatch record
34	Start of Delivery Date (mm/dd/yy or dd/mm/yy)	filled in by host LectroCount
35	Start of Delivery Time (hh:mm:ss)	filled in by host LectroCount
36	End of Delivery Date (mm/dd/yy or dd/mm/yy)	filled in by host LectroCount
37	End of Delivery Time (hh:mm:ss)	filled in by host LectroCount

Appendix A: Descriptions of Standard Record Types (cont.)

Completed Miscellaneous Transaction Record

Header Fields

<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
1	Record Type Number	8
N/A	Number of Numeric Fields in Record	12
N/A	Number of Text Fields in Record	2

Numeric Fields

<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
2	Miscellaneous Transaction Access Number	integer input by operator
3	Transaction code	integer input by operator
4	Ticket Number	filled in by host LectroCount (integer)
5	Miscellaneous Transaction Number	filled in by host LectroCount (integer)
6	Odometer Reading	filled in by host LectroCount (floating point)
7	Miscellaneous Charge-Taxable	number input by operator (floating point)
8	% Tax	number input by operator (floating point)
9	Miscellaneous Charge-Non-Taxable	number input by operator (floating point)
10	Total Charge	filled in by host LectroCount (floating point)
11	Payment Received	number input by operator (floating point)
12	Type of Payment Received	1-Cash, 2-Check, 3-Credit by operator
13	Unmetered Transaction Volume	filled in by host LectroCount (floating point)

Text Fields

<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
14	Transaction Date (mm/dd/yy or dd/mm/yy)	filled in by host LectroCount
15	Transaction Time (hh:mm:ss)	filled in by host LectroCount

Appendix A: Descriptions of Standard Record Types (cont.)

Base Price and Tax Setup Record

Header Fields

<u>load field no.</u>	<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
1	1	Record Type Number	9
2	N/A	Number of Numeric Fields in Record	11
3	N/A	Number of Text Fields in Record	0

Numeric Fields

<u>load field no.</u>	<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
4	2	Product Code	Your value (integer)
5	3	Price/Unit	Your value (floating point)
6	4	% Tax Category 1	Your value (floating point)
7	5	Tax/Unit Category 1	Your value (floating point)
8	6	% Tax Category 2	Your value (floating point)
9	7	Tax/Unit Category 2	Your value (floating point)
10	8	% Tax on Subtotal + Categories 1&2	Your value (floating point)
11	9	% Tax Category 3	Your value (floating point)
12	10	Tax/Unit Category 3	Your value (floating point)
13	11	% Tax Category 4	Your value (floating point)
14	12	Tax/Unit Category 4	Your value (floating point)

Discount Schedule Setup Record

Header Fields

<u>load field no.</u>	<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
1	1	Record Type Number	10
2	N/A	Number of Numeric Fields in Record	15
3	N/A	Number of Text Fields in Record	0

Numeric Fields

<u>load field no.</u>	<u>read field no.</u>	<u>field description</u>	<u>contents of field</u>
4	2	Qualifying Volume for Discount Level 1	Your value (floating point)
5	3	Per Unit Discount Level 1	Your value (floating point)
6	4	Qualifying Volume for Discount Level 2	Your value (floating point)
7	5	Per Unit Discount Level 2	Your value (floating point)
8	6	Qualifying Volume for Discount Level 3	Your value (floating point)
9	7	Per Unit Discount Level 3	Your value (floating point)
10	8	Cash Discount Interval 1 (Days)	Your value (integer)
11	9	Discount % Category 1	Your value (floating point)
12	10	Discount/Unit Category 1	Your value (floating point)
13	11	Cash Discount Interval 2 (Days)	Your value (integer)
14	12	Discount % Category 2	Your value (floating point)
15	13	Discount/Unit Category 2	Your value (floating point)
16	14	Cash Discount Interval 3 (Days)	Your value (integer)
17	15	Discount % Category 3	Your value (floating point)
18	16	Discount/Unit Category 3	Your value (floating point)

Appendix C: Error Messages

Any errors in file structure or transfer that are identified by the LCLOAD.EXE and LCREAD.exe programs will halt the conversion program. If the error is of a recognizable type, the software will deliver an appropriate error message at the DOS prompt. The possible errors that can be detected, along with their associated messages, are shown below.

A maximum of 13 digits are allowed in a numeric field

BAD FIELD IS "x"

BAD RECORD p...q

A numeric field of the current record being loaded is too long.

Where: p...q is the current record

x is the bad field

A numeric field must contain digits

BAD FIELD IS "x"

BAD RECORD p...q

There are no digits in the numeric field of the current record being loaded.

Where: p...q is the current record

x is the bad field

Alpha field count must only contain digits

BAD FIELD IS "x"

BAD RECORD p...q

The alpha field count of the current record being loaded must only contain digits.

Where: p...q is the current record

x is the record type field

Alpha field too long, use y bytes

BAD FIELD IS "x"

BAD RECORD p...q

There are too many characters in an alpha field of the current record being loaded.

Where: p...q is the current record

x is the bad alpha field

y is the maximum number of bytes to use for this field

Bad numeric field

BAD FIELD IS "x"

BAD RECORD p...q

A numeric field of the current record being loaded contains an alpha.

Where: p...q is the current record

x is the bad field

Control +C not active

Empty Alpha field

BAD RECORD p...q

An alpha field of the current record being loaded does not contain any characters. An alpha field appears as ""

Where: p...q is the current record

Empty numeric field

BAD RECORD p...q

Somewhere in the current record being loaded there is a "" because a numeric field is empty.

Where: p...q is the current record

- Error - Can't open file "xxx"
 Printed in response to the command LCLOAD xxx where xxx is a non-existent file or an existing file that can not be opened. This fault message is also printed in response to the LCREAD xxx command if the selected file cannot be opened.
 Where: xxx is the file to be opened
- Error - Can't open file "DELLOAD.DAT"
 Printed in response to the command LCLOAD if the file DELLOAD.DAT is missing or cannot be opened.
- Error - Invalid I/O Address - xxxh
 This message is in response to the LCLOAD /pxxxx or LCREAD /pxxxx command. The selected port address is not in the range 100 through FFFF.
 Where: xxxx = port address
- Error - Portable Ram Card not connected
 Printed in response to the LCLOAD or LCLOAD xxx command if the portable RAM card is not connected to the PC
 Where: xxx is the file to be loaded

 This fault message is also printed in response to the LCREAD or LCREAD yyy command if the portable RAM card is not connected to the PC.
 Where: yyy is the file to contain the data to be read from the portable RAM
- Incorrect alpha field count
 BAD RECORD p...q
 The alpha field count is incorrect for the current record being loaded. This fault message may also be printed if there is a missing alpha field or there are too many alpha fields.
 Where: p...q is the current record
- Incorrect numeric field count
 BAD RECORD p...q
 The numeric field count is incorrect for the current record being loaded. This fault message may also be printed if there is a missing numeric field or there are too many numeric fields.
 Where: p...q is the current record
- Incorrect numeric or alpha field count
 BAD RECORD p...q
 The numeric field count and/or alpha field count is incorrect for the current record being loaded. This fault message may also be printed if there is a missing numeric or alpha field or there are too many numeric or alpha fields.
 Where: p...q is the current record
- Incorrect record type, numeric field count, or alpha field count
 BAD RECORD p...q
 The numeric field count and/or alpha field count is incorrect for the current record type being loaded or the record type is incorrect.
 Where: p...q is the current record
- Interface card not detected at I/O address xxxh
 Printed in response to the command LCLOAD or LCLOAD /pxxx if the interface card in the PC is not assigned to HEX address xxx.

LCLOAD REV r
LCLOAD [OPTIONS] [FILENAME]
[OPTIONS]:
/Pnnnn SETS BASE I/O ADDRESS TO nnnnh
? DISPLAYS HELP FOR COMMAND LINE OPTIONS
[FILENAME]:
OVERRIDES DEFAULT FILENAME OF "DELLOAD.DAT"
The above messages are printed in response to the command
LCLOAD ?. The messages define all the available LCLOAD options.

LCREAD REV r
LCREAD [OPTIONS] [FILENAME]
[OPTIONS]:
/T READS TOTALIZER RECORD ONLY
/S READS TOTALIZER AND ALL DELIVERED RECORDS ONLY
/W SEARCHES WHOLE CARD UNCONDITIONALLY FOR RECORDS
/Ennn SETS MAXIMUM ERROR RETRY COUNT TO nnnd
/Pxxxx SETS BASE I/O ADDRESS TO xxxxxh
? DISPLAYS HELP FOR COMMAND LINE OPTIONS
[FILENAME]:
OVERRIDES DEFAULT FILENAME OF "DELREAD.DAT"
The above messages are printed in response to the command
LCREAD ?. The messages define all the available LCREAD options.

Memory allocation error
This fault message is in response to the LCREAD command. There is not
enough memory in the PC RAM.

Missing ", "
BAD RECORD p...q
The delimitator ", " is missing between fields of the current record
being loaded.
Where: p...q is the current record

Missing final "
BAD RECORD p...q
The final " of the current record being loaded is missing.
Where: p...q is the current record

Missing initial "
BAD RECORD p...q
There is a missing initial " in the current ASCII record being
loaded.
Where: p...q is the current record

Missing the alpha field count
BAD RECORD p...q
The alpha field count is missing in the current record being loaded
Where: p...q is the current record

Missing the numeric field count
BAD RECORD p...q
The numeric field count is missing in the current record being
loaded.
Where: p...q is the current record

Missing the record type
BAD RECORD p...q
Each record has a record type. The current record being loaded does
not.
Where: p...q is the current record

Numeric field count must only contain digits
BAD FIELD IS "x"

BAD RECORD p...q
The numeric field count of the current record being loaded contains an alpha.
Where: p...q is the current record
x is the record type field

Program Terminated - Ram Card Full
Printed if the ram card becomes full but there are more records to be loaded. Either get a larger portable RAM card or use a smaller dispatch record file.

Program Terminated - Read/Write Errors
Printed if the portable RAM card gets disconnected during loading or if there is a hardware error in the portable RAM card. The program is terminated. This fault message may be in response to either the LCLOAD or LCREAD command.

RAM CARD SIZE = xxxK
Printed in response to the LCLOAD, LCLOAD xxx, LCREAD, or LCREAD xxx command to identify the portable RAM card size.

xxx RECORDS
Printed during loading to indicate the current record number being loaded. Printed during reading to indicate the current record being read.
Where xxx = current record number

xxx RECORDS LOADED SUCCESSFULLY
This is an information message indicating the total number of records loaded into the portable RAM card.
Where: xxx = number of records

If there is an error in a record, this message indicates the number of records loaded successfully before an error occurred. The following record contains a fault.

xxx RECORDS READ SUCCESSFULLY
Indicates the number of good records read from the portable RAM card.
Where: xxx = number of good records

xxx RECORDS READ WITH ERRORS
Indicates the number of bad records read from the portable RAM card
Where: xxx = number of bad records

Record type must only contain digits
BAD FIELD IS "x"
BAD RECORD p...q
The record type of the current record being loaded must only contain digits.
Where: p...q is the current record
x is the record type field

REV r - April 7, 1999
PARALLEL PORTABLE RAM READ
Identifies the LCREAD version.

REV r - April 7, 1999
PARALLEL PORTABLE RAM LOAD
Identifies the LCLOAD version.

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