



**INFORMATION MANAGEMENT SERVICES, INC.**

# **Utility Billing**

**User's Manual**

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First Edition, July 2001

Version 6.16q

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Information Management Services, Inc.  
P.O. Box 3720  
Ormond Beach, FL  
32175

(386) 677-5073

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# Getting Started

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**This manual is best viewed at 100% magnification for detail on some of the smaller screens.**

## Welcome

Welcome to **Utility Billing**. **Utility Billing** is designed to be used by both public and private utilities. It is easy enough to be used for small systems with only a few hundred accounts, yet powerful enough to handle large systems with many thousands of accounts, and systems with 100,000+ accounts. It can be used as a stand-alone system or interface directly with the IMS **General Ledger** and **Inventory Work Order** system. It can be used to bill water, sewer, electricity, gas, plus any number of other fees or assessments, and interfaces with the IMS handheld meter readers, in addition to third party touch read wands. Packed with reports, this system has the winning combination of capabilities and ease of use you won't find elsewhere.

Only one instance of **Utility Billing** is allowed running on a single workstation. There is a stand alone utility UTIL.EXE made available only to qualified users who understand the risks involved. It is a collection of utilities that are one time utilities written for a specific problem.

Resource sharing among different workstations is a separate issue. The resource shared in that case is network bandwidth and database service, and is dependent on the server speed and number of stations in use. **Release notes and supplemental documents are available in a Windows help file format within the program itself.**

## System Requirements

Hard disk with 10 MB free disk space  
 Microsoft Windows 95, or Windows NT 3.5 or higher (Windows 32 bit environment only).  
 A 16 bit version will be available on request for a limited time to accommodate users still using the Windows 3.X environment.  
 VGA graphics and monitor  
 Any pointing device supported by Windows

The new IMS demo and option control system works for existing users who have a license file containing installed options when version 6.168 is installed. If there is no license file, then certain options will not be installed on all systems. The Demo program expires 30 days after it is first used.

## Installation of Updates

This is where it all begins. The original program will be installed by your **Customer Support Representative (CSR)**. You will need to periodically install updates as new information is added to the program. As long as your update is saved and installed into the correct directory it will be used by the original program. When installing, TYPE in the directory (ex. C:\UB, or D:\IMS\UB, or G:\UB): you want the program to go, otherwise it tends to default to a directory that it creates below the main directory (C:\UB\Utility Billing). This means the program will not be installed into the original UB directory, and consequently not work. You also do not want it installed into C:\Program Files\Utility Billing, (the Microsoft Windows default directory) if that is not the original Utility Billing directory. This will not allow the update to work in the right directory, either. Put the updates where the original program is located.

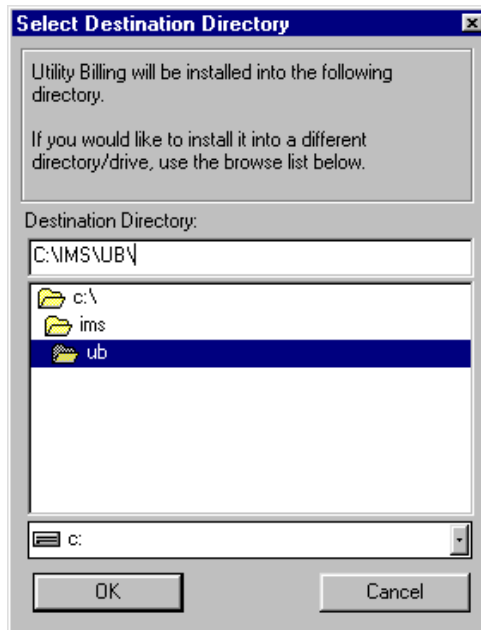
## Windows Basics for 95/98/NT Users

Start Windows if you've not already done so.

Insert the Update disk into drive A (or drive B). You first need to find where your **Utility Billing** program is installed. Find the icon on your main screen (Program Manager) and highlight the **Utility Billing** icon, and

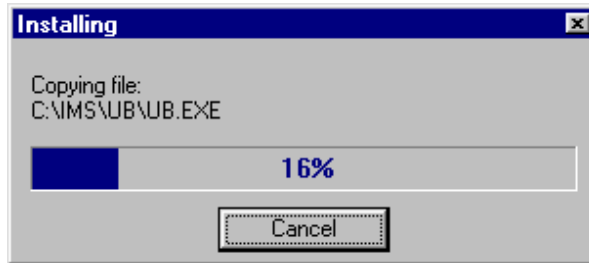
right click with your mouse on the icon. Select File, Properties, and click on the Shortcut Tab. The line you want to look for will be labeled as Target. There you will be able to view the directory you need to place the update into. Once you have determined which directory to install into, you are ready to start the installation process. Left click on Start; Select Run from the File menu and then Browse, selecting the .exe file on the diskette in Drive A: and double click on the .exe file to begin the installation.

The program will start installing and you will see a blue screen, and then a welcome screen. It will ask you which directory you want to install the files into. Make sure it is exactly where it needs to be as the data for the program is located in the same directory as the program files (see above on how to locate your directory).



In Windows 95/98/NT the default is C:\Program Files\UB. You may **not want this directory**, so TYPE IN the location to the directory you found the program in (using the directions above).

Click OK when you've entered the desired location. It will ask you if you want to make backup copies and will backup the program files that the update replaces into the same directory, into a new folder called **BACKUP**. After this simply follow the instructions and it installs the update for you.



After it is complete, you will be given the opportunity to view the release documentation. This is a document containing information and explanation about what is new to this version of the **Utility Billing**, including last minute changes since the manual was printed.

The release documentation for new releases can always be viewed at the IMS website, <http://www.ims-florida.com>. The site will always have the latest release information. The release notes can also be viewed once the program is installed under **Help, Contents, Release Notes**.

## Windows 95/98/NT Internet Users

### Updating from email:

Your CSR will send you updates in the email if you request this method of updating. When you receive the emailed files (for example ub6151.exe, .w02, .w03), save them immediately into the directory that your program is running in. See the Windows update installation instructions above to see how this is done.

*The examples show c: drive, but most users will have their program located on d, g, or f, or some other drive.*

Once you have saved all files you receive in the email from IMS, then you may go into My Computer by right clicking on it, and choosing Explore. From there, you simply locate the .exe file and double click on it to run the installation, following the instructions on the screen. Remember to TYPE in which drive and directory you want the program to install into.



**Updating from a disk:**

Insert the Update disk #1 into drive A (or drive B). In Win 95/98/NT right click on My Computer, select explore. Highlight the drive (A or B) that the disk is in. Find the file, Setup.exe and double click on it. (See the above installation instructions for Windows updates). Insert Disk #2 and #3 when prompted.

*If you skip this step now, you may view the documentation later in the program itself.*

In all of these installations you may choose to read the release notes, which are essentially the latest update information and changes to the program.

**Windows  
Skills You'll  
Need**

Because the **Utility Billing** runs under Windows, it is necessary for you to have certain Windows skills to be able to use it most effectively. What follows is a very brief explanation of some of the skills that would be most useful in using your **Utility Billing**. *This is not intended to replace your Windows manual.* If any of these is not a skill you're comfortable with, you'll want to refer to your Windows manual for a complete explanation.

**Entering information on a screen**

When you are entering information into many fields on a screen, such as when adding a license, use the Tab Key to move to the next field and Shift+Tab to move to the previous field. When you are directed to "tab" to something that is what this means. There are also "Tabs" that are folders with names. These will always be capitalized so that you aren't confused by the two different definitions of the word "tab". **DO NOT** use the Enter Key. The Enter Key is the same as clicking on OK, and means you've completed your entries and are ready to move on to something else.

**Control**

If you don't have a good understanding of this concept, you'll spend way too much time trying to get the program to do what you want it to do.

You first see a screen where the cursor is flashing in a field. That means that if you press a letter (or number) on your keyboard it will appear in this field. Hit the Enter Key on your keyboard after filling in this field and the account will pop up on your screen. However, if you click within the other portion of the screen, the control moves there. Then, when you press a letter, the program takes you to the first occurrence of that letter in the list.

Account	Phone	Name	Serv Name	Bill Name	Address	Serv Address	Bill Address	Zipcode	Serv Zipcode	Bill Zipcode	Meter #1
0001-0001.00		Elizabeth Baker			4700 Superior St			33333			4052029
0001-0007.00		Dennis Minnert			4718 Viking St			33333			4050218
0001-0008.00		Melana Hundingerwilga			4720 Vidler St			33333			6002458
0001-0010.00		Norma John			4727 Vidler St			33333			6526786
0001-0011.00		Joseph Pincostoyist			4746 Vidler St			33333			4496246
0001-0013.00		O. Properties			2355 E Vidler Hwy			33333			9400006

Active: 746 accounts, 746 meters  
 Dormant: 156 accounts, 104 meters  
 902 records in this index

To move to a screen tab, simply click on it. That screen will be brought to the front.

### Mouse vs. Keyboard

Throughout the manual, the mouse commands are given for procedures (e.g. “Click on OK”). If you prefer to use keyboard commands, you’ll want to pay attention to the underlined letters in options throughout the program.

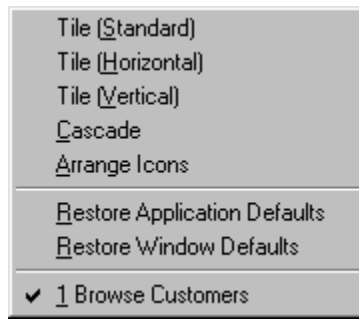
For example, to pull down the **F**ile menu, you may click on **F**ile, or you may press Alt+F. Then, when the menu is pulled down, you may click on your choice, or press the letter that is underlined in your choice. Any time there is some information that could be looked up (on a calendar or in the business codes, for example), you’ll click on your right Mouse Button to see it. But you can also press F3.

### **Using the scroll bars**

Scroll bars are found at the right edge and bottom edge of the screen when the information for the screen won't all fit on at once. You may click on the up and down arrow keys to move incrementally through the display, or drag the box up or down to move more quickly.

### **Customize the "Window"**

When you have one screen open, go to **Window** on the same menu bar. This is the only way to customize your display information.



Change whatever settings you like.

### **Moving a window**

There are times when you may need to move a window to another location on your desktop. To do this, click on the title bar of the window and drag it to the new location. Then release the Mouse Button.

### **Resizing a window**

Occasionally, you may want to resize a window so you can see more of its contents. To do this, click on the window. Then, point to a corner or border of the window (the cursor will become a double-headed arrow). Drag the mouse until the window is the desired size and then release.

*On a drop list, press the first character of your selection to go directly to it.*

### **Quick Tip Keys:**

F1 brings up a **Help** menu for quick and easy explanation of terms. If you are in a date field, press F3, which is invaluable in IMS programs and will bring up a calendar in a date field or pop up list in many other fields. Always try it if you need to select from a list to see if it is available this way. Press the Escape Key to release it. Right clicking on the Mouse Button will also display selections if available.

APR. 2001						
Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

### **Using the Clipboard**

This menu contains the standard Windows editing functions using the clipboard. It is active only when a document window is open.

#### **Cut (^X)**

Move the currently highlighted text to the Windows Clipboard.

#### **Copy (^C)**

Copy the currently highlighted text to the Windows Clipboard.

#### **Paste (^V)**

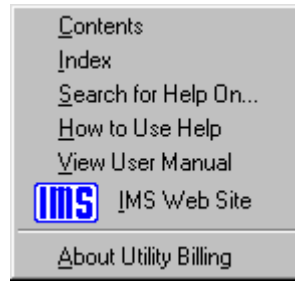
Copy the contents of the Windows Clipboard to the field where the cursor is currently located.

### **Reference Help/Contents**

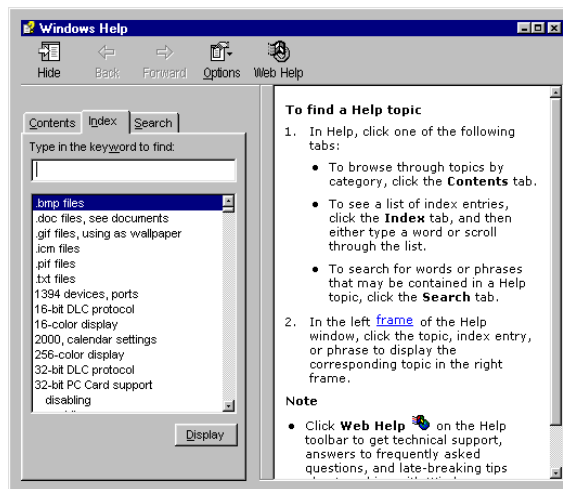
Your program has assistance under **Help** (press F1 at any time to take you to this section) or **Help, Contents or Index**. **Contents** has a better overview of the entire section. It is filled with explanations of almost every function and key in the program. Familiarize yourself with some of these items in there before beginning. This makes using the program much simpler.

## IMS Web Site

You may automatically link to the IMS web site if you are connected to the Internet by clicking within the **Building Permits Manager** program under **Help, IMS Web Site**.



Windows has its own section for assistance with questions about Windows topics - **How to Use Help** which is found within the program. Use it by looking through the Contents, the Index alphabetically, or by using the **Search for Help On...** capability to find the topic or keyword you need help with.



## User's Manual

Go to **Help, View User Manual**. This is the manual in .pdf format which requires Adobe Acrobat to view. See the website for a free download link to this program on the homepage under View and Print Product Manuals.

The manual is set up so that each main category is to the left side, each function of the program to the right is **Bolded and Underlined**. Fields of information and the path (i.e. **File, Setup**) are typically **bolded** so that you may recognize them easily. The explanation/steps are directly below it. The manual attempts to follow the natural progression of steps the user would normally take when running the program. If in doubt always look to the [Index](#) for the topic and hyperlink (jump from one point of the document to another) from the page number of the item you seek. Use the Go Back Button to return to where you were last.

### **First Steps:**

When setting up the **Utility Billing** system there are important decisions to be made before any data is added to the database. One of these is assignment of the two user defined fields (**User Key1** and **Key2**) in the customer record. Each of the fields is 16 characters in length, and can be numeric or alphabetic. You activate these fields by assigning a title to the field in the configuration window. Once a title has been assigned to the field it will appear in windows and reports under that name.

You will want to insert general information data into their particular files before adding businesses. The second step is to set the Security information for the program, typically with one supervisor having access to everything and then customizing a profile for the various users under the supervisor. Next, **Configuration Options** will govern how your program functions. After that, **Lists** to choose the setup for the forms to be printed. Depending on your form selections, you may then have to select printing options for the forms.

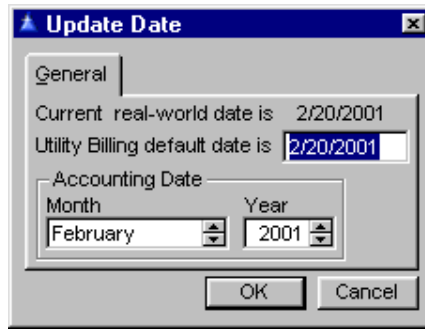
# Getting Organized

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List Setup	<a href="#">31</a>

## System Date

### Change System Date

Go to **Setup, Change System Date**. Set the **default date** and the **Accounting Date**. Click on OK.



If the accounting date is not set correctly using **Setup, Change System Date**, another utility will set the accounting period for transactions from the transaction date. It operates only on untransferred transactions with a missing or invalid accounting year. This allows users to correct failure of transactions to transfer to **General Ledger** because of a missing or invalid accounting period.

## Security

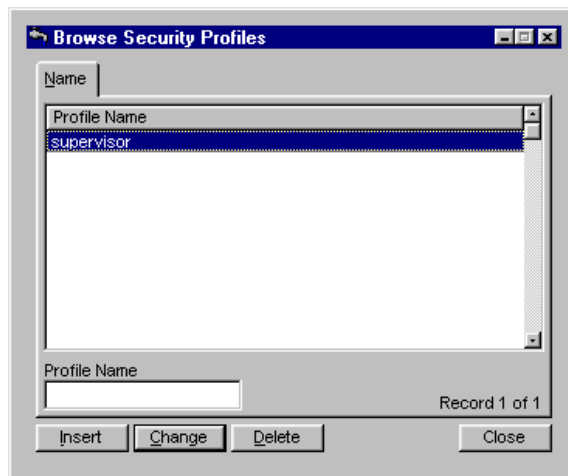
### Security Profiles

Go to **Setup, Security, Security Profiles**. This is where you decide upon the different levels of access the individual users may have. There are as many levels of security for your program as you want to create. All security profiles should be reviewed after each release is installed because of system setup changes.

Any procedures that allow changing a data file are in the **Utility Billing** main menu where they are subject to security settings. Uutil.exe may safely be made available to all users. The utilities in the main program are in the **Utility** menu and require *Supervisor* access to run.

*You may change these at any time if you have the level of access to changing security information. Typically only a supervisor does.*

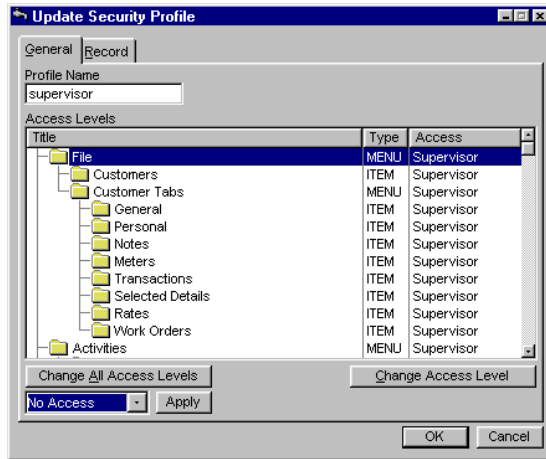
To add a new profile, press the Insert Button. You may choose a name for the profile and then choose which files may be accessed by that type of profile. To change the level of access for the individual folder, just click on it, hit the Change Access Level Button and a screen will pop up. Select the Make Any Changes there. You may change these at any time if you have the level of access to changing security information. Typically only a supervisor does this.



*Remember that security profile changes take effect the next time **Utility Billing** is started.*

To change all folders to the same access level, press the Change All Access Levels and it will do it for you. Press the Apply Button and then click on OK.





Select from one of the following levels of access:

*No Access* - this means that the user has no access to the files indicated at all.

*View Only* - the user is allowed to view the information only, not add to or change it.

*Data Entry* - this access level allows adding customers as well as meters, work orders, etc. related to the customer. Users at this level may only change work orders.

*Update* - this access level allows adding and editing all customer related data, but deletions are not allowed. The Move Button on the customer browse is available only to users with this access or higher.

*System Update* - users with this level or higher may add, change or delete any customer related information. An account cannot be copied over an existing inactive account unless the user has *System Update* access or higher. A warning message is displayed before moving an account into an existing account.

*Supervisor* - this user has access to every single file - the highest level of security which is essentially responsible for all others below it. It is wise to have a backup for this person who will also hold the password.

### **Passwords and Users**

Once you have profiles, go to **Setup, Security, Passwords and Users** to define who is going to be using the system and what their passwords will be.

To add new user information, press the Insert Button. To change information about existing users, highlight the user and press the Change Button.

User Name	Hierarchy Position
ALFRED	1
GLORIA	1
IMS	0
Master	0
TINA	1

User Name:

Record 1 of 5

Buttons: Insert, Change, Delete, Close

General | Record

User Name:  Security Profile:

Password:  Hierarchy Level:

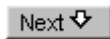
Buttons: Prior, Next, OK, Cancel

*Make sure that you write down your password someplace secure.*

On the General Tab, fill out the **User Name**, the **Security Profile** (one of the levels you just created). Leave the **Hierarchy Level** blank as this no longer has any viable function for the user. Choose the **Password** you prefer. The Record Tab is system information which shows when the record was created and does not get edited.



The Prior and Next Buttons take you through all of the users so you can quickly edit them all if you like.



### **Change Your Own Password**

Go to **Setup, Security, Change Your Own Password**. To change your password, upon login to the program, the system will recognize who is using it and will allow a pop up screen with your name and password to come up.

Simply erase the old password by backspacing, highlighting the word and then deleting or highlighting and typing in the new one. Click OK when done to save it.

Once you have passwords established the system will ask you for the information upon entry into the program:



Utility Billing has the IMS menu system which allows running all installed IMS programs from a single login, bypassing individual program logins and splash screens.

## Configuration Setup

Go to **Setup, Configuration**. The maximum value for dollar amounts in windows and reports is +/- 999,999.99. Fill in your city's information on the General Tab and the other 7 different tabs. On the General Tab fill in the following fields:

### Mailing Address

Line 1, 2, and 3 of your mailing address and zipcode.

### Calendar Control

Determine how or if the system date is kept current - manually, automatic, or upon system startup.

Local Update -when this option is set, changes to the system date using **Setup, Change System Date** will take place only at the local workstation. Other stations will not be affected. When in this mode users will be notified that the date change is local only. When the station that changed the date locally is next started the system date will revert to its last system-wide setting. It is strongly recommended that the **Calendar Control** setting not be left in the "Local update" position. To temporarily change the date locally, the recommended procedure is to change the **Calendar Control** setting to Local update, change the system date to that desired, then change the **Calendar Control** setting back to the normal option.

While the system date is set locally all **Utility Billing** functions performed at that workstation will use the local system date.

### **Data File Path**

Where the data is coming from, i.e., C:\IMS\UB. Typically, all of the IMS programs and the program data run out of the same data file path, such as g:\UB - BUT, there are cases when some users with offsite location may have **Utility Billing** running on a separate workstation in a remote location and still looking at the data on the server in the main location. The configuration window contains a field for the path to the remote data. This field is available only to users with Supervisor access. If this is left blank, **Utility Billing** will function as before. If a value is placed in the field, the programs may be loaded on the local workstation and the data files on a server at the location specified.

Note: A change will take effect the next time **Utility Billing** is started. It should not be changed while other workstations are running **Utility Billing** for obvious reasons. System administrators may want to experiment with the remote vs. local program setup, because one method may not necessarily work better than the other.

It depends on factors such as the relative speed of the local workstation and the server and the speed of the link. The remote data feature is present only on the main **Utility Billing** application (UB.EXE). Other external utilities such as UBUTIL still require that the program and data reside in the same folder.

*See the detailed list of [forms](#).*

### **Bill Printing Format**

Layout for the Billing Form.

### **Late Notice Format**

Layout for the Late Notice Form.

### **Cutoff Notice Format**

Layout for the Cutoff Notice Form.

### Skip Overdue Penalty...

When checked this will skip the penalty. See if late charges are needed when recomputing under the Transactions Tab in **File, Customers**.

### Focus in Customer Browse

After updating a customer record or entering a manual payment, focus is restored to the control specified in the configuration window. Focus is not set to the browse listbox when the window was initially opened, but instead after a payment was entered or after updating a record. Focus means where you want the focus - on the customer list or on the account number? Most people prefer the customer key lookup field so they can just enter an account number and hit the Tab Key or Enter Key and be at that account.

The other choice of Main Customer List Box sets the highlight to the customer browse section so that you can scroll to an account. Or you may press the Tab Key and go to the account number lookup area.

On the Index Keys Tab fill in the following fields:

*Choose between alphabetic and numeric preferences- numeric has decimal places to choose.*

### Account Key One and Account Key Two Format

These user fields are very powerful because all customer data will be indexed on the values in the fields, allowing you to locate a customer by that value. You could have a field represent something unique to the customer, such as social security number.

This would mean that every record would have a different value. But there is a good reason why these fields should not be used for such purposes.

The intended use for these fields are for categories or groups, such that there are a limited number of different values, and several customers will share the same category or group. For example, you could name one of them *Service Type*, and in the field have values such as *Residential*, *Commercial*, etc.

Using a field in this manner opens up the power of being able to print reports based on this value. On some of the reports you will have the option of specifying which of the values of this field you want to include or exclude, and it will print a breakdown summary by each different field value.

To make such use practical the number of different values of the field should be limited to about 50, so they can all be listed on a single page. It would be pointless to print a report breakdown by a field that has a different value for each customer.

The bill printing process may be limited to only those accounts with one of the user defined flags set, including an option to clear the flag after the bills have been printed. This is intended to support a procedure for printing final bills.

To set it up, use **Setup, Configuration, Index Keys, Account Flags, Flag One Name** and set a value there such as *Final Bill*. The customer record will display that flag. When accounts are ready for final bills to be printed the flag can be set.

When ready to print final bills, an option will appear as *Final Bill only*. Also an option of *Reset Final Bill after Print* will appear. If these are checked, the bill print procedure will print only those accounts with the flag set, and the flag will be cleared after the bill has been printed.

**Account Flags One and Two**

These are user defined such as **Flag One** for *Final Bill*, which most customers do. Not everyone uses **Flag 2** - but could be used to mark something.

**Meter Index Keys**

**Meter One Name** is the meter number for most customers. **Meter Two Name** is the sequence number for most users, but can be anything from their sequence number to a route number, to nothing at all. In the case of some with their ITRON Hand Units, **Meter One** is the sequence number and **Meter Two** is the meter number.

**Last Active Book**

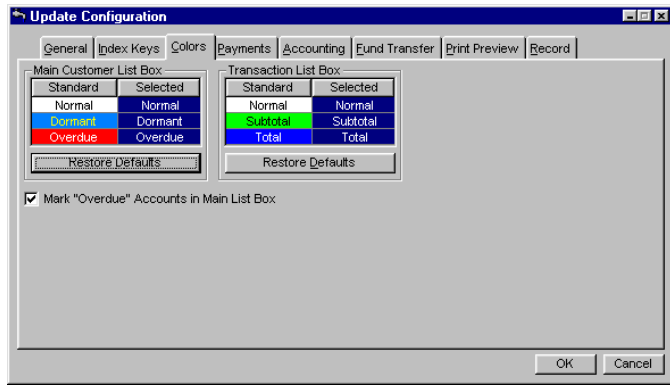
All processes that begin with a window showing the beginning and ending account number range (which includes almost all reports) now will show a default ending account of the last account in the last active book. If the last active book field is left blank the default ending account will be the last account in the database as in previous versions. (Note that if a report was run with the ending account manually changed to something other than the default, the next time it is run the default ending account will be as last run.) The purpose of this scheme is to allow a group of inactive books to be retained for archival purposes without them being processed or included in reports.

If a report or process need be run for these inactive books, the default ending account number may be manually overridden so as to include the inactive books (or simply blank out the last active book). Alphabetic book numbers are supported by Utility Billing, including book numbers such as ABCD, B123, etc. But due to a technical database issue the last active book feature supports only numeric and single character alphabetic books. This restriction may be lifted in a future release.

On the Colors Tab select the colors that you want for the different account listings.



Choose which colors for the main customers and which for the transactions. Click on each one to select a custom color and a box will pop up.



### Mark Overdue Accounts in Main List Box

When checked this allows overdue accounts to be highlighted with a color as well. The color you choose for overdue customers will show under the Main Customer Listing Window in **File, Customers**.

On the Payments Tab fill out the following fields:

The screenshot shows the 'Update Configuration' dialog box with the following settings:

- Overpayment Charge Category: Credit Balance
- First field on Payment Window:
  - Payment (amount paid)
  - Tracking (check number)
- Use Special Annual Prepayment Discount
  - Annual Discount Details:
    - Beginning Month and Day: 0
    - Ending Month and Day: 0
    - Percent: 0.000000
    - Discount Category: (empty)

### Overpayment Charge Category

If this field is not blank, the charge category shown will be used whenever an overpayment is entered. (If the field is blank you can open a window listing all charge categories by pressing the standard Hot Key (F3) while the cursor is in the field.

It works best if the charge category selected is a "dummy" category that is not used for billing any charges. When an overpayment is entered any excess over what is owed in any category is placed in the overpayment charge category. If a payment is made on an account that has a zero or credit balance the entire payment will be distributed to the overpayment charge category. It is important to understand that an overpayment is not revenue. A payment transaction will be created for an overpayment but no entry will be made for billing in the overpayment category.

When a charge category is deleted: If a related record exists in the rate file, the user will be notified and allowed to also delete the associated rate. The option to delete the rate is available only if there are no related records in the charge history file.

**First Field on Payment Window** Start with focus on *Tracking* (check number) or *Payment* (amount paid) when the Customer Window comes up. When you focus on *Tracking* - this will put the cursor in the tracking section of the payment entry screen.

This section is typically used for the customer check number. The Cash Receipts Report is designed to print receipts by date in either account number order or tracking order. When printed in check number order, if a user has a misapplied check, then they can quickly locate that check number and see which account it was applied to.

Such as when the customer pays with check 101 and it is applied to account 1-10 rather than my account 1-11. The customer gets their next month's bill and sees that the payment has not been applied.

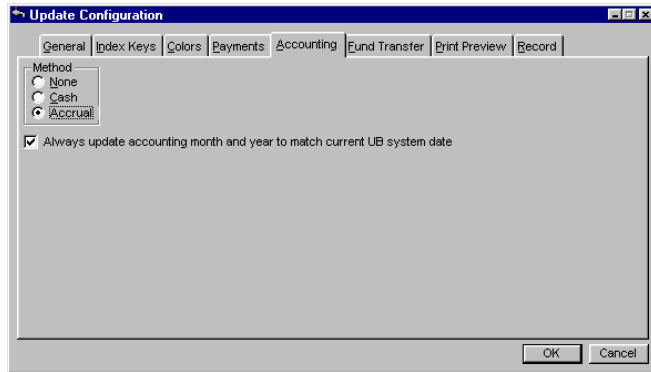
So they call and say that they paid on such and such date with check number 101. The person running a receipts report for the dates when the check probably came in through the mail sees check 101 was applied to 1-10 and fixes the accounts.

When you focus on *Payment*, upon entering the payment entry window for an account, the cursor will be blinking on the payment amount, and if that is what the customer paid, hit enter and the payment is applied with the date specified in the payment entry window. If they paid more or less than what the payment amount says, that amount is entered for the payment amount, and hit enter and it is applied and disbursed in the order specified under **Setup, Lists, Charge Names, Payment Order**.

### **Use Special Annual Prepayment Discount**

When checked a set of fields become visible. They are **Beginning Month and Day** of the discount, the **Ending Month and Day** of the discount, the **Percent** of the discount, and the **Discount Category** - where the discount gets applied.

On the Accounting Tab fill in the following fields:



### Method

This means the method of accounting, either *None*, *Cash*, or *Accrual*.

### Always update accounting ...

This makes sure that the accounting date and the system date link up or are "matched".

On the Fund Transfer Tab the fields you see are the system-wide values needed. Different banks require different formats for one or two header records that precede the standard ACH records.

### Bank Header 1 and Bank Header 2

These are optional, depending on the requirements of your bank. They are the first and second contents of a record transmitted before file header. If a field is left blank a record will not be generated. If either of these fields are required they must be exactly as specified by your bank, including blank spaces.

For this reason they are displayed in a fixed pitch font so the space occupied by each character, including spaces, will be uniform. This will aid you in filling in the required information.

**Update Configuration**

General | Index Keys | Colors | Payments | Accounting | Fund Transfer | Print Preview | Record

Bank Header 1:

Bank Header 2:

Originator Name:

Originator ID:

Destination Name:

Destination ID:

Originator Bank ID:

Purpose:

Transaction Name:

OK Cancel

**Originator Name:**

This is the name of your city bank. In the ACH file this is called the immediate origin name.

**Originator ID:**

This is the identification number of your bank. It is the ABA or usually the Federal Tax ID number ("59 number") of your city or utility company. (ACH immediate origin)

**Destination Name:**

This is the name of the destination bank.

**Destination ID:**

This is the destination ABA/Transit number of the bank to which your file will be transmitted, usually the head office. This should include the check digit. (ACH immediate destination)

**Originator Bank ID:**

This is the ABA/Transit number of your bank. It may be the same as the Destination ID.

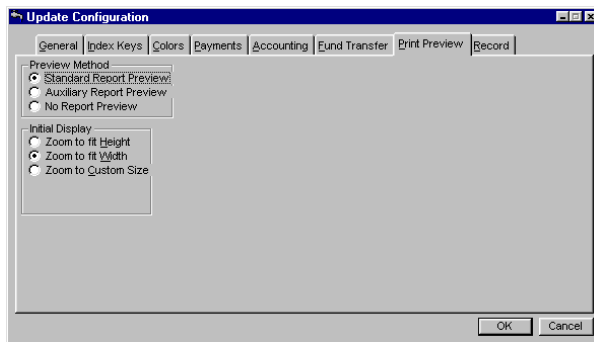
**Purpose:**

This is the purpose of the transfer. It will appear in the transaction on the customer's bank statement. It could be something like "water bill". It is limited to 10 characters.

**Transaction Name:**

This is the name of the originator of the transaction that will appear on the customer's bank statement. This is usually the same as the **Originator Name**, but while 23 characters are allowed for the **Originator Name**, only 10 characters are allowed for this field. A second field is provided in case you need to abbreviate.

On the Print Preview Tab fill in the following fields:

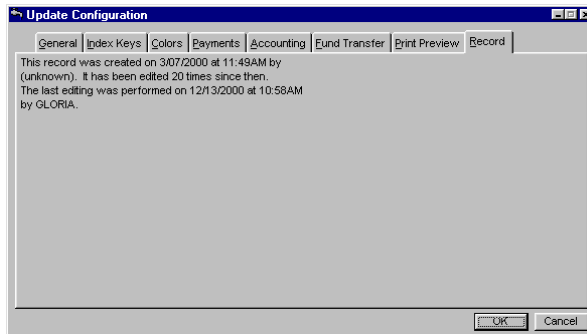
**Preview Method**

Select *Standard* to preview your report or list - as *Auxiliary*, or *No* are no longer available.

**Initial Display**

When you choose *Standard*, you have the option to zoom to fit height and width, or a custom size zoom.

On the Records Tab there is no information for the user to fill out. This is the record of the initial creation of this record showing editing information about it.



## List Setup

### Charge Names

Go to **Setup, Lists, Charge Names**. You may sort the information by 5 tabs. The box to find things with on the bottom left hand corner will change according to the tab you select. The category tab has 4 selections, *Standard, Fee, Deposit, Cash Out*. and the original cash account has been renamed to "*Cash In*".

When payments are distributed automatically, a consistent procedure is followed to allocate the payment to the outstanding charges. The order in which payments are applied is user defined. Current charges and previous charges brought forward are totaled separately.

The amount of the payment is then applied to the previous charges in the specified payment order. If there is remaining undistributed payment it is then applied to current charges in the specified payment order. If any payment remains it is applied to the charge category specified for overpayments.

If a payment is made on an account that has a zero or credit balance the entire payment is applied to the overpayment charge category if one has been specified. If a category has not been specified it will be applied in payment order according to the current charges of the latest billing period.

If the print name is checked on the General Tab after the Change Button is pressed, the charge name will be printed. If not, the amount will be printed without a name, on the assumption that the charge name is preprinted on the bill form. This also allows for a mix of blank and preprinted charge names.

To insert new information, click on the Insert Button. Fill out the information on the General Tab (the Record Tab simply shows who is the creator of the information). To change existing information highlight the line to change and click on the Change Button.

*Caution: after updating with the latest release you MUST go to the charge names setup window and set the flag for any charge names you want the computer to print. After data is converted the default for all charge categories is to not print the name, which means the names must be preprinted on the bill form.*

Name	Abbr	Payment Order	Display Order	Category
CREDIT SEWER	CR SWR	18	18	Standard
CREDIT TAX	TAX CR	22	22	Standard
DEPOSIT IRRIGATION	DEP2	26	26	Deposit
DEPOSIT-WATER	DEP1	25	25	Deposit
FIRE LINE	FAL	19	19	Standard
IRRG. APTS	IRR13	9	3	Standard
IRRG. BHV	IRR15	11	5	Standard
IRRG. BHV COLLINS	IRR16	12	6	Standard
IRRG. BUSINESS	IRR14	10	4	Standard
IRRG. OCEAN FRONT	IRR12	8	2	Standard
IRRG. RESIDENTIAL	IRR11	7	1	Standard
LATE FEE	L.FEE	23	23	Standard
SEWER APARTMENTS	SWR53	15	15	Standard

Full Name:

Record 1 of 26

Buttons: Insert, Change, Delete, Close

**Update Charge List**

General | Record

Charge Name: Full and Abbr  
 |

Payment Order:  | Display Order:  |  Print Name

Type of Charge:  
 Standard Revenue Charge  
 Non-Refundable Fee  
 Refundable Fee (Deposit)

Accounting Transfer:  
 Cash In Account:   Combine  
 Revenue Account:   Combine  
 A/R Account:   Combine  
 Cash Out Account:   Combine

Interest Accrual:  
 Interest Rate:  | Accrual Category:

Prior  | Next  |  |

A charge name may be flagged to be skipped when automatically distributing payments. The Payment Order may be set to zero (blank), which will disable automatic distribution of any payment to this category. When viewing the list of charge names in **Setup, Lists, Charge Names** the Pay Order column will be blank for any such charges. If the list is displayed in payment order sequence by clicking on the Payment Order Tab, any such charges will not appear in the list.



This option will disable only the automatic payment distribution from using this charge when determining the default payment distribution shown to the user. It may still be overridden by manually distributing a payment to the charge name.

When bills are printed, any charge category for which there are no charges and does not have the **Print Name** box checked will be printed as a blank space, maintaining the print position of subsequent charges.

The **Cash In** account will continue to receive all receipts entered into the system, but will not be used by deposit refund transactions. When deposits are refunded the **Cash Out** account will be credited for the deposit refunded. If the **Cash Out** account is empty the **Cash In** account will be used. When outstanding balances are paid from deposits the **Cash Out** account will be debited for the amount of deposit applied to the balance (reducing the amount refunded). If the **Cash Out** account is empty the **Cash In** account will be used. This makes it easier to reconcile the receipts reported by cash receipts reports with the general ledger cash account.

For example, getting an accurate cash receipts report to balance with the cashier's drawer count requires only setting the "**From Deposit**" method to "**Ignore**" in the report setup window. By utilizing a second cash account to handle deposit refunds the amounts transferred in the **Cash In** account will reflect the same activity as in the cash receipts report and can be balanced against the drawer totals. Users who do not use this method of balancing may leave the **Cash Out** account blank and the original cash account (**Cash In**) will be used for deposit refunds as before.

The rules for combining transfers from **Utility Billing** v6 will enhance the usefulness of the Transfer Report. When the **Combine box (Setup, Lists, Charge Names, Change Button)** is checked for any of the accounts, the identity of the charge category will be preserved.

Beginning with this release the combine will be by charge name. If the same revenue account is used for more than one service there will still be a separate transaction for each category. If the **Combine** Box is checked on either the cash or receivable accounts they too will be broken down by charge name. Combined transfers now have the charge name as description, even for cash and receivable amounts.

### Metered Services

Go to **Setup, Lists, Metered Services**. Any value greater than 99 will not print on utility bills. This is to allow meters that post charges to the same category as another meter that already print on the bill. When the display order is 100 or greater the readings for any meters using that service will not print on bills. The consumption of the non-printing meters will not be added to that of any other meters, but charges will be included in those for the category it is billed to.

The rounding method for meter readings and consumption rounds left from the decimal point. Rounding right is still used for fractional values such as money. Rounding right for integer values, which meter readings typically are, serves no purpose. For example, rounding the number 1234 right any number of places still results in 1234. See how [Rounding](#) functions. To avoid unexpected results, users are advised to read this document before setting up rounding on their system.

**Browse Metered Services**

Name	Abbr	Method	High Limit	Low Limit	Disp Order
FIRE LINE	F.L	Continuous	None	None	3
IRRIGATION	IRR	Continuous	None	None	2
SUBMETER	SUB	Continuous	None	None	100
WATER	WE	Continuous	None	None	1

Name:

Record 1 of 4

Insert Change Delete Close

To add new information click on the Insert Button. To change existing information highlight the line you want to change and click on the Change Button.

### **Rate Classes**

Go to **Setup, Lists, Rate Classes**. For more details, see [How Meter Usage Rate Classes Perform](#). The surcharge field in all rate classes functions as an out-of-city surcharge. If the customer is coded as outside city limits **File, Customers, Change, Rates, Location**, the charge computed for that rate will be increased by the percentage specified in the surcharge field. If the customer is coded as inside city limits the surcharge will not be applied.

Rate Class	Abbr	Target Charge	Method Description	Comp Order
backflow 3/4"	back	Backflow	Flat Amount	12
Late Fee	Late	Late Fee	Overdue Amount	1
Multi-Family	Multi	Water	Metered Usage	6
PST (Sewer)	PSTS	PST	Current Charges	14
PST (Water)	PSTW	PST	Current Charges	13
Sewer	Sewer	Sewer	Metered Usage	5
sewer 1 1/2"	Sew1.5	Sewer	Metered Usage	3
Sewer 5/8" X 3/4"	Sew5/8	Sewer	Metered Usage	4
Sewer Com.	SewCor	Sewer	Metered Usage	2
State Tax (Sewer)	TaxS	Sewer	Current Charges	15
State Tax (Water)	TaxW	Water	Current Charges	16
Water 1 1/2"	Water3	Water	Metered Usage	8
Water 1"	Water2	Water	Metered Usage	9

To print the rate classes list go to **Setup, Lists, Rate Classes, Print**. See a [sample](#) of the list.

**Update Rate Class**

General | Meters | Record

Rate Class Name: Full and Abbr: backflow 3/4" | back | Target Charge: Backflow

Computation Method: Flat Amount | Order: 12 | Proration: None

Base: 50.00 | Extra: 0.00 | Surcharge: 0.0000 | Charge Limit: 0.00

Optional Charge

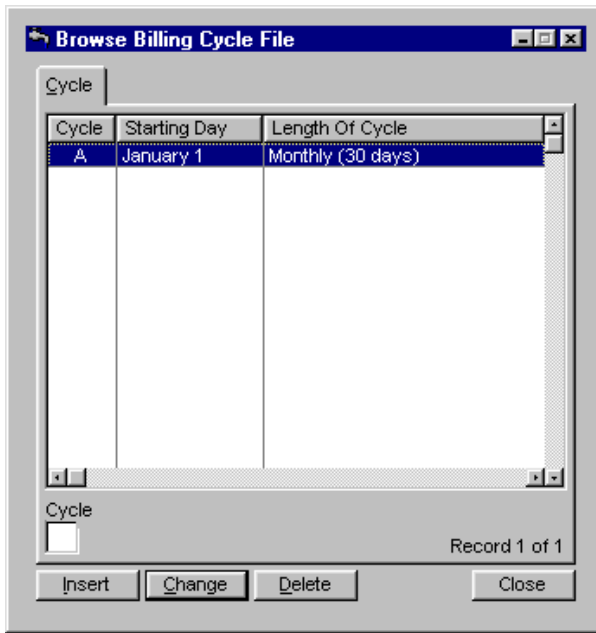
Repeat After: 2

Prior | Next | OK | Cancel

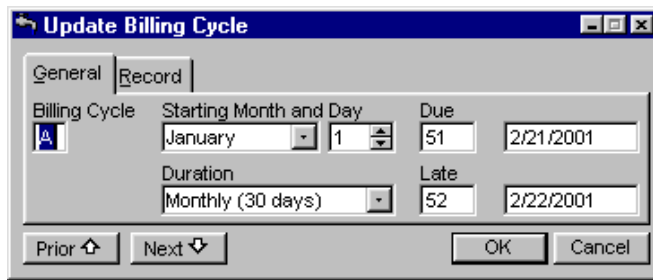
### **Billing Cycles**

Go to **Setup, Lists, Billing Cycles**. See details on [Billing Cycles](#). Billing cycles of semiannually and annually and all lengths by month up to one year are supported here. Set the **Billing Cycle Start date** to the first date you will be using in the meter readings.

The year of a billing cycle is adjusted back one when the cycle month is greater than the current system month. This eliminates the problem of determining the starting date of a billing cycle when the cycle straddles the year end. The calculated due and late dates for a billing period are based on the actual number of days from the start of the billing period. The program uses this date to determine which charges to calculate based on the meter read date and calculates the charges for readings from that date forward. Readings that are entered with a date prior to the date in the billing cycle start date will not be picked up when the charges are computed.



Tab to the **Due** field and type in how many days until the bills will be due (i.e. 3/16/01) then tab to the **Late** field and put in what date you want to calculate the penalty on if they have not paid by that date, such as 3/28/01. The dates that are used in the **Due** and **Late** fields will be added to each customers transaction file when the charges are computed for that cycle. For details on this process see [Billing Cycles](#).



*The popup calendar is available while editing the date fields.*

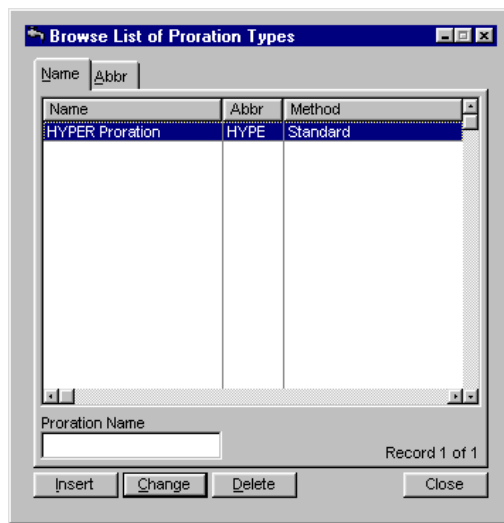
The **Due** or **Late** date will always be equal to the start of the billing cycle plus the number of days (until it is changed again). The program then looks at that late date on each customers transaction file. When you run the **Compute Late Charges (Activities, Charge Computations)** or if you compute them at your next

billing) the program will determine if the payment was made before that date (based on the payment entry date) and then will not charge a late charge. If the payment was made after the date, then the account will be charged a late charge.

On your particular bill cards you have a billing period from \_\_\_ to \_\_\_ area that is filled in by the system. These dates are reading dates, so if you want that date to say from February 1 to March 1 - you would want to enter all your meter readings with a date of February 1, and then all the next month's readings with the date of March 1, etc.

### Proration Types

Go to **Setup, Lists, Proration Types..** See [Proration](#) for complete details on this process. When charges are prorated for closed accounts, the proration period for metered services is from the previous meter reading to the date the account was closed, regardless of whether a new billing period has begun or not. On the main window, press Insert to add new proration information or highlight an existing record and press the Change Button to edit it. Add the abbreviation and the full name and check the boxes **Where to Apply** to either ignore or prorate consumption charges and base charges.



### Work Order Types

Go to **Setup, Lists, Work Order Types**. On the main window, press Insert to add new work order type information or highlight an existing record and press the Change Button to edit it. Add the abbreviation and the full name.

### Transaction Notes

Go to **Setup, Lists, Transaction Notes**.

Abbr	Full Description
EMERG	Emergency call charge
FAST	Fast payment
LATE	Late fee
SVC	Service Charge

On the Abbr Tab press Insert to add new transaction information or highlight an existing record and press the Change Button to edit it. Add the **Abbreviation** and the full **Charge Note** name.

The screenshot shows a dialog box titled "Update Transaction Note". It has two tabs: "General" and "Record". The "Record" tab is active. Below the tabs is a large text input field with the label "Charge Note (Abbr and Full)". At the bottom right of the dialog are two buttons: "OK" and "Cancel".

### State/Province Lists

Go to **Setup, Lists, State/Province Lists**.. If the lists have not been setup yet, press the Insert Button and add the correct information you will be using. To change existing information, highlight it and press the Change Button.

The screenshot shows a dialog box titled "Browse List of States". It has two tabs: "State" and "Postal Abbr". The "State" tab is active. Below the tabs is a table with three columns: "State/Province Name", "Country/Nation Name", and "Postal Abbr". The table lists various states and their abbreviations. Below the table is a text input field labeled "State Name". At the bottom are four buttons: "Insert", "Change", "Delete", and "Close".

State/Province Name	Country/Nation Name	Postal Abbr
Alabama	USA	AL
Alaska	USA	AK
California	USA	CA
Canada	Canada	.
Connecticut	USA	CT
Delaware	USA	DE
Florida	USA	FL
Georgia	USA	GA
Illinois	USA	IL
Indiana	USA	IN
Iowa	USA	IA
Kentucky	US	KY
Louisiana	USa	LA



## New Customer Defaults

Go to **Setup, Lists, New Customer Defaults**. This information will be visible under **File, Customer** once you enter it. On the General Tab enter the full **Default Data Name** and its abbreviation. Then enter the **City, State and Zipcode**. Select a **Billing Cycle**. There are 5 flags you may set here.

The screenshot shows the 'Update New Customer Defaults' dialog box with the 'General' tab selected. The 'Default Data Name' is 'Full and Abbr' and the 'Cycle' is 'A'. The 'City' is 'Waterville', 'State Abbreviation' is 'FL', and 'Zipcode' is '33333'. The 'Flags' section has five checkboxes: 'No Charges', 'No Readings', 'Priority Service', 'Final Bill', and 'Sewer', all of which are currently unchecked.

Default Data Name	Abbreviation	Cycle	City	State Abbreviation	Zipcode	Flags
Full and Abbr		A	Waterville	FL	33333	<input type="checkbox"/> No Charges <input type="checkbox"/> No Readings <input type="checkbox"/> Priority Service <input type="checkbox"/> Final Bill <input type="checkbox"/> Sewer

On the Meters Tab enter or edit the default **Status**, *Use* or *Ignore*, the **Size** and the **Multiplier**.

The screenshot shows the 'Update New Customer Defaults' dialog box with the 'Meters' tab selected. It displays a table for 'Metered Service 1 of 1' with columns for Name, Status, Size, and Multiplier. The 'Water' service is listed with a status of 'Use', a size of '5/8"', and a multiplier of '1'.

Name	Status	Size	Multiplier
Water	Use	5/8"	1

On the Charges Tab you can enter the **Amount** of each individual charge.

Update New Customer Defaults

General Meters Charges Rates Record

Charge 1 of 13

Name	Amount
Water	0.00
Sewer	
PST	
Late Fee	
Service Charge	
On/Off Charge	
House Visit	
Backflow	
Deposit	

Prior Next OK Cancel

On the Rates Tab you can edit or insert new rate class information. Select **Type** and **Location**. Press Change or Insert. Enter the **Source Rate Class**, the **Multiplier**, the **Extra Percent**, and the **Extra Charge**.

Update New Customer Defaults

General Meters Charges Rates Record

Rates

Rate Class Name	Mult	Extra Pct	Extra Fee	Balance	Payment	Amount
Late Fee	x1					
Water 2"	x1					
PST (Water)	x1					
PST (Sewer)	x1					
State Tax (Sewer)	x1					
State Tax (Water)	x1					

Insert Rate Change Rate Delete Rate

Type:  Residential  Commercial  Other

Location:  Inside City Limits  Outside City Limits

Prior Next OK Cancel

Update Initial Rate Classes

General Record

Source Rate Class Multiplier

Late Fee 1

Extra Percent Extra Charge

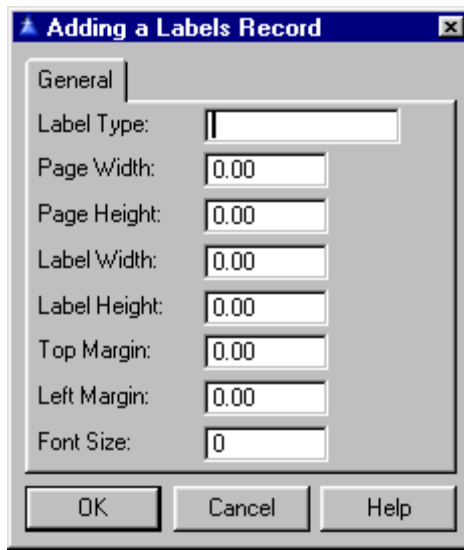
0.0000 0.00

OK Cancel

The Record Tab shows you when the information was created.

### **Label Formats**

Go to **Setup, Lists, Label Formats**. To enter your own label definitions, press the Insert Button and set the fields to your own preferences. To change existing labels, either delete them or press the Change Button. Click OK when done.



The image shows a dialog box titled "Adding a Labels Record". It has a "General" tab selected. The fields are: Label Type (empty), Page Width (0.00), Page Height (0.00), Label Width (0.00), Label Height (0.00), Top Margin (0.00), Left Margin (0.00), and Font Size (0). At the bottom are OK, Cancel, and Help buttons.

### **Print Mailing Labels**

Go to **Activities, Print Mailing Labels**. The label formats are user defined, but are only available for printing with *Supervisor* access. You have the option of using either the billing or service address or based on rate classes. Printed on the labels are account number and the customer mailing address. Labels may be printed for a specified range of account numbers, and limited to specified billing cycles. The customer name is printed on the first line of the label, and the In Care Of line on the second line. If an address line is blank, the line is suppressed and subsequent lines are moved up. A zipcode order option is available.

The zipcode will depend on the address selected to print on the labels. The printing order will be by zipcode of the address selected. Choose *Use* or *Ignore* for the Billing Cycle. Press the Process and Print Button to finish.

A checkbox will allow skipping vacant accounts (**Activities, Print Mailing Labels, Skip Vacant Accounts**). A vacant account is defined here as an account that does not have a Close Date, but has the **No Charges** box checked.

**Print Mailing Labels**

General | Print Preview

Account Range: Beginning: 0001-0001.00 Ending: 0006-0245.01

Print Order: Account Number

Label Type: 3acrossw/4border

Address to Use: Service

Billing Cycles:

Label	Status
A	Use

Show rejected accounts in "results" summary

901 records processed, 770 records to be printed

Account	Notes
0001-0001.00	
0001-0002.00	
0001-0003.00	
0001-0004.00	
0001-0005.00	
0001-0006.00	
0001-0007.00	
0001-0008.00	

Process and Print | Process and Discard | Cancel

### Form Letters

Go to **Setup, Lists**. To use this new facility, support Letter and Inspector files should be set up first. The letters file may contain any number of form letters that may be printed from time to time. The letter printing process includes a mail merge facility, whereby field values from various data files are substituted for "dollar codes" at print time. The substitution variables currently include about 35-40 choices.

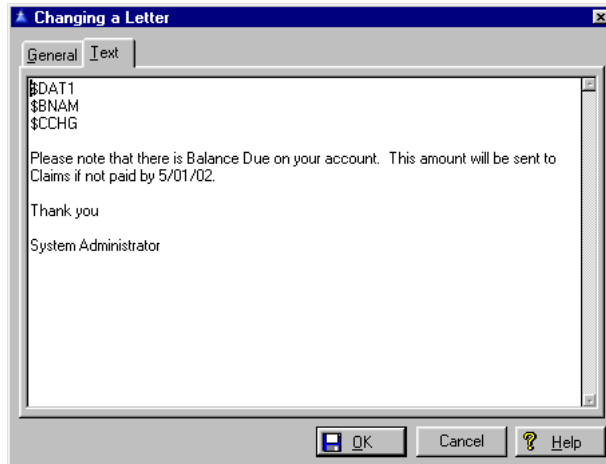
**Select variable**

Variable Name: Current Date (MM/DD/YY)

Name	Code
Current Date (MM/DD/YY)	\$DAT1
Current Date (MM/DD/YYYY)	\$DAT2
Current Date (MMMMMM DD, YYYY)	\$DAT3
Current Time	\$TIME

OK | Cancel

Pressing the F3 Key will bring up all of the choices above. Enter your own text and click OK when finished. You may always go back and edit a letter by highlighting the letter and selecting the Change Button.



### **Print Form Letters by Customer**

Go to **Activities** for printing form letters and maintaining records of letters and inspections. This is fully integrated with **Utility Billing**, but is only available with *Supervisor* access. It is a general purpose facility that will print by account number or zip code, with filters for account number and billing cycle. Closed accounts will be skipped. The module is specifically intended for address record keeping and customer notification requirements for anti-backflow devices, but parts of the facility, particularly the letter writing capability, may prove useful elsewhere. The data files consist of a letters file, letter history file, meter device file, inspector file, and inspection history file. A filter is available for the minimum and maximum balance. If a value is placed in either the **Minimum** or **Maximum** field, letters will be printed only for accounts whose current balance falls within the specified range. If the fields are left blank the list will not be filtered by balance. Note that the balance in question is the total amount owed by the account at the time the letters are printed, without regard to whether the balance is current, late, overdue or past due.

The "dollar" code variables for form letters have a current balance code which more correctly defines the value to be printed (the current balance, not necessarily the current charges). There are also variables for late amount and overdue amount and credit balances in the late, over or past due fields which print as "*None*" rather than a credit amount. The only field for which a credit will be printed is current balance.

To review the distinction between the four balance variables: "*Current*" is the total amount owed, which could consist of current, late, over and past amounts. "*Late*" is the amount that is late for the first time in the current billing period. "*Over*" is the amount that was due at the time the current charges were computed. "*Past*" is the amount that was already overdue at the time the current charges were computed.

The screenshot shows the 'Print Form Letters' dialog box with the 'General' tab selected. The 'Account Range' section has 'Beginning' set to '0001-0001.00' and 'Ending' set to '0006-0245.02'. The 'Print Order' is set to 'Account Number'. The 'Letter Type' is set to 'Warning Letter'. The 'Billing Cycles' table has one row with 'A' in the 'Label' column and 'Use' in the 'Status' column. The 'Show rejected accounts in "results" summary' checkbox is checked. The 'Processing Results' table is empty. At the bottom, there are three buttons: 'Process and Print', 'Process and Discard', and 'Cancel'.

Label	Status
A	Use

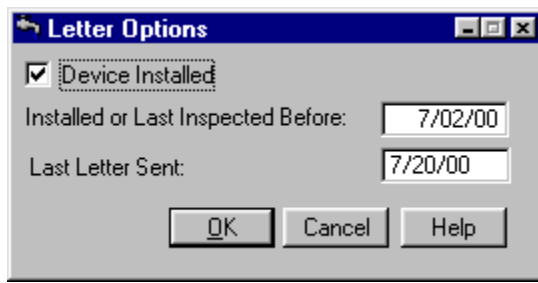
On the General Tab enter the **Beginning** and **Ending Account Range, the Print Order, the Letter Type,** and use the spacebar to select from *Use, Ignore, or Skip* on the **Billing Cycles**. Check the box to **Show rejected accounts in "results" summary** if you want this option.

On the Print Preview Tab select the Preview Method and Initial Display.

Press Process and Print to continue. The Accounts will show up in the Processing Results box once you start processing.

### **Print Form Letter by Meter**

Go to **Activities, Print Form Letters**. This is only accessible with *Supervisor* access. The second letter printing facility is for the backflow preventer management system. Aside from selecting which letter to print, there are only three controls to set up before printing is initiated with this program. When printing letters by meter, the last letter will be considered the last one specifically related to the meter, whereas when printing by customer the last letter will be the last letter printed for the customer regardless of whether it was for a backflow preventer device or general purpose.



To get the results you want from printing letters you need to understand exactly what these controls do. You will find a checkbox labeled **Device Installed**. If this is checked, letters will be printed only for meters that have backflow preventer devices installed. If it is

not checked, letters will be printed only for meters that do NOT have devices installed. Note also that when this box is not checked the second control **Installed or Last Inspected Before** is not available because it is not applicable if there is no device.

If you enter a date in the **Installed or Last Inspected Before** field, letters will be sent only for meters for which the most recent of the date installed or date last approved inspected is earlier than the date entered. For an inspection to be considered it must be approved.

If there are multiple inspections for the device, only the most recent will be considered. The third control **Last Letter Sent** can be used to filter who gets a letter based on the last letter sent. The value entered here would be the short name of a particular form letter.

If this field is not blank, letters will be sent only to those that last received the form letter you specified. If there are multiple letters for the device, only the most recent one will be considered. For example, if you sent a letter to all who had a device that had not been inspected in a year and wanted to send a follow up letter to all who received the first letter but have not returned a satisfactory inspection report, you could use a combination of the three controls to make this happen. In this case the third control would have the short name of the letter that was sent before.

The second **Date** and third **Letter** controls work as independent filters. If nothing is entered it will be ignored and letters will be sent to all that qualify otherwise.



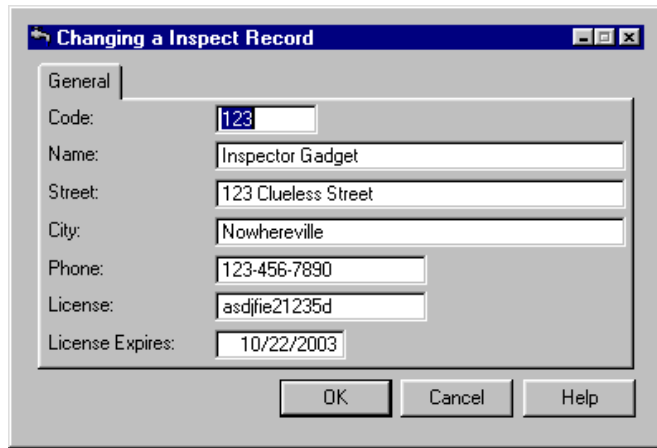
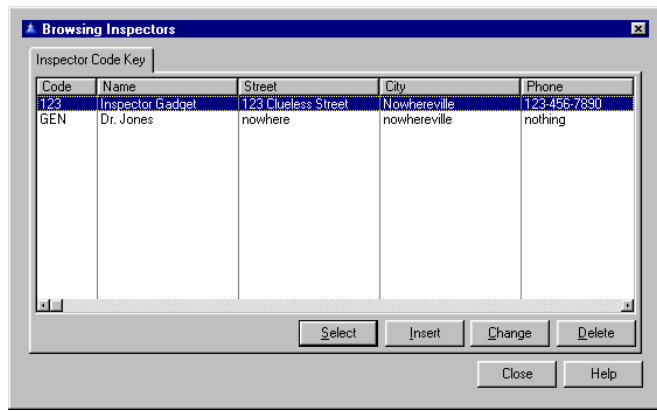
Both of the letter printing programs automatically update the letter history for each account that receives a letter.



### Inspectors

Go to **Setup, Lists, Inspectors**. This should be setup before printing letters and labels and is only accessible with *Supervisor* access. The Inspector file should contain all the companies or individuals that are licensed to inspect backflow preventer devices. Each inspector is identified by an eight character short name.

To add new inspectors, press the Insert Button or highlight the inspector and press the Change or Delete Button to edit the inspector.



Enter the **Code**, **Name**, **Street**, **City**, **Phone** number, **License** number and the date the **License Expires**. Press OK when finished.

# Day to Day Use

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## HOW TO USE UTILITY BILLING

Once the initial setup has been done with your **CSR**, (all items under **Setup, Lists**) rate classes have been reviewed for accuracy, charge names have been set up and given a payment order and display order, and the other items have been filled in and customer data has been entered, you are ready to begin using the program.

These steps outline the billing cycle:

Set the Billing Cycle Start Date. Enter meter readings. Print Consumption Report. Adjust meter readings. Charge Computations. Apply credit balances. Print Billing Summary. Adjust customer account. Load bill cards. Setup the printer. Print billing forms. Payment entry. Run Receipts Report.

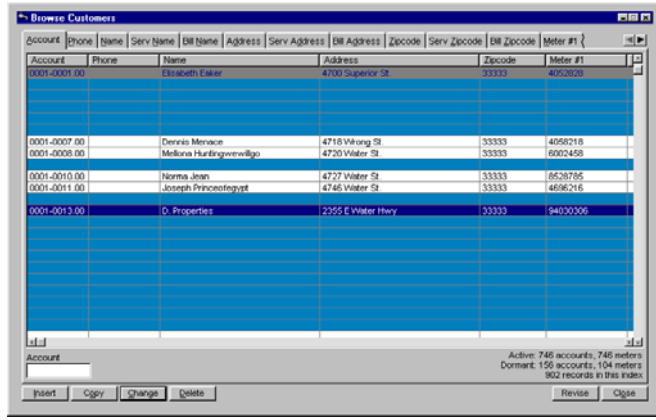
Additional **Technote Topics** relating to the program should be reviewed, and the **Release Notes** for the program located under **Help, Contents, Release Notes** will detail changes made to each version, along with additions to the program and we recommend printing these out and saving for quick reference.

## Customers

Here is the area to put in detailed information about each customer. You may edit changes at a later time if you wish to.

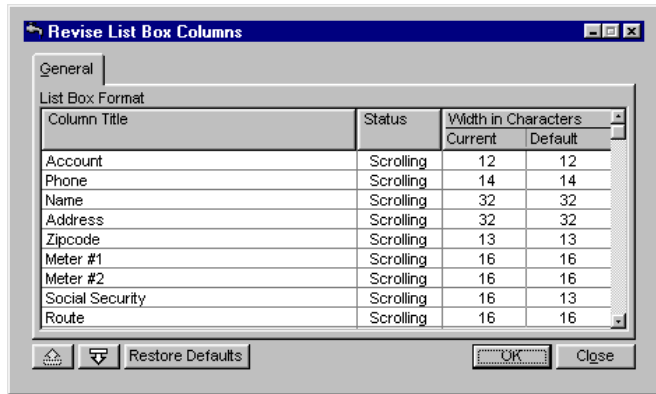
### Browse Customers

Go to **File, Customers**. You may set the security access individually for each tab on the main customer window. If the access level for the Customer Tab menu is set to *No Access*, the security settings for the tabs will no longer function, and access will be determined by the setting of the Customers item as before. To enable this enhancement, go to **Setup, Security, Security Profiles**.



Revise

The Revise Button in the bottom right hand corner allows you to customize the list box layout. Your options are either *Fixed* or *Scrolling* for the **Status** column.



Restore Defaults

The Restore Defaults Button will take your settings back to the original default settings.



You can use the Up and Down Arrow Keys to scroll or your Arrow Keys on your keyboard.



To search for or sort customers you have 18 different tabs. Social security number is one of the customer search keys. The database will allow duplicates because it is possible for a person to have multiple properties, each with a different utility account. No warning will be given when an account is added with the same social security number as an existing account.

For users that want to check if a new customer had an account that had been closed earlier, the recommended procedure is to search for the social security number before adding the account.

The active/dormant customer count displayed at the lower right corner of the customer browse window includes a count of meters. The counting is done in the background when **Utility Billing** is first started. The count could take several minutes with a large database. This process also builds a list of values for the user one and user two fields. Any reports that allow selecting on the user fields should not be run until the count is complete because the list may not be complete.

The user is advised of the progress of the count. If the customer browse is displayed the display in the lower left corner will include the percent completion of the count. If the main menu is displayed a stopwatch will be displayed in the center of the screen instead of the IMS logo. The logo will be restored when the count is complete. The definition of a dormant customer is one that has a date closed or has the no charges or the no readings flag set. An active meter does not have the duplicate flag set, a date removed or is related to another active metered service.

For the inactive meter count to be accurate, users who keep closed accounts in the database should flag the meters for these accounts as duplicates. Otherwise the same meter may be counted several times - once for the currently active account and once for each closed account at the same location.

The count displayed on the customer browse window is run in real time. Thus, when checking for inactive accounts and removed meters, the existence of a date closed qualifies an account as inactive, and the existence of a date removed causes a meter to not be counted. Setting the system date ahead or back will have no effect on the count.

In order to copy an account into an existing account, the current balance test requires that the destination account have no balance in any charge category. The destination account must be inactive and must have no outstanding debit or credit balance. Before you copy, run a report to determine which accounts have multiple balance records in the same category **Reports, Standard Reports, Current Balance Report.**

Copy

Then go to **File, Customers.** Highlight the account to copy and press the Copy Button. The new file has the same information with a different number as the end of the account number. (Example: Original customer number is 006-245-01, the new will be 006-245-02 ). This is the only difference you will notice. You may then edit the information in the new account so that it is different from the original by highlighting it and pressing the Change Button. You must confirm the change of a customer account number before the change will take place to minimize the possibility of inadvertently changing an account number. You may select whether comments are moved or stay with the original account when accounts are moved. On the Old Source and New Destination Account sides find:

**Vacate/Move an Account**

General | Address

**Old (Source) Account**

Account	Cycle	Start Date	Close Date
0001-0001.00	A		4/03/2002

Flags

- No Charges
- No Readings

Delete personal information

Delete full meter history

Set "Duplicate" meter flag

Keep transaction history

Keep fee/deposit history

Keep check register

Set Service Name = "Vacant"

Set Billing Name = "Vacant"

Set Billing Address = Service Address

Erase Other Addresses

**New (Destination) Account**

Account	Cycle	Start Date	Close Date
0001-0001.01	A		

Flags

- No Charges
- No Readings

Copy personal information

Copy latest meter reading

Copy full meter history

Set "Duplicate" meter flag

Keep transaction history

Keep fee/deposit history

Keep check register

Set Service Name = "Vacant"

Set Billing Name = "Vacant"

Set Billing Address = Service Address

Copy Other Addresses

New account will be created

Copy Cancel

**Set service name = "vacant".** Change the service address name to "vacant".

**Set Billing name – "vacant".** Change the billing name to "vacant".

**Set Billing address = service address.** Make billing the same as the service address.

**Erase other addresses** – kill all but service and billing addresses.

**Delete personal information**

Delete items such as addresses, phone numbers etc.

**Copy latest meter reading**(New destination account side only)

Copy only the latest reading, not the full history.

**Delete Full meter history**

When moving/copying accounts, the option exists to delete the meter reading history from the old account. Previously there was only an option to copy or not copy readings to the new account. The option to delete all reading history from the old account is available only if the option to copy all readings to the new account is set.

**Set Duplicate meter flag**

Set this flag on meters. Meters which are flagged as a duplicate now display with a (D) following the meter number when browsing using File, Customers. Note that an account will be listed once for each meter number, just as for each address. The (D) flag will appear only by the meter that is the duplicate. When browsing in some other order such as account number, the meter number displayed is the first meter added to the account, whether it is a duplicate or not.

If you want to keep the following items then check them:

**Keep transaction history**

**Keep fee/deposit history**

**Keep check register**

## Keep notes/comments

The New Destination Account side has the same items to check except the first 3 have Copy instead of **Erase** or **Delete**. If you choose **Copy latest meter reading** you cannot also **Copy the full meter history**. You have to choose one or the other.

To edit information about a customer, select **File, Customers**, select a customer and press the Delete or Change Button. A drop list shows in the two user defined entry fields in the customer update form. When adding or changing a customer the value may be selected from the list of previously used values, or a new one entered. Since the user fields may also be named by the user, they will appear on your screen as named, not necessarily **User Key One**, for example.

Enter the **User Key #1** and **#2** information. The date shown in the **Fees/Deposits** is the date of the last payment of the deposit or fee.

If either of the customer user key fields are not used, its tab and its column no longer appear in the customer browse window and its entry field no longer appears in the customer entry form. If either is set to blank using **Setup, Configuration, User Keys**, its name will display as "User One" or "User Two" as appropriate, but will still be considered disabled and will not display in the customer browse and entry form.

**Update Account: 0001-0001.00, Elisabeth Eaker [Closed on 5/03/2001]**

General Personal Notes Meters Transactions Selected Details Rates Work Orders Record

Account: 0001-0001.00 Route: 3 Number Two: A Cycle: 2/21/2001 Due Date: 5/03/1999 Start Date: 5/03/2001 Close Date:

Addresses: Elisabeth Eaker, 4700 Superior St., Anywhere FL 33333

Flags:  No Charges,  No Readings,  Priority Service,  Final Bill,  Sewer

Reading Status: Water: 1 of 1, 17.000

Rate Classes	Charge	Previous	Billings	Payments	Balance
Water	-73.00		42.42		-30.58
PST			0.81		0.81
Late	-6.00		3.00		-3.00
CR	-300.00				-300.00
<b>Total</b>	<b>-379.00</b>		<b>46.23</b>	<b>0.00</b>	<b>-332.77</b>

Prior Next OK Cancel



On the General Tab, you may enter the account number. The book number portion (first 4 characters) of customer account numbers may be alphanumeric (contain letters and/or numbers). Book numbers may be any combination of letters and digits. If the book is less than 4 characters it will be left justified with trailing blanks removed.

If it is numeric it will continue to be right justified with leading zeros. Books such as A, AB, ABDE, A100, 24B are all valid. Alphabetic and numeric books may be mixed, although it is best to stick to one format or the other. If they are mixed the alphabetic books will follow the numeric books when viewing customers in account number order.

An alphabetic last active book may be entered in **Setup, Configuration**, Index Keys Tab, Last Active Book. Only the first character is used. If the last active book is alphabetic the active meter count will terminate when the first character of the account number is greater than the last active book, regardless of the remaining characters of the book. If the account number entered is not a full 10 digit number or has any punctuation the decode algorithm will revert to the previous methods.

When the address box is selected and there are no current addresses for the account, the address edit window will automatically open. The service and billing checkboxes will be set to checked since that is the most likely condition.

Select the **Cycle, Start and Close Date**, any **Flags**, and if you need to update the **Address** press the Change/Insert Address Button.

**Update Address**

General **Record**

Notes

Carrier Route Parcel Number

Full customer name: (Title, First Name, Last Name, and Suffix)

Detail address line: c/o

Full street address: (Lot Number, Direction, Street Name, and Apartment/Suite)

City State Abbreviation Zipcode

Service Address

Billing Address

OK Cancel

Mark whether this is a **Service** or **Billing Address** or both. Enter any **Notes**, **Carrier Route Number**, **Parcel Number**, and all the Customer address fields. Press OK when finished.

On the Personal Tab, see [ACH Direct Debit - Fund Transfer](#) for details on this. In the upper left corner of the window is a box labeled **Direct Withdrawal**. This box will not appear if you have not set up the fields in the configuration file as described above. When you check the **Use Direct Withdrawal** box the other fields in the box will be enabled. The fields are explained below:

**Update Account:**

General Personal **Notes** Meters Transactions Selected Details Rates Work Orders Record

Direct Withdrawal

Use Direct Withdrawal

Bank Type

Account Identification

Prenote Required

SSN Driver's License (State and Number)

Telephone Numbers

Notes	Number	Ext

Insert Number Change Number Delete Number

Use Defaults OK Cancel

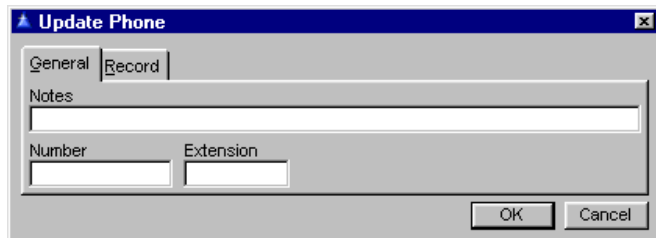
**Bank:** This is the Routing/Transit number of the customer's bank.

**Type:** This is the type of bank account. The options are *D* (demand) or *C* for a checking account, and *S* for a savings account. If anything other than those letters is entered, the account will be assumed to be a checking (demand) account.

**Account Identification:** This is the account number of the customer's account that will be debited at the bank specified.

**Prenote Required:** If checked, transactions for this customer will not cause a payment to be posted to the account. All new direct debit accounts are usually set up initially as requiring a prenotification. When prenotes are transmitted to the bank the dollar amount is zero and no debits or credits take place. The transaction merely tests to see if all account and bank information is correct. Once the account has been approved the prenote can be unchecked and subsequent transactions will actually take place.

In the **Notes** field, use Change or Delete Number to edit or press Insert Number to add new notes (phone numbers actually). Fill out the **Notes, Number** (phone) and **Extension**.



On the Notes Tab you may fill in the comment box with erasure date and 4 different report comments.

Update Account: 0001-0001.00, Elisabeth Eaker (Closed on 5/03/2001)

General Personal Notes Meters Transactions Selected Details Rates Work Orders **Record**

Phone 0 of 0

Insert Comment Change Comment Delete Comment

General History

Date	User	Action	Field Name	Old Value	New Value
10/23/00	park	Add	Route (First User Index)		3
10/23/00	park	Add	Account Number		0001-0001.00

Prior Next OK Cancel

The **General History** window takes care of itself when you enter an action on behalf of the customer. **Erase** is the date when this record expires. Enter in the types of **Reports** you want this comment included on. Check the **Instant Display** box if you want this comment displayed immediately upon opening the account window. The Record Tab shows when this comment was created.

To insert a new comment press the Insert Button. The checkboxes in the **Reports** box are used to set which reports will allow printing the comment. (The comment will appear in the field list for the detail as "Account Comment".) A **Consumption** checkbox and a **Comment** area is included allow comments in Current Balance Reports.

Update Comment

General **Record**

Erase

Instant Display

Reports

- Priority Service
- Cash Receipts
- Billing Charges
- Consumption

Comment

OK Cancel

On the Meters Tab you may fill in all sorts of information about the meter, including the type of service, meter id numbers, amount of use etc.

Service Type	Meter #1	Meter #2	Load	Removed	Dup	Average Use	Multiplier
Water	1		1			24.000	1

Reading	Date	Type	Code	Consumption
3324.000	1/21/2001	New	Hand	17.000
3307.000	12/21/2000	New	Hand	13.000
3294.000	11/21/2000	New	Hand	8.000
3286.000	10/23/2000	New	Hand	12.000
3274.000	9/28/2000	New	Hand	17.000
3257.000	8/28/2000	New	Hand	30.000
3227.000	7/28/2000	New	Hand	n/a

Service Memos	Date

Reading Status
Service: Meters
Consumed
Water: 1 of 1
17.000

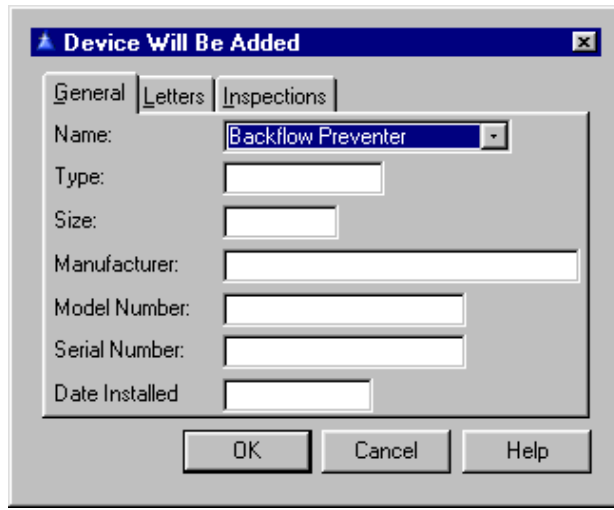
To change a meter press the Change Meter Button. You may enter the meter grid location (i.e. front center, back left quadrant) which tells the meter reader where the meter is located on each site or a leak for the repair crew.

General		Record	
Type of Service	METER ONE	METER SEQUENCE	Load
			0
Installed	Removed	Size	Grid Location
2/21/2001			(none)
Multiplier	Average Use *	Initial Reading:	Make
1	0		
<input type="checkbox"/> Duplicate Meter (Ignore)	Module	Model	
Comments			
		OK	Cancel

If a value is entered in the **Digits** field it specifies the maximum number of digits allowed in the integer portion of the meter reading. (Actually all meter readings are integers, but the system also allows for fractional readings should that ever be needed.) If the reading has fewer digits than the specified digits no change is made. If the reading has more digits than the specified maximum the reading is truncated on the left to the number of digits specified.

For example: If the digits for the meter is set to 4 and a reading of 12345 is entered, the reading will be interpreted as 2345. If the digits field is left blank the full reading entered will be used.

To add a backflow preventer device to a meter find in the left area a field labeled **Device**. Press the Insert Key, Enter Key, double click, right click or F3 Key to pop up the device window. (Once a device has been added its name will display, and any of the aforementioned keys except the Insert Key may be used to view or update it.) On the General Tab fill in the fields for the device, including **Name** of the device, **Type**, **Size**, **Manufacturer**, **Model Number**, **Serial Number**, and **Date Installed**.

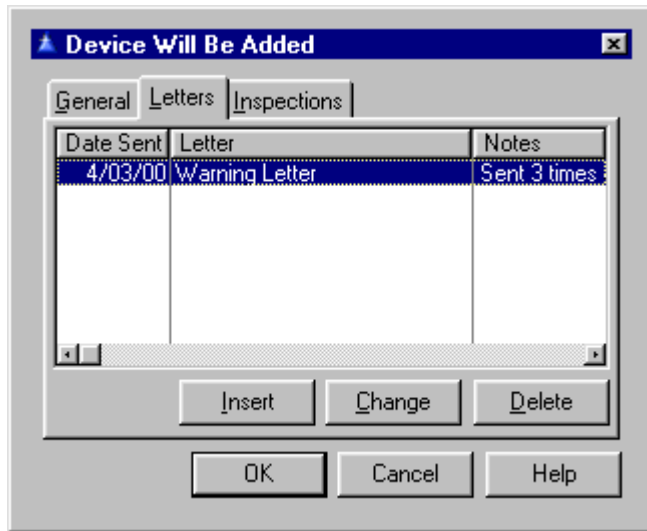


The image shows a software dialog box titled "Device Will Be Added". It has three tabs: "General", "Letters", and "Inspections". The "General" tab is selected. The dialog contains the following fields and controls:

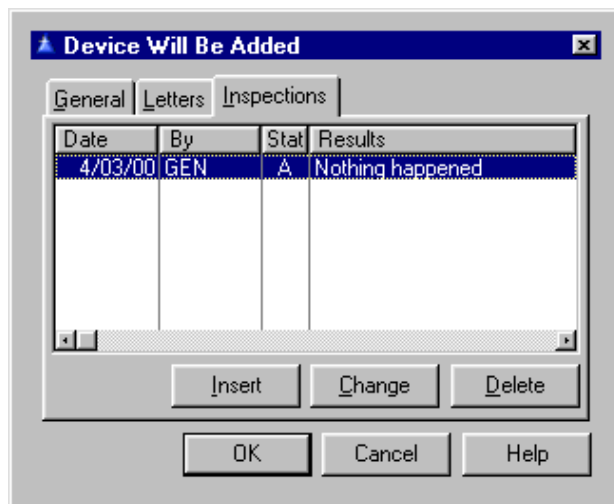
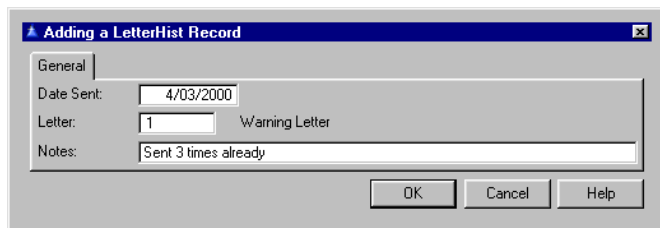
- Name:** A dropdown menu with "Backflow Preventer" selected.
- Type:** An empty text input field.
- Size:** An empty text input field.
- Manufacturer:** An empty text input field.
- Model Number:** An empty text input field.
- Serial Number:** An empty text input field.
- Date Installed:** An empty text input field.

At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

This window is also used to view the inspection history and history of letters sent. The inspection history record contains the date the inspection was made, the identity of the inspector (keyed to the inspector file), whether or not the device was approved, a results field of 64 characters, and a free form notes field of 3600 characters. The letter history record includes the identity of the form letter sent (an eight character short name), the date the letter was sent, and a 64 character notes field. On the Letters Tab press the Change Button to edit a letter.



Press Insert to add a new one and the F3 Key for a pop-up list of letters to choose from. You may also add **Notes**.



On the Inspections Tab select an Inspector.

You may add more detail to the Inspection Record by pressing the Change Button. Enter whether **Approved** or **Rejected** and the **Results** in a short note. Press OK when finished with all of your selections.

### Adjust Meter Readings

When a meter is added to a customer account, an initial meter reading is not automatically added. A reading will be added if the **Initial Reading** field is not blank, even if that value is zero. To adjust readings in an account click on the Meters Tab and at the bottom of that page you will see the meter **Reading** history. At the top of the page is the meter information, such as meter ID number, date installed, date removed, etc.

REMEMBER - all meters must have a meter ID number filled in. To change a meter reading, highlight the reading to be changed, and Click on Edit Reading then tab to the reading and make the change, and click on OK. Once all readings have been adjusted for each account that needed adjusting, you are ready to compute charges.

When a meter is deleted, both meter numbers and the value and date of the last reading is logged. All changes to any field are logged by field name.



The method used is a 12 month exponential moving average, the same as used in normal processing. All procedures use the weighted method (the newest consumptions are weighted greater than the older ones.

However, there are several differences from the standard method: estimated readings are ignored because they were originally calculated from the average at that time. See [Estimated Meter Readings](#).

Rollovers are also ignored. While a rollover is theoretically valid, there is also a possibility that it was an incorrect reading. If an average consumption seems high after a recomputed (on the Transaction Tab), the individual readings should be examined for errors. When a replacement meter is added to a customer account, a new field titled **Initial Reading** will appear in the meter entry form. This should be filled in with the initial reading when the meter was installed. It will default to zero, the usual case for a new meter. When the meter is added a reading will also be added for the initial reading. When the first actual reading is entered for the new meter, charges can be computed for consumption on the new meter.

**Update Meter Reading**

General | **Record**

Subsequent Reading

Current Reading

Type: Correction Code: Hand Status:  Use  Skip

Reading: 550 Date: 4/13/2001  Estimate

Previous Reading

OK Cancel

If there is unbilled consumption on the old meter, the duplicate flag should be left unchecked until after charges have been computed. This will allow the account to be billed for consumption on the old meter and the new meter. Once charges for the last reading on the old meter have been computed the duplicate flag should be set on the old meter. This change in procedure eliminates the need to enter two readings for the new meter in order to compute charges for it.

On the Transactions Tab you may enter in information about each transaction such as bill specifications, information about payments, about bills, about due dates. You may use the Add Pay, Add Bill, Recompute, Edit Trans, and Reverse Buttons here. Changing the date of record for billing and payment transactions requires *Supervisor* access. New transactions are set to the current system date. This prevents date keying errors resulting in transactions falling in a past or future accounting period.

Charge	Amount
Water	-30.58
PST	0.81
Late	-3.00
CR	-300.00
<b>Total</b>	<b>-332.77</b>

Action	Type	Code	Method	Date	Track	Notes	Amount
Billed				5/22/2001			426.18
Paid				4/15/2001			758.95
Refund							0.00
EndBal							-332.77

**Recompute**

The Recompute Button will recompute the average consumption for the current meter. It is not automatically updated. This option is available to users with update or higher access. The computation will use every reading in the database. The **Transaction** column to the far left should be the latest Billing transaction, click on that column and then use the Edit Tran Button on the bottom of the column - which will bring up the window showing the billing transactions and how they were applied.

Tab to the Value (charge) that should be changed, and fill in the amount to be changed to (i.e. if you need to take off the late fee - tab to that amount, hit the space bar, tab again, and the late fee is removed, if you need to make the water charge \$23 instead of \$25, tab to the water charge of \$25 and type in the \$23 ).

Add Pay

Add Bill

The Add Pay Button on the customer transactions tab doesn't do all the things that **Activities, Payment Entry, Manual Entry** does, among the Declining balance update and discounts. Customers are advised to use the Add Pay Button for simple things only.

The AddBill Button adds charges to the account.

**Update Charge Transaction**

General Record

Type: New Source: Automated Method: Check Reference #:

Date: 4/15/2001 Tracking: 5 Notes:

Payment 1 of 13

Charge Name	Balance	Old Value	New Value	Adjustment	Result
Water	-30.58	23.00	25.00		-30.58
Sewer					
PST	0.81				0.81
Late Fee					
Service Charge					
On/Off Charge					
House Visit					
Backflow					
Deposit					
Bad Check Charge					
Totals	-329.77	23.00	23.00	0.00	-329.77

OK Cancel

Click on OK for each screen until you are back to the main Customer window. Then enter in the next account in the bottom account box, hit enter and then click on the Transaction Tab for that customer.

Edit Tran

Reverse

Highlight the billing transaction and click on the Edit Tran Button. You may also reverse a transaction by pressing the Reverse Button. Transactions may be reversed or edited if they are in the current billing cycle as determined by the system date. If the customer has no assigned billing cycle, transaction editing or reversal is limited to the calendar month as determined by the system date.

When data is converted from IMS **Utility Billing** version 5.X, transactions are checked for a reasonable date and any that are out of range are discarded.

Users are advised to use the utilities in the version 5 program to clean up any data file corruption before converting the data for version 6. It will check that the program was configured for a particular service (such as gas or electric billing) before converting rate classes. Fix all accounts that may need adjusting. If a meter reading was incorrectly entered, Click on the Meter Tab and edit the reading (refer to Meter Tab above).

Then click on the Transaction Tab and click on the Recompute Button - this will recompute the billing transaction for that customer using the new meter reading. If everything looks right, click on OK. There is a **Tracking** field available when adding billing transactions as well as payment transactions. Press the Add Bill, Add Pay or Recompute Button. While normally used for check numbers in payment transactions, it may be used for whatever desired in billing transactions. The field size available is 10 characters alphanumeric. The scrollbar for transactions **Notes** will appear only when the number of transaction notes exceeds the drop list capacity of 30.

On the Selected Details Tab you may enter information about checks and process with some buttons like Add, Edit, Void, Reconcile, and Kill Check.

The screenshot displays the 'Selected Details' tab in the IMS Utility Billing software. The interface is organized into several sections:

- Menu Bar:** Contains tabs for General, Personal, Notes, Meters, Transactions, Selected Details (active), Rates, Work Orders, and Record.
- Fee/Deposit 1 of 3 Table:** A table with columns: Fee/Deposit Name, Billed, Paid, Refunded, Status. The 'Service Charge' row is selected and highlighted in blue. Other rows include 'Backflow' and 'Deposit'.
- Fee/Deposit Summary Table:** A table with columns: Action, Date, Amount.
- Check Register Table:** A table with columns: Number, Date, Amount, Reconciled, Voided.
- Action Buttons:** A row of buttons including 'Add Check', 'Edit Check', 'Void Check', 'Reconcile', and 'Kill Check'.
- Navigation Buttons:** 'Prior' and 'Next' buttons with arrow icons, and 'OK' and 'Cancel' buttons.

On the Rates Tab you may insert, change or delete information about a rate, including surcharges, proration information, and multiplier information. When a rate is deleted the name of the deleted rate is logged. All changes to any field in this file are logged by field name. If the customer is coded as outside city limits the charge computed for that rate will be increased by the percentage specified in the surcharge field. If the customer is coded as inside city limits the surcharge will not be applied.

Rate Class Name	Mult	Extra Pct	Extra Fee	Balance	Payment	Amount	Status
Late Fee	x1	0.0000	0.00				Use
Water 5/8" X 3/4"	x1	0.0000	0.00				Use
PST (Water)	x1	0.0000	0.00				Use
PST (Sewer)	x1	0.0000	0.00				Use
State Tax: (Sewer)	x1	0.0000	0.00				Use
State Tax: (Water)	x1	0.0000	0.00				Use

Insert Rate

Change Rate

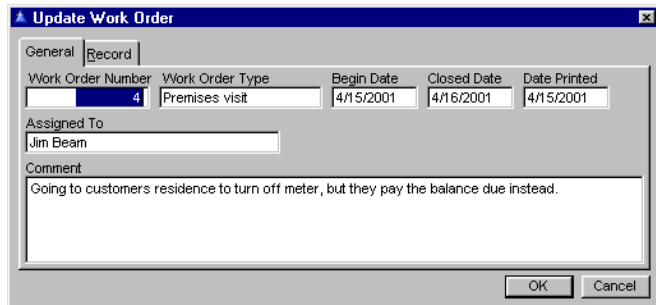
Delete Rate

To edit highlight the entry and press the Change or Delete Rate Button. To add new rate information press the Insert Rate Button.

Fill out the **Source Rate Class**, **Start and Close Date**, **Extra Percent** and **Charge** boxes. Check the **Multiplier** section and the **Status**. Decide if you would like to **Delay until next period** and/or **Continuous Proration**.



On the Work Orders Tab you may insert, change or delete information about a work order, including comments on the work order and who is the party responsible for it. The date a work order is printed is saved during the printing process and may be viewed or changed here.

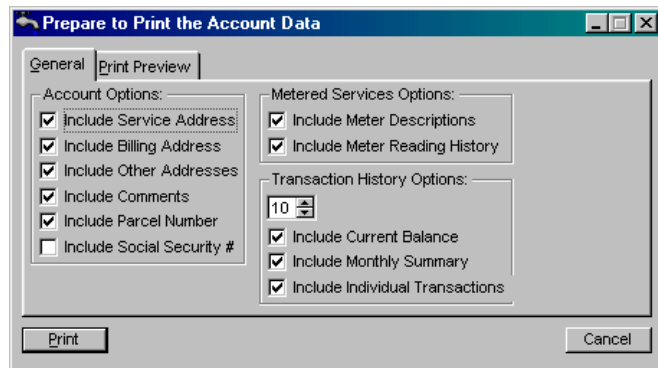


On the General Tab section of the Update Work Order window, enter the **Work Order Number**, **Type**, **Begin** and **Closed Date** and **Date Printed**. The **Assigned To** field designates who has responsibility for completion of the Work Order. Enter any messages or special instructions in the **Comments** box.

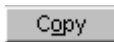


The Record Tab is simply a record of all activity for this customer, with the option to print out the past history by pressing the Print Account Button. It will not print the Social Security Number of the customer.

Press the Print Account Button for further details. On the General Tab select the **Address, Metered Services** and **Transaction History Options** you want printed.



On the Print Preview Tab select the **Preview Method** and **Initial Display**.



### Copy/Move Customer

Go to **Customers**. Highlight the account to copy and press the Copy Button. On the General Tab, the option exists to delete the meter reading history from the old account when copying/moving accounts. The option to delete all reading history from the old account is available only if the option to copy all readings to the new account is set. Fill in the areas you want.

On the Addresses Tab, change the items you want and press Copy. Then hit OK once the main page shows up again. It will insert a duplicate entry if you haven't changed anything. So you might as well change it here while you have the opportunity to edit. Otherwise you may simply click on one of the duplicates and go in and edit it later.

**Vacate/Move an Account**

General Address

Old (Source) Account  
 Account: 0001-0007.00 Cycle: A Start Date: Close Date: 3/30/2002

New (Destination) Account  
 Account: 0001-0007.01 Cycle: A Start Date: Close Date:

Flags  
 No Charges  
 No Readings

Flags  
 No Charges  
 No Readings

Flags  
 No Charges  
 No Readings

Delete personal information  
 Delete full meter history  
 Set "Duplicate" meter flag  
 Keep transaction history  
 Keep fee/deposit history  
 Keep check register

Set Service Name = "Vacant"  
 Set Billing Name = "Vacant"  
 Set Billing Address = Service Address  
 Erase Other Addresses

Set Service Name = "Vacant"  
 Set Billing Name = "Vacant"  
 Set Billing Address = Service Address  
 Copy Other Addresses

New account will be created

Copy Cancel

## Meter Reading

### Manual Entry

Go to **Activities, Meter Reading Entry, Manual Entry**. (The other choices are for those customers using a handheld reading device and they upload readings into the program). Manually entered meter readings are checked against the minimum and maximum limits set for the metered service. It is not possible to enter a reading for an account outside the specified range.

When entering manual meter readings, a specific account number may be entered at the **Locate**: prompt to fetch an out of sequence account. The account entered must qualify according to the account number range, billing cycle and metered service parameters set up in the opening window. If it does not qualify, a message will be displayed with the reason the account cannot be fetched.

**Enter Meter Readings**

General

Account Range  
 Beginning: 0001-0001.00  
 Ending: 0006-0245.01

Label	Status
A	Use

Name	Status	Date
Water	Use	4/13/2001

Enter Readings Cancel



Accounts that do not qualify based on the billing cycle selections or have no meters for the metered service selected are not displayed. When a reading is entered that is less than the previous reading (either an entry error or meter rollover) a warning window is displayed and the user must confirm that this reading should be accepted. Such occurrences are also trapped by the low consumption warning window. This test will be of use primarily when low consumption limits are disabled.

Manually entered estimated meter readings are formatted according to the number of digits specified for the meter. They do not contain a fractional component resulting from division by the meter multiplier; they are instead truncated to read in meter units (usually 1000 gallons).

Select which accounts you will be entering the readings for (i.e. 1-1 will get you the first account in Book 1 whereas 1-9999 will get you the last reading in Book 1) and then tab to the cycles and use your space bar to either use or ignore each cycle you will be entering readings for.

Then tab over to the next field which is status of metered service and tab past that to date. This date you can change to put a date on the readings you are about to enter, so if you want all your meter readings to have a date of March 1, fill that in there. A meter cannot be added to an account without specifying a metered service.



Enter Readings

Then click on Enter Readings. The first account will come up with the cursor blinking on the far right of the **Enter Readings** box in the Reading section. Type in the reading and hit Enter, this will advance you to the next account. Add in all readings for all book/accounts.

**Enter Meter Readings by Account**

General

Account: 0001-0001.00 Cycle: A

Addresses:

Elisabeth Eaker  
4700 Superior St.  
Anywhere FL 33333

Reason for Skipping (If Any):

Meter 1 of 1

Name	Number	Serial	Multiplier	Previous		Current	
				Date	Reading	Date	Reading
Water	1		1	12/21/2000	3307.000	1/21/2001	3324.000

Prior ◀ Next ▶ Cancel

Once the readings are all entered, go to **Standard Reports**, [Consumption Report](#) and print it. Select the correct report to use and press Print - fill in the accounts to run the report for (1-1 will get you the first account and then tab and fill in the last account, such as 1-9999). Then tab to the beginning date - and fill in the date that was used for the meter entry date.

To see the detail, account by account, make sure you have removed the check mark from the **Print Summary pages only** selection. Print the report, review it for consumption that looks too high or too low, and check out meter readings to make sure they were properly entered.

**Rollover** The rollover algorithm works in the following manner: The readings are first rounded according to settings. If the latest reading is less than the previous reading:

1. Replace all digits of the old reading with zeros.
  2. Append a "1" to the left of the result.
  3. Add this result to the latest reading.
- (The remaining steps occur whether rollover or not:)
4. Subtract previous from latest to get consumption.
  5. Multiply by multiplier.

Using this example the results would be:

Previous reading = 6; latest reading = 4

1. 0
2. 10
3. 14
4. 8
5. 8000

## Trakker 9440 Hand Units

### Make Download List

Go to **Activities, Meter Reading Entry, Use Trakker 9440 Hand Units, Make Download List**. Select the **Beginning** and **Ending Accounts**. Choose to *Use* or *Ignore* on the **Billing Cycles** and *Load* or *Skip* on the **Metered Services**.

Select the file format and to overwrite or append the information if file exists already. Enter the full name of the download file. Once you **Begin Processing** data will appear in the bottom window. Connect to the hand unit by pressing that button. Once you have information in the fields, you may begin processing.

Account Range		Billing Cycles		Metered Services		
Beginning	Ending	Label	Status	Service	Order	Prior
0001-0001.00	0006-0245.01	A	Use	Water	1	Load

If File Exists  
 Overwrite  
 Append

File Format  
 Standard

Download File (3 bytes long, 751 records)  
 dfasf

901 accounts processed, 748 accounts accepted, 751 meters to be read

Account	Meter	Key One	Key Two	Reason Skipped (If Any)
0001-0001.00	WWater		1	
0001-0002.00	WWater	F825949		
0001-0003.00	WWater	628981		
0001-0004.00	WWater	966627		
0001-0005.00	WWater	4478415		

Begin Processing    Connect Hand Unit    Cancel

### Download Account Data

Go to **Activities, Meter Reading Entry, Use Trakker 9440 Hand Units, Download Account Data..** On the General Tab, fill out the capacity, accounts, and general configuration information.

The screenshot shows the 'Send Download List' dialog box with the 'Com Port' tab selected. The 'General' tab is also visible. The 'Com Port' section includes fields for 'Capacity', 'Free Space', and 'Total Space'. The 'Accounts' section has 'Uploaded' (4) and 'WReadings' fields. The 'General Configuration' section includes 'Unit Name' (4), 'Unit Date' ( / / ), 'Version' (04), 'Unit Time' (12:00AM), and 'Last User'. The 'Upon Loading' section has radio buttons for 'Overwrite' (selected) and 'Append'. Below these is a 'Download File (empty)' field containing 'asdfasdfz'. At the bottom is a 'Results' table with columns: Account, Meter, Key One, Key Two, and Results/Problems. Buttons for 'Query', 'Download', and 'Cancel' are at the bottom.

Account	Meter	Key One	Key Two	Results/Problems

On the Com Port Tab fill out the information about the Com Port. The previously used com port is automatically selected and initialized at the parameters last used if the port is available. Press the Download Button when you are finished with both tabs.



The Query Button brings up a list of what occurred during the transmission. Press it to update the list after each transmission.

The screenshot shows the 'Send Download List' dialog box with the 'Com Port' tab selected. The 'Com Port List' table shows port 1 as 'Available'. The 'Parity' is set to 'None', 'Baud Rate' to '2400', 'Stop Bits' to '1', and 'Data Bits' to '8'. The 'Timeout (sec)' is '5' and 'Retry Limit' is '0'. Below the table are buttons for 'Select Com Port' and 'Default Configuration'. At the bottom, it shows 'Maximum possible ports: 4' and 'Existing com ports: 1'. Buttons for 'Query', 'Download', and 'Cancel' are at the bottom.

Port	Status
1	Available
2	In Use
3	No UART
4	No UART

## Upload Meter Readings

Go to **Activities, Meter Reading Entry, Use Trakker 9440 Hand Units, Upload Meter Readings**. On the General Tab, fill out the **Capacity, Accounts, and General Configuration** information.

Get Upload List

General Com Port

Hand Unit Current Status

Capacity

Accts in Unit

Free Space

Total Space

Accounts

Uploaded

WReadings

General Configuration

Unit Name

Unit Date

Version

Unit Time

Last User

Upon Receiving

Overwrite

Append

Starting Record

Upload File (empty)

asdfsdf

Account	Meter	Key One	Record	New Reading	Results/Problems

Query Upload Process Cancel

Process

On the Com Port Tab fill out the information about the Com Port. Press the Process Button to process the information and then press the Upload Button when you are finished with both tabs.

Get Upload List

General Com Port

Com Port List

Port	Status
1	Available
2	In Use
3	No UART
4	No UART

Select Com Port

Parity

None

Baud Rate

9600

Stop Bits

1

Data Bits

8

Timeout (sec)

5

Retry Limit

0

Maximum possible ports: 4

Existing com ports: 1

Query Upload Process Cancel

### Process Meter Readings

Go to **Activities, Meter Reading Entry, Use Trakker 9440 Hand Units, Process Meter Readings**. On the General Tab select whether to *Skip, Ignore, Examine* or *Add* each of the meters you have in the **Metered Services** box.

Metered Services		Override Date
Service	Prior	
WATER	Skip	
IRRIGATION	Skip	
FIRE LINE	Skip	
SUBMETER	Skip	

Results				
Account	Meter	Key One	New Reading	Results/Problems

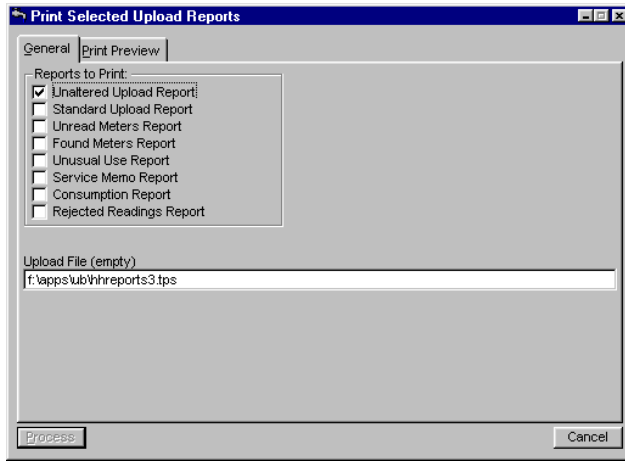
**Process**

Enter the **Override Date**, the date to use in place of the unit's timestamp. Enter the full name of the **Upload File**. Press the Process Button.

### Print Upload Reports

Go to **Activities, Meter Reading Entry, Use Trakker 9440 Hand Units, Print Upload Reports**. On the General Tab select whether you want to print or skip each of the 8 reports by checking the box to print, or leaving it blank to skip. Make sure that you have a file path in the **Upload File** box. This is where the IMS program finds that data file to upload the meter reading information to each of the accounts in our program.

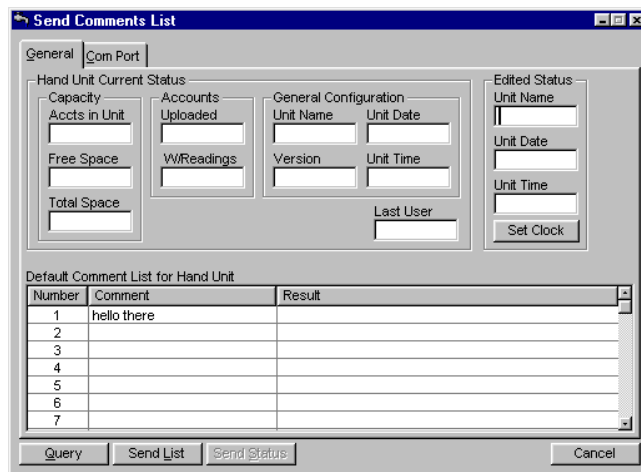
You may also print the upload report at **Reports, Standard Reports, Upload Reports**.



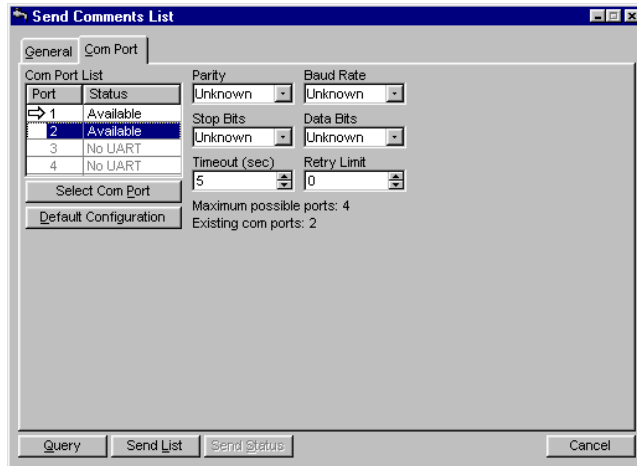
On the Preview Tab select the preview method and the initial display. Press the Process Button when finished with these two tabs.

### **Configure Hand Unit**

Go to **Activities, Meter Reading Entry, Use Trakker 9440 Hand Units, Configure Hand Unit**. Download the standard list of comments and service memos into the hand unit on the General Tab by filling in all the fields of information. Enter any comments in the **Default Comments** box. When you are finished, press the Send List Button to send the information to the hand unit.



On the Com Port Tab fill in the Com Port information that your computer will be using. Go to **Activities, Meter Reading Entry, Use Trakker 9440 Hand Units**. Load Program by entering the Program File Name on the General Tab. On the Com Port Tab fill out the fields of information as well. Press the Install Program Button when you are finished.



## Itron Hand Units

Estimated meter readings from the Itron Meter Reader are formatted according to the number of digits specified for the meter. They do not contain a fractional component resulting from division by the meter multiplier - they are instead shortened to read in meter units (usually 1000 gallons). Go to **Activities, Meter Reading Entry**.

### Make Download List

Go to **Activities, Meter Reading Entry, Use Itron Hand Units, Make Download List**. Customer names and addresses are mapped to upper case when creating the Itron download file. Meter readings downloaded to the Itron Meter Reader are in integer format because it cannot accept fractional readings.

When a no-read meter record is received (reading is\_all zeros) an estimated reading is generated from the average consumption for the meter.



*Note that a reading of zero is interpreted as a no-read according to the Itron specifications, but this is not the same as zero consumption (latest reading same as previous reading).*

The estimated reading is computed as the previous reading plus the average consumption. However, the average consumption is adjusted by the multiplier, usually 1000.

Label	Status
A	Use
B	Use

When you have all the information filled in on this window, press the Process Button to process the download list.

### **Process Meter Readings**

Go to **Activities, Meter Reading Entry, Use Itron Hand Units, Process Meter Readings**. This is really processing the upload list. You have the option to *Skip, Ignore, Examine* or *Add* on the **Metered Services** box. There is an option of resequencing meters. A checkbox labeled **Allow Resequence** was added to the window. If this is checked a field labeled **Sequence Increment** will become visible. This is the increment used if meters in a route are resequenced.

The first meter will begin with this sequence number and all subsequent meters will increase by this number. The resequencing will take place only if the route resequenced field is set in the route header record in the host file.

The default increment is 10. This means the first sequence number in the route would be 10 (or whatever increment set), and each subsequent meter sequence number will increase by 10 (or the whatever increment specified).

**Process Upload List**

General

Metered Service 1 of 4

Service	Prior
WATER	Skip
IRRIGATION	Skip
FIRE LINE	Skip
SUBMETER	Skip

Reading Date: 2/21/2001

Allow Resequence

Upload File:

Upload Report File: nhreports3

Account	Service	Key Two	New Reading	Results/Problems

Process Cancel

### **Print Upload Reports**

**Go to Activities, Meter Reading Entry, Use Itron Hand Units, Print Upload Reports.** The no-read code field in the meter reading record of the Itron upload file is examined and used to flag an estimated reading rather than a zero reading. A value of "00" is expected when a reading was made, and anything else is assumed a no-read. The following codes are interpreted and expanded as indicated below, and added to the upload report notes:

- AN - animal
- BM - blocked meter
- CL - can't locate
- CR - car on meter
- DM - damaged meter
- FM - fogged meter
- LG - locked gate
- MR - meter return
- OT - other
- WT - water

You may also print the upload report at **Reports, Standard Reports, Upload Reports**. Select which report to print and press the Process Button.

## **EZRoute Hand Units**

### Use EZRoute Hand Units

Go to **Activities, Meter Reading Entry, Use EZRoute Hand Units**. The EZRoute Meter Reader interface supports the R900 walk-by radio modules. To enable, enter a "Z" (must be capital) in the **Label** field of the meter record, and put the module number (not the meter number) in the Module field. The meter reading date will be uploaded. Meter 1 is assumed to be the meter number, and meter 2 is the sequence number.

As a convenience for users that don't want to be bothered with entering sequence numbers for meters, a sequential number will be generated during the download process.

Detail explanation: Two meter number fields are provided for each meter. The actual titles of these two fields are user defined. The first is typically the actual physical meter ID number. The second is typically a sequence number which defines the order in which the meters are to be read on the route.

A sequential number will be generated and placed in the interface file as the sequence number, eliminating the need for the second meter number. One important fact to note, however, is that the second meter number will still determine the order of the meters in the interface file. The order will be billing cycle, book number, second meter number. If the second meter number field is left blank the order will be billing cycle, book number, account number. Also, support was added for multiple books in the same interface file. The book number loaded into the file is set for each account loaded.

There is no support for resequencing routes in the field to allow leaving the second meter numbers blank, since the second meter number is used to perform the resequencing operation. The **Route ID** field contains only the book number of the account. The remaining six characters will be blank.

### Make Download List

Go to **Activities, Meter Reading Entry, Use EZRoute Hand Units, Make Download List**. The meter number (meter number field #1) is downloaded to the EZ Route file so it will display on line 4 of the hand unit. This system will not download an account that has no meters. When the download file is created, if the **Label** field contains a "Z" and the **Module** field is not empty, the Module field will be placed in the **ID Expected** field of the import file, and the meter number will be put in the **Utility** field. This is necessary because the meter number is used by the upload program to locate the meter. If the **Module** field is empty, the meter number will be put in the **ID Expected** field for "Z" meters as well as standard ones.

**Create Download List**

General

Account Range: Beginning 0001-0001.00, Ending 0006-0245.01

Billing Cycle 1 of 1: Label A, Status Use

Scheduled Read Date: [ ]

Overwrite existing file, if any

Download File (Existing file will be overwritten): kkjjkk

Show rejected accounts in "results" list

901 meters processed, 0 meters to be read

Account	Notes
0001-0001.00	1 meter to download
0001-0002.00	1 meter to download
0001-0003.00	1 meter to download
0001-0004.00	1 meter to download
0001-0005.00	1 meter to download

Process Cancel

### Process Meter Readings

Go to **Activities, Meter Reading Entry, Use EZRoute Hand Units, [Process Meter Readings](#)**. This will process the upload list.

F3 in the **Upload** and **Upload Report File** fields will help you find the names of the entries for those two fields. **Allow Resequence** will allow the resequencing of meters. Also select the **Sequence Increment**.

Service	Prior
Water	Skip

Account	Service	Key Two	New Reading	Results/Problems

### Print Upload Reports

Go to **Activities, Meter Reading Entry, Use EZRoute Hand Units, [Print Upload Reports](#)**. You may also print the upload report at **Reports, Standard Reports, Upload Reports**.

## **Badger "Dialog"**

**Hand Units** *The Badger "Dialog" Handheld Meter Readers use the "Connect-C" format.*

### Make Download List

Go to **Activities, Meter Reading Entry, Use Badger "Dialog" Hand Units, [Make Download List](#)**.

Label	Status
A	Use

Account	Notes

### Process Meter Readings

Go to **Activities, Meter Reading Entry, Use Badger "Dialog" Hand Units, [Process Meter Readings](#)**. Enter the **Upload File** and **Upload Report File** names. Press the **Process** Button.

Metered Service 1 of 1		Reading Date
Service	Prior	4/13/2001
Water	Skip	

Upload File (Empty):  
jdstsd

Upload Report File:  
jdstsa

Account	Service	Key Two	New Reading	Results/Problems

### Print Upload Reports

Go to **Activities, Meter Reading Entry, Use Badger "Dialog" Hand Units, [Print Upload Reports](#)**. You may also print the upload report at **Reports, Standard Reports, Upload Reports**.

## **Invensys Hand Units**

Go to **Activities, Meter Reading Entry, Use Invensys Hand Units**. See the other Hand Units above for the same details.

Account Range:  
Beginning: 0001-0003.00  
Ending: 0006-0245.01

Billing Cycle 1 of 1		Scheduled Read Date
Label	Status	
A	Use	

Download File:

Show rejected accounts in "results" list

Account	Notes

The record layout of the transfer file (same for import and export) is as follows:

AccountNumber	String(12)
ServiceAddress	String(40)
LastName	String(15)
FirstName	String(15)
MeterID	String(16)
MeterSerial	String(16)
MeterLocation	String(1)
MeterType	String(1)
PreviousRead	String(10)
LoLimit	String(10)
HiLimit	String(10)
MXUID	String(10)
MXUType	String(1)
MeterReading	String(10)
ReadType	String(1)
ReadDate	String(6) MMDDYY
ReadTime	String(4) !HHMM
NoteNumber	String(2)
Crlf	String(2)

### **Make Download List**

Go to **Activities, Meter Reading Entry, Use Invensys Hand Units, Make Download List**. The interface will substitute the first meter number for the second meter number if the second meter number field is blank or filled with zeros. This system will not download an account that has no meters. The **Label** field is in the **Meter Type** field in the interface file. If there is no value in the **Label** field, a blank (space) will be placed in the download file instead of a null.

There is no imaginable situation where a non-zero reading would be coupled with a blank read type; nevertheless the procedure will apply the blank read type test first so that all records with a blank read type will be interpreted as no reading.

### Process Meter Readings

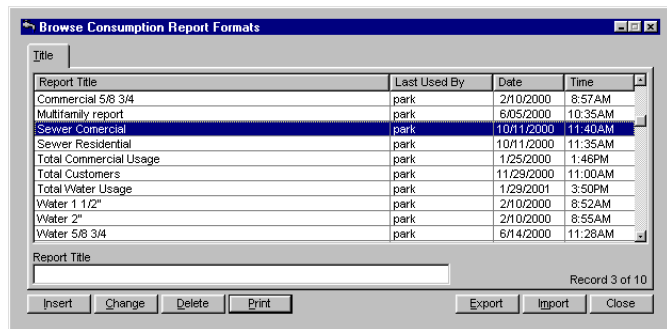
Go to **Activities, Meter Reading Entry, Use Invensys Hand Units, Process Meter Readings**. For customers that may want to disable the estimation step, an estimate will be made only if the reading is blank or zero and the **Read Type** field in the upload file is also blank. Make sure this field (a single character, immediately following the meter reading) is updated according to the Invensys specifications (in which a blank indicates no reading). If the **Read Type** field is not blank and the reading is zero or blank it will be interpreted as a request for an estimate.

### Print Upload Reports

Go to **Activities, Meter Reading Entry, Use Invensys Hand Units, Print Upload Reports**.

## Run Consumption Report

After you have entered readings proceed to the printing of the Consumption Report. This information is covered in detail under **Reports, Standard Reports, Consumption Report**. The Print Button will take you to the actual printing process. The Export and Import Buttons allow you to save the file to a directory or to bring in new information from a directory pop up window. To edit an existing report, highlight it and press the Change Button. To add a new one, press Insert.



On the General Tab select a **Title, Print Order, Metered Service** and the **Billing Cycle Status** (*Use* or *Ignore*). Select a **Normal Date Range**, the **Below and Above Average Percent** to include, the **Minimum and Maximum** consumption or **No current readings**.



**Edit Consumption Report Format**

General | List Filters | Detail | Record

Report Title: \_\_\_\_\_

Print Order: \_\_\_\_\_ Metered Service: \_\_\_\_\_

Account Number: \_\_\_\_\_ | Water: \_\_\_\_\_

Normal Date Range:

- Selected at run-time
- Current System Date
- Current System Week
- Current System Month
- Prior System Month

Unusual Use Filters:

Below Avg: \_\_\_\_\_ Above Avg: \_\_\_\_\_

Minimum Used: \_\_\_\_\_ Maximum Used: \_\_\_\_\_

No current readings

Filter for Estimated Readings

Include duplicate meters

Include voided readings

Draw line between records

Start each record on new page

OK Cancel

You may check the **Filter for Estimated Readings** and any or all of the boxes on the lower left hand side. On the List Filters Tab choose from *Use* or *Ignore* in the **Rate Class** and the **Route** boxes. To simplify you may press *Ignore All* or *Use All* on either box.

**Edit Consumption Report Format**

General | List Filters | Detail | Record

Rate Class 1 of 16

Charge Name	Status
Late Fee	Use
Sewer Com.	Ignore
sewer 1 1/2"	Ignore
Sewer 5/8" X 3/4"	Ignore
Sewer	Ignore
Multi-Family	Ignore
Water 2"	Ignore
Water 1 1/2"	Ignore
Water 1"	Ignore
Water 5/8" X 3/4"	Ignore
Water 5/8 X 3/4 Com.	Use
backflow 3/4"	Use
PST (Water)	Ignore
PST (Sewer)	Ignore

Route 1 of 16

User One	Status
(Blank)	Use
1	Use
2	Use
3	Use
4	Use
5	Use
6	Use
7	Use
8	Use
1	Use
2	Use
3	Use
4	Use
5	Use

Use All Ignore All Use All Ignore All

Prior Next OK Cancel

**Reject**

On the Detail Tab choose the elements from the **Data Field** by highlighting them and pressing the Select Button. The Position Button will change the position of the highlighted portion. You may also use your mouse cursor to move it in the **Printing Layout** box. The Reject Button will erase the highlighted portion.

The 'Edit Consumption Report Format' dialog box has the following components:

- General Tab:**
  - Data Field 1 of 32:**

Category	Field Name	Over	Down	Visible
Address	Service Name/Address	0.800	0.000	Yes
Address	Service Notes			
Address	Service Parcel			
Address	Service Route Number			
Address	Service State			
Address	Service Street Addr			
  - Detail Top Margin:** 0.040
  - Horizontal Space:** 0.100
  - Vertical Space:** 0.020
  - Buttons:** Select, Position, Reject, Insert, Change, Delete
- Printing Layout:**
  - Account: Address (Service)
  - Consumed
- Navigation:** Prior, Next, OK, Cancel

You may edit or insert new categories and information by highlighting existing ones and pressing the Change Button, or adding new information by pressing the Insert Button.

The 'Edit Custom Data Field' dialog box has the following components:

- General Tab:**
  - Type:**
    - Line
    - Box
    - Text
  - Width:** 0.000
  - Depth:** 0.000
  - Text:** (Empty text area)
  - Buttons:** OK, Cancel

Enter a **Type**, **Width**, and **Depth**. Click on OK when finished.

You may view when this information was created on the Record Tab.

# Charge Computations

You are now ready to compute the charges on the meters. Go to **Activities, Charge Computations**.

The screenshot shows the 'Compute Charges' window with the following data:

Label	Status
A	Use
B	Use

Label	Status	Amount
WATER RESIDENTIAL	Compute	
WATER OCEAN FRONT	Compute	
WATER APARTMENTS	Compute	
WATER BUSINESS	Compute	
WATER BHV	Compute	
WATER BHV COLLINS	Compute	
IRR.RESIDENTIAL	Compute	
IRR. OCEAN FRONT	Compute	
IRR. APARTMENTS	Compute	

Account	Reason Skipped (if Any)	Current	New Value	Result
		0.00	0.00	0.00

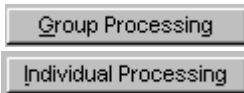
Charges for customer accounts that have more than one meter will compute even if there is no reading for one of the meters. The charge is based on the consumption on the meters that were read.

Two readings are required to determine consumption. The start date for the customer account is used when computing charges for any rates that have no start date.

On the General Tab fill in the **Beginning** and **Ending** account numbers you want to use to compute charges. Then tab to the **Insertion Treatment**. You have 3 choices. Select *Add* and it will add charges to the customer file and is generally the choice you would make. Select *Replace* when you are recomputing charges for a group of customers or *Skip* for the third choice.

Then tab to the **Billing Date** field and fill in what you want to use for the billing date. Tab to **Billing Cycle** and using the space bar *Use* or *Ignore* the cycle you will be using in your compute charges (i.e. cycle A, M or Q). Then tab to the **Rate Class** field and using the

space bar *Compute*, *Set*, or *Ignore* which rates you will be computing charges for. A quicker way if all are the same is to use either Compute All or Ignore All Buttons. This way, if you only want to compute late charges, you would use the Ignore All Button, then highlight the *Late Fee* and use your space bar to *Compute* that rate. Only that rate would compute for the selected accounts.



Click on Group Processing to begin computing. The box at the bottom will show which accounts had charges computed and which accounts did not and any reason they were skipped. When that is finished, click on the Cancel Button to take you back to the main screen. Individual Processing will go through each file individually as shown below.

**Compute Charges by Account**

Account: 0001-0001.00    Cycle: A

Addresses:

Elisabeth Eaker	Service	Billing
4700 Superior St.		
Anywhere FL 33333		

Reason for Skipping (If Any):

Buttons: Prior, Next, Compute, Cancel

When charges are computed for rate classes that have a minimum charge, if the proration type associated with the rate is set to prorate the base amount, then the minimum charge will be prorated as well.

**Update Charge Transaction**

General    Record

Type: New    Source: Hand    Reference #:

Date: 4/15/2001    Tracking:    Notes:

Charge Name	Balance	Value	Result
Water	115.89	42.42	158.31
Sewer			
PST	2.21	0.81	3.02
Late Fee	9.00	3.00	12.00
Service Charge			
On/Off Charge			
House Visit			
Backflow			
Deposit			
Bad Check Charge			
<b>Totals</b>	<b>127.10</b>	<b>46.23</b>	<b>173.33</b>

Buttons: OK, Cancel



Press the Compute Button to start computing the charges.

You will need to add a **Tracking** code and select a specialty **Notes** notation and **Reference #**. Press OK when finished.

## Billing Notices

All utility bill forms print account numbers in short format (leading and trailing zeros suppressed). There is flexibility in specifying the print position on certain bill forms. When the charge names are on the bill form the charge amounts must always print on the same line. This can be controlled by setting the display order of each charge so that it matches the print order desired on the bill. If there are gaps where nothing is to be printed a dummy charge category may be used as a placeholder by assigning it a display order matching the position to be left blank.

Any such charges must not have the **Print Name** box checked (**Setup, Lists, Charge Names**) When bills are printed, any charge category for which there are no charges and does not have the Print Name box checked will be printed as a blank space, maintaining the print position of subsequent charges.

*Be aware that if there are charges in the category used as a placeholder the charge amount will be printed with no identifying name.*

This feature applies only to the *Staggered Tractor Forms 1, 2, 3, and 4*, and the *Two Piece Tractor Form 2*. Users of these forms should check the display order of charges to be sure bills will not be affected after this release is installed. The "bottom line" to remember as far as this change is concerned is that unused charges that are not checked to print the name will occupy the print position according to their display order whether there are any charges or not.

All non-zero charges flagged for printing the charge name will print on certain bill forms. This applies only to *Staggered Tractor 1, Staggered Tractor 2, Staggered Tractor 3, Staggered Tractor 4, Two Piece Tractor 2, Staggered Tractor 5, Staggered Tractor 6*, and *Four Piece Laser 5*.

**Print Billing Forms**

Go to **Activities, Billing Notices, Print Billing Forms**. You may Process and Print on any tab.

The screenshot shows the 'Prepare to Print Bills' dialog box with the following details:

- General Tab:**
  - Account Range: Beginning: 2001-0003.00, Ending: 0006-0245.01
  - Print Order: Route
  - Billing Cycles: Label: A, Status: Use
  - Minimum Balance: [ ]
  - Maximum Balance: [ ]
  - Chkboxes:  Skip zero-balances,  Generate Exception Report,  Include all accounts in Exception Report,  Include rejected accounts in "results" summary
  - Chkboxes:  Late Notice,  Skip closed accounts,  Skip overdue accounts,  Skip direct debit accounts,  Print direct debit accounts only,  Final Bill Only,  Reset Final Bill After Print,  Sewer Only,  Reset Sewer After Print,  Generate 9-Digit Zipcode Report,  Generate 5-Digit Zipcode Report
- Processing Results Table:**

Account	Notes	Due
Total		
- Buttons:** Process and Print, Process and Discard, Cancel

On the **General** Tab fill in the **Beginning** and **Ending** accounts you want to print bill cards for, and tab to the **Print Order** and select which order your cards should be printed in. There is a drop down box that gives you several choices such as account number, zip code, etc.

Billing forms print the credit balance when applicable in the outstanding balance field. Tab to the **Minimum Balance** and fill in an amount, such as .01 which will print a bill for accounts that owe more than .01 cent. If you leave the **Minimum** and **Maximum Balance** blank, you will get a bill card for all accounts that owe money, and that have a credit balance.

There is an option to **Skip zero balance** accounts; if checked no bill will generate for those accounts with a zero balance. When **Late Notice** box is checked the forms printed will be considered late notices and the customer fields affected will be the late notice printed date and the reprint late notice flag, rather than the bill printed date and the reprint bill flag. Then tab to the **Cycle** and use the space bar to *Use* or *Ignore* which cycles you will be generating a bill for. Then tab to the **Skip closed accounts** option - this is usually checked off so a bill does not generate for closed accounts.

Check off the other options if you are going to print a set of bills separately for overdue/late accounts and accounts that are utilizing the direct debit feature, if this has been set up through the **Setup, Configuration, Fund Transfer** option. See [ACH Direct Debit](#).

The additional options on the billing notices section can screen out some of these options, such as the **Skip closed, overdue, and direct debit accounts**. The **Skip direct debit** checkbox is mutually exclusive with the **Print direct debit only** checkbox for obvious reasons. With these two controls users may print all direct debit accounts in a separate bill run. There are also **Print Final Bill and Print Sewer only, Reset Final Bill and Reset Sewer After Print, and Generate 9 or 5 Digit Zipcode Report**. On all billing forms the zipcode prints on the same line as the previous line, which is normally the city, state line.

Many cities will choose to skip accounts with a credit balance, or not print a bill card for them - so if the minimum is filled in with a \$0 - the credit balance accounts will not print. You can do that in **Skip credit balance** by checking on that box. Normally you would want to SKIP closed accounts too.

A checkbox is in the bill print setup window that allows printing only direct debit accounts. This checkbox is mutually exclusive with the checkbox immediately above.

**Skip direct debit accounts** for obvious reasons. With these two controls users may print all direct debit accounts in a separate bill run.

Tab to the **Billing Date** and fill that in. Each of the next boxes **Due Date, Late Date, Cutoff Date** will overwrite the dates that were used when computing the charges.

If these dates are left blank, the same dates will be used that were set up in the Billing Cycle and used when computing charges (you can see those dates on each customers account under **File, Customers**, Change Button, then on the Transactions Tab, Billing Date - Due Date and Late Date).

**Include All Accounts in Exception Report** allows the footer page of the report to show the total dollar amount billed. Checking the **Include rejected accounts...** box decides how extensive the action descriptions will be.

On the Messages Tab, if you want to add a message to the bills, such as *Happy Holidays*, click on the Messages Tab and fill in the message in the **Standard Message Box**. If you want a separate message to go to accounts that are overdue, fill that message in the **Late Accounts Message** box. There is also a section for **Zero/Credit Balance Message** as well as a **Footer** for the bottom of the billing form and a **Note** section.

The program is designed to print the **Standard Message** on current accounts (those that are not carrying a past due balance) and a separate **Late Message** for those accounts that are past due. **Notes 2** is for Letter Laser 4 notes field.



On the Form Control Tab, the basic formats are *Four Piece Laser*, *Staggered Tractor*, *Two Piece Tractor*, and *Letter Laser*. There are different variations of the four main forms.

On any one of the 4 main tabs you may press the Process and Print Button to print the bills. This will print the bills to your computer screen. Then you must click on the button with the picture of the printer on the print preview screen to print the bills.

Four Piece Laser 1  
 Staggered Tractor 1  
 Staggered Tractor 2  
 Staggered Tractor 3  
 Two Piece Tractor 1  
 Staggered Tractor 4  
 Two Piece Tractor 2  
 Letter Size Laser 1  
 Two Piece Tractor 3  
 Two Piece Tractor 4  
 Staggered Tractor 5

*Tractor* means it is for a tractor printer with perforated edges on the forms.

#### *Four Piece Laser 1*

This is a general purpose replacement for the *Staggered Tractor 1* postcard form. It prints four forms on a 8 1/2" x 11" sheet. Each form measures 4 1/4" x 5 1/2", with the printed area measuring 4" x 5". This form requires that the customer specific information be preprinted on the form. The expected preprinted titles, boxes, lines and shading print on the alignment mask only, and may be used as a master layout template for the preprinted forms. See a [sample](#) of this form.

A special version of this form is *Four Piece Laser 2*. This form is for a specific customer and replaces form *Staggered Tractor 4*. It prints on the same size paper as *Laser 1* but does not require preprinting because all customer information is printed at the same time. Both forms require a laser printer than can handle the

minimum 80 pound stock required for postcards. The stock should be perforated for separation of the four part form and for the return stub. This has the capability of printing meter readings and consumption for a second metered service. See a [sample](#) of this form.

*Four Piece Laser 3*

This is based on *Four Piece Laser 5* with some positioning changes. This form complies with U.S. Postal Service regulations.

*Four Piece Laser 4*

This form is intended for laser printers printing on blank, perforated card stock. The perforation lines print only on the alignment mask. The image is vertically shorter by 0.05 inches to provide room for paper size and perforation location variations. It has the same layout as the standard form (*Four Piece Laser 1*) with the following differences: all of the boxes and titles print as in the alignment mask for form 1, except shading is not used.

Invoice Ending 455	Invoice Ending 455	Gallons Used 0	<b>Hotville Water Company</b> 24 First Avenue North Hotville, FL 33333	Invoice Ending 568	Invoice Ending 576	Gallons Used 8						
Account Number 1-4	Billing Date 10/03/02	Due Date 2/21/01		Account Number 1-3	Billing Date 10/03/02	Due Date 2/21/01						
Previous Balance		7.08		Previous Balance		20.08						
Total Amount Due		7.08		Total Amount Due		20.08						
4704 Water St.			Please return this stub with payment <table border="1"> <tr> <td>Account Number</td> <td>Account Due</td> <td>Due Date</td> </tr> <tr> <td>1-4</td> <td>7.08</td> <td>2/21/01</td> </tr> </table> Eugene Parmesiano 4704 Water St Hotville FL 33363	Account Number	Account Due	Due Date	1-4	7.08	2/21/01	US 27		
Account Number	Account Due	Due Date										
1-4	7.08	2/21/01										

A notes box is available for printing boilerplate text on the left side of the form. The organization name and address is printed on the top right of the form. The text is entered using **Activities, Billing Notices, Print Billing Forms**, Messages Tab, Note 2). The text prints on the return stub portion of the bill, above the address box. It is available only for this form.

The message area at the bottom left of the form allows moving the service address up so that a minimum of 5/8" is clear at the bottom for the full width of the card. This complies with postal regulations. There is a horizontal clearance of 1/8" between the address box and the address text. The address text box is at the bottom of the card and the "Please return ..." text and summary boxes are above the address box.

#### *Four Piece Laser 5*

This form is identical to Four Piece Laser 3 except that the summary box at the bottom of the return stub was moved up 9 mm (0.3594") to allow room for the Postnet barcode applied by the United States Postal Service. The charge name and amounts are text controls in order to support leaving blank lines for preprinted charge names. There is support for a second metered service on this form. There is no **Balance Due**.

*Staggered Tractor 1* - see *Four Piece Laser 1* above.

See a [sample](#) of this form. A checkbox **Omit Due Date on Stub** will alter the way form 2 (Staggered Tractor 1) prints. When checked, the due date field on the stub part of the bill (right hand side) will be left blank. This is to support a specific customer that uses this field for the amount paid, filled in by the customer. This checkbox functions only on the *Staggered Tractor 1* form, and does not appear on any other forms.

Prepare to Print Bills

General Messages Form Control Print Preview

Printing Format: Staggered Tractor 1

745 Billing Forms

Form	Account
1	0001-0001.00
2	0001-0002.00
3	0001-0003.00
4	0001-0004.00
5	0001-0005.00
6	0001-0006.00
7	0001-0007.00
8	0001-0008.00
9	0001-0009.00
10	0001-0010.00
11	0001-0011.00
12	0001-0012.00
13	0001-0013.00
14	0001-0014.00
15	0001-0015.00
16	0001-0016.00
17	0001-0017.00
18	0001-0018.00

Omit Due Date on Stub

Print Alignment Mask reprint forms 1 through 74

Process and Print Process and Discard Cancel

*Staggered Tractor 2 -**Staggered Tractor 3*

This has the capability of printing meter readings and consumption for a second metered service. The second set of readings prints to the left of the first set.

*Staggered Tractor 4*

This shows the **YTD Amount Due** field on the lower right hand panel of the form which contains the amount due including the currently scheduled payment and any previously scheduled payments not received. Replaced by *Four Piece Laser 2* above.

*Staggered Tractor 5*

This has the capability of printing meter readings and consumption for a second metered service.

*Staggered Tractor 6*

This is a replacement for the PAR form of **Utility Billing** version 5. It is a customer specific form with special provisions that would not be useful to others. It differs slightly from the form of version 5, such as it does not print dollar signs on the amounts, and the stagger is on the other half of the form pair. (The printer should be aligned on the second half of the page rather than the first.)

*Staggered Tractor 7*

It is identical to form #4 (*Staggered Tractor 3*) except it does not print the postal permit information and return service request. This has the capability of printing meter readings and consumption for a second metered service.

*Two Piece Tractor 1* prints prior payments only if not zero. This has the capability of printing meter readings and consumption for a second metered service. See a [sample](#) of this form.

*Two Piece Tractor 2* prints meter readings on the same line as the corresponding charge. The metered services should be first in display order to prevent misalignment in the event of zero charge amounts for other charge categories. This has the capability of printing meter readings and consumption for a second metered service. See a [sample](#) of this form.

*Two Piece Tractor 3* is experimental and should not be used. The due date printing on both sections of this form is the due date, not the late date. This has the capability of printing meter readings and consumption for a second metered service.

*Two Piece Tractor 4*

This prints two 6" wide by 4" high impact forms side by side. The consumption multiplier is .10. This will cause the consumption to print in 10 gallon units. The consumption printed is truncated to an integer.

The printer must be set to print at 16.67 characters per inch horizontally and 6 lines per inch vertically. The print position of meter readings is on the same line as the charge name to which the meter charges are billed, not in order of the metered service name. This has the capability of printing meter readings and consumption for a second metered service. See a [sample](#) of this form.

When a charge amount is zero it will print on the bill if the charge is for a metered service, unless the metered serviced is coded to not print (see **Setup, Lists, Charge Names**). If there was an unpaid balance or credit as of the start of the billing cycle it will be printed on the bill after the current charges. Any payments made during the billing cycle are likewise printed. The balance forward and payments lines will not print if there is not room on the bill form, but the balance due will be correct.

*Letter Size Laser 1*

The amount that prints as Previous Balance on this form is the balance at the start of the current billing cycle. It has a tear-off bottom portion to be used as a payment stub. There are two boiler plate notes, each with a capacity of 256 characters. One prints as a footer centered across the bottom of the form, and can be up to two lines. The other prints on the lower right corner of the form, and can be up to four lines. Lines will not be combined. This has the capability of printing meter readings and consumption for a second metered service. See a [sample](#) of this form.

*Letter Size Laser 2 & 3*

They are similar to the *Letter Laser 1* layout with the following exceptions: They have a charge capacity of 16 categories versus 11 for *Letter Laser 1*. The note text is printed as a centered header near the top of the form. Only the first line of the organization name and address are printed at the top of the form. These two forms have the capability of printing meter readings and consumption for a second metered service. *Laser Size2* - See a [sample](#) of this form.

*Letter Size Laser 3* includes a usage history box containing usage by metered service for the prior month and the same month one year ago. The font size of the footer text is 8 point to allow more text in the box. The cutoff data for the prior one day before the start of the current cycle. *Laser 3* - See a [sample](#) of this form.

*Letter Size Laser 4*

This is a copy of an older version of the *Letter Laser 1* form. It was added to accommodate an individual user. It is available for all to use, but not recommended because it will not be enhanced in future releases. The other letter laser forms provide more options and should be used instead. The header is centered. This has the capability of printing meter readings and consumption for a second metered service.

Each is enclosed in a box. The box will not be printed if there is no text. The text will be the same for all accounts, and will be saved between print runs. The text is entered on the Messages Tab of the bill printing setup window. Go to **Activities, Billing Notices, Print Billing Forms** to the Messages Tab. The Note and Footer - special message entry forms - will appear only when the form type is set to *Letter Laser 1*. There is also a **Meter Reading** box. The **Meter Reading** and **Current Charges** boxes change size to fit each customer.

On the Print Preview Tab select the **Preview Method** and **Initial Display**.

## Late Notices

### Print Late Notices

Go to **Activities, Billing Notices, Print Billing Forms**. Check the **Late Notices** box. You may Process and Print on any one of the 5 tabs when you have the information entered in. See this under [Billing Forms](#).

On the General Tab, fill in the **Beginning** and **Ending** accounts you want to print late cards for, and tab to the **Print Order** and select which order your cards should be printed in, either account number or zip code. Tab to the **Minimum Balance** and fill in an amount, such as .01 which will print a bill for accounts that owe more than .01 cent.

The screenshot shows the 'Prepare to Print Bills' dialog box with the 'General' tab selected. The 'Account Range' section has 'Beginning' set to '0001-0003.00' and 'Ending' set to '0006-0245.01'. The 'Print Order' is set to 'Route'. The 'Minimum Balance' field is empty, and the 'Maximum Balance' field is also empty. The 'Late Notice' checkbox is checked. The 'Billing Cycles' table has 'A' in the 'Label' column and 'Use' in the 'Status' column. The 'Processing Results' table is empty. The 'Total' field is empty. The 'Process and Print' button is highlighted.

Account	Notes	Due
Total		

If you leave the **Minimum Balance** blank, you will print bills for all customers whether they are late, have a current charge, zero balance or a credit balance. It is used for cities that do not print bills out for people who have a minimum current balance of less than \$5.00. Checking the **Include rejected accounts...** box will decide how extensive the action description will be.

On the Message Tab, if you want to add a message to the bills, such as *Happy Holidays*, click on the Messages Tab and fill in the message in the **Standard Message Box**. For more details see [Billing Forms](#).

On the Form Control Tab, find the following forms:

*Four piece Laser1* - see [Billing Forms](#). See a [sample](#) of this form.

*Staggered Tractor 1* - See a [sample](#) of this form.

*Staggered Tractor 2* - See a [sample](#) of this form.

On the Print Preview Tab select the **Preview Method** and **Initial Display**.

## Reprinting

Go to **Activities, Billing Notices, Edit "Reprint Bill" Flag**. Enter the account range. You will need to decide how to handle closed accounts (whether to skip or not), to **Set** or **Clear** the flag, to *Use* or *Ignore* the billing cycles and to include rejected accounts or not. When finished entering information, press the Process and Apply Button and the accounts will appear in the box.



Label	Status
A	Use
B	Use

Account	Notes	Old	New

### **Edit "Reprint Late Notice" Flag**

Go to **Activities, Billing Notices, Edit "Reprint Late Notice" Flag**. See [Reprinting](#).

### **Edit "Reprint Cutoff Notice" Flag**

Go to **Activities, Billing Notices, Edit Reprint Cutoff Notice" Flag**. See [Reprinting](#).

## **Entering Payments**

### **Manual Entry**

Go to **Activities, Payment Entry, Manual Entry**.

Once you have printed the bills you are ready to enter new payments for the next billing cycle. A warning message will be displayed if the Enter Payment Button is pressed for an account for which a payment has already been entered for the current system date.

This is intended to minimize errors of entering the same payment twice. Note that this test is not made when scrolling between accounts using the Prior and Next buttons after an account is selected.

When entering payments the payment **Type, Code, or Method** may be changed for individual accounts using a hot key (Alt key + the underlined character, in this case T, C, or M). The up and down arrow keys may be used to select the desired option from the list. After the selection is made the cursor will return to the specified initial field (either tracking or payment amount). After entering manual payments the customer browse box is positioned to the last account accessed.

The screenshot shows a window titled "Enter Payments" with two tabs: "General" and "Slip Printing". The "General" tab is selected. Below the tabs is a section labeled "Default Values" containing three dropdown menus: "Type" (set to "New"), "Code" (set to "Hand"), and "Method" (set to "Cash"). Below these is a "Date" field with the value "1/31/2001". At the bottom of the window, there are two buttons: "Locate Accounts" on the left and "Cancel" on the right.

On the General Tab, the highlight will be on **Type**. Choose from 3 types: *New*, *Correction*, or *NSF-Rebill*. Select a type then tab to **Code**. Choose from these 5:

Hand  
Automated  
Late Print  
Work Order  
New Acct

*Hand* is payments that are entered by Hand which is the default. Choose from *Hand*, *Automated*, *Late Print*, *Work Order*, or *New Acct*.

Tab to **Method** and select *Cash* if the majority of payments to be entered are cash payments, or check if they are payments made by check. Choose also from *Electronic*, *From Deposit*, *Interest*, *Credit Card*, and *From Credit*. *Cash* will act as the default method, but can be changed on each individual record. Then tab to the date and enter the **Payment Date** you want on the entries you are about to make. Press the Locate Accounts Button and then click on the white box in the bottom left corner, put in the account number, such as 1-1020 and hit the Enter Key or highlight the account and double click on it). This will bring you into the payment entry box for account 1-1020.

Enter Payments

General | Notes | **Payment**

Type: New | Code: Hand | Method: Cash | Account Identity: 0001-0001.00  
 Elisabeth Eaker  
 4700 Superior St.  
 Anywhere FL 33333

Date: 8/07/2001 | Tracking:

Reason for Skipping (if Any):

Payment Breakdown						In Balance
Charge	Billings	Payments	Balance	Value	Result	
Water	42.42		-30.58		-30.58	0.00
Sewer						
PST	0.81		0.81		0.81	
Late	3.00		-3.00		-3.00	
Serv						
CutOff						
House						
Ekflow						
<b>Total</b>	<b>46.23</b>	<b>0.00</b>	<b>-332.77</b>	<b>0.00</b>	<b>-332.77</b>	

Payment: 0.00  
 Tended: 0.00  
 Change: 0.00

Prior | Next | Open Drawer | Print Receipt | Print Endorse | OK | Cancel

The focus of the cursor will be on Tracking (if configuration is set to focus on tracking, under **Setup, Configuration**. Go to the Payments Tab and click on the Tracking box where you will enter the check number for the payment - tab to the Payment box. If you have your configuration set to Payment then when you enter the payments window the **Payment** box will be highlighted. The amount due will be showing in that box. If that is the amount paid, hit enter and the payment has been applied to the account. If they paid less than the amount due, enter that amount and the payment will be distributed according to the payment order, as set up in the **Setup, Lists (Charge Names, Payment Order)**.

If they paid more than the amount due, enter the amount and the payment will be distributed to the current charges first, then to the overpayment amount listed in the **Overpayment Charge Category** (under **Setup, Configuration** and then to the Payments Tab). Any past due amounts will get the payments applied to them, then the payments will be distributed to the current charges.

If the amount of the payment matches the current balance, the payment is distributed according to the current balance. If the amount of the payment matches the amount billed last time and the account has a current balance, it will be distributed according to the

amounts billed. If the payment doesn't match the current balance it will proceed to distribute in the previous, current, overpayment sequence. Follow this order:

1. If payment amount matches the current balance, distribute to current balance.
2. If payment amount matches neither:
3. Distribute to previous balance.
4. If any remaining, distribute to current charges.
5. If any remaining, distribute to overpayment category.

Back on the Slip Printing Tab, choose the correct **Com Port, Parity, Baud Rate, Stop Bits**, and the **Data Bit**. **Receipt Printing Options** are always Standard.

The screenshot shows the 'Enter Payments' dialog box with the 'Slip Printing' tab selected. The 'Com Port List' table is as follows:

Port	Status
1	Available
2	Available
3	No UART
4	No UART

Configuration settings shown in the dialog:

- Parity: None
- Baud Rate: 9600
- Stop Bits: 1 bit
- Data Bits: 8 bits
- Receipt Printing Options: Standard (selected)
- Cash Drawer Opening Options: Open when payment is accepted (selected)
- Drawer Release Codes: AD
- Validation Open Codes: DF DF
- Validation Close Codes: AF AF

The 'Endorsement Text' field contains: **Receipt has been validated.**

Choose your **Cash Drawer Opening Options** and your **Validation Open and Close Codes**. You may test your **Drawer** or **Test Validation Open, Close** functions and **Test Endorse** by pressing the appropriate buttons. Then press the **Locate Accounts** Button to take you to the accounts.

### Late Payments

Go to **File, Customers**. Highlight a customer, press the Change Button to go into the account and select the Transactions Tab. A late payment is defined here as a

payment made before charges are computed for the next billing cycle but after the late date for the previous cycle.) When charges are computed for the new cycle the balance could be paid in full, but the payment might have been after the cutoff date. The late date is determined by the late date of the prevailing billing cycle, but the late date for the billing cycle may have been changed for the next billing.

Update Account: 0001-0001.00, Elisabeth Eaker

General Personal Notes Meters Transactions Selected Details Rates Work Orders Record

Transaction 1 of 19

Action	Billing	Billing	Billing	Payment
Type	New	New	New	NSF Rebill
Code	Late Print	Late Print	Late Print	Hand
Method				Cash
Date	4/15/2001	4/15/2001	4/15/2001	4/15/2001
Track				
Notes				
BeqBal	173.33	176.33	179.33	185.33
Water				158.31
PST				3.02
Late	3.00	3.00	3.00	24.00
Billed	3.00	3.00	3.00	0.00
Paid	0.00	0.00	0.00	185.33
Refund	0.00	0.00	0.00	0.00
EndBal	176.33	179.33	182.33	0.00

Current Balance

Charge Amount

Total 0.00

Billed To

Due Date 2/21/2001

Late Date 2/22/2001

Bill Printed 1/30/2001

Late Printed 4/15/2001

Cutoff Printed

Buttons: Add Pay, Add Bill, Recompute, Edit Tran, Reverse, Prior, Next, OK, Cancel

In order to determine if a payment was made after the late date it is necessary to know the cycle late date that existed at the time of the payment. Whenever charges are computed for an account, the current late date for the cycle is saved in the customer record. It can be viewed here. When a payment is made in **Activities, Payment Entry**, the late date from the customer record is copied to the payment transaction.

This allows determining whether the payment was late based on the late cutoff date that existed at the time of the payment rather than the current cycle date, which may have changed. However, the late date was being recalculated when payment transactions were entered. This could cause the late date applied to the payment transaction to change depending on the payment date.

The due and late dates are not recalculated when transactions are entered in the customer transaction window. This causes the late date from the last time charges were computed to be the basis for determining whether a payment was late. The only thing that will cause the due and late dates to be recomputed in the customer edit procedure is to change the billing cycle. The due and late dates will be recomputed only when the compute charges procedure is used (**Activities, Charge Computation**). The calculated due and late dates should always agree with the date shown in the billing cycle window.

### Applying Credit Balances

Go to **Activities, Payment Entry**. This option should be used if you have an **Overpayment Charge Category** specified under **Setup , Configuration , Payments, Overpayment Charge Category** and are using a category other than *Water* for overpayments, such as *Prepaid* or *Overpaid*, etc.

Prepare to Apply Credit Balances

General

Account Range: Beginning: 0001-0001.00 Ending: 0003-0179.00

Processing Order: Account Number

Label	Status
A	Use
B	Use

Skip closed accounts

Generate Exception Report

Include rejected accounts in "results" summary

Processing Results

Account	Notes	Apply
Total		

Process and Update Process and Discard Cancel

When a payment greater than the amount owed is posted to an account the result is a credit balance. In most utility billing systems credit balances are fairly common. They are usually the result of a customer planning to be out of town for an extended period and has prepaid on their bill so they won't become delinquent in their absence.

If you are entering the payment manually you will have to distribute the overpayment to some charge category. You could distribute the payment to the most frequently used charge category such as water.

This would of course result in a credit balance in the water charge category. It would eventually be consumed as new charges are subsequently billed to that category. But there is a better way to handle credit balances. You can designate a charge category as the repository for overpayments.

The date used is the late date stored in the customer record, which is updated whenever charges are computed for the customer. This has no effect on payments already entered, but all payments will result in a late charge if paid after the late date, even if it pays the entire current balance.

This process will automatically apply any credit balances in the specified overpayment category for the range of accounts requested, and print a report listing the accounts and the amount applied. Note that this process cannot be used if there is no overpayment category specified.

It will apply the credit to the outstanding balances in payment order until the credit balance is used up or there is no balance owed in any category. This does not result in any billing transactions, nor does it result in any net payment amount. Since a credit balance means a payment was previously entered, the process reverses the payment out of the overpayment category and distributes it into the categories with a current balance, resulting in a net payment change of zero.

The recommended time in the processing cycle to use this process is after charges have been computed but before bills have been printed. The bills will then reflect the true balance owed in any charge category and the true remaining credit balance.

If this process is not used the balance on bills will still be correct, but will indicate a higher balance in the billed categories offset by a higher credit balance in the overpayment category.

Fill in the accounts to be used. Tab to **Processing Order**, usually this is done in **Account Number Order**. Tab to the cycle you are using, and ignore the other cycles by highlighting them and using the space bar to *Ignore* or *Use* each cycle. Click on Process and Update. This applies any amounts that have been overpaid or paid in advance by an account/customer to the new charges that were just computed.

## ACH Direct Debit

### Make Fund Transfer File

Go to **Activities, Payment Entry, Make Fund Transfer File**. See [Differences](#) from the DOS 5.X **Utility Billing** System. The **IMS Utility Billing** system supports accepting utility bill payments via direct debit using the NACHA file format standard. Direct debit is a system whereby a file containing a list of customers, including their bank number, account number, and amount owed are transmitted to a bank, and in turn the various customer accounts are debited for the amount of their utility bill and the utility's bank account is credited with the total amount. The payment is applied to the customer account at the time the file is created, and a report is printed listing the transactions.

This is very similar to the bill printing process. You put in the account range and choose to skip or not to skip closed accounts. Also you can choose to generate exception report and include rejected accounts in the summary window.

The direct debit procedure that creates an ACH transfer file skips accounts with a credit balance whether or not the user has specified a minimum balance in the setup window. The ACH download list is cleared when the user exits from the window. From the main menu, select **File, Activities, Payment Entry**.



Select the range of account numbers and billing cycles. A file sequence number supports sending more than one file on the same date to the ACH fund transfer window.

Before a fund transfer process may be started there must be a file name in the **Transfer File** field. This is to prevent processing the fund transfers before encountering an error when attempting to create the file.

The **Minimum Balance** must be 0 to prevent the Direct Debit file from containing credit amounts. The **Prenote** and **Approved** checkboxes function separately but may both be checked.

**Prepare to Create Fund Transfer File**

General

Account Range: Beginning: 0001-0001.00, Ending: 0006-0245.01

Processing Order: Account Number

Billing Cycles: Label: A, Status: Use

Transfer File (Existing file will be overwritten):

Include Prenote Accounts

Include Approved Accounts

File Sequence: 1

Prefix: 1

Settlement Date: 3/05/01

Skip closed accounts

Generate Exception Report

Include rejected accounts in "results" summary

Account	Notes	Due
Total		

Buttons: Process and Update, Process and Discard, Cancel

Remember that if the name is the same as the last time a file was created the previous file will be overwritten. This is not usually a problem because each file should be transmitted the day it is generated. The ACH enable flag and ACH prenote flags will be transferred. If you want to generate a file to test all prenote accounts, check the **Include Prenote Accounts** Box and uncheck the **Include Approved Accounts** Box.

If you choose **Prenote Accounts** the routing information will be included with no \$\$\$ transaction and no payments will be posted to accounts and no transfers will be made. Obviously if you uncheck both boxes no accounts will be processed.

If more than one ACH file is sent on the same day, from UB or any other source, the file sequence # must be different. Payroll's file sequence number is 1 so always use 2 or above. The prefix number is 3. These are for bank purposes and can change from city to city so we must make sure they are in before the file is created. The settlement date is what you want the debit effective date to be. Check with your bank for their criteria on this.

The ACH file will be created in the directory and with the name you specified and a report will print from **Utility Billing**.

For each account that is not flagged for **Prenote** the current balance of the account will be paid, with payment distribution made according to the standard rules and configuration. The payment distribution process is exactly the same as if you entered a manual payment by pressing the OK Button on the payment window. The account will be marked as paid on the current date according to the computer clock, not necessarily the **Utility Billing** system date. A report will be printed after the transfer file is created that will list all accounts and the payment amount of each.

A field named **Prefix** is in the setup window. The default value of this field is 1, but can have values from 1 to 9. This will be placed in byte position 41 of the batch header record. Its purpose is to provide a prefix to the company identification field. A field for **Desired Settlement Date** is also in the setup window. This value is placed in byte positions 70-75 of the batch header record.

The format of the descriptive date in byte positions 64-69 of the batch header record is YYMMDD. Different banks may require a different format. Advise IMS if your bank requires a different format.

## Accrue Interest

Go to **Activities, Accrue Interest**. Fill in the **Beginning** and **Ending Account Numbers**, the **Control Dates**, and the **Start** and **Stop Dates**. Choose *Use* or *Ignore* for the **Billing Cycles**, **Fees** and **Deposits**. You may edit the **Rate** and **Receiving Charges**. The popup list of charge categories is available via the F3 Key as well as the right Mouse Button when selecting the receiving charge for deposit interest.

Account Range		Billing Cycles		Fees and Deposits			
Beginning	0001-0001.00	Label	Status	Name	Status	Rate	Receiving Charge
Ending	0003-0179.00	A	Use	DEPOSIT-WATER	Ignore	0.0000	
Control Dates		B	Use	DEPOSIT IRRIGATION	Ignore	0.0000	
Eligibility Date	2/22/2000						
Start Date	2/22/2001						
Stop Date	2/22/2000						
Computation Results							
Account	Notes	Deposit	Interest				



When finished press the Compute and Apply Button.

## Print Cash Receipts Report

Go to **Standard Reports, Cash Receipts Report**. Once you have the payments entered, you may choose to print a Receipts Report.

## Refunds

The billing cycle selection is active when printing the refund pending report and printing checks. Additionally, the pending refund report header lists the billing cycle selections. Users should be aware that the basis for refunding credit balances is the **Account Number Range** and **Billing Cycle**. That is, if an account qualifies on this basis and has a credit balance, it will be refunded whether or not the account has a deposit flagged for refund.

### **Select Accounts for Refunding**

Go to **Activities, Refund Processing, Select Accounts for Refunding**. Accounts may be flagged for deposit refund based on the last time a bill was paid after the late date, even if late charges are not levied. The first entry in the **Charge Filter** box is labeled "Last Late Payment". If a date is filled in the refund selection process will use a different selection criterion. Instead of selecting based on no charges billed in the selected categories since the specified date, it will be based on no payments after the late date for the billing cycle since the specified date.

If a date is entered for the Last Late Payment line, any other dates that may be entered for charge categories will be ignored. The late date for the current billing cycle will be used thruout the survey period. Users who change the late date in the billing cycle to a different day each month will not be able to use this method. Note that the determining factor is the number of days from the start of the cycle to the late date, not the day of the month. The cycle month is determined by the date of billing transactions, and the late date is calculated as an offset in days from the start of the cycle.

A payment will be deemed as late even if it pays the outstanding balance but was made after the late date for the cycle. The outstanding balance calculations used in this process include only standard charges (impact fees and deposits are not included). The last late date is also displayed in the customer record on the transactions tab (File, Customers, Change, Transactions, Last Late). You will need to choose the **Beginning** and **Ending Dates**, whether to **Skip closed accounts**, and to **Set** or **Clear Flags** for the refunds. Choose *Use* or *Ignore* for the **Billing Cycles** and **Deposits**. Enter the date of the last billing. Press the Filter and Apply Button. The Refund will show up in the Refund column. The check date will be added to the stub portion of the deposit refund check form. Press Cancel when finished.

**Flag Deposit Refunds**

General

Account Range: Beginning 0001-0001.00 Ending 0001-0111.00

Billing Cycles

Label	Status
A	Use

Deposits

Name	Status	Last Paid
Deposit	Use	04/15/2000

Charge Filter

Name	Last Billed
Water	
Sewer	
PST	
Late Fee	
On/Off Charge	

Skip closed accounts

Action

Set Flag

Clear Flag

111 accounts processed

Account	Notes	Refund
0001-0007.00	No balance in any applicable deposit category	
0001-0008.00	Deposit	30.00
0001-0009.00	No balance in any applicable deposit category	
0001-0010.00	No balance in any applicable deposit category	
0001-0011.00	Deposit last paid on 3/06/2001	
Totals from 3 flaggings:		90.00

Filter and Apply Filter and Discard Cancel

### **Print Pending Refund Checks Report**

Go to **Activities, Refund Processing, Print Pending Refund Checks Report**. On the General Tab, fill out the **Beginning** and **Ending Dates**. Decide how to handle closed accounts and outstanding balances from the deposit refund. Choose *Use* or *Ignore* for the **Billing Cycles** and **Refund Flags**. Select what amount you want to be the **Minimum Refund Amount** and whether to **Include rejected accounts in the "results" summary**. You may substitute the service address for the billing address.

The field, **Minimum refund check amount** sets the cutoff for printing a check. A refund check amount for any customer consists of the total amount of deposits less the outstanding balance (if **Pay outstanding balance from deposit refund** is checked), plus any credit balance (if **Refund overpayments** is checked).

If this amount is less than or equal to the **Minimum refund check amount**, the refund will be processed but no check will be printed. Be aware that the customer record will show that the full deposit amount was refunded and there will be no accounting for the residual refund amount for which no check was printed.

**Prepare and Print Refund Checks**

General | **Overpayments** | Print Preview

- Account Range  
Beginning: 0001-0001.00  
Ending: 0003-0179.00

Skip closed accounts  
 Pay outstanding balance from deposit refund

Minimum refund check amount: 0.00

Include rejected accounts in "results" summary

Refunding Results

Account	Notes	Refund	Paid
Total			

Buttons: Print Refund Report, Cancel

The tracking number of the deposit payment is included in this report. However, users should note this caveat: The report consolidates all deposit amounts in a single field. If a customer had more than one type of deposit and the deposits were paid in different transactions, the tracking number shown would be for only one of the deposits.

On the Overpayments Tab, decide if you want to refund overpayments. The process setup window displays a billing cycle selection list. One field **Minimum overall credit balance for refund** is displayed only if the user has checked the **Refund overpayments** box. This limit applies only to the amount of credit balance in an account without regard to deposit.

**Prepare and Print Refund Checks**

General | **Overpayments** | Print Preview

Refund overpayments

Minimum overall credit balance for refund: 0.00

Refund Charges

Name	Status
Water	Use
Sewer	Use
PST	Use
Late Fee	Use
On/Off Charge	Use
House Visit	Use
Bad Check Charge	Use
Other	Use
Cut-On Charge	Use
Credit Balance	Ignore

Buttons: Print Refund Report, Cancel

When the **Refund overpayments** checkbox is cleared and the **Pay outstanding balance from deposit refund** checkbox is checked, the deposit amount is applied to outstanding balances but credit balances are not added to the refund amount.

On the Print Preview Tab check which **Preview** method and **Initial Display** you prefer. On any one of these 3 tabs you may press the Print Refund Report when you have all the information filled out. See a [sample](#) of this report.

### **Print Refund Checks**

Go to **Activities, Refund Processing, Print Refund Checks**. This screen has the same information on it as the Print Pending Refund Checks Report above, except for the addition of a couple of boxes to consider on the General Tab and an additional Summary Tab. On the General Tab decide if you want to check the **Generate Exception Report** box. Fill in the **Starting Check Number**. You may substitute the service address for the billing address.

**Prepare and Print Refund Checks**

General | Overpayments | Summary | Print Preview

Account Range:  Skip closed accounts  
 Pay outstanding balance from deposit refund

Beginning: 0001-0001.00  
Ending: 0001-0001.00

Minimum refund check amount: 0.00

Generate Exception Report  
 Include rejected accounts in "results" summary

1 account processed, 1 check printed

Account	Notes	Refund	Paid
0001-0001.00	Refund from overpayment	6.77	
Total from 1 item		6.77	0.00

Buttons: Refund and Apply, Refund and Discard, Cancel

Fill out the [Overpayments Tab](#).

Refund and Apply

On the Summary Tab simply assign a sub-title name to the Summary Report. Press the Refund and Apply Button on any one of these 4 tabs when finished. See a [sample](#) of this report.

### Examine Check Register

Go to **Activities, Refund Processing, Examine Check Register**. You may view the checks written by check number or by date. You may highlight a check and press the Void or Reconcile Button to void the check or to reconcile it.

Number	Date	Amount	Account	Code	Reconciled	Voided
1	6/02/2000	7.48	0005-0245.01	Automated		
1	6/02/2000	7.48	0005-0245.01	Automated		
1	10/30/2000	11.61	0005-0051.01	Automated		
2	11/13/2000	14.17	0002-0128.10	Automated		11/27/2000
3	6/07/2000	13.54	0005-0174.01	Automated		
3	11/27/2000	30.00	0002-0128.10	Automated		
4	4/15/2001	17.17	0001-0008.00	Automated		
5	4/15/2001	6.77	0001-0001.00	Automated		
2732	6/19/2000	71.60	0001-0200.00	Hand		7/05/2000
2733	8/01/2000	43.77	0005-0211.01	Automated		

Check/Tracking Number:

Record 1 of 9

Buttons: Insert, Change, Void, Reconcile, Delete, Close

To change information or insert new press the Change or Insert Button. On the General Tab choose between *Hand* or *Automated* for **Code**.

Update Check Register

General | Record

Code: Automated | Amount: 7.48 | Date: 6/02/2000 | Number: 1 | Reconciled: | Voided: |

Customer Account: 0005-0245.01

What	Type	Code	Method	Date	Amount	Tracking
Refund	New	Automated	From Deposit	6/02/2000	30.00	1
Payment	New	Automated	From Deposit	6/02/2000	22.52	1

Deposit Refund 1 of 1

Charge	Amount
Deposit	30.00

Overpay Refund 1 of 13

Charge	Amount
Water	22.10
Sewer	
PST	0.42
Late Fee	
Service Charge	
On/Off Charge	
House Visit	
Backflow	

Buttons: Prior, Next, OK, Cancel



Enter the **Amount** of the check, the **Date** of the check, the check **Number**, the date **Reconciled** and **Voided** and the **Customer Account Number** for which the check was written. Enter the amount of the **Deposit** and **Overpay Refunds**.

### Reconcile Outstanding Checks

Go to **Activities, Refund Processing, Reconcile Outstanding Checks**. You may choose to reconcile a check here instead of through the Check Register. Enter the **Earliest, Latest** and **Reconcile Dates**.

**Reconcile Refund Checks**

General

Earliest Date: [ ] Latest Date: [ ] Reconcile Date: 4/15/2001

Outstanding Checks				
Number	Date	Amount	Account	Code
3	6/07/2000	13.54	0005-0174.01	Automated
4	4/15/2001	17.17	0001-0008.00	Automated
5	4/15/2001	6.77	0001-0001.00	Automated
2733	8/01/2000	43.77	0005-0211.01	Automated
Total from 4 checks		81.25		

Seek Check Number: [ ]

Reconciled

Reconciled Checks		
Number	Date	Amount
1	11/30/2000	11.61
3	11/27/2000	30.00
Total from 2 checks		41.61

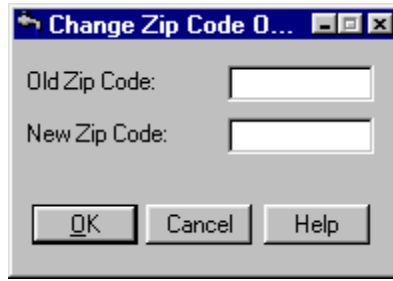
Seek Check Number: [ ]

Highlight the check, or seek the check if you know the check number by entering it in the box on the lower left hand corner. Press the Reconcile Button. To unreconcile a check tab to the Reconciled Tab and highlight the check. Press the Unreconcile Button. Press the Close Button when finished.

## **Program Utilities**

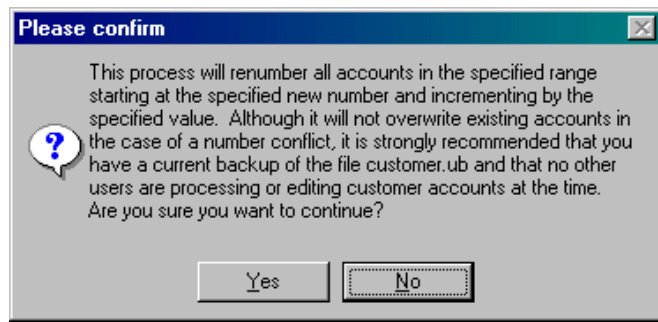
### Change Zipcodes

Go to **Utilities, Account Utilities, Change Zipcodes**. This changes all occurrences of a zipcode to a new zipcode.

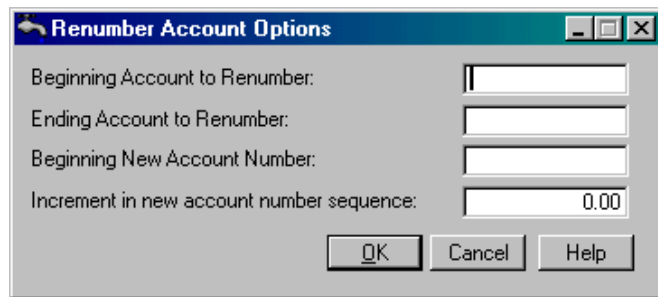


### **Renumber Accounts**

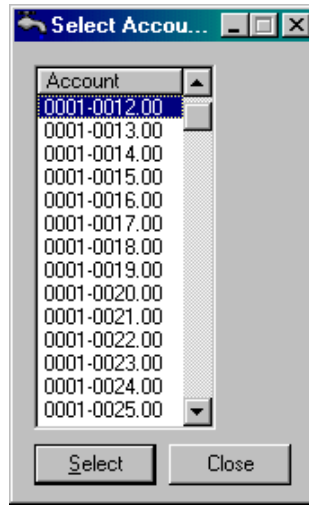
Go to **Utilities, Account Utilities, Renumber Accounts**. This will renumber a group of accounts. It is available to users with *System Update* or higher access. It will not allow the renumbered accounts to span multiple books or overwrite an existing account. You will be asked to confirm this process before continuing.



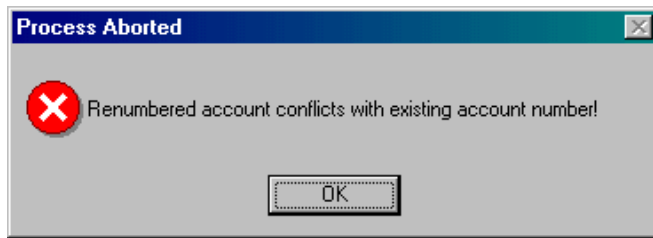
Enter the **Beginning** and **Ending Accounts to Renumber**, the **Beginning New Account Number** and the **Increment** you want the numbers to increase by.



F3 will bring up a list of the accounts to choose from  
Press Select when you have the correct one  
highlighted.



If you encounter an error the process will be aborted  
and tell you so. If there are no errors a progress  
window will show.



### Check Zipcodes

Go to **Utilities, Account Utilities, Check Zipcodes.**  
This utility prints a list of active accounts with missing  
or invalid zipcodes. Accounts with the **No Charges**  
and **No Readings** flags set are not included.

Run: 11/01/02  
11:16AM  
Page: 1

**Hotville Water Company**  
**Utility Billing Accounts with Missing or Invalid Zipcodes**

Account Number	Customer Name	Problem
0003-0033.00	Fernando Gagnon	Missing Zipcode
0003-0060.00	Robert Robinson	E42 3E4 Invalid Zipcode
0003-0133.00	Kennith Clark	4114 Invalid Zipcode

### Set Rate Classes

Go to **Utilities, Rate Class Utilities, Set Rate Classes**.

This utility allows you to *Add, Ignore* or *Remove* rate classes. Select your **Account Range** and then tab to the **Rate Classes** box. Use your spacebar to select which option for each line of the rates shown. Decide whether you want to show rejected accounts in the results list. When finished press the Process Button.

**Add or Remove Rate Classes**

General

Account Range  
Beginning  
0001-0001.00

Ending  
0001-0111.00

Show rejected accounts in "results" list

111 records processed, 0 records edited

Account	Notes
0001-0001.00	No editing needed for account 0001-0001.00
0001-0002.00	No editing needed for account 0001-0002.00
0001-0003.00	No editing needed for account 0001-0003.00
0001-0004.00	No editing needed for account 0001-0004.00
0001-0005.00	No editing needed for account 0001-0005.00
0001-0006.00	No editing needed for account 0001-0006.00
0001-0007.00	No editing needed for account 0001-0007.00
0001-0008.00	No editing needed for account 0001-0008.00

Rate Classes 1 of 16

Name	Status
Late Fee	Ignore
Sewer Com.	Ignore
sewer 1 1/2"	Ignore
Sewer 5/8" X 3/4"	Ignore
Sewer	Ignore
Multi-Family	Ignore
Water 2"	Ignore
Water 1 1/2"	Ignore

[PROCESS] [Cancel]

### Set Declining Balances & Payments

Go to **Utilities, Race Class Utilities, Set Declining Balances & Payments**. Select the **Beginning** and **Ending Account Range**. Enter the **New Balance** and **New Payment Amounts**. Tab to the **Updating Treatment** and select from **New Balance Adds, New Balance replaces**.

You may also check the **Adjust for credit balances** box. Tab to the **Rate Classes** and highlight which one you want to adjust. Select from *Ignore* and *Update* by using your spacebar in the **Status** column. If you want rejected accounts to show, check that box.

**Set Declining Balance and Payment Amounts**

General

-Account Range: Beginning: 0001-0001.00, Ending: 0001-0111.00

New Balance: 0.00, New Payment: 0.00

Rate Classes 0 of 0

Updating Treatment:

- New balance adds to old
- New balance replaces old
- Adjust for credit balances

Show rejected accounts in "results" list

111 records processed, 0 records edited

Account	Notes
0001-0001.00	No suitable rate classes
0001-0002.00	No suitable rate classes
0001-0003.00	No suitable rate classes
0001-0004.00	No suitable rate classes
0001-0005.00	No suitable rate classes
0001-0006.00	No suitable rate classes
0001-0007.00	No suitable rate classes
0001-0008.00	No suitable rate classes

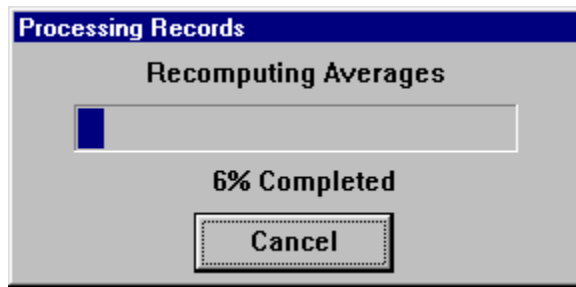
Process Cancel

Press the Process Button when finished.

### **Recompute Average Consumption**

**Go to Utilities, Meter and Reading Utilities, Recompute Average Consumption.** The method of computing average consumption is a 12 month exponential moving average. A 12 month moving average is simply the sum of monthly consumption for the last 12 months divided by 12. An exponential moving average is calculated by summing 11/12 of the previous average to 1/12 of the latest consumption. The benefits of the exponential moving average include: it is not as greatly disturbed by unusually high or low consumption, it weights newer consumption values more than old, and it is not influenced by the dropping of a divergent consumption at the oldest end of the averaging period. Estimated readings are ignored because they were originally calculated from the average at that time. Rollovers are also ignored. While a rollover is theoretically valid, there is also a possibility that it was an incorrect reading. If an average consumption seems high after a recompute, the individual readings should be examined for errors.

It will perform this process for the entire database. It will take a lot of time to process, and should be done when the **Utility Billing** system is not in use otherwise.

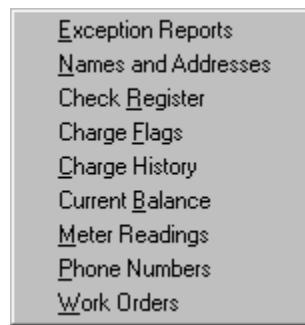


### **Purge Data Files**

There are 9 Purge utilities.

### **Purge Exception Reports**

Go to **Utilities, Purge Data Files, Purge Exception Reports**. This utility will purge obsolete exception reports. It will ask for a date, which will be the most recent report date to purge. The default date will be the last day of the year 3 years ago. For example, if the current year is 2002 it will default to December 31, 1999. The date can be changed to any date desired. The process will delete all exception reports dated the specified date or earlier. The other purge utilities follow the same procedures.

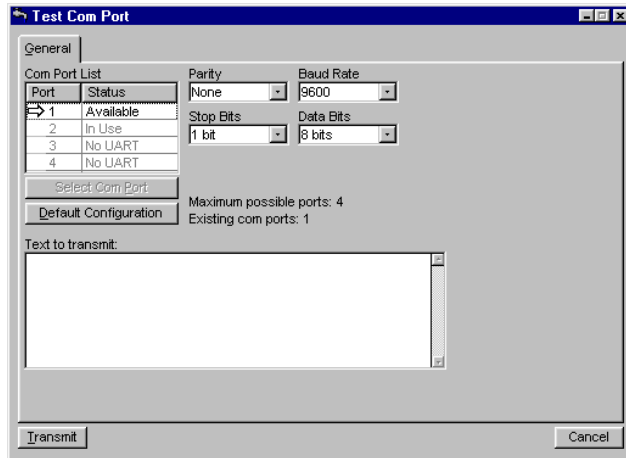


## **Com Ports Test Com Port**

Go to **Utilities, Test Com Port**. Choose which Com Port you will be using.

**Transmit**

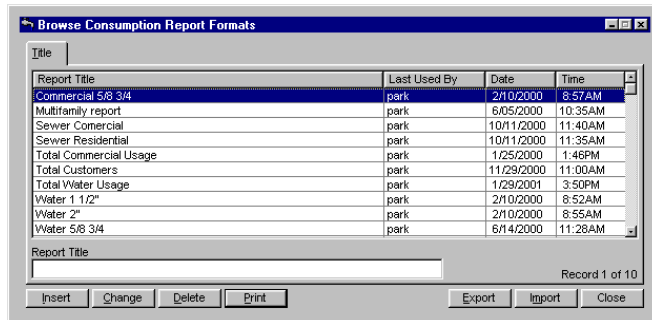
Select the appropriate **Parity**, **Baud Rate**, **Stop Bits** and **Data Bits**, determined by what your computer is set to. Press the Transmit Button when you are finished entering the data.



## Standard Reports

### Consumption Report

Go to **Reports, Standard Reports, Consumption Report**. Once the readings are all entered press the Print Button to print the Consumption Report. The breakdown reports do not include accounts that are closed, have the **No Charges Flag** set, or have the **No Readings Flag** set. The report prints a breakdown summary of meter count and consumption by the user fields and by book. To change information fill out the following information on all of the different reports. The maximum value for dollar amounts in windows and reports is +/- 999,999.99.



On the General Tab fill in the **Report Title**, the **Print Order** (only Standard is currently available here), the **Metered Service**, and the **Unusual Use Filters**. You may check the **No Current Readings** box and the **Filter for Estimated Readings** box. The **Billing Cycle** box allows you to choose *Use of Ignore*. Select a **Normal Date Range**. Accounts may be included or excluded based on account type (residential or commercial), location (inside or outside city limits), user flag one, and user flag two. Selection on user flag one or two is available only if the flag has been assigned a name using **Setup, Configuration, Index Keys, Account Flags**. You may add meter size to the consumption report.

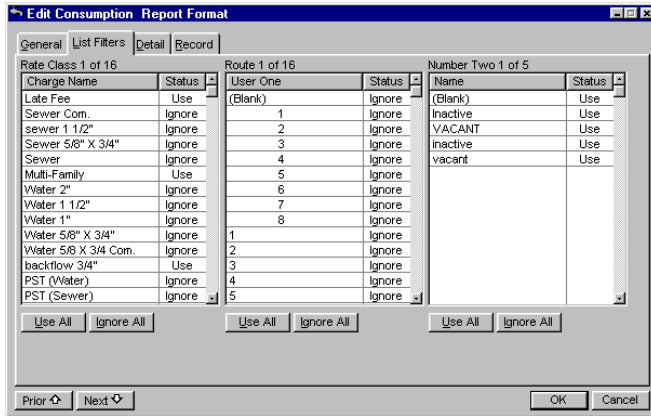
The screenshot shows the 'Edit Consumption Report Format' dialog box with the 'General' tab selected. The 'Report Title' is 'Commercial 5/8 3/4'. The 'Print Order' is 'Metered Service' and the 'Account Number' is 'Water'. Under 'Normal Date Range', 'Selected at run-time' is selected. Under 'Unusual Use Filters', 'Below Avg' and 'Above Avg' are empty, and 'Minimum Used' and 'Maximum Used' are also empty. The 'Billing Cycle 1 of 1' table shows 'A' for Label and 'Use' for Status. Checkboxes for 'No current readings', 'Filter for Estimated Readings', and 'Disable Rounding' are present. There are also checkboxes for 'Final Bill' (Include/Exclude), 'Sewer' (Include/Exclude), 'Account Type' (Residential Only/Commercial Only), and 'Location' (Inside Only/Outside Only). At the bottom, there are 'Prior', 'Next', 'OK', and 'Cancel' buttons.

The settings are controlled by checkboxes located on either the General or List Filters tab. Only one of a checkbox pair may be checked.

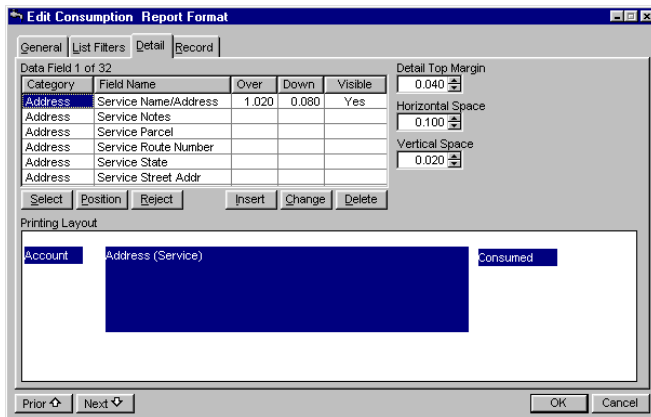
For example, if **Residential Only** is checked then **Commercial Only** cannot be checked. If both checkboxes of a pair are unchecked the attribute will be ignored and all accounts that qualify otherwise will be included in the report. When finished click on the List Filters Tab.

On the List Filters Tab, the Use All or Ignore All Button is available for **Rate Classes**, **Route Numbers** and **Service Classes**.





On the Detail Tab browse and select fields for inclusion in the report. To add it, press the Select Button and it will add it to the large text box. The Reject Button will take it back out. With the Position Button you may then click and drag the dark blue portion that appears in the text box to where you want it. The numbers in the Down and Over columns adjust themselves accordingly. Press the OK Button when finished. Note: The various values of the user fields in the main **Customer** browse window are tabulated by the same background process that [counts](#) the number of active and inactive customers in the file.



If the consumption report is printed before this tabulation is complete you may not see all the values of the user fields in the selection tables. The breakdown option by a user field is not available if no name has been assigned to the field in **Setup, Configuration**, in the Index Keys Tab. This report has an option to include duplicate meters.

If this option is checked the meter records should have the installed and removed dates filled in as appropriate to assure accuracy in reporting the number of meters in service as of a specific date. Consumption will generally be accurate even if these fields are not filled in since there will be no readings for removed meters or meters not yet installed.

Select the correct report to use and press Print. On the General Tab fill in the accounts to run the report for (1-1 will get you the first account and then tab and fill in the last account, such as 1-9999). Then tab to the **Beginning Date** - and fill in the date that was used for the meter entry date.

The screenshot shows a dialog box titled "Process Consumption Report" with three tabs: "General", "Notes", and "Print Preview". The "General" tab is selected and contains the following fields:

- Account Range:** Beginning: 0001-0001.00, Ending: 0001-0001.00
- Date Range:** Beginning: 2/23/2001, Ending: 2/23/2001
- Time Period Selection:** Today Only, This Week, This Month, Last Month

Below these fields are two checkboxes:

- Print summary pages only
- Show rejected accounts in "results" summary

At the bottom, there is a section for "Processing Results" with a table that is currently empty:

Account	Meters	Reads	Consumed	Notes

At the bottom of the dialog are three buttons: "Process and Print", "Process and Discard", and "Cancel".

To see the detail, account by account, make sure you have removed the check mark from the **Print Summary pages only** selection. Print the report, review it for consumption that looks too high or too low, and check out meter readings to make sure they were properly entered.

On the Notes Tab you may enter in comments to appear in the report.

On the Print Preview Tab you may select the **Preview Method** and **Initial Display**.

A special case option is in the [Consumption Report](#). If the **Beginning and Ending Date** is the same, the report will print the number of meters belonging to inactive accounts on the date specified rather than the consumption.

The **Unusual Use Filters** should be left blank, and the **No Current Readings** box should be checked. You may **Filter for Estimated Readings** or **Disable rounding** of meter readings and consumption. When checked, the consumption will then be based on the raw meter readings. The multiplier will not be disabled.

In order for consumption to be computed the **Beginning and Ending Date** specified for the report must encompass a consecutive pair of meter readings, usually a month apart. A **Beginning and Ending Date** of the same value will yield no consumption anyhow because it cannot be measured. Thus, the column normally occupied by the consumption is used to show the number of inactive meters existing on that date.

The first count column is the total number of active and inactive meters and the second column (with a heading of **Inactive**) is the number of inactive meters. The number of active meters may be determined by subtracting one from the other. An inactive meter is defined as a meter that is not flagged as a duplicate and belongs to an account that was inactive as of the date specified for the report. When the Consumption Report is generated, customers with the **No Charges Flag** set are considered inactive. This applies only to the special version of the report produced when the beginning and ending date are identical. (In this mode the report prints meter count instead of consumption).

An account is deemed inactive if it has a date in the date closed field that is prior to the date specified for the report. Accounts that have a date opened after the date of the report are counted as active. This may sound incorrect at first thought, because if the account had not yet been opened at the date of the report then it shouldn't be counted. The reason such accounts are included:

They would typically be accounts that physically existed at the report date, but under another customer name and/or account number. If the original account identity is still in the database its meter(s) will have been flagged as duplicates and therefore not counted. To not count the current incarnation of the account because it did not exist as of the report date would in such cases result in understating the number of meters that existed at the date of the report.

If the installed and removed dates in the meter records are properly filled out then there will be no overcounts resulting from counting accounts started after the report date. If a meter has a value in the **Installed** field after the date specified it is not counted. If a meter has a value in the **Removed** field that is before the date specified it likewise will not be counted.

The meter count produced by the report will be accurate to the extent that the data is accurate. It will be 100% accurate if:

1. The report date requested is the current date.
2. All closed accounts have a date in the **Closed Date** field.
3. Add active accounts have a date in the **Start Date** field.
4. All removed meters have a date in the **Removed** field.
5. All other meters have a date in the **Installed** field.

If the first item is not true (report date is in the past) the overall meter count will still be accurate if the other four items are true, but the relative number of active and inactive meters may not be correct.

For example:

The requested report date is in the past. The start date for a customer is after the report date, and is therefore counted as active. The previous customer for the meter had been closed prior to the report date and thus the meter belonged to an inactive account at the time of the report. The result is an undercount of inactive meters and overcount of active meters.

### **Special Version of the Consumption Report**

Go to **Reports, Standard Reports, Consumption Reports**. Highlight the report, select Print. Set **Beginning** and **Ending Date** the same (Today Only Button will do this), and **No current readings** checked. The Special Consumption Report attempts to count as of the date requested, and the date will affect the count. Thus the value of the date opened and date closed fields (**Customers**, General Tab) determine whether or not an account is counted as active, inactive, or not counted, and the values of the date installed and date removed fields affect whether or not a meter is counted.

(If the date removed is after the date requested for the report, the meter is counted. Likewise, if the date installed is after the requested date the meter is not counted. The date started and date closed fields similarly affect whether or not an account is counted.) Even if the report is run for the current date there may be minor differences in the count if a future date was entered in a closed or removed field by mistake.

See a [sample](#) of these two reports.

General | Notes | Print Preview

Account Range: Beginning 0001-0001.00 Ending 0003-0179.00

Date Range: Beginning 2/19/2001 Today Only This Week This Month Last Month

Print summary pages only  
 Show rejected accounts in "results" summary

Processing Results

Account	Meters	Reads	Consumed	Notes

Process and Print | Process and Discard | Cancel

*Adjustments to Customer Accounts should be made prior to printing bills.*

### **Billing Reports**

**Go to Reports, Standard Reports, Billing Reports.**

This report includes a breakdown by book in the report summary page. This report will show you what billing charges have been added to each account, and you should check this for accuracy. It prints a meter summary block for each meter for the account when this field is selected. Highlight the report to print. Press the Change Button to make adjustments. Press the Print Button to print.

Browse Billing Report Formats

Report Title	Last Used By	Date	Time
11 1/2" commercial billing report	park	6/21/2000	2:47PM
2" commercial billing	park	6/21/2000	2:46PM
3/4" X 5/8" Commercial Billing	park	6/21/2000	2:43PM
Billing Report	park	1/29/2001	3:51PM
Commercial Billing Report	park	1/03/2001	12:18PM
Edit List	park	12/27/2000	11:24AM
Late	park	1/25/2001	11:25AM
Late Charges	park	12/26/2000	11:23AM
Multi Family	IMS	4/15/2001	5:48PM
Residential Billing Report	park	1/03/2001	12:18PM

Report Title: \_\_\_\_\_ Record 9 of 13

Insert | Change | Delete | Print | Export | Import | Close

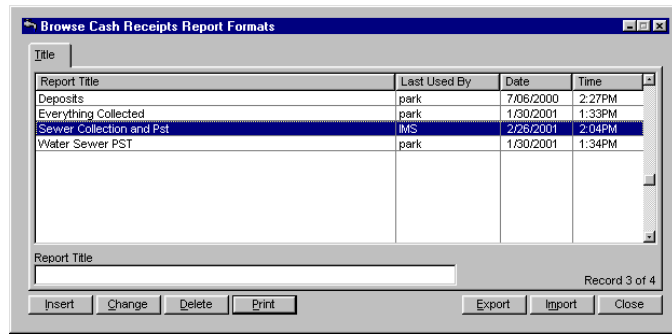
On the General Tab fill in the accounts to be used and tab to the date range. The dates to be used should be the dates used when computing, such as March 1. Click on Process and Print to run the report. When the report is printed to your screen, press the button with the picture of the printer on the preview bar and the report will print to the laser printer. Click on Cancel to come out of that window. After the report has been reviewed you are ready to print bills.

To load the bill cards to the printer for printing: start with the card that has the star on the left side, and fit that into the tractors/feeders. Then push the Load Button, which will position the paper/bill card at the right height. Make sure you are using the Courier 10 font and the 10 pitch selection, and the Online light is on.

Go to **File, Print Setup**, select the *Generic Text Only Printer* and tab to the **Source** line and select the *Continuous No Page Br* option. Then your program is ready to print to the Panasonic printer. See a [sample](#) of this report.

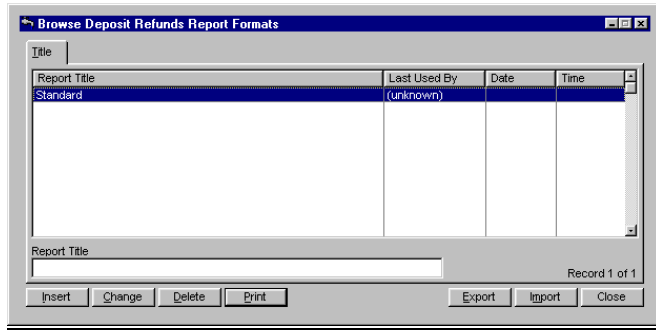
### Cash Receipts Reports

Go to **Reports, Standard Reports, Cash Receipts Reports**. The Cash Receipts Report prints a breakdown by book in the report summary page. You may print by *Account Number, Date, Order of Entry, or Tracking Number*. Highlight the report to print. Press the Change Button to make adjustments. Press the Print Button to print. See a [sample](#) of this report.



### Refund Reports

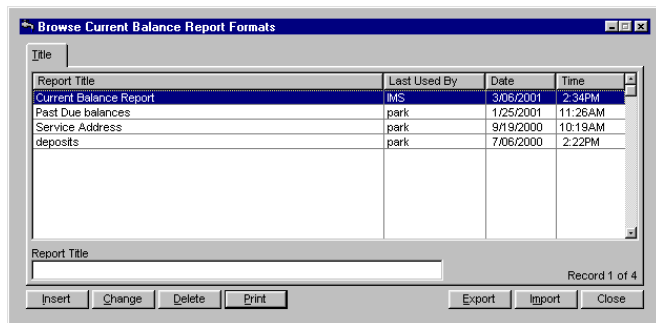
Go to **Reports, Standard Reports, Refund Reports**. The Refund Report includes a breakdown by book in the report summary page. Highlight the report to print. Press the Change Button to make adjustments. Press the Print Button to print. See a [sample](#) of this report.



### **Current Balance Reports**

Go to **Reports, Standard Reports, Current Balance Reports**. This report locates accounts that have multiple balance records in the same category and contains a breakdown by book. It may be printed in order of *Service* or *Billing Street Address* or *Customer Name*, or *Account Number*. Highlight the report to print. Press the Change Button to make adjustments. Press the Print Button to print.

The **Utility Billing** database maintains a current balance in each charge category for each customer account. It also retains a list of transactions by customer account and charge category. Each time a transaction is added the current balance in the appropriate charge category is updated.



With this system the balance at any time in the past can be calculated by starting with the current balance and "playing back" the transactions in reverse order until the desired date is reached. The purpose of this utility



is to perform a transaction playback for all accounts and find any that don't have a zero beginning balance. A non-zero beginning balance is usually the result of applying payments or credits to a different category than billed.

*This utility processes a large amount of data and thus takes a long time to complete its work. The processing rate on a moderate size database runs about one second per account.*

For each charge category it fetches the ending (current) balance in the category for the account. It then reads all billing and payment transactions for the category in reverse (last first) order. For each transaction it calculates and saves the balance as it stood after the transaction. Reversed transactions are ignored. When all transactions have been processed, the beginning (when the account was added) balance should be zero.

If it is not zero, the next process is executed: Starting with a balance of zero in the charge category, the transactions are read again, this time in chronological (first to last) order. After each transaction the forward balance is compared to the backward balance saved in the first pass. If they differ, and if the transaction date is within the date range specified, it prints the transaction that caused the balance to be incorrect. It then adjusts the forward balance to match the backward balance and continues to read transactions in case there is more than one occurrence.

If a rollback date is specified for a current balance report it reflects the balance at the end of the specified date rather than the beginning of the day (end of previous day). The summary page of the this report includes columns for debit and credit balance by book. See a [sample](#) of this report.

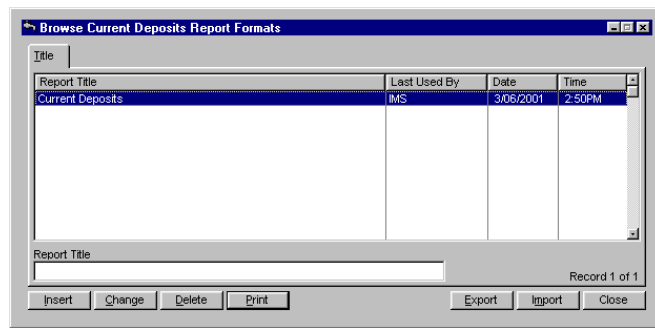
### **Current Deposits Report**

Go to **Reports, Standard Reports, Current Deposits Report**. The current deposit report has the option of printing a breakdown by book and may be printed for specified rate classes. The book breakdown is in the summary page, and lists the total of all fees and deposits by book. If a deposit was not paid all at once

the date printed will be the date of the most recent payment of the specified deposit. Highlight the report to print. Press the Change Button to make adjustments. Press the Print Button to print. It may be printed for a specified rollback date. If a rollback date is specified, the deposits listed will be as existed at the rollback date rather than the current date..

The tracking number of the deposit payment is included in this report. When the field selected for the report detail is category **Deposit Balance**, field Category Breakdown, the breakdown will include a new column to the right containing the tracking number if any.

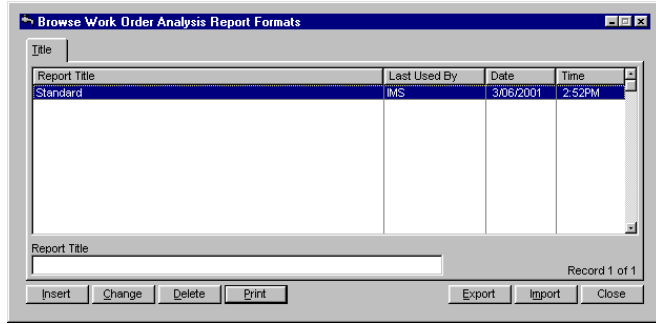
The order of columns in this detail is deposit name, deposit amount, deposit date, and tracking number. If there is no deposit date value there will be no tracking number because the tracking number is that of the same transaction from whence came the deposit date (the payment transaction for the deposit). See a [sample](#) of this report.



### **Work Order Reports**

Go to **Reports, Standard Reports, Work Order Reports**. The Use All/Ignore All Button is available on each different value of the user 1 and user 2 fields in the customer record for rate classes and work order types.

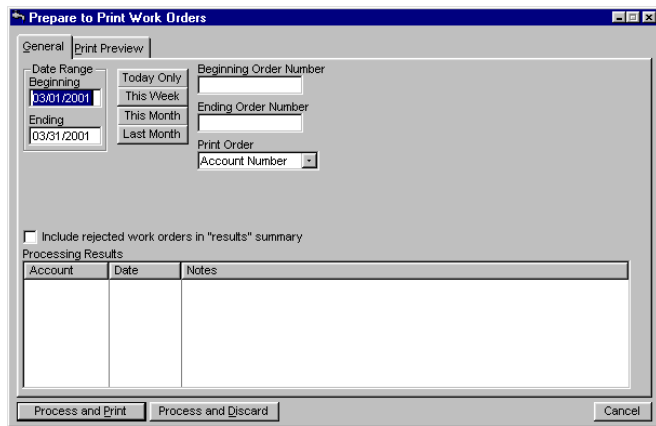
Highlight the report to print. Press the Change Button to make adjustments. Press the Print Button to print. The **Work Crew Range** is an alphabetic list of names in the **Beginning** and **Ending** fields.



See a [sample](#) of this report.

### Work Orders

Go to **Reports, Standard Reports, Work Orders**. Enter the **Beginning** and **Ending** Date Range. Select the **Beginning** and **Ending Order Numbers** and the **Print Order**. Press the Process and Print Button to print. See a [sample](#) of this report.



## Meter Sheets

Go to **Reports, Standard Reports, Meter Sheets**.

Enter the **Account Range** and **Print Order**. Where there is no meter or no meter reading, those accounts are simply skipped. Meter sheets may be printed in either account number or service address order.

Choose *Use* or *Ignore* for the Billing Cycle. Press the Process and Print Button to print. See a [sample](#) of this report.

**Print Meter Sheets**

General | Print Preview

-Account Range: Beginning  
Ending: 0001-0001.00

Print Order: Account Number

Label	Status
A	Use

Show rejected accounts in "results" summary

1 record processed, 1 record to be printed

Account	Notes
0001-0001.00	

Process and Print | Process and Discard | Cancel

## Check Register

Go to **Reports, Standard Reports, Check Register**.

Enter the **Beginning** and **Ending Account** and **Date Range**. Select the **Print Order**, whether to *Use* or *Ignore* on the **Billing Cycles** and whether or not to include voided and reconciled checks. Press the Process and Print Button to print. See a [sample](#) of this report.

**Check Register Report**

General | Print Preview

-Account Range: Beginning  
Ending: 0001-0002.00

Date Range: Beginning  
Ending: 3/01/2001

Today Only: This Week  
This Month  
Last Month

Print Order: Check Number

Label	Status
A	Use

Include Reconciled Checks  
 Include Voided Checks

Show rejected checks in "results" summary

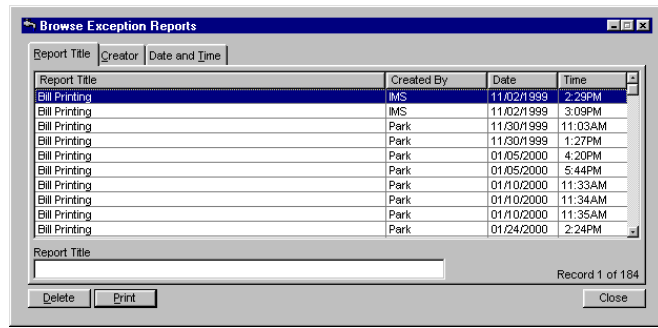
1 checks processed, 0 checks to be printed

Account	Check	Amount	Notes
0001-0008.00	4	17.17	Account number of 0001-0008.00 is outside the chosen range

Process and Print | Process and Discard | Cancel

### Exception Reports

Go to **Reports, Standard Reports, Exception Reports**. They generally deal with consumption and are used as a tool to identify customers whose readings show they used a large amount of water (exception to the norm). The cause could be improperly read meters, leaks, or simply high usage. These reports will help them head off problems. Highlight the report to print. Press the Process and Print Button to print.



The screenshot shows a window titled "Browse Exception Reports" with a table of reports. The table has columns for Report Title, Creator, Date and Time, Created By, Date, and Time. The first row is highlighted in blue.

Report Title	Creator	Date and Time	Created By	Date	Time
Bill Printing			BMS	11/02/1999	2:23PM
Bill Printing			Park	11/02/1999	3:08PM
Bill Printing			Park	11/30/1999	11:03AM
Bill Printing			Park	11/30/1999	1:27PM
Bill Printing			Park	01/05/2000	4:20PM
Bill Printing			Park	01/05/2000	5:44PM
Bill Printing			Park	01/10/2000	11:33AM
Bill Printing			Park	01/10/2000	11:34AM
Bill Printing			Park	01/10/2000	11:35AM
Bill Printing			Park	01/24/2000	2:24PM

Below the table is a search field labeled "Report Title" and a status bar indicating "Record 1 of 184". At the bottom are buttons for "Delete", "Print", and "Close".

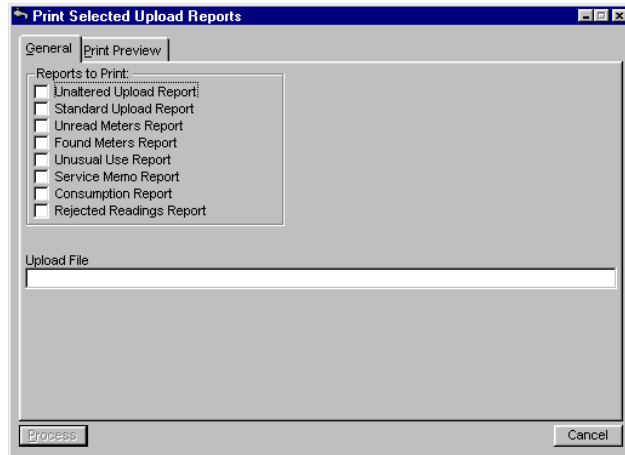
See a [sample](#) of this report.

### Upload Reports

Go to **Reports, Standard Reports, Upload Reports**. Choose from the following 4 reports:

<u>I</u> trakker 9440 Upload Reports
<u>I</u> tron Upload Reports
<u>E</u> ZRoute Upload Reports
<u>B</u> adger "Dialog" Upload Reports

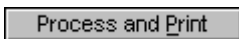
Make sure that you have the correct **Upload File** name and the report checked that you want. Press the Process Button when you are ready to print.



## Specialty Reports

The Specialty Reports have several parts which are the same in each report. On the General Tab for each report, fill in **Beginning** and **Ending Account Range**. Once you hit the Process Results Button the **Processing Results** box will have information in it. You can close the Print Preview and it will take you back to look at them if you like. Most have a **Print Order** and **Billing Cycles** where you have to select *Use* or *Ignore*. Some have a **Beginning** and **Ending Date Range** or 4 buttons, Today, This Week, This Month, Last Month from which to choose.

When you press one of these the dates will automatically be inserted for you. Most will have the box to check to **Show rejected accounts in the "results" summary**.



All have the Process and Print Button which will finish up the report.

### Priority Services Report

Go to **Reports, Specialty Reports, Priority Services Report**. This report includes a box which you may check for report specific comments if you want to include those in the report. Press the Process and Print Button. See a [sample](#) of this report.

Priority Services Report

General | Print Preview

Account Range: Beginning: 0001-0001.00 Ending: 0006-0245.01

Print Order: Account Number

Label	Status
A	Use

Use report-specific comment

Show rejected accounts in "results" summary

901 records processed, 0 records to be printed

Account	Notes
0001-0001.00	Life-support flag not set
0001-0002.00	Life-support flag not set
0001-0003.00	Life-support flag not set
0001-0004.00	Life-support flag not set
0001-0005.00	Life-support flag not set
0001-0006.00	Life-support flag not set
0001-0007.00	Life-support flag not set
0001-0008.00	Life-support flag not set

Process and Print | Process and Discard | Cancel

### **Dormant Accounts Report**

Go to **Reports, [Specialty Reports, Dormant Accounts Report](#)** for the required information to fill out. Press the Process and Print Button. See a [sample](#) of this report.

### **Bills per Zipcode Report**

Go to **Reports, [Specialty Reports, Bills per Zipcode Report](#)**. On the General Tab this report asks you to choose a 5 or 9 digit zipcode. Press the Process and Print Button. See a [sample](#) of this report.

### **Rate Class Breakdown**

Go to **Reports, [Specialty Reports, Rate Class Breakdown](#)**. This is a generic report that can be used by all customers. The name of the report is based entirely on the name assigned to the **User Key #2** under **Setup, Configuration**. If the key name is left blank (the system will assign it a name of **Number Two**), the report will not appear on the menu. Fill in the **Consumption Range**. This report has an **Ignore Multipliers** Box you have the option of checking. There are also **Rate Classes** and **Rate Exemptions** to mark with *Use* or *Ignore*.

The Industry Class Breakdown Report prints a separate breakdown for water and sewer inside/outside accounts. The rate classes used to identify whether accounts are inside or outside city limits are hard coded and cannot be changed by the user. Press the Process and Print Button. See a [sample](#) of this report.

### **Date-toDate Summary**

Go to **Reports, Specialty Reports, Date-toDate Summary**. The format is similar to the Year-to-Date Summary report except that it prints a single total by charge name for billings, payments, and refunds for a specified date range. See a [sample](#) of this report.

The screenshot shows a dialog box titled "Date-to-date Summary Report". It has two tabs: "General" and "Print Preview". The "General" tab is active. It contains two columns of input fields. The left column is labeled "Account Range" and has "Beginning" and "Ending" sub-labels. The "Beginning" field contains "0001-0003.00" and the "Ending" field contains "0006-0245.01". The right column is labeled "Date Range" and has "Beginning" and "Ending" sub-labels. The "Beginning" field contains "8/26/2002" and the "Ending" field contains "8/26/2002". Below these fields is a checkbox labeled "Show rejected accounts in 'results' summary" which is unchecked. Underneath is a section titled "Processing Results" containing a table with two columns: "Account" and "Notes". The table is currently empty. At the bottom of the dialog are three buttons: "Process and Print", "Process and Discard", and "Cancel".

### **Route Number Breakdown**

Go to **Reports, Specialty Reports, Route Number Breakdown**.

The screenshot shows a dialog box titled "Route Breakdown Report". It has two tabs: "General" and "Print Preview". The "General" tab is active. It contains two columns of input fields. The left column is labeled "Account Range" and has "Beginning" and "Ending" sub-labels. The "Beginning" field contains "0001-0001.00" and the "Ending" field contains "0006-0245.01". The right column is empty. Below these fields is a checkbox labeled "Show rejected accounts in 'results' summary" which is unchecked. Underneath is a section titled "Processing Results" containing a table with two columns: "Account" and "Notes". The table is currently empty. At the bottom of the dialog are three buttons: "Process and Print", "Process and Discard", and "Cancel".



Press the Process and Print Button. See a [sample](#) of this report.

### **Year to Date Summary**

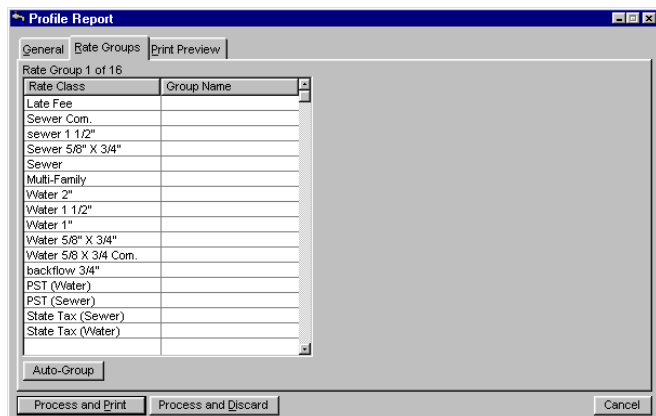
Go to **Report**, [Specialty Reports](#), **Year to Date Summary**. The Year to Date Summary Report excludes reversed transactions and may be printed for any 12 month period by specifying the beginning month of the reporting period. The first month of the period will be assumed to be in the year of the current system date unless the month is after the month of the system date, in which case it will be the prior year. The report may be printed for any historical 12 month period by setting the system date back. The range of dates used by the report will be printed in the report header. Press the Process and Print Button. See a [sample](#) of this report.

### **Profile Report**

Go to **Reports**, [Specialty Reports](#), **Profile Report**. This report contains some extra **Profiles to Print** boxes to check if you want to include them in the report. There are also 2 other boxes to check directly below them which are not found on the other reports, namely **Start Each Section...** and **Use Multipliers...**



On the Rate Groups Tab type in the names of the groups. The Auto Group Button supplies you with them automatically.



Press the Process and Print Button. See a [sample](#) of this report.

### **Customer Edit History Report**

Go to **Reports, Specialty Reports, Customer Edit History Report**. This report will print a list of all logged edits to a customer record for the range of customers specified. Currently the only edits logged are account number changes, user index changes, account transfers and deletions. This report allows logging deleted records. This is essential since a deleted account would no longer exist in the customer record. When a rate is deleted the name of the deleted rate is logged. When a meter is deleted, both meter numbers and the value and date of the last reading is logged. All changes to any field in either file are logged by field name. The report is also enhanced by the option of printing in *Date* or *Account Name* order, and including changes made within a specified date range. Press the Process and Print Button. See a [sample](#) of this report.

### **Capital Credits Report**

Go to **Reports, Specialty Reports**. This report is used by private water associations to apportion earnings among their members according to each member's charges. The report allows selecting which charge categories are counted, whether or not billings or payments are counted, and the time period surveyed. Select to *Use* or *Ignore* the different **Charge Names**. Enter **What to Tally** (*Billings or Payments*), the **Beginning** and **Ending Date** and the **Total Profit** to apportion. See a [sample](#) of this report.

Charge Name	Select
Backflow	Use
Bad Check Charge	Use
Credit Balance	Use
Cut-On Charge	Use
Deposit	Use
House Visit	Use
Late Fee	Use
On/Off Charge	Use
Other	Use
PST	Use

What to Tally:  Billings  Payments

Beginning Date:

Ending Date:

Total Profit:

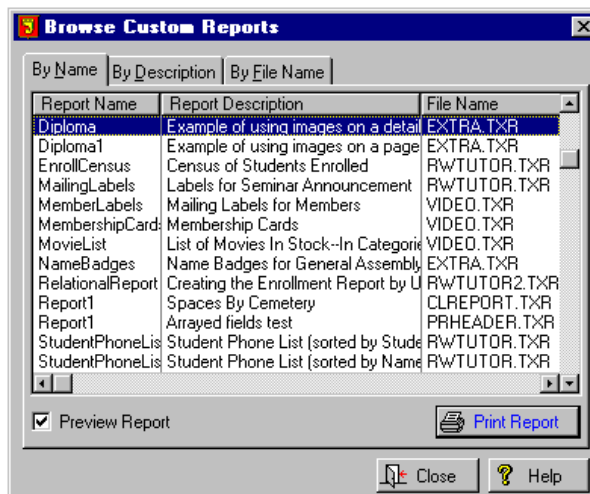
OK Cancel

### Customer Detail Report

Go to **Reports, Speciality Reports, Customer Detail Report**. This report prints all of the same information as the report printed from the customer Record Tab in **File, Customers**, Change Button, Record Tab, Print Account Button, except it may be printed for a range of customers. It also has all of the same print options, located on the Options Tab. Users are advised to be careful to limit the range of customers and the number of months history because this is a very lengthy report typically running several pages per account. See a [sample](#) of this report.

### Custom Reports

Go to **Reports, Custom Reports**. This feature allows running reports created by the Clarion Report Writer from **Utility Billing**. If the Clarion Report Writer has been purchased, it can be invoked from within **Utility Billing** to create a new report or modify an existing report.



The user must purchase a copy for their own use if they want to create their own custom reports. However, it is not necessary for running custom reports created elsewhere.

When Print Report is selected, it will search the current directory and list all report files found. A report file will have an extension of TXR. This is an ASCII text file that can be viewed with a generic text editor such as Notepad. A report file may contain from zero to any number of individual reports. The report file also contains information about the data dictionary. (The data dictionary defines all file names, field names, sizes and data types, file keys, and relationships between files.) If a report file contains multiple reports, each report will show up as a line in the list of custom reports.

Tab to the **Billing Date** and fill that in - each of the next boxes (**Due date, Late Date, Cutoff Date**) boxes will overwrite the dates that were used when computing the charges. If these dates are left blank, the same dates will be used that were set up in the **Billing Cycle** and used when computing charges (you can see those dates on each customers account under **File, Customers**, Transactions Tab, **Billing Date, Due Date** and **Late Date**). If you want to add a message to the bills, such as *Happy Holidays*, click on the Messages Tab and fill in the message in the Standard Message Box.

## **Print Preview**

The **Utility Billing** system has a feature which allows you to see your reports on the screen before they print. This is useful when you only want to see the information on the screen, but it also gives you the opportunity to fine-tune the appearance of reports you will be sending to the printer. The print preview options on the report setup windows are fully functional.

The preview option designated as Standard Report Preview is the same preview as used in most other IMS applications. It has the ability to print individual pages or ranges of pages of a report. The old preview system, which allows displaying multiple pages of a report at one time, is still available with the **Alternate Report Preview** selection.

When the Standard Report Preview option is selected, the Initial Display options are now functional. They allow setting the initial size of the preview display. The print preview options may also be set globally using **Setup, Configuration, Print Preview**). Newly created reports will use the global settings. Reports in which the preview options have already been set will retain the local settings.



See each of the [Print Preview](#) Buttons in the **Glossary** to explain how they'll affect your report.

If you want a separate message to go to accounts that are overdue, fill that message in the **Late Message** box. The program is designed to print the standard message on current accounts (those that are not carrying a past due balance) and a separate late message for those accounts that are past due. To print the bills, click on process and print - this will print the bills to your computer screen - then you must click on the button that has picture of a printer on it on the print preview screen to print the bills.

# APPENDIX A

## IMS Technote 1

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### Rounding

Rounding is a process of dropping digits from the right of a number to lower its precision. For example, **Utility Billing** may compute dollar amounts internally to many decimal places, then round them to the nearest cent for display and printing. Likewise, meter readings and consumption may be rounded.

When setting up a metered service such as water, gas, etc. **Setup, Lists, Metered Services** there are several important fields that determine how meter readings and consumption are rounded. This document will explain what these fields mean and the effect they will have.

The screenshot shows a Windows-style dialog box titled "Update Metered Service" with a "Record" tab selected. The dialog is divided into several sections:

- Service Name (Full and Abbr):** Text field containing "Water".
- Units of measure (Full and Abbr):** Text field containing "Gallons" and "Gals".
- Reading method:** A dropdown menu set to "Continuous".
- Order:** A text field containing "1".
- Places:** A spin box set to "0".
- Round Readings:** A section with a "Method" dropdown set to "None" and a "Places" spin box set to "0".
- Round Consumption:** A section with a "Method" dropdown set to "Nearest" and a "Places" spin box set to "1".
- High Limit Verification:** A section with a "Method" dropdown set to "Percentage" and a "Threshold" text field set to "100".
- Low Limit Verification:** A section with a "Method" dropdown set to "Percentage" and a "Threshold" text field set to "100".

At the bottom of the dialog are buttons for "Prior", "Next", "OK", and "Cancel".

Note first that there are two separate rounding boxes: one for *readings*, and one for *consumption*. Either or both may be used, and each has a definite effect on the final consumption amount billed. Meter readings may be rounded before computing consumption, then the consumption may be rounded.

There are three basic methods of rounding: *down*, *nearest*, and *up*. Rounding down means truncate to the next lowest step. Rounding up means increasing to the next highest step. The nearest method will round to the next lower step if the reading or consumption is less than halfway between the two adjacent steps, and to the next higher step if halfway between the steps or higher.

The steps referred to in the previous paragraph are determined by the *places* field. It refers to the number of decimal places to round. In simple mathematical terms the rounding process moves the decimal point the specified number of places to the left, discards the fractional part, then moves it back to the original location. For example, the value 23456 rounded down 3 places becomes 23000. Rounding 2 places yields 23400, 4 places yields 20000, etc. The same number rounded with the nearest method results in 23460, 23500, 23000, and 20000 for places of 1 through 4 respectively.

It is important to note that the rounding is applied to the meter readings and/or consumption before the multiplier is applied. If the meter has a multiplier of 1000 then the consumption billed will be the rounded value times the meter multiplier. This means you cannot round to units smaller than the meter multiplier. For example: If you have a meter multiplier of 1000 (read in 1000 gallon units) you cannot round to less than 1000 gallon units. (Actually you cannot round to less than 10,000 gallon units, since rounding to zero places is effectively no rounding).

If you want to round to 100 gallon units you must read in 10 gallon units or smaller. In technical terms, rounding lowers precision. Rounding to units smaller than the initial value is not really rounding, but interpolation. Interpolation requires a basis for the interpolation, which doesn't exist in the case of readings and consumption.

Service Type	Sequence#	Meter#	Load	Removed	Dup	Average Use	Multiplier
Water	280	54821	1	10/01/1999	Yes	0	1000
Water	280	45667025	2			18485	1000

Reading	Date	Type	Code	Consumption
161	4/25/2000	New	Automated	14000
147	3/28/2000	New	Automated	13000
134	2/29/2000	New	Automated	13000
121	2/01/2000	New	Automated	11000
110	1/03/2000	New	Automated	8000
102	12/01/1999	New	Automated	22000
80	10/27/1999	New	Automated	n/a

Service Memos	Date

Reading Status
Service: Meters
Consumed
Water: 0 of 1
0

Now let's look at some practical examples of the effects of rounding. Below is an account with no rounding for water. The meter is read in 1000 gallon units, and the readings are thus in 1000 gallon units. The consumption shown is in gallons, and is simply the result of subtracting the previous reading from the latest and multiplying by the meter multiplier.

Now let's go back to the metered services window for water and set it to round readings to the nearest 1 place.

Service Type	Sequence#	Meter#	Load	Removed	Dup	Average Use	Multiplier
Water	280	54821	1	10/01/1999	Yes	0	1000
Water	280	45667025	2			18485	1000

Reading	Date	Type	Code	Consumption
161	4/25/2000	New	Automated	10000
147	3/28/2000	New	Automated	20000
134	2/29/2000	New	Automated	10000
121	2/01/2000	New	Automated	10000
110	1/03/2000	New	Automated	10000
102	12/01/1999	New	Automated	20000
80	10/27/1999	New	Automated	n/a

Service Memos	Date

Reading Status
Service: Meters
Consumed
Water: 0 of 1
0

Notice that readings haven't changed, although we now have it set to round readings. The actual readings are never changed. They represent primary data that should not be disturbed. The consumption is simply calculated as if the readings were rounded.



Look at the latest reading. The consumption, instead of being 14000 without rounding is now 10000. Here's how it is calculated:

The latest reading of 161 is rounded one place, making it 160. The previous reading of 147 is rounded one place to 150. (Had we selected round down, it would have rounded to 140.) The 150 reading subtracted from 160 yields 10, which is multiplied by the meter multiplier to 10000. Try some more readings yourself to see how easy it is.

Now let's do the same thing, except we will round consumption one place instead of readings. (We could use both rounding types at once.)

Service Type	Sequence#	Meter#	Load	Removed	Dup	Average Use	Multiplier
Water	280	54821		1	10/01/1999	Yes	0 1000
Water	280	45667025		2			18485 1000

Reading	Date	Type	Code	Consumption
161	4/25/2000	New	Automated	10000
147	3/28/2000	New	Automated	10000
134	2/29/2000	New	Automated	10000
121	2/01/2000	New	Automated	10000
110	1/03/2000	New	Automated	10000
102	12/01/1999	New	Automated	20000
80	10/27/1999	New	Automated	n/a

Now compare the results of the two methods. For the comparison we will use the meter reading pair of 134 and 147. The round nearest 1 of readings yields consumption of 20000 while rounding consumption yields 10000. Round readings: 147 rounds to 150, and 134 rounds to 130. 150 - 130 yields 20, times the meter multiplier of 1000, gives us 20000 gallons. Round consumption: 147 - 134 yields 13. 13 rounded one place to the nearest yields 10, times the meter multiplier of 1000 results in 10000. Now to show that you really understand this, figure out what the consumption would be if set to round readings AND consumption one place each.

## IMS Technote 2

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### Estimated Meter Readings

If a meter cannot be read you may have the **Utility Billing** System estimate a reading for you. An estimated meter reading may be requested for both manually entered readings and handheld meter readers if the meter reader supports a method of requesting an estimate. The method of requesting an estimate varies with the meter reading system. In the case of the Itron readers, it is indicated by a zero current reading.

(Note that a zero reading is not the same as zero consumption. A zero consumption means that the previous and latest meter readings are identical. An actual zero meter reading could only exist if a brand new meter had no consumption.) If readings are entered by hand (**Activities, Meter Reading Entry, Manual Entry**) an estimated reading is requested by entering an "E" in lieu of a reading. Meter readings are stored in the units as read.

Each meter may have a multiplier that is applied to the reading to get units of gallons or cubic feet or whatever is the base unit of measurement. For example, if a water meter is read in units of 1000 gallons it would have a multiplier of 1000. Average consumption, however, is stored in base units - in this case gallons.

**This is what happens when a reading is estimated:**

The last meter reading for the meter before the start of the current billing cycle is fetched from the meter history file. This is used as the previous reading. The average consumption for this meter is fetched from the meter status file. The average is converted to meter units by dividing by the meter multiplier. The result is then added to the previous reading to get the estimated latest reading. At this point the estimated reading is in the meter units as indicated by the meter multiplier.

After this point an estimated reading is handled like an actual reading, except for being flagged as an estimate. The only effect on subsequent processing is that the average consumption will not be updated by an estimated reading.

**Let's go through it again, this time with some numbers:**

An account has a water meter with a multiplier of 1000 and an average consumption of 7707. This means the average consumption is 7707 gallons. The previous reading was 1273. This is the reading from the meter. To convert to gallons, multiply it by the meter multiplier to get 1273000. But the readings you see when you look at the account will be in the meter units as indicated by the multiplier. Thus the last reading will show as 1273.

If you request an estimated reading it will take the average use of 7707, divide it by the meter multiplier to get 7.707, which is truncated to 7. This is then added to the last reading of 1273 giving an estimated reading of 1280.

In the above example, why is the average use in meter units truncated from 7.707 to 7? Why not round it up? Sure, we could do that, but what's the point? An estimate is an estimate, which implies that it is not expected to be accurate. Attempting to improve its accuracy by further manipulation is futile because the result would be statistically insignificant. Whatever amount the estimated value is under or over will be corrected by the next actual reading.

# IMS Technote 3

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## Proration

Proration in the context of **Utility Billing** refers to the adjustment of charges for a period of time different than the normal period. For example, if a customer is billed at a rate of \$30 per month for some service, but used it for only 20 days, the prorated charge might be \$20. This document will explain how to set up a proration method and describe how it works.

### Proration Type Setup

You may create any number of independent proration types. Use **Setup, Lists, Proration Types** to see a list of proration types in your system. Press the Insert Button if there are none listed, or the Change Button to view an existing proration type.

### Proration Name

Assign a long and short name to the proration type if you are adding a new one.

### Method

You have three options: *Standard*, *Extrapolation*, and *Below Minimum*. Let's start with the simplest, *Standard*.

**Allow Super-Proration**

If this is checked, extrapolation is allowed if the proration period is greater than the standard period. This would result in a prorated amount greater than the standard.

**Beginning Date**

This and the **Ending Date** define the time period over which the charge is prorated. It can be based on the date charges were last computed or the date of the previous meter reading.

**Ending Date**

This is the companion to **Beginning Date**. It may be set independently, but logically it would be set to **Current Date** if **Beginning Date** is set to *Last Computation Date*, or to **Latest Meter Reading Date** if **Beginning Date** is set to **Prior meter reading date**.

**Length of Period**

This defines what is used as the base period for the proration computation. The options are to use a fixed thirty day month, or the actual number of days in the current billing period.

**Where to Apply**

This defines what charges the proration process will be performed upon. The two checkboxes may be set independently. Typically, proration is used to adjust a base charge per month for a service to that for a period greater or less than the standard period. The **Base Charges** checkbox enables or disables proration of base charges. Proration of consumption charges is less common, because a consumption-based charge is inherently self-prorating. Nevertheless, if **Consumption Charges** is checked the proration will apply to the consumption charges.

## Metered Service

This field will appear only if you selected meter reading date in either the **Beginning Date** or *Ending Date* options. In such cases the proration type must be related to a particular metered service such as water, gas, electricity, etc. This field has a hot key lookup into the metered services file to aid in making a selection.

## Rate Class Setup

Before proration can take place, any rate class for which you want proration to occur must specify the proration type to be used. Use **Setup, Lists, Rate Class** to select a rate class, then press the Change or Insert Button. Under the **Proration** label is a drop list of the proration types in your system. Once you have selected a proration type you are ready to start prorating.

Low Limit	to High Limit	Base	Extra	Flat	Percent
	Up to 0.00				125.000000
	0.00 and above				125.000000

Charge Name	Status
WATER - OUTSIDE	Use
WATER-INSIDE	Use
SEWER INSIDE	Ignore
GARBAGE RESIDENTIAL	Ignore
TAX	Ignore
LATE FEE	Ignore
Preconversion Amount	Ignore
DEPOSIT WATER	Ignore
CREDIT BALANCE	Ignore

## How it Works

Now that you know how to set up a proration type, let's walk through a charge computation to see how the settings affect the proration.

When charges are computed, the charges for a prorated rate are first computed as if there were no proration. The most common cause of a need for proration is a recently added account or a recently closed account.

So the first step of the proration process is to fetch the date the account was added, if any, and the date the account was closed, if any. The second step is to determine the beginning and ending dates of the current billing cycle and the previous billing cycle.

If the account was added between the beginning and ending date of the current billing cycle, then proration will be required. Likewise, if the account was closed between the beginning and ending date of the current billing cycle, proration will be required. There is also the possibility that the account was added in the prior billing cycle, but no charges were computed for it.

Such accounts would require proration. For such a condition to exist the account must have been added between the start of the prior billing cycle and the end of the prior billing cycle. If an account qualifies, the charge history is then read for the account to see if any standard charges were computed since the account was added.

(A standard charge is defined as a non-refundable charge such as water, sewer, garbage, etc. Use **Setup, Lists, Charge Names** to view the charge names in your system. Note that the rightmost column in the listbox shows the category. The options for category are:

Standard, Non-Refundable Fee, and Refundable Fee.) If a standard charge has been computed for the account then the next step is to see if it was based on a prorated rate. If a rate class is associated with this charge name, and if there is proration specified for the rate class, then the next step is to see if this rate is used by the customer.



This is necessary because several rate classes may share a single charge category. Use **File, Customers, Change Button, Rates Tab** to view a list of rates for the customer. If the rate is active (set to "Use"), it can be assumed that the proration for a partial month was done in the prior month. If we go through this for each charge in the prior period and find none that used proration, then proration will be required this time.

Rate Class Name	Mult	Extra Pct	Extra Fee	Balance	Payment	Amount	Status
WATER 3/4" INSIDE CT	x1	0.0000	0.00				Use
SWR COMINSIDE 3/4"	x1	0.0000	0.00				Use
TAX	x1	0.0000	0.00				Use
SERVICE CHARGE	x1	0.0000	0.00			0.00	Use
LATE FEE	x1	0.0000	0.00				Use
COMM GARBAGE/OFFICE	x1	0.0000	0.00			0.00	Use

Type:
  Residential
  Commercial
  Other

Location:
  Inside City Limits
  Outside City Limits

The decision of whether or not to prorate is also influenced by qualifications put on the rate as it relates to a particular customer. A rate is defined here as an instance of a rate class and charge category as applied to a specific customer. Use **File, Customers, Change Button, Rates Tab, Change Rate** to view a rate record.

General		Record	
Source Rate Class	Multiplier	Start Date	Close Date
MASTER 1" INSIDE CTY	1		
Extra Percent	Extra Charge	<input type="checkbox"/> Delay until next period <input type="checkbox"/> Continuous Proration	
0.0000	0.00	Status: <input checked="" type="radio"/> Use <input type="radio"/> Ignore	
		<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

A rate has fields for **Start Date and Close Date**, a **Delay until next period** is checked, no charge will be computed if the start date is after the end of the prior billing period. If there is a date in the **Close Date** field, no charge will be computed if the close date is before the beginning of the current billing period. If **Delay until next period** is checked, no charge will be computed if the close date is before the beginning of the prior billing period.

If the start date is within the current billing period, then the charge for this rate will be prorated. If the start date is within the prior billing cycle and **Delay until next period** is checked the charge will be prorated. If the close date is within the current billing cycle the charge for this rate will be prorated. If the close date is within the prior billing cycle and **Delay until next period** is checked the charge will be prorated. If **Continuous Proration** is checked, the charge for this rate will always be prorated.

Once we have determined what is to be prorated, the date range of service is established, and all of the prorate/don't prorate decisions have been made, the actual proration computation is relatively simple. A ratio calculated as the number of days of service divided by the number of days in the cycle.

(No proration would be represented by a ratio of one.) The normal charge is then multiplied by this ratio. If consumption is being prorated, then the consumption would be multiplied by the ratio before computing charges. The myriad of proration options provided to the user makes it impractical to cover in detail how the proration is calculated. For those that want to explore in more detail, the actual program code for the proration function is **included in the program** under the **Proration Technote**.

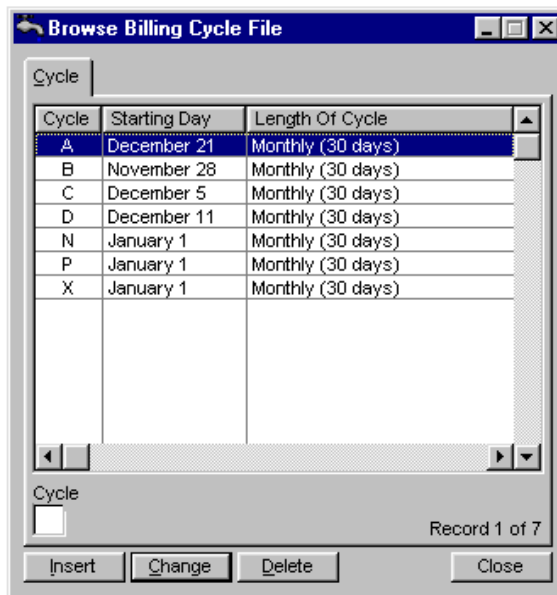
# IMS Technote 4

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## Billing Cycles

The billing cycle file is designed around the assumption that a typical cycle of activity begins with meter readings being entered, followed by charge computations, bill printing, and payment entry. Therefore, if your organization's schedule of activities calls for meters to be read on (but not before) the 20th of each month, then your billing cycle should be set up to start on the 20th. If you bill only a portion of your accounts at a time, each cycle should begin on the first day meters are read for that cycle.

### Starting and Ending Dates:



The starting date for each billing cycle is controlled by its **Starting Month and Day** fields, in combination with the “Duration” field. Note that **Starting Month and Day** refers to the first full billing cycle of the year, not to the current cycle.

If a billing cycle is set up with a start date of *January 15* and a duration of *Monthly*, then the first full billing cycle of the year runs from January 15th through February 14th. The second cycle of the year runs February 15th through March 14th, the third cycle spans March 15th through April 14th, and so on. This pattern continues through to the last billing cycle of the year, which would run from December 15th through January 14th.

If the duration were changed to *Bi-monthly*, the first cycle of the year would run from January 15th through March 14th; the second cycle would span March 15th through May 14th, and so on.

#### **Meter Readings and Billing Cycle Dates:**

For a meter reading to be considered current, its date must place it within the current billing cycle. For example: If the current billing cycle runs from July 20th through August 19th, then only meter readings with a date of July 20th through August 19th belong to the current cycle. Any meter readings with a date before July 20th belongs to a prior cycle.

Note that multiple meter readings per period are allowed. Consumption is figured on each pair of readings and summed up to get the period’s total consumption figure.

Update Billing Cycle	
General   Record	
Billing Cycle	Starting Month and Day
December	21
Due	34
	1/24/2001
Duration	Late
Monthly (30 days)	35
	1/25/2001
Prior	Next
OK	Cancel

### Due and Late Dates

The due date and the late date are both computed as an offset from the start of the billing cycle. The due date and late date for a particular cycle's charges are based upon the offset values in the billing cycle's **Due** and **Late** fields. The counting starts at zero on the first day of the cycle.

For example, a billing cycle which started on the 7th of the month and has values of "10" and "20" in the **Due** and **Late** fields, would have its charge come due on the 16th and be late on the 26th. (The 7th is the first day of the cycle, the 8th is second day, 9th is third, and so on).

Due dates and late dates are stored in each individual customer record when standard charges are computed. These values appear in the **Due Date** and **Late Date** fields of the main customer window. Note that these fields are not updated by the Recompute Button. Furthermore, these fields are provided for reference purposes only: when needed, the dates are recomputed from the billing cycle file's current data.

It is possible to have a "Late" offset that stretches beyond the end of the current cycle. That simply means that the current cycle's charges are not

delinquent until after the next cycle has started. For example: Consider a billing cycle that started on August 25th and has offsets of "20" for **Due** and "45" for **Late**. This would yield a due date of September 13th, and a late date of October 8th. (Remember, August has 31 days, while September has only 30 days).

This overlapping billing cycle condition does not cause a problem as long as the starting day and offsets to the due and late dates are not changed. If the cycle dates are changed, other issues are created because of the fact that cycle dates are always computed dynamically. Some of these are discussed in the next topic.

### **Overlapping Billing Cycles:**

The month and day in the billing cycle file was originally intended to be the beginning date of the first billing cycle in the year. If the cycle were monthly, this month would always be set to January. If bimonthly or quarterly it would be set to the start of the first cycle of the year. For example, if customers are billed quarterly in March, June, September, and December, it should be set to a date in March. The system does not expect this be changed each month. That is why the year of the cycle is not stored. (It is displayed, but that is merely calculated from the cycle start date and the system date.)

Billing period dates, including cycle begin date, end date, due and late dates are always computed dynamically from the current billing cycle dates for the cycle. This in turn determines the billing period for all meter readings, charges and payments. When the beginning day of the billing cycle is changed, the beginning date of all previous cycles is also changed. When the late date for a cycle is changed each month it also affects the late date for all previous billing periods.

If the late date extends past the start date of the next cycle (cycle overlap) potential problems are created. If the late date for a cycle is changed to earlier in the month than that for the previous billing period, late charges would be computed even though the payment date was before the late date for the prior billing period.

To prevent this, each time a charge is added, the current late date is stored in the charge history file along with the other information about the charge. This is the date used to determine if a payment was made late rather than the late date computed for the current billing cycle, because the dates may have been changed for the next billing period.

Another problem caused by overlapping billing periods is in payment distribution. When a partial payment is made on an account the payment is distributed first to the prior period charges, then to charges in the current billing period. The billing period boundaries are calculated dynamically from the charge transaction dates and the prevailing billing cycle settings.

The problem occurs when a payment is made during the overlap period (the time from the start of the next billing period to the late date of the prior billing period), and charges have not yet been computed for the new period. According to the billing cycle settings and the current system date the current billing period begin date may be after the most recent charges were computed.

If so, the current charges are no longer considered current and are lumped in with whatever prior period charges that may have

existed. This makes it impossible to distribute the payment correctly because the current charges are now combined with the previous charges. Beginning with version 6.15 the original design was abandoned in favor of requiring that the billing cycle be set to the current month each billing period.

This allows the current billing period to remain open even past the date at which the next period will start, as long as the month in the billing cycle file remains the same. This design requires regular update of the billing cycle file, while the original one required no changes unless the day of the month changed. The billing cycle should be advanced just before meter readings are entered and charges computed. Once this takes place the charges previously computed will no longer be current. It is very important to manage the billing cycle file. Failure to advance the billing cycle before meter readings are entered would, for example, cause the new readings to replace the ones from the previous period.



# Appendix B

## Differences From the DOS Utility Billing (Version 5.X)

Part of ACH DIRECT DEBIT TECHNOTE in **Help**,  
Technote 4 with program.

If you have recently updated from version 5 of **Utility Billing** to version 6 there are some operational differences. In the previous generation of **Utility Billing** the ACH transfer file generation process was part of the bill printing operation. Bills for the direct debit accounts would be printed at the same time the transfer file was created. In the new **Utility Billing** the transfer file generation is a separate process on the payment entry menu, where it logically belongs.

You can print bills for your direct debit customers the same time you print the others, then generate the transfer file on whatever date you have arranged with the customer to make the withdrawal. You could also elect to print bills for direct debit customers at a later time by checking the Skip direct debit accounts box.

You could also generate the transfer file before you print bills, in which case the direct debit accounts will reflect the payment of the same day and have no current balance due. (If you do, make sure the **Skip zero balances** option is not checked.) Such processing decisions are strictly in the user's domain. The only important difference to remember is that creating the transfer file does not cause bills to be printed.

### **How "Metered Usage" rate classes perform their computations:**

When data is converted from IMS **Utility Billing** version 5.X the rate classes for rates based on consumption are adjusted for the differences between the calculation methods of the two systems. This involves adjusting the base rate for all levels in the rate tables beyond the first level for the difference between the amount computed at the two adjacent levels at the break consumption.

In the old system consumption was computed by finding the level in the rate table that included the consumption, then calculating the charge as the base charge plus the consumption times the rate at that level. The new system uses a more flexible system in which the charge is computed for each level up to and including the level that includes the consumption. If the per unit charge does not change at any level the two methods produce identical results. But if the per unit charge changes with each level the two will produce different results.

Here is an example: Assume a base charge of \$8.00 + .003 per gallon up to 5,000 gallons, and .0025 per gallon above 5,000 gallons. For a consumption of 10,000 gallons the old system would bill 10,000 gallons @ .0025 plus the \$8.00 base for a charge of \$33.00. The new system would bill \$15.00 for the first 5000 gallons plus \$12.50 for the next 5000 gallons plus the \$8.00 base, for a total of \$35.50. To adjust a rate table in the new system so that it functions as in the old one, the base at each level must be adjusted by the difference between the consumption charges at the break consumption. In this example, the first level computes a consumption charge of 5000 times .003 = \$15.00.

The second level computes a consumption charge for the same quantity of 5000 time .0025 = 12.50. To make the new system produce the same charge at both levels, the base charge for the second level must be reduced by \$15.00 - \$12.50 = \$2.50. With the base at the second level of \$5.50 instead of \$8.00 the charge computed by the new system will be the same as would have been computed on the old system.

In our original example, the bill for a 10,00 gallon consumption would be \$15.00 for the first 5000 gallons plus \$12.50 for the next 5000 gallons plus the \$5.50 base, for a total of \$33.00. This also works in an increasing rate table where higher consumption is punished. Assume in our example that the rate above 5000 gallons is .004 per gallon. The difference in charges at the break level of 5000 gallons is  $(5000 * .004) - (5000 * .003) = \$5.00$ . This time the base charge at the second level would need to be increased by \$5.00 to \$13.00 to yield the same charge by both systems.

Prior to this the formula consisted of the following

1) A "working consumption" is computed by dividing the current consumption by the multiplier. (Multipliers less than 1 are treated as 1.) The formula is:

$$\text{Working Consumption} = \frac{\text{Current Consumption}}{\text{Multiplier}}$$

2) Based on the working consumption, the appropriate line of the Charge Table (from the rate class file) is read into memory.

3) A "Fixed Charge" is computed from the Charge Table's "Base" and "Extra" columns. The formula is:  $\text{Fixed Charge} = \text{Base} + (\text{Extra} * (\text{Multiplier} - 1))$

4) A "Consumption Charge" is computed from the "Flat" and "Per Unit" Columns. The formula is:

$$\text{Consumption Charge} = \text{Flat} + (\text{Working Consumption} * \text{Per Unit})$$

5) Then fixed charge and consumption charge are combined into a single value, adjusted for the multiplier. The formula is: Total Charge = Fixed Charge + (Consumption Charge \* Multiplier)

6) A "working charge limit" is computed from the charge limit adjusted for the multiplier. The formula is: Working Charge Limit = Charge Limit \* Multiplier

7) If the working charge limit is greater than zero, then the total charge is tested against it. If the total charge is less than or equal to the working charge limit, then the total charge remains unchanged. However, if the total charge is greater than the working charge limit, then the total charge is set equal to the working charge limit.

Examples:

For each of the following examples, assume a Water Rate Class with no charge limit and a charge table set up as follows:

Low Limit to High Limit	Base	Extra	Flat	Per Unit
Up to 6	3.00	2.00	0.50	6.0000
6 and above	5.00	4.00	0.25	2.0000

Example One: For an account with a consumption of 5 and a multiplier of 1, the water charge would be computed as follows:

1) Compute Working Consumption: Working Consumption = Current Consumption / Multiplier  
Working Consumption = 5 / 1  
Working Consumption = 5

2) Consumption of 5 uses first line of Charge Table.

3) Compute Fixed Charge: Fixed Charge = Base + (Extra \* (Multiplier - 1))  
 Fixed Charge = 3 + (2 \* (1 - 1)) Fixed Charge = 3

4) Compute Consumption Charge:  
 Consumption Charge = Flat + (Working Consumption \* Per Unit)  
 Consumption Charge = 0.5 + (5 \* 1) Consumption Charge = 5.5

5) Compute Total Charge:  
 Total Charge = Fixed Charge + (Consumption Charge \* Multiplier)  
 Total Charge = 3 + (5.5 \* 1) Total Charge = 8.5

Since there is no Charge Limit, steps 6 and 7 do not apply. The total water charge for this account is \$8.50

Example Two: For an account with a consumption of 50 and a multiplier of 10, the water charge would be computed as follows:

1) Compute Working Consumption:  
 Working Consumption = Current Consumption / Multiplier  
 Working Consumption = 50 / 10 Working Consumption = 5

2) Consumption of 5 uses first line of Charge Table.

3) Compute Fixed Charge:  
 Fixed Charge = Base + (Extra \* (Multiplier - 1))  
 Fixed Charge = 3 + (2 \* (10 - 1)) Fixed Charge = 21

4) Compute Consumption Charge:

$$\begin{aligned} \text{Consumption Charge} &= \text{Flat} + (\text{Working Consumption} * \text{Per Unit}) \\ \text{Consumption Charge} &= 0.5 + (5 * 1) \\ \text{Consumption Charge} &= 5.5 \end{aligned}$$

5) Compute Total Charge:

$$\begin{aligned} \text{Total Charge} &= \text{Fixed Charge} + (\text{Consumption Charge} * \text{Multiplier}) \\ \text{Total Charge} &= 21 + (5.5 * 10) \\ \text{Total Charge} &= 76 \end{aligned}$$

Since there is no Charge Limit, steps 6 and 7 do not apply. The total water charge for this account is \$76.00

Example Three: For an account with a consumption of 8 and a multiplier of 1, the water charge would be computed as follows:

1) Compute Working Consumption:

$$\begin{aligned} \text{Working Consumption} &= \text{Current Consumption} / \text{Multiplier} \\ \text{Working Consumption} &= 8 / 1 \\ \text{Working Consumption} &= 8 \end{aligned}$$

2) Consumption of 8 uses second line of Charge Table.

3) Compute Fixed Charge:

$$\begin{aligned} \text{Fixed Charge} &= \text{Base} + (\text{Extra} * (\text{Multiplier} - 1)) \\ \text{Fixed Charge} &= 5 + (4 * (1 - 1)) \\ \text{Fixed Charge} &= 5 \end{aligned}$$

4) Compute Consumption Charge:

$$\begin{aligned} \text{Consumption Charge} &= \text{Flat} + (\text{Working Consumption} * \text{Per Unit}) \\ \text{Consumption Charge} &= 0.25 + (8 * 2) \\ \text{Consumption Charge} &= 16.25 \end{aligned}$$

5) Compute Total Charge:

$$\begin{aligned} \text{Total Charge} &= \text{Fixed Charge} + (\text{Consumption Charge} * \text{Multiplier}) \\ \text{Total Charge} &= 5 + (16.25 * 1) \\ \text{Total Charge} &= 21.25 \end{aligned}$$

Since there is no Charge Limit, steps 6 and 7 do not apply. The total water charge for this account is \$21.25

Example Four: For an account with a Consumption of 80 and a multiplier of 10, the water charge would be computed as follows:

1) Compute Working Consumption:

$$\begin{aligned} \text{Working Consumption} &= \text{Current Consumption} / \text{Multiplier} \\ \text{Working Consumption} &= 80 / 10 \\ \text{Working Consumption} &= 8 \end{aligned}$$

2) Consumption of 8 uses second line of Charge Table.

3) Compute Fixed Charge:

$$\begin{aligned} \text{Fixed Charge} &= \text{Base} + (\text{Extra} * (\text{Multiplier} - 1)) \\ \text{Fixed Charge} &= 5 + (4 * (10 - 1)) \\ \text{Fixed Charge} &= 41 \end{aligned}$$

4) Compute Consumption Charge:

$$\begin{aligned} \text{Consumption Charge} &= \text{Flat} + (\text{Working Consumption} * \text{Per Unit Consumption Charge}) \\ \text{Consumption Charge} &= 0.25 + (8 * 2) \\ \text{Consumption Charge} &= 16.25 \end{aligned}$$

5) Compute Total Charge:

$$\begin{aligned} \text{Total Charge} &= \text{Fixed Charge} + (\text{Consumption Charge} * \text{Multiplier}) \\ \text{Total Charge} &= 41 + (16.25 * 10) \\ \text{Total Charge} &= 203.5 \end{aligned}$$

Since there is no Charge Limit, steps 6 and 7 do not apply. The total water charge for this account is \$203.50.

**Utility Billing - Declining Balances and how they work - an example:**

There is one Rate Class - Water - and the computation method is Declining Balance. The set rate base is \$40 billed monthly, and the payment amount comes off the declining balance. The \$40 charge does not add to the declining balance, it is just there to print on the charge card and show customers that a payment is due. They have no meters - so a metered service is set up but not used. There is a charge name of Auto Bill which is used each month to compute the monthly \$40 charge.

At the beginning of the year - January 1 - they use the **Utilities, Rate Class Utilities, Set Declining Balances and Payments**. The yearly rate is \$480 and the payments are \$40. Once you run that utility on each customer, you can go to the **File, Customers** - pick a customer - and go to the Rates Tab. The declining balance shows as the customer balance, and the payment amount set up for that customer. If the customer had a leftover amount due or a credit balance, this balance column will reflect that balance added to or subtracted from the \$480, if you selected that option in the utility. Most customers will be at a zero balance by the end of the year, with only few with a credit balance.

After the utility is run, do the normal monthly billing of \$40 (**Activities - Compute Charges**) and then those bills will get printed; on them you will see the \$480 for balance (or whatever amount is their current auto bill balance) and the charge amount of \$40. They use the *Staggered Tractor 4* print routine - which lists out all the information such as auto bill amount and monthly payment. If you take the data one step further and make a payment, you will see the General screen balance showing the charge of \$40 and the payment of \$40 - you can also look at the Rates Tab and see the \$480 balance is now \$440.



## Parent/Child Relationship Rules

June 2001

All of the IMS program databases have parent-child relationships. It is generally bad practice to allow a database to accumulate orphans, which are child records whose parent has been deleted. Parent deletions can be done in one of two ways depending on the individual situation: either you delete all children when the parent is deleted (cascade) or deny if the parent has any children. The relationships and dependencies are shown as in the excerpt from the data dictionary summary below:

```
WTask
FILE,DRIVER('TOPSPEED'),RECLAIM,NAME(wtaname),PR
E(WTA),BINDABLE !Work order task
By_Task
KEY(WTA:Task),DUP,NOCASE,OPT !Task
Key
By_Order
KEY(WTA:WorkOrder),DUP,NOCASE,OPT
!Work Order Key
```

```
WTA:By_Task <--> TAS:By_Task Update=CASCADE
Delete=RESTRICT
WTA:By_Order <--> ORD:By_ID Update=CASCADE
Delete=RESTRICT
```

The double arrow is on the side of the "many" file in a many to one relationship. So the single arrow points to the parent key and the double arrow to the child. The *Update* and *Delete* indicate what happens when a parent is updated and deleted. A blank means it is allowed and no action is taken. *Restrict* means it is not allowed (the user will get a warning message). *Cascade* means all children will be deleted. In the case of an update action, if a key value in a parent is changed, cascade means all children will be changed likewise.

# Large Screens

## Billing Forms

### Four Piece Laser 1

<p>1-1 01/01/01 2/21/01</p> <p>Water 42.42 PST 0.81 Late 0.00</p> <p>Elizabet Eater 4700 Superior St. Jacksonville FL 32209</p> <p>0 302.77</p>	<p>1-2 01/01/01 2/21/01</p> <p>Water 106.05 PST 1.99</p> <p>Li Chang Food Stores P.O. Box 21190 Jacksonville FL 32241</p> <p>120.29</p>	<p>1-3 01/01/01 2/21/01</p> <p>Water 12.99 PST 0.24</p> <p>Mellona Huntington 4700 Wales St. Tallahassee FL 32303</p> <p>None</p>	<p>1-4 01/01/01 2/21/01</p> <p>Water 19.89 PST 0.39</p> <p>Fony Vostal 40000 Wales St. Vivianville FL 32303</p> <p>20.28</p>
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### Four Piece Laser 2

<table border="1"> <thead> <tr> <th>Account No.</th> <th>Bill Date</th> <th>Due Date</th> <th>Net Amount</th> <th>Water</th> <th>PST</th> <th>Late</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>1-1</td> <td>7/17/01</td> <td>2/21/01</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td colspan="8">Balance Forward: Cr 379.00</td> </tr> <tr> <td colspan="8">Water 42.42</td> </tr> <tr> <td colspan="8">PST 0.81</td> </tr> <tr> <td colspan="8">Late 0.00</td> </tr> <tr> <td colspan="8">Total Amount Due: Cr 392.77</td> </tr> </tbody> </table> <p>Elizabet Eater 4700 Superior St. Jacksonville FL 32209</p>	Account No.	Bill Date	Due Date	Net Amount	Water	PST	Late	Total	1-1	7/17/01	2/21/01	0.00	0.00	0.00	0.00	0.00	Balance Forward: Cr 379.00								Water 42.42								PST 0.81								Late 0.00								Total Amount Due: Cr 392.77								<table border="1"> <thead> <tr> <th>Account No.</th> <th>Bill Date</th> <th>Due Date</th> <th>Net Amount</th> <th>Water</th> <th>PST</th> <th>Late</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>1-2</td> <td>7/17/01</td> <td>2/21/01</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td colspan="8">Balance Forward: 106.05</td> </tr> <tr> <td colspan="8">Water 106.05</td> </tr> <tr> <td colspan="8">PST 1.99</td> </tr> <tr> <td colspan="8">Total Amount Due: 120.29</td> </tr> </tbody> </table> <p>Li Chang Food Stores P.O. Box 21190 Jacksonville FL 32241</p>	Account No.	Bill Date	Due Date	Net Amount	Water	PST	Late	Total	1-2	7/17/01	2/21/01	0.00	0.00	0.00	0.00	0.00	Balance Forward: 106.05								Water 106.05								PST 1.99								Total Amount Due: 120.29								<table border="1"> <thead> <tr> <th>Account No.</th> <th>Bill Date</th> <th>Due Date</th> <th>Net Amount</th> <th>Water</th> <th>PST</th> <th>Late</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>1-3</td> <td>7/17/01</td> <td>2/21/01</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td colspan="8">Balance Forward: 14.44</td> </tr> <tr> <td colspan="8">Water 12.99</td> </tr> <tr> <td colspan="8">PST 0.24</td> </tr> <tr> <td colspan="8">Total Amount Due: None</td> </tr> </tbody> </table> <p>Mellona Huntington 4700 Wales St. Tallahassee FL 32303</p>	Account No.	Bill Date	Due Date	Net Amount	Water	PST	Late	Total	1-3	7/17/01	2/21/01	0.00	0.00	0.00	0.00	0.00	Balance Forward: 14.44								Water 12.99								PST 0.24								Total Amount Due: None								<table border="1"> <thead> <tr> <th>Account No.</th> <th>Bill Date</th> <th>Due Date</th> <th>Net Amount</th> <th>Water</th> <th>PST</th> <th>Late</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>1-4</td> <td>7/17/01</td> <td>2/21/01</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td colspan="8">Balance Forward: 39.23</td> </tr> <tr> <td colspan="8">Water 19.89</td> </tr> <tr> <td colspan="8">PST 0.39</td> </tr> <tr> <td colspan="8">Total Amount Due: 35.06</td> </tr> </tbody> </table> <p>Fony Vostal 40000 Wales St. Vivianville FL 32303</p>	Account No.	Bill Date	Due Date	Net Amount	Water	PST	Late	Total	1-4	7/17/01	2/21/01	0.00	0.00	0.00	0.00	0.00	Balance Forward: 39.23								Water 19.89								PST 0.39								Total Amount Due: 35.06							
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### Staggered Tractor 1

33€	332	1;		
1-1	7/1;	Cr 375	2/21	
Water		42.42		
PST		0.81		
Late		3.00		
Elisabeth Eaker 4700 Superior St. Anywhere FL 33333				
	Cr 332			
4700 Superior St.	1-1	Cr 332	2/21	

### Two Piece Tractor 1

0001-0001.00								
4700 Superior St.								
122100			12101					
				0001-0001.00				
					Cr 332.77	999	576	
3307	3324	0.017	Wat	42.42				
			PST	0.81				
			Late	3.00				
Elisabeth Eaker 4700 Superior St. Anywhere FL 33333								
			None					
	71701		Cr 332.77					
	22201							

**Two Piece Tractor 2**

0001-0001.00	4700 Superior St.	0001-0003.00	US 27
3324	3307	17	Water 42.42
			PST 0.81
			Late 3.00
			576 568 8
			7/17/01 0001-0001.0
7/17/01	46.20	Cr 379.00	Cr 332.7
			Cr 332.7
			7/17/01 20.06
Elisabeth Eaker		Tony Veal	
4700 Superior St.		400000 Wales St.	
Anywhere FL		tripville FL	
33333		33333	

**Two Piece Tractor 4**

Water	3324	01/21	3307	1.7	42.42
PST					0.81
Late					3.00
BAL FWD					Cr 379.00
					0001-0001.00
					DUE BY 2/21/01
					DUE AFTER 2/22/01
					Cr 332.77
					Cr 332.77
					Elisabeth Eaker
					4700 Superior St
					Anywhere FL
					33333
0001-0001.00	Elisabeth Eaker	4700 Superior St.			

Letter Size Laser 1

**Wet Water Company**  
**25 First Avenue North**  
**Tide, FL**  
**33333**

Account Number: 0001-0001.00  
 Statement Date: 8/06/01  
 Service Address: 4700 Superior St.  
 Service Period: 12/21/00 to 1/21/01

Due Date: 2/21/01  
 Past Due Amount: None  
 Total Amount Due: Cr 332.77

Elisabeth Eaker  
 4700 Superior St.  
 Anywhere FL  
 33333

**Meter Readings:**

Service	Previous	Latest	Used	Date Read
Water	3307	3324	17	1/21/01

**Current Charges:**

Water	42.42
PST	0.81
Late Fee	3.00

**Notes:**

**Charge Summary:**

Previous Balance:	Cr 379.00
Payments Received:	None
Current Charges:	46.23
Past Due Balance:	None
Current Balance:	Cr 332.77

Please detach and return the bottom portion with your payment

Service Address: 4700 Superior St.  
 Service Period: 12/21/00 to 1/21/01

Elisabeth Eaker  
 4700 Superior St.  
 Anywhere FL  
 33333

Account Number: 0001-0001.00  
 Statement Date: 8/06/01  
 Due Date: 2/21/01  
 Past Due Amount: None  
 Total Amount Due: Cr 332.77

Amount Enclosed:

Address change noted on reverse side

Return To:

Wet Water Company  
 25 First Avenue North  
 Tide, FL  
 33333

**Letter Size Laser 2**

**Wet Water Company**

Account Number: 0001-0001.00  
 Statement Date: 8/06/01  
 Service Address: 4700 Superior St.  
 Service Period: 12/21/00 to 1/21/01

Due Date: 2/21/01  
 Past Due Amount: None  
 Total Amount Due: Cr 332.77

Elisabeth Eaker  
 4700 Superior St.  
 Anywhere FL  
 33333

**Current Charges:**

Water	42.42
PST	0.81
Late Fee	3.00

**Meter Readings:**

Service	Previous	Latest	Used	Date Read
Water	3307	3324	17	1/21/01

**Notes:**

**Charge Summary:**

Previous Balance:	Cr 379.00
Payments Received:	None
Current Charges:	46.23
Past Due Balance:	None
Total Current Balance:	Cr 332.77

Please detach and return the bottom portion with your payment

Service Address: 4700 Superior St.  
 Service Period: 12/21/00 to 1/21/01

Account Number: 0001-0001.00  
 Statement Date: 8/06/01  
 Due Date: 2/21/01  
 Past Due Amount: None  
 Total Amount Due: Cr 332.77  
 Amount Enclosed:

Elisabeth Eaker  
 4700 Superior St.  
 Anywhere FL  
 33333

Address change noted on reverse side

Return To:

Wet Water Company  
 25 First Avenue North  
 Tide, FL  
 33333

Letter Size Laser 3

**Statement**  
Wet Water Company

Account Number: 0001-0001.00  
 Statement Date: 8/06/01  
 Service Address: 4700 Superior St.  
 Service Period: 12/21/00 to 1/21/01

Elisabeth Eaker  
 4700 Superior St.  
 Anywhere FL  
 33333

**Meter Readings:**

Service	Previous	Latest	Used	Date Read
Water	3307	3324	17	1/21/01

**Notes:**

[Empty box for notes]

**Charge Summary:**

Previous Balance:	Cr 379.00
Payments Received:	None
Current Charges:	46.23
Past Due Amount:	None
Total Amount Due:	Cr 332.77
Due Date:	2/21/01

**Usage History:**

Service	This Month	Last Month	Year Ago
Water	17	13	0

**Current Charges:**

Water	42.42
PST	0.81
Late Fee	3.00

Please detach and return the bottom portion with your payment

Service Address: 4700 Superior St.  
 Service Period: 12/21/00 to 1/21/01

Elisabeth Eaker  
 4700 Superior St.  
 Anywhere FL  
 33333

Address change noted on reverse side

Return To:

Wet Water Company  
 25 First Avenue North  
 Tide, FL  
 33333

Account Number: 0001-0001.00  
 Statement Date: 8/06/01  
 Due Date: 2/21/01  
 Past Due Amount: None  
 Total Amount Due: Cr 332.77  
 Amount Enclosed: [Empty box]

**Late Notice Forms**

**Four Piece Laser 1**

0001-0002.00

Lil Bustiers  
P.O. Box 000  
Jacksonville FL  
32241

0001-0004.00

Eugene Been  
4704 Kingtown St.  
Flowery FL  
33333

0001-0006.00

Dennis Garcia  
4711 Newvine St.  
Worawville FL  
33333

**Magnified  
view**

0001-0004.00

Eugene Been  
4704 Kingtown St.  
Flowery FL  
33333



**Staggered Tractor 1**

159	162	3:		
1-2	7/1:	2/21		
		30.		
Water		103.41		
Late				
PSI		1.98		
Late		3.00		
Late				
Late				
Late				
Late				
Late				
Late				
Late				
Late				
			Lil Busters	
			P.O. Box 000	
			Jacksonville FL	
			32241	
		138.		
			1-2	138. 2/21

**Staggered Tractor 2**

159	162	3:		
1-2	7/1:	2/21		
		33.		
Water		103.41		
Late				
PSI		1.98		
Late		3.00		
Late				
Late				
Late				
Late				
Late				
Late				
Late				
Late				
Late				
Late				
			Lil Busters	
			P.O. Box 000	
			Jacksonville FL	
			32241	
		141.		
			1-2	141. 2/21

# 186 Lists

## Rate Classes

Run: 8/27/01  
5:13PM

### Wet Water Company Billing Rates

Page: 1

Abbrev	Name	Computation Method	Target Charge	Proration Method	Comp Order	
	Base	Extra	Surcharge	Maximum	Source Meter	Flat Amount
back	backflow 3/4"	Flat Amount	Backflow	None		12
	50.00					
	Low Limit To High Limit	Base	Extra	Flat	Per Unit	
	Up to 0.00	0.00	0.00			
	0.00 and Above	0.00	0.00			
Late	Late Fee	Overdue Amount	Late Fee	None		1
	Low Limit To High Limit	Base	Extra	Flat	Per Unit	
	Up to 5.00	0.00	0.00			
	5.00 and Above	0.00	0.00	3.00		
Multi	Multi-Family	Metered Usage	Water	None		6
	Low Limit To High Limit	Base	Extra	Flat	Per Unit	
	Up to 13	5.32	5.32	-4.14	2.040000	
	13 to 23	5.32	5.32	-12.30	2.720000	
	23 and Above	5.32	5.32	-42.00	4.070000	
PSTS	PST (Sewer)	Current Charges	PST	None		14
	Low Limit To High Limit	Base	Extra	Flat	Per Unit	
	Up to 0.00	0.00	0.00			
	0.00 and Above	0.00	0.00		2.000000	
PSTW	PST (Water)	Current Charges	PST	None		13

## Reports

### Pending Refund Report

#### Pending Refunds Report Parameters Wet Water Company

4/15/2001, 5:00PM

Printed by IMS

Account Range: 0001-0001.00 to 0001-0111.00  
Skip Closed Accounts: Yes  
Pay Balance from Refund: Yes  
Minimum Overpay for Refund: 0.00  
Minimum Refund Check: 0.00

Billing Cycles:  
A Use

Refund Checks

Six Dollars and Seventy Seven Cents

04/15/2001

\$6.77

Elisabeth Eaker  
4700 Superior St.  
Anywhere FL  
33333

Account:  
0001-0001.00

Deposit Refund: \$0.00  
Paid to Balance: \$0.00  
Overpayment Refund: \$6.77  
Total Refund: \$6.77

Check Number: 5

Consumption Reports

Consumption Report Parameters  
Wet Water Company  
Multifamily report

7/19/2001, 12:58PM

Printed by IMS

Account Range: <b>0001-0001.00</b> to <b>0001-0008.00</b>	Route	Number Two	Rate Classes	Billing Cycles
Date Range: <b>07/19/2000</b> to <b>07/19/2001</b>	(Blank)	(Blank)	Late	A Use
Print Order: <b>Account Number</b>	<b>ignore</b>	<b>ignore</b>	SewCom	<b>ignore</b>
Summary Only: <b>No</b>	<b>ignore</b>	<b>ignore</b>	Sew1 5	<b>ignore</b>
Estimates Only: <b>No</b>	<b>ignore</b>	<b>ignore</b>	Sew5/8	<b>ignore</b>
	<b>ignore</b>	<b>ignore</b>	Sewer	<b>ignore</b>
Unusual use filters:	<b>ignore</b>	<b>ignore</b>	Multi	<b>Use</b>
Include accounts with no readings: <b>No</b>	<b>ignore</b>	<b>ignore</b>	Water4	<b>ignore</b>
Below average consumption: <b>-n/a</b>	1	<b>ignore</b>	Water3	<b>ignore</b>
Above average consumption: <b>-n/a</b>	2	<b>ignore</b>	Water2	<b>ignore</b>
Lower consumption limit: <b>-n/a</b>	3	<b>ignore</b>	Water1	<b>ignore</b>
Upper consumption limit: <b>-n/a</b>	4	<b>ignore</b>	water5	<b>ignore</b>
	5	<b>ignore</b>	back	<b>Use</b>
	6	<b>ignore</b>	PSTW	<b>ignore</b>
	7	<b>ignore</b>	PSTS	<b>ignore</b>
			TaxS	<b>ignore</b>
			TaxW	<b>ignore</b>

# Billing Report

## Billing Report Parameters Wet Water Company Multi Family

4/15/2001, 5:48PM

Printed by IMS

Account Range: 0001-0001.00 to 0001-0001.00			Charge Categories:			Rate Classes:			Billing Cycles:	
Date Range: 04/15/2001 to 04/15/2001			Water	Standard	Use	Late	Ignore	Ignore	A	Use
Print Order: Account Number			Sewer	Standard	Ignore	SewCom	Ignore			
Summary Only: No			PST	Standard	Ignore	Sew1.5	Ignore			
			Late	Standard	Use	Sew5/8	Ignore			
			Serv	Non-Refundable	Ignore	Sewer	Ignore			
			CutOff	Standard	Ignore	Multi	Use			
			House	Standard	Ignore	Water4	Ignore			
			Bkflow	Non-Refundable	Use	Water3	Ignore			
			Dep	Refundable	Ignore	Water2	Ignore			
			BadChk	Standard	Ignore	Water1	Ignore			
			Tamper	Standard	Ignore	water5	Ignore			
			CutOn	Standard	Ignore	bak	Ignore			
			CR	Standard	Use	PSTW	Ignore			
						PST	Ignore			
						TaxS	Ignore			
						TaxW	Ignore			
Notes:										
*blank*	Use									
FAST	Use									
SVC	Use									
EMERG	Use									
LATE	Use									

# Cash Receipts Report

## Cash Receipts Report Parameters Wet Water Company Sewer Collection and Pst

4/15/2001, 5:50PM

Printed by IMS

Account Range: 0001-0001.00 to 0001-0001.00			Charge Categories:			Billing Cycles:		
Date Range: 04/15/2001 to 04/15/2001			Water	Standard	Ignore	A	Use	
Print Order: Account Number			Sewer	Standard	Use			
Summary Only: No			PST	Standard	Use			
			Late	Standard	Ignore			
			Serv	Non-Refundable	Ignore			
			CutOff	Standard	Ignore			
			House	Standard	Ignore			
			Bkflow	Non-Refundable	Ignore			
			Dep	Refundable	Ignore			
			BadChk	Standard	Ignore			
			Tamper	Standard	Ignore			
			CutOn	Standard	Ignore			
			CR	Standard	Use			
Types:			Methods:					
New	Use	Hand	Use	Cash	Use			
Correction	Use	Automated	Use	Check	Use			
NSF-Rebill	Use	Late Print	Use	Electronic	Use			
		Work Order	Use	From Deposit	Use			
		New Acct	Use	Interest	Use			
				Credit Card	Use			
				From Credit	Use			
Notes:			Cashiers:					
*blank*	Use	IMS	Use					
FAST	Use	Master	Use					
SVC	Use	park	Use					
EMERG	Use							
LATE	Use							

# Refund Report

## Deposit Refunds Report Parameters Wet Water Company Standard

4/15/2001, 5:52PM

Printed by IMS

Account Range: 0001-0001.00 to 0001-0001.00  
 Date Range: 04/15/2001 to 04/15/2001  
 Print Order:  
 Summary Only: No

Charge Categories:  
 Dep Refundable Use  
 Billing Cycle:  
 A Use

Types: Codes:  
 New Use Hand Use  
 Correction Use Automated Use  
 NSF-Rebill Use Late Print Use  
 Wok Order Use  
 New Acct Use

Notes: Cashiers:  
 \*blank\* Use IMS Use  
 FAST Use Master Use  
 SVC Use park Use  
 EMERG Use  
 LATE Use

# Current Balance Report

## Current Balance Report Parameters Wet Water Company Current Balance Report

4/15/2001, 5:53PM

Printed by IMS

Account Range: 0001-0001.00 to 0001-0001.00  
 Print Order: Account Number  
 Summary Only: No  
 Printed As Of: Current  
 Treatment of "No Charges" Accounts: Included

Overdue:	Late since:	Minimum:	Maximum:
	-n/a-		
	-n/a-		
	-n/a-		
	-n/a-		

Charge Categories: Rate Classes: Billing Cycles:  
 Water Standard Use Late Use  
 Sewer Standard Use SewCom Use  
 PST Standard Use Sew1.5 Use  
 Late Standard Use SewCS Use  
 Serv Non-Refundable Use Sewer Use  
 CutOff Standard Use Multi Use  
 House Standard Use Water4 Use  
 Bkflow Non-Refundable Use Water3 Use  
 Dep Refundable Use Water2 Use  
 BadChk Standard Use Water1 Use  
 Tamper Standard Use water5 Use  
 CutOn Standard Use bark Use  
 CR Standard Use PSTW Use  
 PSTS Use  
 TaxS Use  
 TaxW Use

## Current Deposit Report

### Deposits/Fees Report Parameters Hotville Water Company Current Deposits

8/26/2002, 3:57PM

Account Range:	<b>0001.0003.00</b>	to	<b>0001.0023.00</b>	Charge Categories:		Rate Classes:
Print Order:	<b>Account Number</b>			Serv	Non-Refundable	Ignore
Printed As Of:	<b>08/26/2002</b>			Bkflow	Non-Refundable	Ignore
Summary Only:	<b>No</b>			Dep	Refundable	Use
Exclude Residential Accounts:	<b>No</b>					Late
Exclude Commercial Accounts:	<b>No</b>					SewCom
Exclude Inside City Accounts:	<b>No</b>					Sew1.5
Exclude Outside City Accounts:	<b>No</b>					Sew5/8
Final Bill Accounts Only:	<b>No</b>					Sewer
Exclude Final Bill Accounts:	<b>No</b>					Multi
Sewer Accounts Only:	<b>No</b>					Water4
Exclude Sewer Accounts:	<b>No</b>					Water3
						Water2
						Water1
						water5
						back
						PSTW
						PSTS
						TaxS
						TaxW

## Work Order Report

### Work Order Report Parameters Wet Water Company Standard

4/15/2001, 5:57PM

Printed by IMS

Account Range:	0001-0001.00	to	0001-0002.00	Work Order Types:	Rate Classes:	Billing Cycles:
Date Range:	04/15/2001	to	04/15/2001	After	Late	A
Print Order:	No			During	SewCom	Use
Summary Only:	No			M-OFF	Sew1.5	Use
Work Crew Range:	All			M-ON	Sew5/8	Use
				Normal	Sewer	Use
				Read2	Multi	Use
				Visit	Water4	Use
					Water3	Use
					Water2	Use
					Water1	Use
					water5	Use
					back	Use
					PSTW	Use
					PSTS	Use
					TaxS	Use
					TaxW	Use

## Work Order

### Work Order Wet Water Company

4/15/2001, 5:59PM

Printed by IMS

**Type:** Premises visit  
**Assigned To:** Jim Beam

**Number:** 4  
**Opened:** 04/15/2001

<p><b>Location:</b> Elisabeth Eaker 4700 Superior St Anywhere FL 33333</p>	<p><b>Tracking:</b> Account 0001-0001.00  This record was created on 4/15/2001 at 5:58PM by IMS. It has not been edited since then.</p>
--	---

**1 meter at this location:**

Type	Grid Location	Meter #1	Meter #2	Load
Water	0: (none)	1		1

**Comments/Notes:**

Going to customers residence to turn off meter,  
but they pay the balance due instead.

## Meter Sheets

Account Number Meter Number	Customer Name Service Address	Average Use	Previous Reading	New Reading
0001-0002.00 F825949	Lil Buster's #220 US 27	21	1628	
0001-0003.00 628981	Wacky World US 27	12	576	
0001-0004.00 966627	Eugene Been 4704 Kingtown St.	0	455	
0001-0005.00 4478415	Mercedes Spreeman 4710 Wales St.	5	607	
0001-0006.00 R225890	Dennis Garcia 4711 Nowhere St.	4	747	

## Check Register

### Check Register Report Parameters Wet Water Company

4/15/2001, 6:04PM

Printed by IMS

---

Account Range:	0001-0001.00 to 0001-0002.00	Billing Cycle:	A Use
Date Range:	03/01/2001 to 03/31/2001		
Print Order:	Check Number		
Include Reconciled Checks:	Yes		
Include Voided Checks:	Yes		

---

## Exception Report

### Exception Report Parameters Bill Printing

4/15/2001, 6:05PM

Printed by IMS

---

Original report generated by IMS on 11/02/1999 at 2:29PM

---



## Priority Services Report

### Priority Services Report Parameters Wet Water Company

4/16/2001, 11:58AM

Printed by IMS

---

Account Range: 0001-0001.00 to 0001-0001.00  
Print Order: Account Number  
Use Comments: Yes

Billing Cycles: A Use

---

## Dormant Accounts Report

### Dormant Accounts Report Parameters Wet Water Company

4/16/2001, 11:59AM

Printed by IMS

---

Account Range: 0001-0001.00 to 0001-0001.00  
Print Order: Account Number

## Bills per Zipcode Report

### Bill Count by Zipcode Parameters Wet Water Company

4/16/2001, 12:01PM

Printed by IMS

Account Range: 0001-0001.00 to 0002-0197.00  
Date Range: 03/01/2001 to 03/31/2001

Billing Cycles: A Use

## Rate Class Breakdown

### Rate Class Breakdown Report Parameters Wet Water Company

4/16/2001, 12:02PM

Printed by IMS

Account Range:	Billing Cycles:	Rate Classes:	Rate Exemptions:
0001-0001.00 to 0001-0246.00	A Use	Late Ignore	Late Ignore
Minimum Consumption: 100		SewCom Ignore	SewCom Ignore
Maximum Consumption: 50000		Sew1.5 Ignore	Sew1.5 Ignore
Ignore Multipliers: No		Sew5/8 Ignore	Sew5/8 Ignore
		Sewer Ignore	Sewer Ignore
		Multi Ignore	Multi Ignore
		Water4 Ignore	Water4 Ignore
		Water3 Ignore	Water3 Ignore
		Water2 Ignore	Water2 Ignore
		Water1 Ignore	Water1 Ignore
		water5 Ignore	water5 Ignore
		back Ignore	back Ignore
		PSTW Ignore	PSTW Ignore
		PSTS Ignore	PSTS Ignore
		TaxS Ignore	TaxS Ignore
		TaxW Ignore	TaxW Ignore

## Date-To-Date Summary Report

---

**Date-To-Date Summary Report Parameters**  
**Hotville Water Company**  
August 26, 1999 To August 26, 2002

8/26/2002, 4:30PM

---

Account Range: **0001-0003.00** to **0001-0030.00**

## Route Breakdown

**Route Breakdown Report Parameters**  
**Wet Water Company**

4/16/2001, 12:03PM

Printed by IMS

---

Water Inside	Water Outside	Sewer Inside	Sewer Outside	Total
--------------	---------------	--------------	---------------	-------

---

Account Range: 0001-0001.00 to 0001-0246.00  
Active accounts only

---

## Year to date Summary

### Year-To-Date Summary Report Parameters Wet Water Company

4/16/2001, 12:04PM

---

Account Range: 0001-0001.00 to 0002-0197.00

---

## Profile Report

### Profile Report Parameters Wet Water Company

4/16/2001, 12:06PM

Printed by IMS

---

Account Range: 0001-0001.00 to 0001-0197.00

- Accounts per Book
  - Accounts per Billing Cycle
  - Accounts per Rate Class
  - Meters per Account
  - Meter Sizes
  - Accounts per Group
  - Current and Late Balances
  
  - Start each section on a new page
  - Use multipliers to derive rate totals
-

# Customer Edit History Report

## Customer Edit History Report Wet Water Company

4/16/2001, 12:15PM Printed by IMS

Account	Date	By	Action	Field	Old Value	New Value
0001-0001.00	10/23/00	park	Add	Account Number		0001-0001.00
0001-0001.00	10/23/00	park	Add	Route (First User Index Key)		3
0001-0002.00	5/04/99	IMS	Add	Account Number		0001-0002.00
0001-0002.00	5/05/99	park	Change	Number One (First User Index Key)		2
0001-0003.00	5/04/99	IMS	Add	Account Number		0001-0003.00
0001-0003.00	5/05/99	park	Change	Number One (First User Index Key)		2
0001-0004.00	5/05/99	park	Add	Account Number		0001-0004.00
0001-0004.00	5/05/99	park	Add	Number One (First User Index Key)		3
0001-0004.00	5/05/99	park	Change	Number One (First User Index Key)	3	1
0001-0004.00	1/27/00	park	Change	Route (First User Index Key)	1	3
0001-0005.00	5/05/99	park	Add	Account Number		0001-0005.00
0001-0005.00	5/05/99	park	Change	Number One (First User Index Key)		3
0001-0006.00	5/05/99	park	Add	Account Number		0001-0006.00
0001-0006.00	5/05/99	park	Change	Number One (First User Index Key)		3
0001-0007.00	5/05/99	park	Add	Account Number		0001-0007.00
0001-0007.00	5/05/99	park	Add	Number One (First User Index Key)		3
0001-0009.00	5/05/99	park	Add	Account Number		0001-0009.00
0001-0009.00	5/05/99	park	Add	Number One (First User Index Key)		3
0001-0010.00	5/05/99	park	Add	Account Number		0001-0010.00
0001-0010.00	5/05/99	park	Add	Number One (First User Index Key)		3
0001-0011.00	5/05/99	park	Add	Account Number		0001-0011.00
0001-0011.00	5/05/99	park	Add	Number One (First User Index Key)		3

# Capital Credits Report

Run: 8/27/01  
4:49PM

Page: 1

## Wet Water Company Capital Credits Report Billing Period 1/01/2001 to 8/27/2001

Account Number	Name	Service Address	Charges	Percent	Amount
0001-0001.00	Elisabeth Eaker	4700 Superior St.	558.33	1.9430	97.15
0001-0002.00	Lil Buster's #220	US 27	88.05	0.3064	15.32
0001-0003.00	Wacky World	US 27	43.23	0.1504	7.52
0001-0004.00	Eugene Been	4704 Kingtown St.	7.08	0.0246	1.23
0001-0005.00	Mercedes Spreeman	4710 Wales St.	12.83	0.0446	2.23
0001-0006.00	Dennis Garcia	4711 Nowhere St.	11.03	0.0384	1.92
0001-0007.00	Dennis Menace	4718 Wrong St.	90.00	0.3132	15.66
0001-0008.00	Mellona Huntingwewillgo	4720 Water St.	27.10	0.0943	4.72
0001-0009.00	Kathryn Vest	4719 Wales St.	20.06	0.0698	3.49
0001-0010.00	Norma Jean	4727 Water St.	19.92	0.0693	3.47
0001-0011.00	Joseph Princeofegypt	4746 Water St.	131.39	0.4572	22.86
0001-0012.00	Kenneth MackTruck	4737 Water St.	15.71	0.0547	2.73
0001-0013.00	D.J. Properties	4745 Wales St.	141.17	0.4913	24.56
0001-0014.00	Robert Koldcut	4752 Water St.	36.60	0.1274	6.37
0001-0015.00	James Barkdog	4802 Water St.	15.71	0.0547	2.73
0001-0016.00	William Barkdog	4801 Water St.	20.06	0.0698	3.49
0001-0017.00	Mary Leepfrog	4811 Water St.	45.00	0.1566	7.83
0001-0018.00	Ronnie Chompers	4812 Water St.	20.06	0.0698	3.49
0001-0019.00	John & Diane Votsup?	4821 Water St.	15.71	0.0547	2.73
0001-0020.00	Michael Puzzed	4824 Water St.	24.40	0.0849	4.25
0001-0021.00	Thelma Water	4834 Water St.	17.89	0.0623	3.11
0001-0022.00	Chad Arthistory	4839 Water St.	0.00	0.0000	0.00
0001-0023.00	Edward Blablalbla	4849 Water St.	22.23	0.0774	3.87
0001-0024.00	Harry Dixiecup	4844 Water St.	0.00	0.0000	0.00
0001-0025.00	Kelly Borrows	4890 Water St.	37.43	0.1303	6.51
0001-0026.00	Charles Schoenberger	4901 Wales St.	8.52	0.0296	1.48
0001-0027.00	Charles Shinyennies	4903 Water St.	7.08	0.0246	1.23

**Customer Detail Report**

**Customer Detail Report  
Hotville Water Company**

0001-0004.00, Eugene Parmesano

1/27/2003, 4:20PM

**Account:**  
0001-0004.00  
**Route**  
3  
**Number Two**

**Opened:**  
**Closed:**  
**Social Security:**  
**Driver's License:**

**Billing Cycle:**  
A: 01/01/2003 - 01/31/2003

**General Editing**  
This record was  
9:01AM by park.  
times since then  
performed on 3/5  
park.

**Addresses**

**Service/Billing Address:**  
Eugene Parmesano  
4704 Water St.  
Hotville FL 33853

**Address Editing**  
This record was  
9:02AM by park.  
times since then  
performed on 10/  
IMS.

**Other Address:**  
Eugene Parman  
455 Saderlin Dr.  
Corbin KY 40701

**Address Editing**  
This record was  
9:04AM by park.  
edited only once  
performed on 3/5  
park.

**Metered Services**

**Metered Service:**  
Water

**Installed:** 05/04/1999  
**Load:** 1  
**Multiplier:** 1

**Meter #1**  
966627

**Removed:**  
**Label:**  
**Average Use:** 0.000

**Meter #2**

**Size:** 5/8"  
**Current Use:** - n/a -

**Meter Editing S**  
This record was  
9:02AM by park.  
times since ther  
performed on 5/5  
park.

**Comment:**

Reading	Date	Type	Code	Used	Reading	Date	Type	Code
455.000	01/21/2001	New	Hand	0.000	449.000	03/28/2000	New	Hand
455.000	12/21/2000	New	Hand	0.000	446.000	02/28/2000	New	Hand
455.000	11/21/2000	New	Hand	0.000	443.000	01/28/2000	New	Hand
455.000	10/23/2000	New	Hand	0.000	436.000	12/28/1999	New	Hand
455.000	09/28/2000	New	Hand	0.000	436.000	11/29/1999	New	Hand
455.000	08/28/2000	New	Hand	0.000	436.000	10/27/1999	New	Hand
455.000	07/28/2000	New	Hand	0.000	436.000	09/27/1999	New	Hand
455.000	06/28/2000	New	Hand	0.000	436.000	08/31/1999	New	Hand
455.000	05/28/2000	New	Hand	0.000	436.000	07/25/1999	New	Hand
455.000	04/28/2000	New	Hand	6.000	436.000	06/25/1999	New	Hand

**Transactions**

**Current Balance**  
Water 6.95  
PST 0.13  
**Total:** 7.08

**Detail Breakdown**

# Glossary

**ACH Direct debit** Ach Direct Debit (withdrawal) is a system whereby a file containing a list of customers, including their bank number, account number, and amount owed are transmitted to a bank, and in turn the various customer accounts are debited for the amount of their utility bill and the utility's bank account is credited with the total amount. The payment is applied to the customer account at the time the file is created, and a report is printed listing the transactions.

**Active Meter** The definition of an active meter is one that belongs to an active account, that does not have the duplicate flag set, does not have a date removed, and is related to an active metered service.

**Backflow** A device that is attached to a meter to prevent the backflow of water/sewage into the house. This item is noted in the Customer Window under the Meter Tab.

## General Buttons



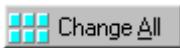
### Apply Button

Apply the change immediately.



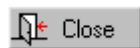
### Change Button

Change the access level for the highlighted item.



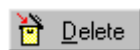
### Change All Button

Change the access level for all items.



### Close Button

Close this window.



### Delete Button

Delete selected entry.

**Edit Button**

View or change selected entry.

**Help Button**

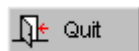
Help on this window.

**Insert Button**

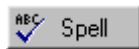
Add a component to this asset.

**OK Button**

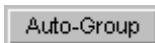
Save changes and close window.

**Quit Button**

Abandon changes and close window.

**Spell Button**

Spell checking is available for users that have Microsoft Word installed on their computer. If a Spell Button appears on the window it means Word is present. If the button does not appear, either Word is not present or is an incompatible version.

**Special Buttons****Auto Group Button**

This button supplies you with groups automatically under the Profile Report, Rate Groups Tab.

**Enter Readings Button**

Enters the meter reading information into the account.

**Export Button**

Exports information to a location chosen by the user.


**Filter and Apply Button**

Filters the information and then applies it to the account.

**Filter and Discard Button**

Shows the information with the filters, but does not apply permanently to account.



Group Processing**Group Processing Button**


For processing multiple accounts at one time.

Individual Processing**Individual Processing Button**

For processing one account at a time.

Import**Import Button**

Imports information from outside source.

Locate Accounts**Locate Accounts Button**


This button takes you to the main list of accounts in the Customer Window so that you may select which ones you would like to use.

Next ↓**Next Button**

Next item in a series.

Prior ↑**Prior Button**

The previous or prior item in a series.

Process and Print**Process and Print Button**

Processes the information and prints it.

Process and Discard**Process and Discard Button**

Processes the information but does not permanently apply to account.

Refund and Apply**Refund and Apply Button**

Refunds payment and applies to the account.

Refund and Discard**Refund and Discard Button**

Refunds payment back to account and goes back to same screen without printing or applying it permanently.

Revise**Revise Button**

Changes the List box layout.

**Print Preview  
Buttons**

This means print this report.



This means exit without printing the report.



This button is to zoom in on a page of the report.



Page: press the Up/Down Arrows to go to the page you want to view.

Down: press the Up/Down Arrows to show how many pages you want to view in a column on the screen.



Across: press the Right/Left Arrows to show how many pages you want to view in a row across the screen.



**Query Button**

Sends a query to the handheld unit.



**Send List Button**

Sends the comment list to the handheld unit.



**Validator Close**

Closes the validator drawer.



**Validator Open**

Opens the validator drawer.

**Colors**

Meter #2	Social Security	Route	Number Two	Parcel
		1		
		1		
		3		
		5		
		3		
		1		

Accounts are color coded according to whether they are active, dormant, overdue. These colors can be chosen by the user. See **Setup, Configuration, Colors Tab**.

**Consumption**

Amount of water/sewer used by the consumer. Readings are taken from a meter where the consumption takes place.

- Dormant Meter** The definition of a dormant meter is the same as for an active one except it belongs to a dormant account. Meters that have the duplicate flag set, have a date removed, or are not related to a metered service are not counted as active or dormant.
- Flag** Marking an item for notice when the account is printed or otherwise processed. Flags include: Prenote, Last Active Book, etc.
- Prenote** When setting up for Direct Debit marking for Prenote on the transaction merely tests to see if all account and bank information is correct. Once the account has been approved the prenote can be unchecked and subsequent transactions will actually take place.
- Proration** Proration in the context of utility billing refers to the adjustment of charges for a period of time different than the normal period. For example, if a customer is billed at a rate of \$30 per month for some service, but used it for only 20 days, the prorated charge might be \$20.
- Rounding** Rounding is a process of dropping digits from the left of a number to lower its precision. For example, **Utility Billing** may compute dollar amounts internally to many decimal places, then round them to the nearest cent for display and printing. Likewise, meter readings and consumption may be rounded.

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## **INTERMET 9440 TRAKKER DOCUMENTATION**

### **Variation 1**

This documentation is intended to accompany the Intermecc 9440 Trakker unit and the IMS Hand Held Meter Reading software package, version 55.

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Part One - the Screens: A description of each of the important screens used in the hand unit.

Part two - the Commands: Descriptions and definitions of each item and option found in the command set.

#### **PART ONE - THE SCREENS:**

The Intermecc 9440 hand unit has a 4x20 display window. While this is better than other units of equal price, it means that only eighty characters can be displayed at once. To further complicate matters, displaying a character in the last (20th) column can cause "screen wrap" just like a normal terminal display (the character stays in the last column, but the cursor moves to the first column of the next line down). Thus, in some cases, we actually have only nineteen characters available if we don't want the cursor to wrap to the next line. You will notice this limitation most often in data fields such as customer names, addresses, and comments.

```
12345678901234567890
2
3
4
```

Each of the major screens, and most of the minor screens, of the hand unit are described below. Accompanying each screen description is a list of valid commands (if any) and actions that may be used while on that screen.

#### **"Hookup" Screen:**

This is the initial screen of the program. It is usually the first screen to appear when the hand unit is turned on. When this screen is visible, the hand unit is ready to be hooked to the computer for uploading and downloading of account data. Valid commands from this screen are:

```
Ready for cable hook
up, or use F1 key to
enter meter readings
_
```

F1 = Enter the "meter reading" mode.

H = Begin displaying the "help" screens.

L = List the 98 standard comments currently in the hand unit's memory.

Q = Display "query" screen showing the hand unit's internal status.

T = Display the "title" screen.

#### "Reminder" Screen:

From several places within the program, if you type in something that is not recognized as a command, this screen will appear. It's purpose is to remind you of the "Help" screens, and show you how to gain access to them. Like most of the minor screens in the hand unit, this one will vanish after only ten seconds, or when the ENTER key is pressed.

```
Not understood. Use
'H' to consult with
the help screens.
(Touch <ENTER>) _
```

#### "No Data" Screen:

When the hand unit is first delivered, or right after a new program has been loaded into it, there are no accounts in it's memory files. If you try to enter the meter reading mode (by pressing the F1 key from the "Hookup" screen) this error screen will appear. It will remain for ten seconds, or until you press the ENTER key. When it vanishes, the program returns control to the "Hookup" screen.

```
Can't walk route yet
as no accounts have
been loaded.
(Touch <ENTER>) _
```

#### "Identification" Screen:

Before entering the meter reading mode, you must identify yourself to the hand unit. This is NOT a password. Any combination of letters, numbers, and punctuation will be accepted. If you enter too many characters, only the first eight will be remembered by the unit. The purpose of this question is only to help provide a record of who used the hand unit last. If you wait twenty seconds without pressing ENTER, the hand unit will assume that you have forgotten about it, and it will return to the "Hookup" screen. Likewise, it will return to the "Hookup" screen if you press ENTER without having typed anything.

```
Please enter your
personal identifi-
cation code:_
```

#### "Meter Reading" Screen:

This is the most complex and often-used of all the screens in the hand unit. It's general format is as follows:

Line One - This line will display either the service address, account number, customer name, or the hand unit's internal record number pointer for this account. The current setting of the display mode (see the "D" command, described below) controls which of these four items is shown here. When the address or customer name is on display, remember that only the first nineteen characters are used by the hand unit.

Line two - Displays either the remark, the service memo, or the prior period's meter reading for this account. If the meter reading is being shown, the number in line two will be prefixed with the label "Old Read:". The old meter reading is always eight digits long, with as many leading zeros as needed to pad it out to that length.

```
<<<<< LINE ONE >>>>>
<<<<< LINE TWO >>>>>
X:<NUMBER> PT1 PT2
(READING):_
```

If the "Old Read:" label is missing then the only other two possibilities are the comment (remark) or service memo. To determine which one of these two

items is currently being displayed, look at the "pointer" labels shown on line three (described below). To switch between remarks and service memos, use the "R" and "M" commands, described below.

Line three - This line has three different pieces of information: The meter number, the "remark" pointer, and the "memo" pointer. The meter number (represented as <NUMBER> in the diagram above) is shown on the lefthand side of the line. The remark and memo pointers (represented as PT1 and PT2 on the diagram) occupy the right side of the line.

There are two possible meter numbers that may be displayed: The external meter identification number (the one that is normally printed on the meter casing) and the internal (Sensus/pit-probe) meter number. The internal meter number normally can be read from a meter only by use of the pit-probe meter reading gun. If the normal meter number is being displayed, it will be prefixed with a "M:". If the prefix is "S:", then it is the Sensus/pit-probe meter number that is on display.

The remark pointer appears as the letter "R" followed by either blanks or a one- or two- digit number. If the "R" is an upper case letter (capital R) then the current remark is being displayed on line two. If its a lower case letter (little r) then line two is showing the current service memo in place of the remark. If you have changed the remark for this account (see the "R" command, described later) the number you entered will be displayed immediately behind the "R". Otherwise, the "R" will be followed by blanks.

The service memo pointer (PT2 on the diagram above) appears and behaves almost exactly like the remark pointer, except that it uses the letters "M" and "m" in place of "R" and "r". The "M" command (described later) is used to control the service memo.

Line four - The first letter on this line tells what kind of meter is being read: W=water, and G=gas. If you have already entered a meter reading for this account, it will be displayed next, bracketed by parenthesis. If no reading has yet been entered, the word "(none)" will be displayed. At this point you may enter a meter reading (of up to eight digits) or one of the following

command letters. Entering an unrecognized command has no effect. You may also activate the pit-probe's automatic meter reading process.

This screen's command list has fifteen options, as listed below:

- F1 = Exit the meter reading mode, and go back to the "Hookup" screen.
- F4 = Enter the data for a "found" meter.
- B = Move back to the previous account.
- D = Switch the display mode for line one.
- E = Erase the current meter reading (no effect if no reading).
- F = Move forward to the next account (same as "ENTER", below).
- H = Begin displaying the "help" screens.
- L = List the 98 standard comments currently in the hand unit's memory.
- M = Add, change, or delete a service memo.
- P = Move to the previously displayed account.
- Q = Display "query" screen showing the hand unit's internal status.
- R = Add, change, or delete a remark (comment).
- S = Display the "search" mode sub-menu.
- T = Display the "title" screen.
- V = Change default direction of traverse.
- ENTER = Move forward to the next account (same as "F", above).



**"Rollover" Screen:**

When you enter a meter reading, it is checked against the last-known meter reading. If the new reading is less than the old reading, a series of warning beeps will sound and this screen will be brought up. If you answer "Y", control will be passed back to the "Meter Reading" screen, where the current account will be redisplayed. If you answer "N", the hand unit will assume that a meter rollover or changeout has taken place. The reading will be recorded for the current account without further questioning, and the hand unit will move on to the next account. The default answer is "N".

```
New reading is lower
than old reading. Do
you want to re-enter
it? (Y/N) _
```

**"High Reading" and "Low Reading" Screens:**

If the new reading is not a rollover, it will be checked against a set of expected high and low readings, which were downloaded from the host along with the rest of the account data. If it is outside this range, a series of warning beeps will sound, and the appropriate one of these two screens will be displayed.

```
Unusually low use.
Do you want to re-
enter the reading?
(Y/N) _
```

In both cases, answering with "Y" will cause the current account to be redisplayed (so that a new meter reading may be entered). Answering with "N" will allow the meter reading to be accepted and recorded; the hand unit will then move on to the next account. The default answer is "N".

```
Unusually high use.
Do you want to re-
enter the reading?
(Y/N) _
```

**"Display Mode" Screens:**

Entering the "D" command at the "Meter Reading" screen will bring up this two-page sub-menu. The first page is concerned with what will be displayed on line one of the "Meter Reading" screen. All of the choices, along with the current mode, are shown. To change the display mode, type in the new number and press ENTER. To leave it unchanged, just press ENTER without typing anything. Typing in something other than a recognized mode will have no effect.

```
0 = Addr   1 = Acct
2 = Name   3 = Rec#
Current mode = 2
New display mode? _
```

- 0 = Service address mode.
- 1 = Book/account number mode.
- 2 = Customer name mode.
- 3 = Internal record number.

```
0 = Meter Number
1 = Sensus I.D.
Current mode = 2
New display mode? _
```

The second page, which will appear after the query on the first page has been satisfied, dictates what will be displayed in the meter number field of the "Meter Reading" screen. All the choices and the current mode are shown. To change the display mode for this field, type in the new value and press ENTER. To leave it unchanged, just press ENTER.

The external meter identification number is the one that's normally printed on the meter casing. Only some meters, specially designed to be electronically read with the pit-probe, will have an internal meter number. Furthermore, the internal meter number normally can be read from a meter ONLY by use of the pit-probe meter reading gun.

- 0 = External meter number.
- 1 = Internal (Sensus/pit-probe) meter number.

**"Help" Screens:**

There are twenty help screens. You may gain access to the first "Help" screen by entering "H" from either the "Meter Reading" or "Hookup" screens. Once in, the first help screen shows how to move around between the other help screens, and how to get out of the help mode when you are finished. Pressing any keys other than the F1, F2, or ENTER keys will have no effect while in the help mode. Because of the limited screen size, some of the explanations run across more than one screen. To be sure that you've seen all there is to see on a topic, check the next screen (using the F2 key) for a continuation of the explanation. All eighteen help screens are reproduced below.

F2 = Move to the next "help" screen.

F3 = Move to the previous "help" screen.

ENTER = Leave help mode and return to "Meter Reading" or "Hookup" screen.

IN HELP SCREENS: <F2> = next screen <F3> = prev screen <ENTER> = quit	D = Display mode: (While walking route only) Allows user to determine what data	To re-display the comments, use either the 'R' or 'M' command.
F1 = Enter/exit mode for walking route: From main screen use this to begin walk-	will be shown on top line of acct screen. Choices are address, acct, name, & rec.	M = Memo: (While on route only) Enter a service memo for the current record.
ing the route. If already walking the route, this returns to the main screen.	Also choose type of meter to be shown in line three: Internal or external.	P = Previous acct: While walking route. Show prev acct, weather fwd or back.
B = Backward: (While walking route only) Show last account. Will wrap around.	H = Help screens: List & describe the commands needed to use this unit.	Q = Query: Display count of read/unread meters and number of previous uploads.
E = Erase: (While walking route only) Erase current meter reading.	L = List comments: Comments shown page by page, as with the help screens.	R = Remark: While on route only. Enter a comment for the current record.
F = Forward: (While walking route only) Show next account. Will wrap around.	O = Old Reading: While on route only. Display old reading instead of comment.	S = Search: (While walking route) This menu allows user to select a 'topic' to
search the account list for. Searching takes time, and cannot be interrupted.	T = Title screens: 3 pages of title data are shown, then the program resumes.	V = Movement vector: Choose default direction of movement through accounts.
		F4 = Enter data on a found meter: After data is entered, the route is resumed.

**"List Comments" Screen:**

The comment listing mode operates exactly like the help mode (described above). All of the ninety-eight standard comments are shown, four per screen, along with the two special action codes (0 and 99). Due to the limits of screen size, the comments are truncated to sixteen characters in length, so that the number of each comment may be shown on the left side of the screen.

```
LIST COMMENTS:
<F2> = next screen
<F3> = prev screen
<ENTER> = quit
```

**"Enter Remark" and "Enter Service Memo" Screens:**

The "R" and "M" commands allow you to add comments from the standard comment list to an account, as well as erase existing comments. The main difference between remarks and service memos is that remarks are made a permanent part of the account's record when they are uploaded, whereas service memos appear on the upload reports and are then discarded. Both are drawn from the same list of standard comments in the unit's memory files.

To exit from either of these screens without making changes to the account, just press the ENTER key. Note that using the "R" or "M" commands will set the display mode of line two in the "Meter Reading" screen, even if no changes were made to the account.

```
Enter, change, or
delete a comment
for this account.
Comment code? _
```

```
Enter, change, or
delete service memo
for this account.
Service code? _
```

**"Query Page" Screens:**

The "Q" command calls up the query pages. The first query page is displayed for ten seconds, or until you press the ENTER key. The second page is then displayed, also for ten seconds or until ENTER is pressed. Control then returns to either the "Hookup" screen or the "Meter Reading" screen.

```
Unread: 222
Read: 222
Total: 222
(Touch <ENTER>) _
```

Page one shows the current meter reading count, while page two shows the upload count. Be sure to note the difference between the words "unloaded" and "uploaded" in lines one and two of the second page. Uploaded accounts have had their data transmitted to the host computer one or more times since receiving their meter readings, whereas unloaded accounts have NOT had their meter readings sent the the host computer yet.

```
Unloaded: 222
Uploaded: 222
Total: 222
(Touch <ENTER>) _
```

**"'Search' Sub-Menu" Screens:**

There are ten different ways to search for an account in the hand unit. The "S" command takes you to the sub-menu screens that list the search modes. Once in the "search" sub-menus, you may enter the number of the desired search mode even if it isn't listed on the current sub-menu screen. For example, you may enter an "8" (which is "find next unread meter") while on the first search page, even though that option will not be visible until you reach the second page.

On the first page, if you press ENTER without having typed anything, the second page will be shown.

```
0=Nxt bk 1=addr
2=Name 3=Meter #
4=Acct # 5=Remark
Search target? _
```

```
6=Rem ptr 7=Ser ptr
8=Unread 9=Sensus
Search target? _
```

On the second page, pressing ENTER without having typed anything will return you to the "Meter Reading" screen. The ten commands possible from the search screen are:

- 0 = Next book in the memory file.
- 1 = Find specified service address.
- 2 = Find specified customer name.
- 3 = Find specified external meter number.
- 4 = Find specified account number.
- 5 = Find specified remark string.
- 6 = Find specified remark pointer.
- 7 = Find specified service code pointer.
- 8 = Find next unread meter.
- 9 = Find specified internal (Sensus/pit-probe) meter number.

#### "Title" Screens:

Using the "T" command will bring up the first of the three title pages. Each page is displayed for ten seconds, or until you press the ENTER key. After the final page has been shown, control is returned to either the "Meter Reading" screen or the "Hookup" screen.

Like the query screens, the title screens are designed to show information on the hand unit's operational setup. However, the query screens show data that is subject to frequent change, while the title screens show information that is set by the user and then left alone.

On page one, "version" and "release" identify which set of hand held programs are being used. Page two shows the name of this particular unit, (represented as <<NAME>> in the diagram) and the initials entered by you back on the "Identification" screen. Page three gives the current date and time, according to the hand unit's internal clock. Note that the time is kept on a 24 hour "military" clock, which is easier for computers to work with.

```
TITLE PAGE ONE:
Version 04
Release 5.304
(Touch <ENTER>) _
```

```
TITLE PAGE TWO:
Unit: <<NAME>>
User: <<ID>>
(Touch <ENTER>) _
```

```
TITLE PAGE THREE:
Date: MM/DD/YY
Time: HH:MM
(Touch <ENTER>) _
```

#### "Default Direction" Screen:

Entering the "V" command at the "Meter Reading" screen will bring up this sub-menu. There are only two choices, both of which are shown. To change the default direction vector, type in the new letter and press ENTER. To leave it unchanged, press ENTER.

When ENTER is used at the "Meter Reading" screen to go to the "next" account, the default direction vector determines which direction "next" is. Note that the explicit "F" and "B" keys will always take you forward or backward through the account list, regardless of how the default direction vector is set. This vector determines the direction of traverse only when a direction must be assumed rather than explicitly stated.

```
F = Forward
B = Backward
Current mode = 2
New direction? _
```

#### "Sensus/pit-probe" screens:

There are several screens that you will see only when attempting to read the meters electronically, by way of a pit-probe gun. This first screen appears only after the pit-probe has successfully transmitted the meter data to the hand unit. A four-note victory

```
Data received, now
searching for acct.
Meter # = <METER>
Reading = <READING>
```

beep will be played when this screen appears.

If the transmission was not successful, a warning beep will sound and this second screen will appear. There are two likely causes of an incomplete message: A loose cable, or an attempt to electronically read the next next meter before the previous reading has been fully processed.

```
Message incomplete!
Please try reading
the meter again.
(Touch <ENTER>) _
```

After receiving the meter reading data, parsing it, and locating the target account, a confirmation screen will appear. This screen normally goes by quickly enough so that it isn't visible except by careful observation... It is normally used only by IMS during troubleshooting operations.

```
The account has been
found; reading entry
is in progress...
```

If the transmission was successful but no account with a matching internal meter number could be found, this "not in list" error screen will be printed.

Generally, this error will occur only when the host computer has failed to provide the proper internal meter number for the target account. The proper long-range solution is to amend the host computer's data so that the account can be located in the future.

```
This meter is not in
the list. You must
provide the I.D.
(Touch <ENTER>) _
```

However, until that is done, the meter readings for this account will have to be entered by hand, without aid from the pit-probe gun.

Note that a reading entered by way of the pit-probe is treated just like a hand-entered reading after it is in the account's data field: The customary consumption checks for high, low, and rollover are performed. If anything questionable is found in the data, the appropriate warning screen will be displayed and confirmation from the user may be required before the next meter can be read.

#### PART TWO - THE COMMANDS:

Commands for the hand unit are entered either by pressing a single function key or by typing in a letter and pressing the ENTER key. There are fifteen commands which may be used with the hand unit. However, some of these commands will bring up a sub-menu with additional options, so there are actually more than fifteen actions possible.

"B" Move backward to last account:

This command brings up the account that lies just before of the present account in the hand unit's internal list of accounts. If you are already at the beginning of the internal list, this command will "wrap around" to the last account in the list.

"D" Change the main screen display mode:

The first line of the "Meter Reading" screen can display one of four different pieces of data. This command brings up a list of the four items so that you may select which one is to be displayed. To make the selection, type in the proper number at the "New display mode?" prompt and press the ENTER key. To leave the current display mode unchanged, just press ENTER without having typed anything. If you type in something that is not on the list, the hand unit will ask the question again. The valid choices are:

- 0 = Service address of the meter, truncated to nineteen characters.
- 1 = Account number of this customer.
- 2 = Name of this customer, truncated to nineteen characters.

3 = Internal record number used by the unit to locate this account.

In addition to altering line one of the main screen, you may also alter the data displayed in the meter number field on line three. After the screen for line one is past, a second screen presents choices for the meter number field. There are only two items to select from here. To change the current selection, type in the new number and press ENTER. Pressing ENTER without having type in anything will leave the current selection unchanged. As with the first screen, entering an out-of-bounds answer will cause the hand unit to ask the question again. The valid choices are:

0 = External meter number.

1 = Internal (Sensus/pit-probe) meter number.

Before making the selection, it is helpful to understand the differences between these meter number types. The external meter number is the identification number actually stamped (or otherwise indicated) on the meter case. It is the number most often thought of and used when people say "meter number". Every meter has an external number. By contrast, only certain types of meter have an internal number. Internal numbers are stored electronically within the meter, and are used by some automatic meter reading equipment (like the Sensus pit-probe gun). It is usually not stamped or marked on the outside of the meter. In fact, it usually cannot even be detected without special equipment. Not all accounts will have an internal meter number.

"E" Erase the current meter reading:

Using this command will cause any meter reading you have entered for this account to vanish. Some internal counters are changed when a meter reading is erased. To best see these changes, examine the "Query" screen both before and after erasing a meter reading. If the account had no meter reading, this command will have no effect.

"F" Move forward to next account:

This command brings up the account that lies just after of the present account in the hand unit's internal list of accounts. If you are already at the very end of the internal list, this command will "wrap around" to the first account in the list. Pressing the ENTER key without having typed anything is the same as using the "F" command.

"H" Review the "Help" screens:

Issuing this command will bring up the first of many help screens. You may then move sequentially forward and backward through the list of help screens, using the function keys F2 and F3. When you have seen enough and are ready to leave, press the ENTER key. Pressing any keys other than these three will have no effect.

"L" Review the list of standard comments:

A list of ninety-eight predefined comments may be loaded into the hand unit from the host computer. Two more comments are added to this list by the hand unit itself: Comment number zero (which is actually a command to erase an existing comment from an account), and comment number ninety-nine (also a command, allowing you to type in your own remark for the current account).

Once you have entered the "L" command, the first page of the comment list is displayed. This page reminds you to use the F2, F3, and ENTER keys to move through the twenty-five pages of comments that follow (four comments per page). Pressing any keys other than these three will have no effect.

Comment numbers are shown to the left of the comments themselves. Although actually up to nineteen characters long, only the first sixteen characters of each comment are displayed here, to make room on the screen for the numbers. Comments which have not been filled in by the host computer will be blank.

"M" Add, change, or delete a service code:

This command does two things. Merely entering this command will change the display mode used by line two of the "Meter Reading" screen from "Remark" to "Memo". This change is automatic, even if no memo number is entered.

The second action of this command is to allow you to enter a number from the standard comment list (at the "Service code?" prompt). This number will then be displayed next to the letter "M" on line three of the "Meter Reading" screen, and the comment itself will appear on line two of the screen (that is, it will be shown there until you switch to the "Remark" display mode).

If the account already had a service memo number, it will be replaced by the new number. Typing in something that is not a valid comment number, or just pressing ENTER without typing anything, will return you to the "Meter Reading" screen without changing the account.

The main difference between remarks and service memos is in how they are treated by the host computer: Service memos are printed on the reports, but are not otherwise saved in any way; Remarks are made a permanent part of the account's header record.

"O" Display account's prior-period (old) reading:

Entering this command letter selects the "Old Reading" display mode for line two of the "Meter Reading" screen. The other two display modes for line two display modes for line two are "Remark" and "Memo". (See the "R" and "M" commands for more information about these modes.)

"P" Move to the previously displayed account:

This command is similar to, but not the same as, the "B" command. The "B" command allows you to move sequentially through the list of accounts in the order that they are stored in the hand unit. The "P" command takes you directly back to the account that was being viewed right before the current account.

For example: while viewing account 12-5 you used a search command. The search skipped over many intermediate accounts and took you to account 12-32. If you now use the "F" or "B" commands, they will take you to accounts 12-33 or 12-31; but if you use the "P" command, it will return you to 12-5.

"Q" Query the hand unit's internal condition counters:

The query pages display two different sets of internal counters. The first query page shows the count of read versus unread meters. The second page shows the count of accounts that have been uploaded versus accounts that have not yet been uploaded. Accounts that have not yet been uploaded are referred to as "unloaded" accounts for brevity on the hand unit's display screen.

When the meter reading of an already-uploaded account is changed (either by erasing the current reading or by entering a new meter reading) the account is removed from the uploaded list and restored to the unloaded list. This is to show that another upload is needed in order to get the latest meter information into the host computer.

"R" Add, change, or delete a remark:

This command does two things. Merely entering this command will change the display mode used by line two of the "Meter Reading" screen from "Old Read" or "Memo" to "Remark". This change is automatic, even if no memo number is entered.

The second action of this command is to allow you to enter a number from the standard comment list (at the "Remark code?" prompt). This number will then be displayed next to the letter "R" on line three of the "Meter Reading"

screen, and the comment itself will appear on line two of the screen (that is, it will be shown there until you switch to the "Memo" display mode).

If the account already had a remark number, it will be replaced by the new number. Typing in something that is not a valid comment number, or just pressing ENTER without typing anything, will return you to the "Meter Reading" screen without changing the account.

If the number entered was a 99, you will be asked to type in a comment. Whatever you type in will then be displayed as the new remark for that account. Please note: it is possible to type in as many characters as you want, but only the first nineteen will be kept.

The main difference between remarks and service memos is in how they are treated by the host computer: Service memos are printed on the reports, but are not otherwise saved in any way; Remarks are made a permanent part of the account's header record.

"S" Display the "search" sub-menu and select a target to search for:

This command has a two page sub-menu of nine different things that you may search for. Type in the number of the item that you wish to be the target and press ENTER. Typing in something not on the list will return you to the "Meter Reading" screen. The nine search targets are listed on the next page:

- 0 = Look for first account in next book.
- 1 = Search for a particular service address.
- 2 = Search for a particular customer name.
- 3 = Search for a particular external meter number.
- 4 = Search for a particular account number.
- 5 = Search for a particular remark string.
- 6 = Search for a particular remark pointer.
- 7 = Search for a particular service memo pointer.
- 8 = Look for the next record without a meter reading.
- 9 = Search for a particular internal meter number.

If you select search options one through seven or nine, you will next be asked to type in the search string (the information that you are trying to find a match for). You will be reminded that "upper and lower case must fit". This is because capital letters and little letters (called upper and lower case, in computer language) are represented by different internal code numbers. This means, for example, that the words "PALM", "Palm", and "palm" are all different to the hand unit, because different code numbers are used to store them.

When entering the search string you may type in as many characters as you like, but excess characters are always ignored. (A character is anything that can be typed in from the keyboard. Upper and lower case letters, numbers, punctuation symbols, and even blanks are all characters) The maximum number of useful characters for each type of search is shown below:

```
Service address = 19
Customer name = 19
Meter number (external) = 8
Meter number (internal) = 8
Account number = 9
Remark string = 19
Remark pointer = 2
Service memo pointer = 2
```

When the hand unit searches for a match, it "masks off" a field that is the same size as the search string you entered (subject to the maximum sizes listed above). It then begins its search with the account immediately following the current account and proceeds to the end of the list. If no match was found, it starts the search at the beginning of the list and searches until it has come back to the current account. If still no match was found, the "search mask" is shifted one character to the right and the search starts over. This process



continues until a match is found, or until the search mask cannot be shifted any further. For an example, consider the following list of addresses (note that the last account's address has been truncated to nineteen characters):

```

Acct      -----Address-----
12-2.1    99 Ridgecrest Rd
12-5      101 Palmetto Court
12-7.5    110 Palmetto Court      <====
12-9      1921 Palm Tree St
12-10     77 Orange Tree Rd
12-12     Apt# 9 Grapefruit R

```

Record 12-7.5 is the current account (the one being shown on the "Meter Reading" screen).

If you enter "Palm" as your search string, the hand unit will construct a "search mask" that is four characters wide, and begin its search with account 12-9 (the account immediately following the current account). After it has searched to the end of the list (account 12-12), gone back to the beginning (account 12-2.1), and reached the current account again (12-7.5), it will shift the search mask one character to the right and start over again. This process will continue until it finally finds a match in step five.

A diagram of this search, as described in our example, is shown on the next page:

Step one - search fails.

Step two - search fails again.

12-2.1	99 R	idgecrest Rd	12-2.1	9 9 Ri	dgecrest Rd
12-5	101	Palmetto Court	12-5	1 01 P	almetto Court
12-7.5	110	Palmetto Court	12-7.5	1 10 P	almetto Court
12-9	1921	Palm Tree St	12-9	1 921	Palm Tree St
12-10	77 O	range Tree Rd	12-10	7 7 Or	ange Tree Rd
12-12	Apt#	9 Grapefruit R	12-12	A pt#	9 Grapefruit R

Step three - more failure.

Step five - success at last.

12-2.1	99	Rid	gecrest Rd	12-2.1	99 R	idge	crest Rd
12-5	101	Pa	lmetto Court	12-5	101	Pal	metto Court
12-7.5	110	Pa	lmetto Court	12-7.5	110	Pal	metto Court
12-9	1921	P	alm Tree St	12-9	1921	Pal	m Tree St
12-10	77	Ora	nge Tree Rd	12-10	77 O	rang	e Tree Rd
12-12	Apt	t# 9	Grapefruit R	12-12	Apt#	9 G	rapefruit R

In step five the hand unit searches from account 12-9 to the end of the list, then starts over with account 12-2.1 at the beginning of the list. When it reaches account 12-5 it has found its match.

As a second example, consider typing "Palm " instead of "Palm" (note the blank space). In this case, the search window would have been five characters wide, not four, and success would not have come until step six, with account 12-9, as shown at right. Also remember that if either "PALM" or "palm" had been typed in, the search would have failed completely.

12-2.1	99 Ri	dgecr	est Rd
12-5	101 P	almet	to Court
12-7.5	110 P	almet	to Court
12-9	1921	Palm	Tree St
12-10	77 Or	ange	Tree Rd
12-12	Apt#	9 Gra	pefruit R

Search modes zero and eight ("next book" and "unread meters") operate in a basically similar fashion, but the search string is devised by the hand unit itself, not typed in by the user. Search mode nine also has one special consideration: Since Sensus meter numbers are always eight characters long, any search string that is not exactly eight characters long will be ignored (same as pressing ENTER without having typed anything at all).

"T" Display the title screens:

There are three title screens, all of which show information about the hand unit's internal conditions. These screens are most useful to check information which is usually set once and then left alone (such as the hand unit's internal clock).

"V" Change the default direction of traverse:

After a reading has been successfully entered, or when just ENTER has been pressed at the "Meter Reading" screen, the hand unit advances to display the next account. The direction of traverse (that is, which way the hand unit looks when "next" is specified) is under user control. This command brings up an editing screen where the default direction vector can be changed. There are only two options - forward or backward. To make the selection, type in the proper letter at the "New direction?" prompt and press the ENTER key. To leave the current vector unchanged, just press ENTER without having typed anything. If you type in something that is not either an "F" or "B", the hand unit will ask the question again.

F = Assume "forward" as the default direction.  
B = Assume "backward" as the default direction.

"F1" Exit from the meter reading mode:

Using this key from the "Meter Reading" screen will return control to the "Hookup" screen.

"F4" Record data on found meter:

When this function key is pressed, the hand unit prepares itself to record information on a "new" meter that was not previously a part of the meter route. You will be asked four questions to help identify the new meter: The service address, the name of the customer (if known), the type of meter (water or gas), and the meter's identification number.

After entering these four items, a normal "Meter Reading" screen will be displayed for the new meter, so that you may enter the meter reading. After the meter reading has been entered, the old current account will be shown again on your screen (the "old" current account is the account that was showing when you first pressed the F4 key).

The information for the found meter is stored at the end of the hand unit's memory file, just beyond the last "legitimate" account. When the hand unit is uploaded, the information for the found meters will appear on the bottom of the control reports. Found meters are not automatically entered into the host computer's memory; they must be entered by hand, based on the information in the upload reports. This is to prevent a meter that has been "found" more than once from creating duplicate entries in the host computer.

## INTERMET 9440 TRAKKER DOCUMENTATION

### Variation2

This documentation is intended to accompany the Intermec 9440 Trakker unit and the IMS Hand Held Meter Reading software package, version 55.

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Part One - the Screens: A description of each of the important screens used in the hand unit.

Part Two - the Commands: Descriptions and definitions of each item and option found in the command set.

#### PART ONE - THE SCREENS:

The Intermec 9440 hand unit has a 4x20 display window. While this is better than other units of equal price, it means that only eighty characters can be displayed at once. To further complicate matters, displaying a character in the last (20th) column can cause "screen wrap" just like a normal terminal display (the character stays in the last column, but the cursor moves to the first column of the next line down). Thus, in some cases, we actually have only nineteen characters available if we don't want the cursor to wrap to the next line. You will notice this limitation most often in data fields such as customer names, addresses, and comments.

```
12345678901234567890
2
3
4
```

Each of the major screens, and most of the minor screens, of the hand unit are described below. Accompanying each screen description is a list of valid commands (if any) and actions that may be used while on that screen.

#### "Hookup" Screen:

This is the initial screen of the program. It is usually the first screen to appear when the hand unit is turned on. When this screen is visible, the hand unit is ready to be hooked to the computer for uploading and downloading of account data. Valid commands from this screen are:

```
Ready for cable hook
up, or use F1 key to
enter meter readings
_
```

- F1 = Enter the "meter reading" mode.
- H = Begin displaying the "help" screens.
- L = List the 98 standard comments currently in the hand unit's memory.
- Q = Display "query" screen showing the hand unit's internal status.
- T = Display the "title" screen.

**"Reminder" Screen:**

From several places within the program, if you type in something that is not recognized as a command, this screen will appear. It's purpose is to remind you of the "Help" screens, and show you how to gain access to them. Like most of the minor screens in the hand unit, this one will vanish after only ten seconds, or when the ENTER key is pressed.

```
Not understood. Use
'H' to consult with
the help screens.
(Touch <ENTER>) _
```

**"No Data" Screen:**

When the hand unit is first delivered, or right after a new program has been loaded into it, there are no accounts in it's memory files. If you try to enter the meter reading mode (by pressing the F1 key from the "Hookup" screen) this error screen will appear. It will remain for ten seconds, or until you press the ENTER key. When it vanishes, the program returns control to the "Hookup" screen.

```
Can't walk route yet
as no accounts have
been loaded.
(Touch <ENTER>) _
```

**"Identification" Screen:**

Before entering the meter reading mode, you must identify yourself to the hand unit. This is NOT a password. Any combination of letters, numbers, and punctuation will be accepted. If you enter too many characters, only the first eight

```
Please enter your
personal identifi-
cation code: _
```

will be remembered by the unit. The purpose of this question is only to help provide a record of who used the hand unit last. If you wait twenty seconds without pressing ENTER, the hand unit will assume that you have forgotten about it, and it will return to the "Hookup" screen. Likewise, it will return to the "Hookup" screen if you press ENTER without having typed anything.

**"Meter Reading" Screen:**

This is the most complex and often-used of all the screens in the hand unit. It's general format is as follows:

```
<<<< LINE ONE >>>>
<<<< LINE TWO >>>>
X:<NUMBER> PT1 PT2
(READING): _
```

Line One - This line will display either the service address, account number, customer name, or the hand unit's internal record number pointer for this account. The current setting of the display mode (see the "D" command, described below) controls which of these four items is shown here. When the address or customer name is on display, remember that only the first nineteen characters are used by the hand unit.

Line two - Displays either the remark or the service memo for this account. To determine which of these two items is currently being shown, look at the "pointer" labels shown on line three. To switch between remarks and service memos, use the "R" and "M" commands, described below.

Line three - This line has three different pieces of information: The meter number, the "remark" pointer, and the "memo" pointer. The meter number (represented as <NUMBER> in the diagram above) is shown on the lefthand side of the

line. The remark and memo pointers (represented as PT1 and PT2 on the diagram) occupy the right side of the line.

There are two possible meter numbers that may be displayed: The external meter identification number (the one that is normally printed on the meter

casing) and the internal (Sensus/pit-probe) meter number. The internal meter number normally can be read from a meter only by use of the pit-probe meter reading gun. If the normal meter number is being displayed, it will be prefixed with a "M:". If the prefix is "S:", then it is the Sensus/pit-probe meter number that is on display.

The remark pointer appears as the letter "R" followed by either blanks or a one- or two- digit number. If the "R" is an upper case letter (capital R) then the current remark is being displayed on line two. If its a lower case letter (little r) then line two is showing the current service memo in place of the remark. If you have changed the remark for this account (see the "R" command, described later) the number you entered will be displayed immediately behind the "R". Otherwise, the "R" will be followed by blanks.

The service memo pointer (PT2 on the diagram above) appears and behaves almost exactly like the remark pointer, except that it uses the letters "M" and "m" in place of "R" and "r". The "M" command (described later) is used to control the service memo.

Line four - The first letter on this line tells what kind of meter is being read: W=water, and G=gas. If you have already entered a meter reading for this account, it will be displayed next, bracketed by parenthesis. If no reading has yet been entered, the word "(none)" will be displayed. At this point you may enter a meter reading (of up to eight digits) or one of the following command letters. Entering an unrecognized command has no effect. You may also activate the pit-probe's automatic meter reading process.

This screen's command list has fifteen options, as shown on the next page:

F1 = Exit the meter reading mode, and go back to the "Hookup" screen.  
 F4 = Enter the data for a "found" meter.  
 B = Move back to the previous account.  
 D = Switch the display mode for line one.  
 E = Erase the current meter reading (no effect if no reading).  
 F = Move forward to the next account (same as "ENTER", below).  
 H = Begin displaying the "help" screens.  
 L = List the 98 standard comments currently in the hand unit's memory.  
 M = Add, change, or delete a service memo.  
 P = Move to the previously displayed account.  
 Q = Display "query" screen showing the hand unit's internal status.  
 R = Add, change, or delete a remark (comment).  
 S = Display the "search" mode sub-menu.  
 T = Display the "title" screen.  
 V = Change default direction of traverse.  
 ENTER = Move forward to the next account (same as "F", above).

#### "Rollover" Screen:

When you enter a meter reading, it is checked against the last-known meter reading. If the new reading is less than the old reading, a series of warning beeps will sound and this screen will be brought up. If you answer "Y", control will be passed back to the "Meter Reading" screen, where the current account will be redisplayed. If you answer "N", the hand unit will assume that a meter rollover or changeout has taken place. The reading will be

<p>New reading is lower than old reading. Do you want to re-enter it? (Y/N) _</p>
---

recorded for the current account without further questioning, and the hand unit will move on to the next account. The default answer is "N".

#### "High Reading" and "Low Reading" Screens:

If the new reading is not a rollover, it will be checked against a set of expected high and low readings, which were downloaded from the host along with the rest of the account data. If it is outside this range, a series of warning beeps will sound, and the appropriate one of these two screens will be displayed.

In both cases, answering with "Y" will cause the current account to be redisplayed (so that a new meter reading may be entered). Answering with "N" will allow the meter reading to be accepted and recorded; the hand unit will then move on to the next account. The default answer is "N".

```
Unusually low use.
Do you want to re-
enter the reading?
(Y/N) _
```

```
Unusually high use.
Do you want to re-
enter the reading?
(Y/N) _
```

#### "Display Mode" Screens:

Entering the "D" command at the "Meter Reading" screen will bring up this two-page sub-menu. The first page is concerned with what will be displayed on line one of the "Meter Reading" screen. All of the choices, along with the current mode, are shown. To change the display mode, type in the new number and press ENTER. To leave it unchanged, just press ENTER without typing anything. Typing in something other than a recognized mode will have no effect.

```
0 = Service address mode.
1 = Book/account number mode.
2 = Customer name mode.
3 = Internal record number.
```

```
0 = Addr   1 = Acct
2 = Name   3 = Rec#
Current mode = 2
New display mode? _
```

```
0 = Meter Number
1 = Sensus I.D.
Current mode = 2
New display mode? _
```

The second page, which will appear after the query on the first page has been satisfied, dictates what will be displayed in the meter number field of the "Meter Reading" screen. All the choices and the current mode are shown. To change the display mode for this field, type in the new value and press ENTER. To leave it unchanged, just press ENTER.

The external meter identification number is the one that's normally printed on the meter casing. Only some meters, specially designed to be electronically read with the pit-probe, will have an internal meter number. Furthermore, the internal meter number normally can be read from a meter ONLY by use of the pit-probe meter reading gun.

```
0 = External meter number.
1 = Internal (Sensus/pit-probe) meter number.
```

#### "Help" Screens:

There are twenty help screens. You may gain access to the first "Help" screen by entering "H" from either the "Meter Reading" or "Hookup" screens. Once in, the first help screen shows how to move around between the other help screens, and how to get out of the help mode when you are finished. Pressing any keys other than the F1, F2, or ENTER keys will have no effect while in the help mode. Because of the limited screen size, some of the explanations run across more than one screen. To be sure that you've seen all there is to see on a topic, check the next screen (using the F2 key) for a continuation of the explanation. All eighteen help screens are reproduced below.

F2 = Move to the next "help" screen.  
 F3 = Move to the previous "help" screen.  
 ENTER = Leave help mode and return to "Meter Reading" or "Hookup" screen.

IN HELP SCREENS: <F2> = next screen <F3> = prev screen <ENTER> = quit	D = Display mode: (While walking route only) Allows user to determine what data	P = Previous acct: While walking route. Show prev acct, weather fwd or back.
F1 = Enter/exit mode for walking route: From main screen use this to begin walk-	will be shown on top line of acct screen. Choices are address, acct, name, & rec.	Q = Query: Display count of read/unread meters and number of previous uploads.
ing the route. If already walking the route, this returns to the main screen.	Also choose type of meter to be shown in line three: Internal or external.	R= Remark: While on route only. Enter a comment for the current record.
B = Backward: (While walking route only) Show last account. Will wrap around.	H = Help screens: List & describe the commands needed to use this unit.	S = Search: (While walking route) This menu allows user to select a 'topic' to
E = Erase: (While walking route only) Erase current meter reading.	L = List comments: Comments shown page by page, as with the help screens.	search the account list for. Searching takes time, and cannot be interrupted.
F = Forward: (While walking route only) Show next account. Will wrap around.	M = Memo: (While on route only) Enter a service memo for the current record.	T = Title screens: 3 pages of title data are shown, then the program resumes.
	V = Movement vector: Choose default direction of movement through accounts.	F4 = Enter data on a found meter: After data is entered, the route is resumed.

#### "List Comments" Screen:

The comment listing mode operates exactly like the help mode (described above). All of the ninety-eight standard comments are shown, four per screen, along with the two special action codes (0 and 99). Due to the limits of screen size, the comments are truncated to sixteen characters in length, so that the number of each comment may be shown on the left side of the screen.

LIST COMMENTS:  
 <F2> = next screen  
 <F3> = prev screen  
 <ENTER> = quit

#### "Enter Remark" and "Enter Service Memo" Screens:

The "R" and "M" commands allow you to add comments from the standard comment list to an account, as well as erase existing comments. The main difference between remarks and service memos is that remarks are made a permanent part of the account's record when they are uploaded, whereas

Enter, change, or delete a comment for this account.  
 Comment code? \_

service memos appear on the upload reports and are then discarded. Both are drawn from the same list of standard comments in the unit's memory files.

To exit from either of these screens without making changes to the account, just press the ENTER key. Note that using the "R" or "M" commands will set the display mode of line two in the "Meter Reading" screen, even if no changes were made to the account.

```
Enter, change, or
delete service memo
for this account.
Service code? _
```

#### "Query Page" Screens:

The "Q" command calls up the query pages. The first query page is displayed for ten seconds, or until you press the ENTER key. The second page is then displayed, also for ten seconds or until ENTER is pressed. Control then returns to either the "Hookup" screen or the "Meter Reading" screen.

Page one shows the current meter reading count, while page two shows the upload count. Be sure to note the difference between the words "unloaded" and "uploaded" in lines one and two of the second page. Uploaded accounts have had their data transmitted to the host computer one or more times since receiving their meter readings, whereas unloaded accounts have NOT had their meter readings sent the the host computer yet.

```
Unread: 222
Read: 222
Total: 222
(Touch <ENTER>) _
```

```
Unloaded: 222
Uploaded: 222
Total: 222
(Touch <ENTER>) _
```

#### "Search" Sub-Menu" Screens:

There are ten different ways to search for an account in the hand unit. The "S" command takes you to the sub-menu screens that list the search modes. Once in the "search" sub-menus, you may enter the number of the desired search mode even if it isn't listed on the current sub-menu screen. For example, you may enter an "8" (which is "find next unread meter") while on the first search page, even though that option will not be visible until you reach the second page.

On the first page, if you press ENTER without having typed anything, the second page will be shown. On the second page, pressing ENTER without having typed anything will return you to the "Meter Reading" screen.

The ten commands possible from the search screen are:

- 0 = Next book in the memory file.
- 1 = Find specified service address.
- 2 = Find specified customer name.
- 3 = Find specified external meter number.
- 4 = Find specified account number.
- 5 = Find specified remark string.
- 6 = Find specified remark pointer.
- 7 = Find specified service code pointer.
- 8 = Find next unread meter.
- 9 = Find specified internal (Sensus/pit-probe) meter number.

```
0=Nxt bk 1=addr
2=Name 3=Meter #
4=Acct # 5=Remark
Search target? _
```

```
6=Rem ptr 7=Ser ptr
8=Unread 9=Sensus
Search target? _
```



#### "Title" Screens:

Using the "T" command will bring up the first of the three title pages. Each page is displayed for ten seconds, or until you press the ENTER key. After the final page has been shown, control is returned to either the "Meter Reading" screen or

```
TITLE PAGE ONE:
Version 04
Release 5.304
(Touch <ENTER>) _
```

the "Hookup" screen.

Like the query screens, the title screens are designed to show information on the hand unit's operational setup. However, the query screens show data that is subject to frequent change, while the title screens show information that is set by the user and then left alone.

```
TITLE PAGE TWO:
Unit: <<NAME>>
User: <<<ID>>>
(Touch <ENTER>) _
```

On page one, "version" and "release" identify which set of hand held programs are being used. Page two shows the name of this particular unit, (represented as <<NAME>> in the diagram) and the initials entered by you back on the "Identification" screen. Page three gives the current date and time, according to the hand unit's internal clock. Note that the time is kept on a 24 hour "military" clock, which is easier for computers to work with.

```
TITLE PAGE THREE:
Date: MM/DD/YY
Time: HH:MM
(Touch <ENTER>) _
```

#### "Default Direction" Screen:

Entering the "V" command at the "Meter Reading" screen will bring up this sub-menu. There are only two choices, both of which are shown. To change the default direction vector, type in the new letter and press ENTER. To leave it unchanged, press ENTER.

```
F = Forward
B = Backward
Current mode = 2
New direction? _
```

When ENTER is used at the "Meter Reading" screen to go to the "next" account, the default direction vector determines which direction "next" is. Note that the explicit "F" and "B" keys will always take you forward or backward through the account list, regardless of how the default direction vector is set. This vector determines the direction of traverse only when a direction must be assumed rather than explicitly stated.

#### "Sensus/pit-probe" screens:

There are several screens that you will see only when attempting to read the meters electronically, by way of a pit-probe gun. This first screen appears only after the pit-probe has successfully transmitted the meter data to the hand unit. A four-note victory beep will be played when this screen appears.

```
Data received, now
searching for acct.
Meter # = <METER>
Reading = <READING>
```

If the transmission was not successful, a warning beep will sound and this second screen will appear. There are two likely causes of an incomplete message: A loose cable, or an attempt to electronically read the next next meter before the previous reading has been fully processed.

```
Message incomplete!
Please try reading
the meter again.
(Touch <ENTER>) _
```

After receiving the meter reading data, parsing it, and locating the target account, a confirmation screen will appear. This screen normally goes by quickly enough so that it isn't visible except by careful observation... It is normally used only by IMS during troubleshooting operations.

```
The account has been
found; reading entry
is in progress...
```

If the transmission was successful but no account

with a matching internal meter number could be found, this "not in list" error screen will be printed. Generally, this error will occur only when the host computer has failed to provide the proper internal meter number for the target account. The proper long-range solution is to amend the host computer's data so that the account can be located in the future. However, until that is done, the meter readings for this account will have to

<p>This meter is not in the list. You must provide the I.D. (Touch &lt;ENTER&gt;) _</p>
---

be entered by hand, without aid from the pit-probe gun.

Note that a reading entered by way of the pit-probe is treated just like a hand-entered reading after it is in the account's data field: The customary consumption checks for high, low, and rollover are performed. If anything questionable is found in the data, the appropriate warning screen will be displayed and confirmation from the user may be required before the next meter can be read.

#### PART TWO - THE COMMANDS:

Commands for the hand unit are entered either by pressing a single function key or by typing in a letter and pressing the ENTER key. There are fifteen commands which may be used with the hand unit. However, some of these commands will bring up a sub-menu with additional options, so there are actually more than fifteen actions possible.

"B" Move backward to last account:

This command brings up the account that lies just before of the present account in the hand unit's internal list of accounts. If you are already at the beginning of the internal list, this command will "wrap around" to the last account in the list.

"D" Change the main screen display mode:

The first line of the "Meter Reading" screen can display one of four different pieces of data. This command brings up a list of the four items so that you may select which one is to be displayed. To make the selection, type in the proper number at the "New display mode?" prompt and press the ENTER key. To leave the current display mode unchanged, just press ENTER without having typed anything. If you type in something that is not on the list, the hand unit will ask the question again. The valid choices are:

- 0 = Service address of the meter, truncated to nineteen characters.
- 1 = Account number of this customer.
- 2 = Name of this customer, truncated to nineteen characters.
- 3 = Internal record number used by the unit to locate this account.

In addition to altering line one of the main screen, you may also alter the data displayed in the meter number field on line three. After the screen for line one is past, a second screen presents choices for the meter number field. There are only two items to select from here. To change the current selection, type in the new number and press ENTER. Pressing ENTER without having type in anything will leave the current selection unchanged. As with the first screen, entering an out-of-bounds answer will cause the hand unit to ask the question again. The valid choices are:

- 0 = External meter number.
- 1 = Internal (Sensus/pit-probe) meter number.

Before making the selection, it is helpful to understand the differences between these meter number types. The external meter number is the identifi-

cation number actually stamped (or otherwise indicated) on the meter case. It is the number most often thought of and used when people say "meter number". Every meter has an external number. By contrast, only certain types of meter have an internal number. Internal numbers are stored electronically within the meter, and are used by some automatic meter reading equipment (like the Sensus pit-probe gun). It is usually not stamped or marked on the outside of the meter. In fact, it usually cannot even be detected without special equipment. Not all accounts will have an internal meter number.

"E" Erase the current meter reading:

Using this command will cause any meter reading you have entered for this account to vanish. Some internal counters are changed when a meter reading is erased. To best see these changes, examine the "Query" screen both before and after erasing a meter reading. If the account had no meter reading, this command will have no effect.

"F" Move forward to next account:

This command brings up the account that lies just after of the present account in the hand unit's internal list of accounts. If you are already at the very end of the internal list, this command will "wrap around" to the first account in the list. Pressing the ENTER key without having typed anything is the same as using the "F" command.

"H" Review the "Help" screens:

Issuing this command will bring up the first of many help screens. You may then move sequentially forward and backward through the list of help screens, using the function keys F2 and F3. When you have seen enough and are ready to leave, press the ENTER key. Pressing any keys other than these three will have no effect.

"L" Review the list of standard comments:

A list of ninety-eight predefined comments may be loaded into the hand unit from the host computer. Two more comments are added to this list by the hand unit itself: Comment number zero (which is actually a command to erase an existing comment from an account), and comment number ninety-nine (also a command, allowing you to type in your own remark for the current account).

Once you have entered the "L" command, the first page of the comment list is displayed. This page reminds you to use the F2, F3, and ENTER keys to move through the twenty-five pages of comments that follow (four comments per page). Pressing any keys other than these three will have no effect.

Comment numbers are shown to the left of the comments themselves. Although actually up to nineteen characters long, only the first sixteen characters of each comment are displayed here, to make room on the screen for the numbers. Comments which have not been filled in by the host computer will be blank.

"M" Add, change, or delete a service code:

This command does two things. Merely entering this command will change the display mode used by line two of the "Meter Reading" screen from "Remark" to "Memo". This change is automatic, even if no memo number is entered.

The second action of this command is to allow you to enter a number from the standard comment list (at the "Service code?" prompt). This number will then be displayed next to the letter "M" on line three of the "Meter Reading" screen, and the comment itself will appear on line two of the screen (that is, it will be shown there until you switch to the "Remark" display mode).

If the account already had a service memo number, it will be replaced by the new number. Typing in something that is not a valid comment number, or just pressing ENTER without typing anything, will return you to the "Meter Reading" screen without changing the account.

The main difference between remarks and service memos is in how they are treated by the host computer: Service memos are printed on the reports, but are not otherwise saved in any way; Remarks are made a permanent part of the account's header record.

"P" Move to the previously displayed account:

This command is similar to, but not the same as, the "B" command. The "B" command allows you to move sequentially through the list of accounts in the order that they are stored in the hand unit. The "P" command takes you directly back to the account that was being viewed right before the current account.

For example: while viewing account 12-5 you used a search command. The search skipped over many intermediate accounts and took you to account 12-32. If you now use the "F" or "B" commands, they will take you to accounts 12-33 or 12-31; but if you use the "P" command, it will return you to 12-5.

"Q" Query the hand unit's internal condition counters:

The query pages display two different sets of internal counters. The first query page shows the count of read versus unread meters. The second page shows the count of accounts that have been uploaded versus accounts that have not yet been uploaded. Accounts that have not yet been uploaded are referred to as "unloaded" accounts for brevity on the hand unit's display screen.

When the meter reading of an already-uploaded account is changed (either by erasing the current reading or by entering a new meter reading) the account is removed from the uploaded list and restored to the unloaded list. This is to show that another upload is needed in order to get the latest meter information into the host computer.

"R" Add, change, or delete a remark:

This command does two things. Merely entering this command will change the display mode used by line two of the "Meter Reading" screen from "Memo" to "Remark". This change is automatic, even if no memo number is entered.

The second action of this command is to allow you to enter a number from the standard comment list (at the "Remark code?" prompt). This number will then be displayed next to the letter "R" on line three of the "Meter Reading" screen, and the comment itself will appear on line two of the screen (that is, it will be shown there until you switch to the "Memo" display mode).

If the account already had a remark number, it will be replaced by the new number. Typing in something that is not a valid comment number, or just pressing ENTER without typing anything, will return you to the "Meter Reading" screen without changing the account.

If the number entered was a 99, you will be asked to type in a comment. Whatever you type in will then be displayed as the new remark for that account. Please note: it is possible to type in as many characters as you want, but only the first nineteen will be kept.

The main difference between remarks and service memos is in how they are treated by the host computer: Service memos are printed on the reports, but are not otherwise saved in any way; Remarks are made a permanent part of the account's header record.

"S" Display the "search" sub-menu and select a target to search for:

This command has a two page sub-menu of nine different things that you may search for. Type in the number of the item that you wish to be the target and press ENTER. Typing in something not on the list will return you to the "Meter Reading" screen. The nine search targets are:

- 0 = Look for first account in next book.
- 1 = Search for a particular service address.
- 2 = Search for a particular customer name.
- 3 = Search for a particular external meter number.
- 4 = Search for a particular account number.
- 5 = Search for a particular remark string.
- 6 = Search for a particular remark pointer.
- 7 = Search for a particular service memo pointer.
- 8 = Look for the next record without a meter reading.
- 9 = Search for a particular internal meter number.

If you select search options one through seven or nine, you will next be asked to type in the search string (the information that you are trying to find a match for). You will be reminded that "upper and lower case must fit". This is because capital letters and little letters (called upper and lower case, in computer language) are represented by different internal code numbers. This means, for example, that the words "PALM", "Palm", and "palm" are all different to the hand unit, because different code numbers are used to store them.

When entering the search string you may type in as many characters as you like, but excess characters are always ignored. (A character is anything that can be typed in from the keyboard. Upper and lower case letters, numbers, punctuation symbols, and even blanks are all characters) The maximum number of useful characters for each type of search is shown below:

```
Service address = 19
Customer name = 19
Meter number (external) = 8
Meter number (internal) = 8
Account number = 9
Remark string = 19
Remark pointer = 2
Service memo pointer = 2
```

When the hand unit searches for a match, it "masks off" a field that is the same size as the search string you entered (subject to the maximum sizes listed above). It then begins its search with the account immediately following the current account and proceeds to the end of the list. If no match was found, it starts the search at the beginning of the list and searches until it has come back to the current account. If still no match was found, the "search mask" is shifted one character to the right and the search starts over. This process continues until a match is found, or until the search mask cannot be shifted any further. For an example, consider the following list of addresses (note that the last account's address has been truncated to nineteen characters):

```
Acct      -----Address-----
12-2.1    99 Ridgecrest Rd
12-5      101 Palmetto Court
12-7.5    110 Palmetto Court      <==== Record 12-7.5 is the current
12-9      1921 Palm Tree St        account (the one being shown
12-10     77 Orange Tree Rd      on the "Meter Reading" screen).
12-12     Apt# 9 Grapefruit R
```

If you enter "Palm" as your search string, the hand unit will construct a "search mask" that is four characters wide, and begin its search with account 12-9 (the account immediately following the current account). After it has searched to the end of the list (account 12-12), gone back to the beginning (account 12-2.1), and reached the current account again (12-7.5), it will shift

the search mask one character to the right and start over again. This process will continue until it finally finds a match in step five.

Step one - search fails.

Step two - search fails again.

12-2.1	99 R	idgecrest Rd	12-2.1	9 R	idgecrest Rd
12-5	101	Palmetto Court	12-5	1 01 P	almetto Court
12-7.5	110	Palmetto Court	12-7.5	1 10 P	almetto Court
12-9	1921	Palm Tree St	12-9	1 921	Palm Tree St
12-10	77 O	range Tree Rd	12-10	7 7 Or	ange Tree Rd
12-12	Apt#	9 Grapefruit R	12-12	A pt#	9 Grapefruit R

Step three - more failure.

Step five - success at last.

12-2.1	99	Rid	idgecrest Rd	12-2.1	99 R	idge	crest Rd
12-5	10	1 Pa	lmetto Court	12-5	101	Palm	etto Court
12-7.5	11	0 Pa	lmetto Court	12-7.5	110	Palm	etto Court
12-9	19	21 P	alm Tree St	12-9	1921	Pal	m Tree St
12-10	77	Ora	nge Tree Rd	12-10	77 O	rang	e Tree Rd
12-12	Ap	t# 9	Grapefruit R	12-12	Apt#	9 G	rapefruit R

In step five the hand unit searches from account 12-9 to the end of the

list, then starts over with account 12-2.1 at the beginning of the list. When it reaches account 12-5 it has found its match.

As a second example, consider typing "Palm " instead of "Palm" (note the blank space). In this case, the search window would have been five characters wide, not four, and success would not have come until step six, with account 12-9, as shown at right. Also remember that if either "PALM" or "palm" had been typed in, the search would have failed completely.

12-2.1	99 R	idgecr	est Rd
12-5	101 P	almet	to Court
12-7.5	110 P	almet	to Court
12-9	1921	Palm	Tree St
12-10	77 Or	ange	Tree Rd
12-12	Apt#	9 Gra	pefruit R

Search modes zero and eight ("next book" and "unread meters") operate in a basically similar fashion, but the search string is devised by the hand unit itself, not typed in by the user. Search mode nine also has one special consideration: Since Sensus meter numbers are always eight characters long, any search string that is not exactly eight characters long will be ignored (same as pressing ENTER without having typed anything at all).

"T" Display the title screens:

There are three title screens, all of which show information about the hand unit's internal conditions. These screens are most useful to check information which is usually set once and then left alone (such as the hand unit's internal clock).

"V" Change the default direction of traverse:

After a reading has been successfully entered, or when just ENTER has been pressed at the "Meter Reading" screen, the hand unit advances to display the next account. The direction of traverse (that is, which way the hand unit looks when "next" is specified) is under user control. This command brings up

an editing screen where the default direction vector can be changed. There are only two options - forward or backward. To make the selection, type in the proper letter at the "New direction?" prompt and press the ENTER key. To leave the current vector unchanged, just press ENTER without having typed anything. If you type in something that is not either an "F" or "B", the hand unit will ask the question again.

F = Assume "forward" as the default direction.  
B = Assume "backward" as the default direction.

"F1" Exit from the meter reading mode:

Using this key from the "Meter Reading" screen will return control to the "Hookup" screen.

"F4" Record data on found meter:

When this function key is pressed, the hand unit prepares itself to record information on a "new" meter that was not previously a part of the meter route. You will be asked four questions to help identify the new meter: The service address, the name of the customer (if known), the type of meter (water or gas), and the meter's identification number.

After entering these four items, a normal "Meter Reading" screen will be displayed for the new meter, so that you may enter the meter reading. After the meter reading has been entered, the old current account will be shown again on your screen (the "old" current account is the account that was showing when you first pressed the F4 key).

The information for the found meter is stored at the end of the hand unit's memory file, just beyond the last "legitimate" account. When the hand unit is uploaded, the information for the found meters will appear on the bottom of the control reports. Found meters are not automatically entered into the host computer's memory; they must be entered by hand, based on the information in the upload reports. This is to prevent a meter that has been "found" more than once from creating duplicate entries in the host computer.

## INTERMET 9440 TRAKKER DOCUMENTATION

### Variation 3

This documentation is intended to accompany the Intermec 9440 Trakker unit and the IMS Hand Held Meter Reading software package, version 4.

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Part One - the Screens: A description of each of the important screens used in the hand unit.

Part Two - the Commands: Descriptions and definitions of each item and option found in the command set.

#### PART ONE - THE SCREENS:

The Intermec 9440 hand unit has a 4x20 display window. While this is better than other units of equal price, it means that only eighty characters can be displayed at once. To further complicate matters, displaying a character in the last (20th) column can cause "screen wrap" just like a normal terminal display (the character stays in the last column, but the cursor moves to the first column of the next line down). Thus, in some cases, we actually have only nineteen characters available if we don't want the cursor to wrap to the next line. You will notice this limitation most often in data fields such as customer names, addresses, and comments.

12345678901234567890
2
3
4

Each of the major screens, and most of the minor screens, of the hand unit are described below. Accompanying each screen description is a list of valid commands (if any) and actions that may be used while on that screen.

#### "Hookup" Screen:

This is the initial screen of the program. It is usually the first screen to appear when the hand unit is turned on. When this screen is visible, the hand unit is ready to be hooked to the computer for uploading and downloading of account data. Valid commands from this screen are:

Ready for cable hook up, or use F1 key to enter meter readings
-

- F1 = Enter the "meter reading" mode.
- H = Begin displaying the "help" screens.
- L = List the 98 standard comments currently in the hand unit's memory.
- Q = Display "query" screen showing the hand unit's internal status.
- T = Display the "title" screen.



**"Reminder" Screen:**

From several places within the program, if you type in something that is not recognized as a command, this screen will appear. It's purpose is to remind you of the "Help" screens, and show you how to gain access to them. Like most of the minor screens in the hand unit, this one will vanish after only ten seconds, or when the ENTER key is pressed.

```
Not understood. Use
'H' to consult with
the help screens.
(Touch <ENTER>) _
```

**"No Data" Screen:**

When the hand unit is first delivered, or right after a new program has been loaded into it, there are no accounts in it's memory files. If you try to enter the meter reading mode (by pressing the F1 key from the "Hookup" screen) this error screen will appear. It will remain for ten seconds, or until you press the ENTER key. When it vanishes, the program returns control to the "Hookup" screen.

```
Can't walk route yet
as no accounts have
been loaded.
(Touch <ENTER>) _
```

**"Identification" Screen:**

Before entering the meter reading mode, you must identify yourself to the hand unit. This is NOT a password. Any combination of letters, numbers, and punctuation will be accepted. If you enter too many characters, only the first eight will be remembered by the unit. The purpose of this question is only to help provide a record of who used the hand unit last. If you wait twenty seconds without pressing ENTER, the hand unit will assume that you have forgotten about it, and it will return to the "Hookup" screen. Likewise, it will return to the "Hookup" screen if you press ENTER without having typed anything.

```
Please enter your
personal identifi-
cation code: _
```

**"Meter Reading" Screen:**

This is the most complex and often-used of all the screens in the hand unit. It's general format is as follows:

```
<<<<< LINE ONE >>>>>
<<<<< LINE TWO >>>>>
<NUMBER>   PT1  PT2
(READING): _
```

Line One - This line will display either the service address, account number, customer name, or the hand unit's internal record number pointer for this account. The current setting of the display mode (see the "D" command, described below) controls which of these four items is shown here. When the address or customer name is on display, remember that only the first nineteen characters are used by the hand unit.

Line two - Displays either the remark or the service memo for this account. To determine which of these two items is currently being shown, look at the "pointer" labels shown on line three. To switch between remarks and service memos, use the "R" and "M" commands, described below.

Line three - This line has three different pieces of information: The meter number, the "remark" pointer, and the "memo" pointer. The meter number (represented as <NUMBER> in the diagram above) is shown on the lefthand side of the line. The remark and memo pointers (represented as PT1 and PT2 on the diagram) occupy the right side of the line.

The remark pointer appears as the letter "R" followed by either blanks or a one- or two- digit number. If the "R" is an upper case letter (capital R) then

the current remark is being displayed on line two. If its a lower case letter (little r) then line two is showing the current service memo in place of the remark. If you have changed the remark for this account (see the "R" command, described later) the number you entered will be displayed immediately behind the "R". Otherwise, the "R" will be followed by blanks.

The service memo pointer (PT2 on the diagram above) appears and behaves almost exactly like the remark pointer, except that it uses the letters "M" and "m" in place of "R" and "r". The "M" command (described later) is used to control the service memo.

Line four - The first letter on this line tells what kind of meter is being read: W=water, and G=gas. If you have already entered a meter reading for this account, it will be displayed next, bracketed by parenthesis. If no reading has yet been entered, the word "(none)" will be displayed. At this point you may enter a meter reading (of up to eight digits) or one of the following command letters. Entering an unrecognized command has no effect.

This screen's command list has fifteen entries, as shown on the next page:

F1 = Exit the meter reading mode, and go back to the "Hookup" screen.  
 F4 = Enter the data for a "found" meter.  
 ENTER = Move forward to the next account (same as "F", below).  
 B = Move back to the previous account.  
 D = Switch the display mode for line one.  
 E = Erase the current meter reading (no effect if no reading).  
 F = Move forward to the next account (same as "ENTER", above).  
 H = Begin displaying the "help" screens.  
 L = List the 98 standard comments currently in the hand unit's memory.  
 M = Add, change, or delete a service memo.  
 P = Move to the previously displayed account.  
 Q = Display "query" screen showing the hand unit's internal status.  
 R = Add, change, or delete a remark (comment).  
 S = Display the "search" mode sub-menu.  
 T = Display the "title" screen.

#### "Rollover" Screen:

When you enter a meter reading, it is checked against the last-known meter reading. If the new reading is less than the old reading, a series of warning beeps will sound and this screen will be brought up. If you answer "Y", control will be passed back to the "Meter Reading" screen, where

the current account will be redisplayed. If you answer "N", the hand unit will assume that a meter rollover or changeout has taken place. The reading will be recorded for the current account without further questioning, and the hand unit will move on to the next account. The default answer is "N".

New reading is lower than old reading. Do you want to re-enter it? (Y/N) _
---

#### "High Reading" and "Low Reading" Screens:

If the new reading is not a rollover, it will be checked against a set of expected high and low readings, which were downloaded from the host along with the rest of the account data. If it is outside this range, a series of warning beeps will

Unusually low use. Do you want to re- enter the reading? (Y/N) _
---

sound, and the appropriate one of these two screens will be displayed.

In both cases, answering with "Y" will cause the current account to be redisplayed (so that a new meter reading may be entered). Answering with "N" will allow the meter reading to be accepted and recorded; the hand unit will then move on to the next account. The default answer is "N".

Unusually high use.  
Do you want to re-enter the reading?  
(Y/N) \_

"Display Mode" Screen:

Entering the "D" command at the "Meter Reading" screen will bring up this sub-menu. All of the choices, along with the currently active mode, are displayed. To change the display mode, type in the new number and press ENTER. To leave the current mode unchanged, just press ENTER without typing anything. Typing in anything other than a recognized mode will have no effect.

- 1 = Service address mode.
- 2 = Customer name mode.
- 3 = Book/account number mode.
- 4 = Internal record number mode.

0 = Addr    1 = Acct  
2 = Name    3 = Rec#  
Current mode = 2  
New display mode? \_

"Help" Screens:

There are eighteen help screens. You may gain access to the first "Help" screen by entering "H" from either the "Meter Reading" or "Hookup" screens. Once in, the first help screen shows how to move around between the other help screens, and how to get out of the help mode when you are finished. Pressing any keys other than the F1, F2, or ENTER keys will have no effect while in the help mode. Because of the limited screen size, some of the explanations run across more than one screen. To be sure that you've seen all there is to see on a topic, check the next screen (using the F2 key) for a continuation of the explanation. All eighteen help screens are reproduced below.

- F2 = Move to the next "help" screen.
- F3 = Move to the previous "help" screen.
- ENTER = Leave help mode and return to "Meter Reading" or "Hookup" screen.

IN HELP SCREENS:  
<F2> = next screen  
<F3> = prev screen  
<ENTER> = quit

D = Display mode:  
(While walking route only) Allows user to determine what data

Q = Query: Display count of read/unread meters and number of previous uploads.

F1 = Enter/exit mode for walking route: From main screen use this to begin walk-

will be shown on top line of acct screen. Choices are address, acct, name, & rec.

R= Remark: While on route only. Enter a comment for the current record.

ing the route. If already walking the route, this returns to the main screen.

H = Help screens: List & describe the commands needed to use this unit.

S = Search: (While walking route) This menu allows user to select a 'topic' to

B = Backward: (While walking route only) Show last account. Will wrap around.	L = List comments: Comments shown page by page, as with the help screens.	search the account list for. Searching takes time, and cannot be interrupted.
E = Erase: (While walking route only) Erase current meter reading.	M = Memo: (While on route only) Enter a service memo for the current record.	T = Title screens: 3 pages of title data are shown, then the program resumes.
F = Forward: (While walking route only) Show next account. Will wrap around.	P = Previous acct: While walking route. Show prev acct, weather fwd or back.	F4 = Enter data on a found meter: After data is entered, the route is resumed.

#### "List Comments" Screen:

The comment listing mode operates exactly like the help mode (described above). All of the ninety-eight standard comments are shown, four per screen, along with the two special action codes (0 and 99). Due to the limits of screen size, the comments are truncated to sixteen characters in length, so that the number of each comment may be shown on the left side of the screen.

```
LIST COMMENTS:
<F2> = next screen
<F3> = prev screen
<ENTER> = quit
```

#### "Enter Remark" and "Enter Service Memo" Screens:

The "R" and "M" commands allow you to add comments from the standard comment list to an account, as well as erase existing comments. The main difference between remarks and service memos is that remarks are made a permanent part of the account's record when they are uploaded, whereas service memos appear on the upload reports and are then discarded. Both are drawn from the same list of standard comments in the unit's memory files.

To exit from either of these screens without making changes to the account, just press the ENTER key. Note that using the "R" or "M" commands will set the display mode of line two in the "Meter Reading" screen, even if no changes were made to the account.

```
Enter, change, or
delete a comment
for this account.
Comment code? _
```

```
Enter, change, or
delete service memo
for this account.
Service code? _
```

#### "Query Page" Screens:

The "Q" command calls up the query pages. The first query page is displayed for ten seconds, or until you press the ENTER key. The second page is then displayed, also for ten seconds or until ENTER is pressed. Control then returns to either the "Hookup" screen or the "Meter Reading" screen.

Page one shows the current meter reading count, while page two shows the upload count. Be sure to note the difference between the words "unloaded" and "uploaded" in lines one and two of the second page. Uploaded accounts have had their data transmitted to the host computer one or more times since receiving their meter readings, whereas unloaded

```
Unread: 222
Read: 222
Total: 222
(Touch <ENTER>) _
```

```
Unloaded: 222
Uploaded: 222
Total: 222
(Touch <ENTER>) _
```

accounts have NOT had their meter readings sent the the host computer yet.

#### "Search' Sub-Menu" Screen:

There are nine different ways to search for an account in the hand unit. The "S" command takes you to the sub-menu screens that list the search modes. Once in the "search" sub-menus, you may enter the number of the desired search mode even if it isn't listed on the current sub-menu screen. For example,

```
0=Nxt bk  1=addr
2=Name    3=Meter #
4=Acct #  5=Remark
Search target? _
```

you may enter an "8" (which is "find next unread meter") while on the first search page, even though that option will not be visible until you reach the second page.

On the first page, if you press ENTER without having typed anything, the second page will be shown. On the second page, pressing ENTER without having typed anything will return you to the "Meter Reading" screen.

- 0 = Next book in the memory file.
- 1 = Find specified service address.
- 2 = Find specified customer name.
- 3 = Find specified meter number.
- 4 = Find specified account number.
- 5 = Find specified remark string.
- 6 = Find specified remark pointer.
- 7 = Find specified service code pointer.
- 8 = Find next unread meter.

```
6=Rem ptr 7=Ser ptr
8=Unread
Search target? _
```

#### "Title" Screens:

Using the "T" command will bring up the first of the three title pages. Each page is displayed for ten seconds, or until you press the ENTER key. After the final page has been shown, control is returned to either the "Meter Reading" screen or the "Hookup" screen.

Like the query screens, the title screens are designed to show information on the hand unit's operational setup. However, the query screens show data that is subject to frequent change, while the title screens show information that is set by the user and then left alone.

On page one, "version" and "release" identify which set of hand held programs are being used. Page two shows the name of this particular unit, (represented as <<NAME>> in the diagram) and the initials entered by you back on the "Identification" screen. Page three gives the current date and time, according to the hand unit's internal clock. Note that the time is kept on a 24 hour "military" clock, which is easier for computers to work with.

```
TITLE PAGE ONE:
Version 04
Release 5.304
(Touch <ENTER>) _
```

```
TITLE PAGE TWO:
Unit: <<NAME>>
User: <<<ID>>>
(Touch <ENTER>) _
```

```
TITLE PAGE THREE:
Date: MM/DD/YY
Time: HH:MM
(Touch <ENTER>) _
```

## PART TWO - THE COMMANDS:

Commands for the hand unit are entered either by pressing a single function key or by typing in a letter and pressing the ENTER key. There are fourteen commands which may be used with the hand unit. However, some of these commands will bring up a sub-menu with additional options, so there are actually more than fourteen actions possible.

## "B" Move backward to last account:

This command brings up the account that lies just before of the present account in the hand unit's internal list of accounts. If you are already at the beginning of the internal list, this command will "wrap around" to the last account in the list.

## "D" Change the Line-One display mode:

The first line of the "Meter Reading" screen can display one of four different pieces of data. This command brings up a list of the four items so that you may select which one is to be displayed. To make the selection, type in the proper number at the "New display mode?" prompt and press the ENTER key. To leave the current display mode unchanged, just press ENTER without having typed anything. If you type in something that is not on the list, the hand unit will ask the question again. The valid choices are:

- 0 = Service address of the meter, truncated to nineteen characters.
- 1 = Account number of this customer.
- 2 = Name of this customer, truncated to nineteen characters.
- 3 = Internal record number used by the unit to locate this account.

## "E" Erase the current meter reading:

Using this command will cause any meter reading you have entered for this account to vanish. Some internal counters are changed when a meter reading is erased. To best see these changes, examine the "Query" screen both before and after erasing a meter reading. If the account had no meter reading, this command will have no effect.

## "F" Move forward to next account:

This command brings up the account that lies just after of the present account in the hand unit's internal list of accounts. If you are already at the very end of the internal list, this command will "wrap around" to the first account in the list. Pressing the ENTER key without having typed anything is the same as using the "F" command.

## "H" Review the "Help" screens:

Issuing this command will bring up the first of many help screens. You may then move sequentially forward and backward through the list of help screens, using the function keys F2 and F3. When you have seen enough and are ready to leave, press the ENTER key. Pressing any keys other than these three will have no effect.

## "I" Review the list of standard comments:

A list of ninety-eight predefined comments may be loaded into the hand unit from the host computer. Two more comments are added to this list by the hand unit itself: Comment number zero (which is actually a command to erase an existing comment from an account), and comment number ninety-nine (also a com-

mand, allowing you to type in your own remark for the current account).

Once you have entered the "L" command, the first page of the comment list is displayed. This page reminds you to use the F2, F3, and ENTER keys to move through the twenty-five pages of comments that follow (four comments per page). Pressing any keys other than these three will have no effect.

Comment numbers are shown to the left of the comments themselves. Although actually up to nineteen characters long, only the first sixteen characters of each comment are displayed here, to make room on the screen for the numbers. Comments which have not been filled in by the host computer will be blank.

"M" Add, change, or delete a service code:

This command does two things. Merely entering this command will change the display mode used by line two of the "Meter Reading" screen from "Remark" to "Memo". This change is automatic, even if no memo number is entered.

The second action of this command is to allow you to enter a number from the standard comment list (at the "Service code?" prompt). This number will then be displayed next to the letter "M" on line three of the "Meter Reading" screen, and the comment itself will appear on line two of the screen (that is, it will be shown there until you switch to the "Remark" display mode).

If the account already had a service memo number, it will be replaced by the new number. Typing in something that is not a valid comment number, or just pressing ENTER without typing anything, will return you to the "Meter Reading" screen without changing the account.

The main difference between remarks and service memos is in how they are treated by the host computer: Service memos are printed on the reports, but are not otherwise saved in any way; Remarks are made a permanent part of the account's header record.

"P" Move to the previously displayed account:

This command is similar to, but not the same as, the "B" command. The "B" command allows you to move sequentially through the list of accounts in the order that they are stored in the hand unit. The "P" command takes you directly back to the account that was being viewed right before the current account.

For example: while viewing account 12-5 you used a search command. The search skipped over many intermediate accounts and took you to account 12-32. If you now use the "F" or "B" commands, they will take you to accounts 12-33 or 12-31; but if you use the "P" command, it will return you to 12-5.

"Q" Query the hand unit's internal condition counters:

The query pages display two different sets of internal counters. The first query page shows the count of read versus unread meters. The second page shows the count of accounts that have been uploaded versus accounts that have not yet been uploaded. Accounts that have not yet been uploaded are referred to as "unloaded" accounts for brevity on the hand unit's display screen.

When the meter reading of an already-uploaded account is changed (either by erasing the current reading or by entering a new meter reading) the account is removed from the uploaded list and restored to the unloaded list. This is to show that another upload is needed in order to get the latest meter information into the host computer.

"R" Add, change, or delete a remark:

This command does two things. Merely entering this command will change the display mode used by line two of the "Meter Reading" screen from "Memo" to

"Remark". This change is automatic, even if no memo number is entered.

The second action of this command is to allow you to enter a number from the standard comment list (at the "Remark code?" prompt). This number will then be displayed next to the letter "R" on line three of the "Meter Reading"

screen, and the comment itself will appear on line two of the screen (that is, it will be shown there until you switch to the "Memo" display mode).

If the account already had a remark number, it will be replaced by the new number. Typing in something that is not a valid comment number, or just pressing ENTER without typing anything, will return you to the "Meter Reading" screen without changing the account.

If the number entered was a 99, you will be asked to type in a comment. Whatever you type in will then be displayed as the new remark for that account. Please note: it is possible to type in as many characters as you want, but only the first nineteen will be kept.

The main difference between remarks and service memos is in how they are treated by the host computer: Service memos are printed on the reports, but are not otherwise saved in any way; Remarks are made a permanent part of the

account's header record.

"S" Display the "search" sub-menu and select a target to search for:

This command has a two page sub-menu of nine different things that you may search for. Type in the number of the item that you wish to be the target and press ENTER. Typing in something not on the list will return you to the "Meter Reading" screen. The nine search targets are:

- 0 = Look for first account in next book.
- 1 = Search for a particular service address.
- 2 = Search for a particular customer name.
- 3 = Search for a particular meter number.
- 4 = Search for a particular account number.
- 5 = Search for a particular remark string.
- 6 = Search for a particular remark pointer.
- 7 = Search for a particular service memo pointer.
- 8 = Look for the next record without a meter reading.

If you select search options one through seven, you will next be asked to type in the search string (the information that you are trying to find a match for). You will be reminded that "upper and lower case must fit". This is because capital letters and little letters (upper and lower case, in computer language) are represented by different internal code numbers. This means, for example, that the words "PALM", "Palm", and "palm" all look different to the hand unit, because different code numbers are used to store them.

When entering the search string you may type in as many characters as you like, but excess characters are always ignored. (A character is anything that can be typed in from the keyboard. Upper and lower case letters, numbers, punctuation symbols, and even blanks are all characters) The maximum number of useful characters for each type of search is shown below:

```

Service address = 19
Customer name = 19
Meter number = 8
Account number = 9
Remark string = 19
Remark pointer = 2
Service memo pointer = 2

```



When the hand unit searches for a match, it "masks off" a field that is the same size as the search string you entered (subject to the maximum sizes listed above). It then begins its search with the account immediately following the current account and proceeds to the end of the list. If no match was found, it starts the search at the beginning of the list and searches until it has come back to the current account. If still no match was found, the "search mask" is shifted one character to the right and the search starts over. This process continues until a match is found, or until the search mask cannot be shifted any further. For an example, consider the following list of addresses (note that the last account's address has been truncated to nineteen characters):

```

Acct      -----Address-----
12-2.1   99 Ridgecrest Rd
12-5     101 Palmetto Court
12-7.5   110 Palmetto Court      <==== Record 12-7.5 is the current
12-9     1921 Palm Tree St      account (the one being shown
12-10    77 Orange Tree Rd      on the "Meter Reading" screen).
12-12    Apt# 9 Grapefruit R
    
```

If you enter "Palm" as your search string, the hand unit will construct a "search mask" that is four characters wide, and begin its search with account 12-9 (the account immediately following the current account). After it has

searched to the end of the list (account 12-12), gone back to the beginning (account 12-2.1), and reached the current account again (12-7.5), it will shift the search mask one character to the right and start over again. This process will continue until it finally finds a match in step five.

Step one - search fails.                      Step two - search fails again.

12-2.1	99 R	idgecrest Rd	12-2.1	9 9 Ri	dgecrest Rd
12-5	101	Palmetto Court	12-5	1 01 P	almetto Court
12-7.5	110	Palmetto Court	12-7.5	1 10 P	almetto Court
12-9	1921	Palm Tree St	12-9	1 921	Palm Tree St
12-10	77 O	range Tree Rd	12-10	7 7 Or	ange Tree Rd
12-12	Apt#	9 Grapefruit R	12-12	A pt#	9 Grapefruit R

Step three - more failure.                      Step five - success at last.

12-2.1	99	Rid	gecrest Rd	12-2.1	99 R	idge	crest Rd
12-5	101	Pal	metto Court	12-5	101 P	alm	etto Court
12-7.5	110	Pal	metto Court	12-7.5	110 P	alm	etto Court
12-9	1921	Pal	m Tree St	12-9	1921	Pal	m Tree St
12-10	77	Ora	nge Tree Rd	12-10	77 O	rang	e Tree Rd
12-12	Apt#	t# 9	Grapefruit R	12-12	Apt#	9 G	rapefruit R

In step five the hand unit searches from account 12-9 to the end of the list, then starts over with account 12-2.1 at the beginning of the list. When it reaches account 12-5 it has found its match.

As a second example, consider typing "Palm " instead of "Palm" (note the blank space). In this case, the search window would have been five characters wide, not four, and success would not have come until step six, with account 12-9, as shown at right. Also remember that if either "PALM" or "palm" had been typed in,

12-2.1	99 Ri	dgecr	est Rd
12-5	101 P	almet	to Court
12-7.5	110 P	almet	to Court
12-9	1921	Pal	Tree St
12-10	77 Or	ange	Tree Rd
12-12	Apt#	9 Gra	pefruit R

the search would have failed completely.

Search modes zero and eight ("next book" and "unread meters") operate in a basically similar fashion, but the search string is devised by the hand unit itself, not typed in by the user.

"T" Display the title screens:

There are three title screens, all of which show information about the hand unit's internal conditions. These screens are most useful to check information which is usually set once and then left alone (such as the hand unit's internal clock).

"F1" Exit from the meter reading mode:

Using this key from the "Meter Reading" screen will return control to the "Hookup" screen.

"F4" Record data on found meter:

When this function key is pressed, the hand unit prepares itself to record information on a "new" meter that was not previously a part of the meter route. You will be asked four questions to help identify the new meter: The service address, the name of the customer (if known), the type of meter (water or gas),

and the meter's identification number.

After entering these four items, a normal "Meter Reading" screen will be displayed for the new meter, so that you may enter the meter reading. After the meter reading has been entered, the old current account will be shown again on your screen (the "old" current account is the account that was showing when you first pressed the F4 key).

The information for the found meter is stored at the end of the hand unit's memory file, just beyond the last "legitimate" account. When the hand unit is uploaded, the information for the found meters will appear on the bottom of the control reports. Found meters are not automatically entered into the host computer's memory; they must be entered by hand, based on the information in the upload reports. This is to prevent a meter that has been "found" more than once from creating duplicate entries in the host computer.