IBM®

General Information Manual

Accounts Receivable

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Contents

Accounts receivable is the amount of money owed to a company by its customers for merchandise sold or services rendered on a credit basis. This manual shows how IBM procedures have been applied to the recording and controlling of such indebtedness.

The importance of this function is underlined when one considers that almost 90% of the nation's business is done on credit and that many companies depend on the incoming cash flow from accounts receivable for the money to pay current expenses and maturing obligations. In general, the purpose of accounts receivable procedures, in addition to accounting for all receivable transactions, is to facilitate collecting money owed, to minimize any losses from bad debts, and to maintain customer good will through prompt and accurate record keeping. To accomplish this:

- Customer accounts must be established.
- Records must be kept of all transactions affecting the accounts.
- A means of screening credit must be provided.
- Provision must be made for the determination and follow-up of late-paying accounts.
- Trial balances must be prepared periodically.
- Customer statements should be prepared when applicable (in many industries statements are not an absolute requirement).
- Provision must be made to satisfy the information needs of the credit and other departments.

We shall briefly discuss each of these functions as an introduction to the more detailed material presented thereafter. It should be pointed out that accounts receivable accounting, the main concern of this book, is closely tied to credit and collections and that it is only through the coordination of both areas that effective credit policies and practices can be maintained.

Establishing Accounts

Most businesses are continually extending credit to new customers and must perform certain functions to establish each new account. Applicants are screened to determine whether their credit will be approved and, if approved, to set the limit and terms of credit that will be extended to them. The general policies followed in this area, and the decisions made on individual new accounts are functions which are performed by the credit management of each company.

After credit has been approved, a basic record is established for each account. The customer is assigned an account number, and the account is coded with such information as salesman number, location, credit limit, etc. Account numbering and coding are used because they provide a means of positive identification and facilitate machine processing. This information, plus the customer's name and address, is then punched into a customer name and address card. If billing or sales accounting is performed on data processing machines, the same card (or one reproduced from it) is also used for these functions. The credit applications themselves are filed in customer-number or any other desired sequence for reference, if required.

Thus on each new account provision must be made for approving the account, for setting credit limits, for coding the account, and for preparing the basic records required for the accounting and credit and collection functions.

Recording Transactions

All transactions, including charges for merchandise sold or services rendered, payments, credit and debit memos, and journal entries, must be recorded in chronological sequence and then charged or credited to the proper customer accounts. There are two basic approaches to this function: open item and balance forward.

Under the open-item approach a separate record of each unpaid invoice is maintained. This record is usually a punched card but can also be a tape or disk record. For purposes of clarity we shall assume a punched card approach in this introduction. Essentially, open-item procedures work as follows:

An accounts receivable file containing one card for each open item is maintained. For each invoice written a card is inserted in the file. When a payment is made it is applied by removing the charge cards that represent the invoices paid. These cards are usually completed by punching the amount paid, any discount, and the date paid. (In some cases mark sensing is used to enter the first two amounts mentioned above; in other cases an alternate approach, discussed on page 9, is followed.) They then become the cash credit cards. If the payment does not cover the full amount owed, it is applied to the oldest open item (s), and a credit card is punched for any amount which cannot be applied to a specific item. Thus, under this plan, the accounts receivable ledger file contains only the open items, and continues to contain such items until they have been paid.

Under the balance-forward approach a record of the customer's total outstanding balance is main-

tained, and payments are applied against the balance rather than individual invoices. Essentially, balance-forward procedures work as follows:

A balance file is maintained containing balance cards which reflect the status of the accounts at the end of the previous period, plus any transactions occurring during the current period. For each invoice prepared a card is inserted into the file. Payments are applied by punching a cash credit card for each payment and placing the card in the file as a credit entry. Thus, under this approach the accounts receivable file contains detail cards for all charges and credits for the current period, and a balance-forward card for the total of all transactions prior to the current period.

The choice of the particular method used depends on the requirements of individual companies. In either approach, however, most of the entries to accounts receivable are made by automatically inserting machine-prepared receivable cards into punched card receivable files. Files in this form permit many of the remaining accounts receivable functions—preparing trial balances and customer statements, determining delinquent accounts, etc.—to be performed by rapid and accurate machine operations.

Screening Credit

Credit authorization is a continuous function; as new orders are received, provision must be made to screen them and to approve (or disapprove) the additional credit.

In many data processing procedures, credit management sets a credit limit, or guide, for each account. This guide is determined by the credit man's analysis of each customer and by his experience in authorizing credit. It represents the maximum amount of credit and the conditions under which credit can be extended without further review. The guide may be based on the amount of the outstanding balance, on the age of this balance, on the receipt of payment for the previous charge, or on a combination of these and other factors. Once the limits are established, the procedure uses them to screen all new orders: Orders that fall within the limit are approved, those that fall outside are forwarded to the credit manager for determination of the action to be taken. This approach is based on the philosophy of exception reporting, where only the items that require special attention are signaled, thus freeing management from concern with routine transactions.

Whether the above exception approach is used, or whether the credit man screens each order, the accounts receivable and credit procedures must provide for both the information necessary to screen accounts and for the actual screening function itself.

Preparing Trial Balances

Periodically it is necessary to take a trial balance to determine whether the total of all the individual accounts is in balance with the overall control. Under data processing procedures this is accomplished quickly and accurately by listing and accumulating the accounts receivable file on the accounting machine. If desired, it is possible to prepare the trial balance showing an aging of all accounts.

Since all entries are proved to pre-established controls, and since the trial balance is taken by machine, the trial balance usually balances with the control totals. However, provision must be made to find any differences if they do occur. Finding errors is facilitated because the transactions can easily be sorted back to their original date of entry and compared with the daily control totals and because sufficient detail is provided on the invoice and cash receipts registers to reconstruct any transaction.

Preparing Customer Statements

The majority of accounts receivable procedures provide for sending statements to all customers with outstanding balances. While it is true that in some industries statements are not absolutely required, in others, customers do not pay until they receive them. This is usually the case for industries dealing directly with the consumer, such as department stores, public utilities, gasoline companies, etc. However, even in industries where the majority of customers pay by invoice, statements serve useful purposes: They speed collections by reminding customers what is due, they provide a means of verifying account balances, and they can provide a method for follow-up on delinquent accounts. Thus, whether or not statements are prepared is based to a large extent on industry practices and is also influenced by the particular system used by a given vendor in handling his accounts receivable.

Under IBM procedures statements are prepared by merging the cards in the accounts receivable file with the corresponding name and address cards. The merged cards are then listed on the accounting machine to prepare the statements rapidly and with uniform appearance. Figures 1 and 2 show illustrative balance-forward and open-item statements.

Note, in the balance-forward statement, that all transactions (including payments) for the current month are shown, while the prior months' transactions are summarized in one balance-forward amount. In the open-item statement all open items are shown regardless of the month in which they occurred. Payments are not usually indicated, although the current month's payments can be included on the statement

if desired. Another kind of statement used is the summary statement. This is a form of balance-forward statement and shows the opening balance and the summary of all current transactions. It is used chiefly by department stores and gasoline credit plans, and is usually accompanied by the sales checks for all current charges.

Determination and Follow-Up of Late-Paying Accounts

It is necessary to analyze the accounts receivable periodically in order to find any delinquent accounts and to provide for their follow-up. This can be a particularly time-consuming job where many accounts and transactions are involved. However, since the older an account becomes, the harder it is to collect it, and since a heavy load of past-due receivable ties up the working capital, this function is extremely important.

In data processing procedures, provision is usually made to point out late-paying accounts by the preparation of aged trial balances, aged statements, lists of delinquent accounts, etc. Once the past-due accounts are located, the action to be taken can be determined individually by the credit manager or the procedure

Figure 1. Balance-Forward Statement

Figure 2. Open-Item Statement

may provide for some degree of mechanized collection follow-up by the automatic preparation of customer statements, reminder notices, collection letters, etc. These are used in the early and intermediate stages of the collection effort; in later stages seriously delinquent accounts naturally receive more individualized follow-up.

For example, in one typical procedure involving retail customers, a brief reminder is included with the customer statement when an account becomes 30 days overdue. Fifteen days later, the accounts are automatically checked and a follow-up notice is prepared on any account still overdue. Thirty days after the first reminder, when statements are again prepared, a third reminder notice is included on accounts still past due. Accounts still overdue after seventy-five days are selected for individual attention by the credit manager.

Providing the Information Required by Other Departments

The approaches described previously, for maintaining account balances, for credit authorization, for determining and following up delinquent accounts, for preparing trial balances and statements, provide for most of the information flow required between the accounts receivable and the credit and other departments.

Additional information, however, may often be desired. Credit bureaus may request information on customer paying habits, the credit manager may require information on the previous season's history of an account, the sales manager may request information on the age of accounts by territory, and so on. Accounts receivable procedures should therefore be set up to provide this type of information when required.

The use of data processing procedures for the basic functions and objectives described above can result in many advantages, some of which are:

Volume increases more easily absorbed
Prompt preparation of aged trial balances
Fast, accurate statement writing
Automatic preparation of overdue notices
Tight accounting control
Rapid preparation of management reports
Economy of operation

There are, of course, many different procedures used to accomplish the functions discussed in this introduction, since the flexibility of data processing approaches makes it possible to design procedures to meet individual requirements. The following pages describe a typical procedure for each of the two basic approaches to accounts receivable, then cover certain important areas of accounts receivable accounting, and finally describe some specific industry applications.

Open Item

Open-item accounts receivable procedures are usually followed by businesses which sell to other businesses (mercantile credit), while balance-forward procedures are usually followed by companies dealing with consumers (individual credit). Thus a majority of punched card accounts receivable procedures followed by manufacturers, wholesalers and jobbers are based on the open-item approach, and practically all procedures followed by department stores, public utilities, gasoline companies, etc., are based on the balance-forward approach. There are, of course, exceptions to this generalization, particularly where mercantile credit is involved. The approach used is thus influenced both by industry practices and by individual companies' requirements. Some of the circumstances that favor the use of open-item approaches are as follows:

● Where most customer payments are identified as covering specific invoice(s).

● Where an incentive to early payment has been offered (usually a cash discount), resulting in the need to retain the identity of each unpaid invoice in order to apply payments properly.

● Where partial payments and on-account payments are infrequent.

● Where it is important to maintain identification of unpaid invoices beyond the current period in which they were written.

While there are many variations of open-item approaches, the following typifies what is being done. (Bear in mind that modifications may be made to suit individual requirements.) Since billing procedures provide the basis for sales analysis and accounts receivable, a majority of punched card users perform all three applications by machine, thereby taking advantage of the cards used in the billing procedure. Where it is advisable to mechanize accounts receivable by itself, the procedure described would still apply, except that the accounts receivable cards would not be automatically produced as a result of the billing procedure: they would be manually punched or in some cases converted from paper tape.

Entries to Accounts Receivable

Invoices

In the illustrative application, as in most others, invoices represent the largest source of entries to accounts receivable. During the billing procedure, when the invoices are printed on the accounting machine, an invoice summary card is automatically punched. Since the card contains information which is used, in this approach, both for sales analysis and for accounts receivable, an accounts receivable card (Figure 3) is reproduced containing only the information used for accounts receivable: account name and number, invoice date and number, invoice amount, terms and

Figure 3. Accounts Receivable Card

entry code. The receivables cards are interpreted and are then available for preparation of the accounts receivable register.

Credit Memorandums

Credit memorandums are issued for returns, short shipments, certain allowances and similar entries which reverse or adjust invoices rendered. These credits are prepared on the accounting machine and an accounts receivable card is created in a similar manner as described for invoices.

Journal Vouchers

Journal vouchers are prepared by the accounting department to adjust small differences, write off bad debts and provide for other miscellaneous entries. Since the volume of these entries is low, they are written up at the end of the month, except for any which may have to be entered on the books immediately. They are then forwarded to the data processing department, where one accounts receivable card is punched and verified for each entry. The cards are interpreted and are then available for preparation of the accounts receivable register.

Cash Receipts

The entries made for cash received are discussed later in the manual after some additional background material on this function is discussed.

Accounts Receivable Register

The receivable cards, in account-number sequence, are listed on the accounting machine to prepare the accounts receivable register (Figure 4). Registers are prepared daily for invoices and credit memorandums, monthly for most journal entries, and serve the following purposes:

- To establish an audit trail for all entries to accounts receivable (with the exception of cash receipts).
- To provide a source of postings to the accounts receivable control sheet.
- To prove that cards for all items billed, all credit memos prepared, and all journal entries have been punched and are in balance with the control figures developed when the source documents were prepared.
- To facilitate reference when inquiries are made.
- To aid in resolving any out-of-balance conditions that may arise when the trial balance is prepared.

After the accounts receivable register is listed and balanced, the accounts receivable totals (which were automatically accumulated and printed for each control group) are posted to the control book. The cards are then held until the end of the week, when they are sorted together on account number and collated into the open-item accounts receivable file. The procedure discussed thus far is shown in Figure 5.

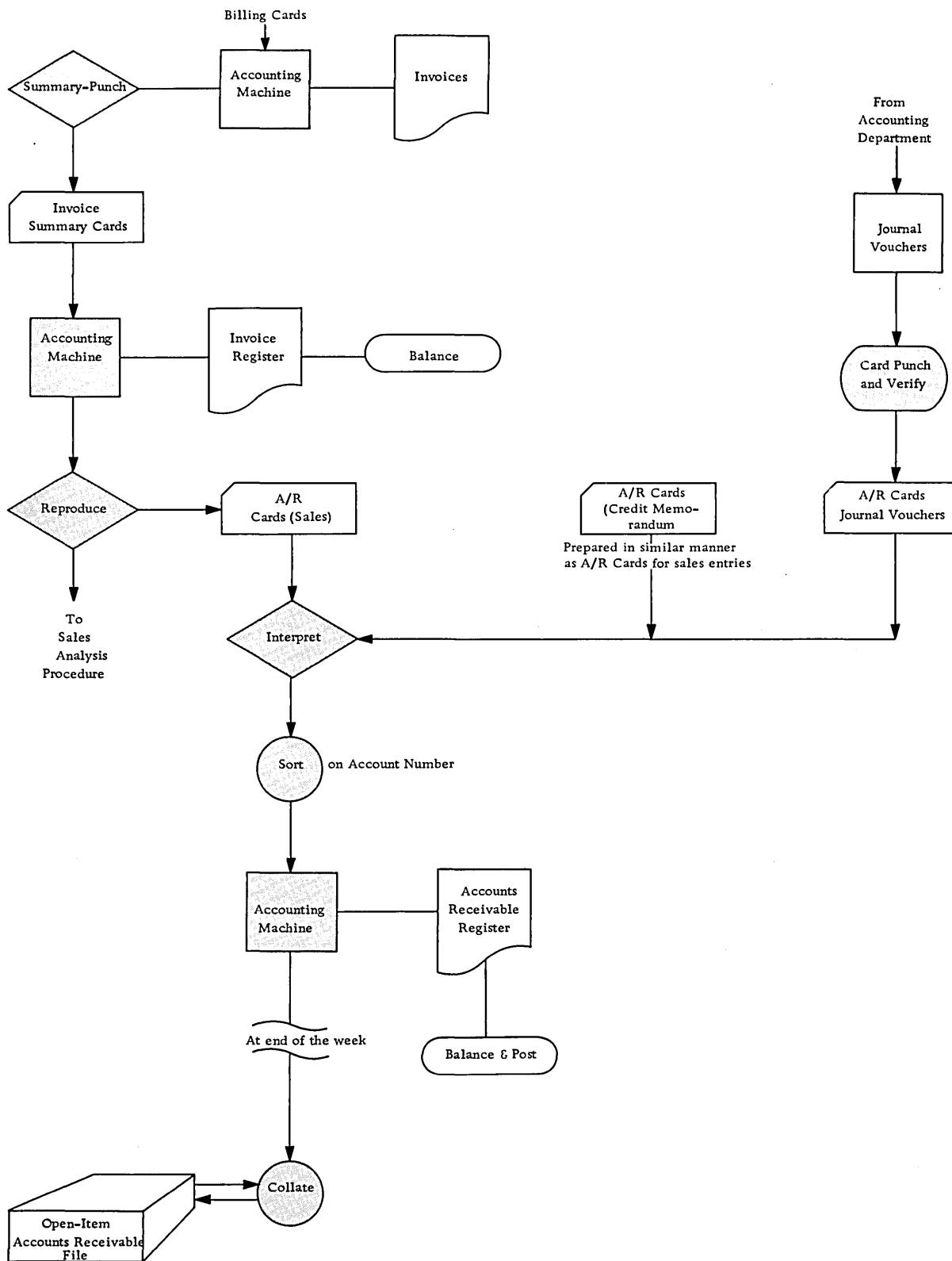|	ACCOUNTS RECEIVABLE REGISTER												
ACCOUNT NUMBER	ACCOUNT NAME	TRANS ABBR	DATING MO DAY	REFERENCE NUMBER	INVOICE DT MO DAY YR	MDSE TERMS	ACCOUNTS RECEIVABLE	PARCEL POST	MERCHANDISE AMOUNT	SLM
1 1 8 8 6	F I N E S F A S H I O N S I N C	I N V		3 0 5 1	4 1 8 —	2	8 6 4 0		8 6 4 0	1 6
1 2 0 9 3	F I N N E G A N S I N C	I N V		3 0 2 5	4 1 8 —	2	4 0 3 1 0		4 0 3 1 0	4 1
1 2 1 2 8	F I S H E R B R O S I N C	I N V		3 0 4 6	4 1 8 —	2	3 4 5 0 5		3 4 5 0 5	4 3
1 2 2 0 6	F L O R D E L I O S I N C	I N V		3 0 1 7	4 1 8 —	2	7 0 0 6 0		7 0 0 6 0	1 6
1 2 7 2 0	F O R D H A M F A B R I C S C O	I N V		3 0 2 2	4 1 8 —	2	1 2 5 3 4 0		1 2 5 3 4 0	1 8
1 2 8 0 3	F R A N K E L S & S M I T H	I N V		3 0 2 9	4 1 8 —	N	1 4 8 5 2	3 0 2	4 5 5 0	1 7
1 2 8 1 5	F R E E M A N S & F O S T E R	I N V		3 0 4 9	4 1 8 —	2	1 0 7 0 5		1 0 7 0 5	2 3
1 2 9 0 0	G A D S O N S I N C	I N V		3 0 1 2	4 1 8 —	2	3 4 5 1 0		3 4 5 1 0	4 1
1 3 2 6 0	G I B N E Y & S O N S	I N V		3 0 6 6	4 1 8 —	2	1 6 5 3 5		1 6 5 3 5	2 2
1 3 2 6 5	G L O B A L D I S T R I N C	I N V		3 0 2 8	4 1 8 —	2	3 1 6 0 5		3 1 6 0 5	1 6
1 2 3 9 0	H A Y E S D R O B N Y I N C	I N V		3 0 1 1	4 1 8 —	N	1 4 3 6 0	2 9 5	4 0 6 5	4 3
1 4 6 1 9	H I G H B R I D G E	I N V		3 0 5 3	4 1 8 —	2	1 1 2 9 0 2		1 1 2 9 0 2	1 3

Figure 4. Accounts Receivable Register

Figure 5. Entries to Accounts Receivable (Invoices, Credit Memorandum, Journal Entries)

Open-Item Accounts Receivable File

The open-item accounts receivable file (Figure 6) contains cards for all open accounts receivable entries. The file is the means of maintaining customer balances and is used in the automatic preparation of trial balances and customer statements and for reference purposes.

Posting to this file is accomplished by merging the accounts receivable cards into the file at machine speeds. The presence of a card in the file is the equivalent of a posting. Thus, manual steps are practically eliminated, since the entry cards for sales and credit memorandums, which were automatically created as part of the billing and related procedures, are also automatically entered into the accounts receivable file. Furthermore, since the details of each open item are printed on the top of each card, the file also provides the basis for applying payments.

Applying Payments

After the mail is opened and separated, the customer remittances are sorted into alphabetic sequence. The amount received is marked either on the tear-off slip which was originally part of the invoice, on the customer's remittance statement, or on the envelope if no stub or statement was included with the payment. After batch control totals are taken on the checks and the remittance advices, the checks are ready to be deposited.

The control tapes and the tear-off slips, remittance statements and envelopes are forwarded to the clerks who apply cash to the accounts receivable file. The file is maintained in customer-number sequence (which is also alphabetical sequence because of the coding system used) with the entries for each account in chronological sequence. Different-striped cards are used to make the different types of transactions stand out.

On full payments—that is, payments that cover an invoice or an account balance in full—the corresponding accounts receivable card or cards are selected from the file. The amount of the payments, the discounts taken and any deductions allowed are written on the cards (Figure 7). Payments which differ from the amount owed by less than $1.00 (the exact amount of the limit is, of course, determined by each vendor) are usually handled as full payments, with the difference charged to a special allowance account or to discount taken. Where one payment covers multiple invoices, the information for the entire payment is written on the card representing the oldest invoice of the group.

On partial payments, that is, payments that do not cover full invoice amounts, the clerk usually fills in a
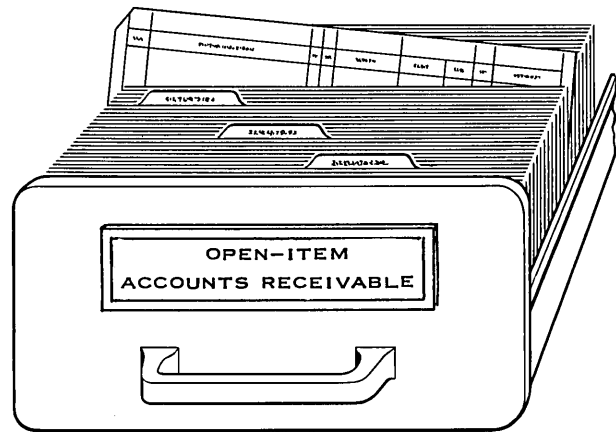
Figure 6. Open-Item Accounts Receivable File

form letter indicating the receipt of the partial payment. (The letter is held a few days to assure that the reason for the partial payment is not a return which has not yet been received.) After filling in the form letter, the clerk selects two blank payment cards and enters the customer name and number, the date of the check and the amount paid on the top card. On-account payments are handled in a similar manner to that of partial payments.

After the day's payments have been applied, the cards are forwarded to the card punch section in two groups—full payments and partial payments. The data just written on the receivable cards is then punched into them. On partial payments, two cards are punched for each payment, one of which will be inserted into the accounts receivable file later in the procedure and the other into the paid file with the cards for full payments. All of the cards are then used to list the cash receipts register.

There are other common ways of handling partial payments. In one of these, one partial payment card is punched instead of two as above. In this case, the partial payment card is printed on the cash receipts register and then filed behind its corresponding open-item card in the accounts receivable file. Under another method, two cards are punched, one representing the partial payment, and the other the difference between the partial payment and the open-item amount to which it applies. In this case the partial card appears on the cash receipts register and is filed in the paid file. The new open-item card, reflecting only the receivable balance left for that invoice number, is filed back in the open file to await further payment.

Handling Discounts

In the payment card in Figure 7, note that the information to the left of the first heavy line represents

data punched before the card was entered into the file; the information between the heavy lines represents data entered after the payment was made and the card selected from the file. This information is punched from the remittance and deduction box on the left of the card, where the accounts receivable clerk enters the details of the payment received. The discount and deduction allowed fields provide for maximum flexibility in applying payments. An example will quickly clarify their use.

Assume a check for $84.65 was received from customer number 11886, paying invoice number 3051. The accounts receivable clerk selects the corresponding invoice from the file and calculates the discount earned, $1.73, and the net amount due, $84.67. Since the amount received differs only slightly from the amount due, the difference is included in the discount allowed. If the difference were greater than a dollar, the transaction would be referred to the credit manager, who would then determine whether the deduction should be allowed or whether the difference should be followed up with the customer. If the deduction were allowed, it would be punched in the field provided for that purpose. Thus, generally speaking, the discount allowed field is used for entering discounts and small variances from the amount due, and the deduction allowance field is used for larger variances and for deductions which can be specifically identified, such as freight allowed, anticipation allowed, etc.

Alternate Approaches

While the approach has many variations, it nevertheless illustrates the basic manner of handling dis-

counts, allowances, and small differences between the amount received and the amount due. One common variation, for example, is the precalculation of the discount that may be earned on each invoice before entering the invoice cards in the file, thus saving the accounts receivable clerk from calculating this amount when the payment is received. When this is done, and the customer takes the exact discount punched, it is possible to eliminate punching the actual amount paid by using the current amount less discount to balance cash. Avoiding the punching of amount paid in these cases saves passing many cards through the card punch.

Cash Receipts Register

The cards representing cash payments are listed on the accounting machine in customer-number sequence to prepare the cash receipts register (Figure 8), which serves several purposes. Its immediate function is to prove that the accounts receivable cards are in balance with actual cash receipts. It is also a permanent record of accounts receivable cash entries, and provides a means of ready reference. Furthermore, it is the basis for auditing credit entries to the accounts receivable ledger file and for posting to the control sheet.

After the cash receipts register is listed and balanced, the payment cards are sort-separated. Cards representing credits to the accounts receivable file, for partial and on-account payments, are collated into the open file and the remainder of the cards are placed in the paid file. Figure 9 is a flow chart of the procedures just described.

Figure 7. Paid Accounts Receivable Card

CASH RECEIPTS REGISTER

ACCOUNT NUMBER	ACCOUNT NAME	TRANS ABBR	DATING MO	DAY	REFERENCE NUMBER	INVOICE DT MO	DAY	YR	DATE PD MO	DAY	ACCOUNTS RECEIVABLE	DISCOUNT ALLOWED	DE DOC	DEDUCTIONS ALLOWED	AMOUNT PAID
11243	DRJ WIRE CO	CSH			2648	4	17	-	4	28	12 48	25			12 23
11886	FINES FASHIONS INC	CSH			3051	4	18	-	4	28	86 40	1 73			84 67
14910	HASTING WHITE TOOL	CSH			2319	4	11	-	4	28	11 26				11 26
17197	HENRY JOHN & CO	CSH			2649	4	17	-	4	28	63 30	1 31			63 99
17614	HOUSE OF FORRESTE	CSH			2812	4	18	-	4	28	9 41 25	1 8 82			9 22 43
28677	KRAUSZ MFG	CSH			3688	4	23	-	4	28	3 84 16	7 68			3 76 48
30541	NIXON GLASS CO	CSH			2843	4	18	-	4	28	2 82 7 50	5 61 55	2	2 0 01	2 75 0 94
30599	NORTHWESTERN SUP CO	CSH			3497	4	23	-	4	28	2 89 84	5 80			2 84 04
30611	NOVASKEIN FASH INC	CSH	4	10	2006	2	21	-	4	28	2 46 6				2 46 6
33577	ODIN CHEMICAL CO	CSH			2914	4	18	-	4	28	9 41 25	1 8 82			9 22 43
59751	SOUTH LAKE SAND CO	CSH			2117	3	24	-	4	28	6 22 22		8	2 02	6 42 10
59751	SOUTH LAKE SAND CO	CSH			2255	3	26	-	4	28	2 190				2 190

Figure 8. Cash Receipts Register
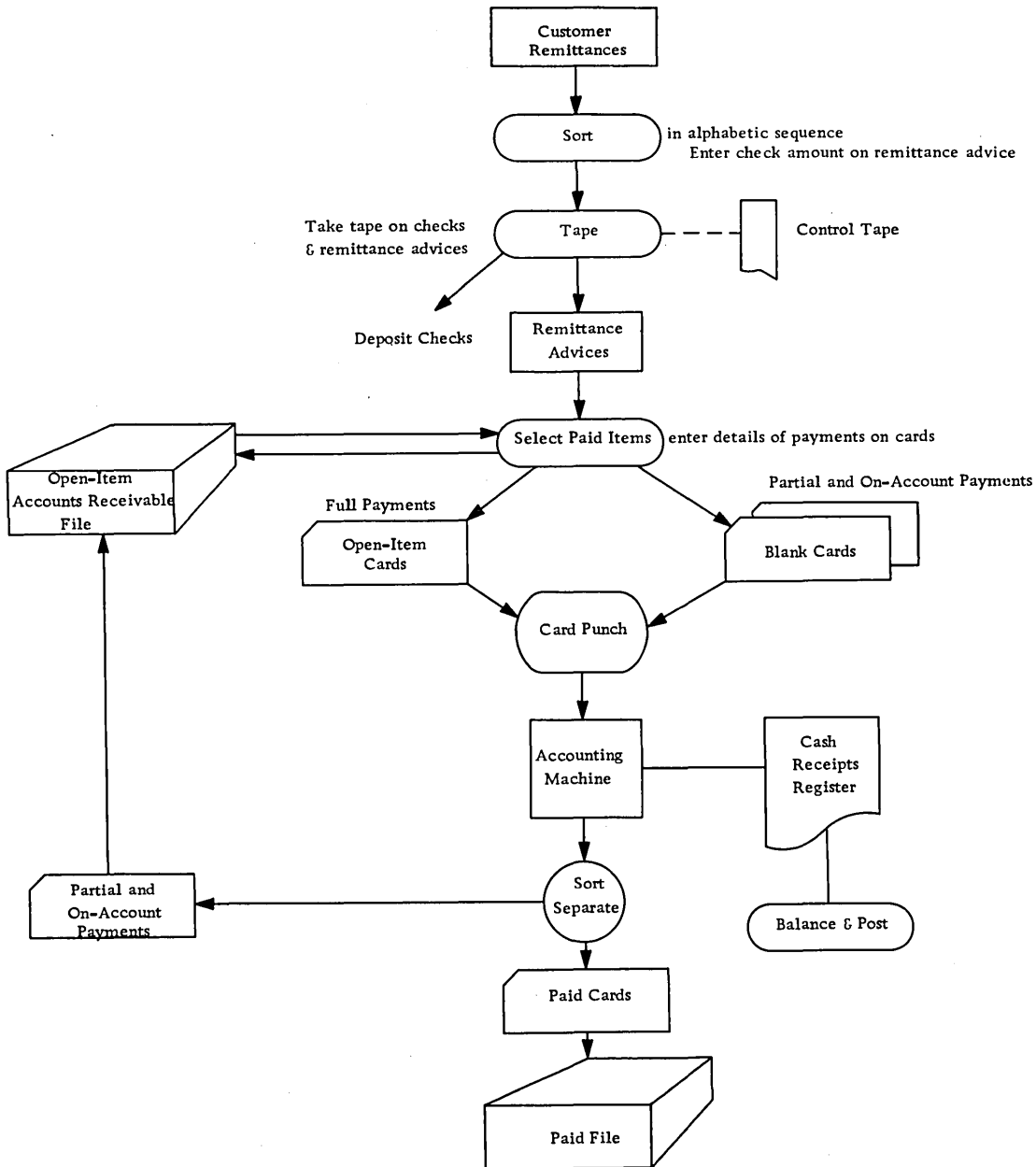
Figure 9. Credit Entries to Accounts Receivable (Applying Cash)

Statements

At the end of the month, statements are prepared for all customers with open balances. Statement writing, by showing the customer the status of his account, serves to speed collections by reminding customers of amounts due, give customers proof of what they have paid, and provide a means of graphically pointing out overdue items.

Furthermore, in those industries where the practice is to send statements to all customers, statements must be prepared promptly and accurately if collections are to be satisfactory. Since all open transactions are recorded in punched card form in the open-item file, this file provides the detail required to prepare statements. The procedure used is as follows:

At the time each account was first approved for credit, a name and address card was punched (Figure 10) and filed in customer-number sequence in the name and address file. At statement time, this file is match-merged with the open-item file. That is, the name and address card for each open account is automatically inserted in front of the open-item cards for that account (name and address cards for inactive accounts are selected and set aside). The cards are then placed into the accounting machine to prepare customer statements (Figure 11).

The accounting machine first prints the customer's name and address, skips to the body of the statement, lists and accumulates each open item and prints the total amount due. It then skips to the next statement and repeats the processing described.

As the statements are being prepared, trial balance

Figure 10. Name and Address Card

Figure 11. Customer Statement

summary cards are automatically punched for all accounts. These cards contain the account number, the total amount due and a breakdown of the open items into current, over 30- and over 60-day categories. Note in Figure 11 that special columns have been provided to show past-due amounts on the customer statement.

The total accounts receivable figure (accumulated in the accounting machine while statements are being prepared) is balanced to the control totals and the original copies of the statements are mailed to the customers. The second copies are forwarded to the credit department for their use, and the third copies are bound in account-number sequence and held in the data processing department.

Aged Trial Balance

At this point the trial balance summary cards are merged with the name and address cards (which were first sort-separated out of the open file) and the aged trial balance (Figure 12) is listed on the accounting machine. The total accounts receivable amount is balanced to the statement amount (accumulated when statements were run) and copies of the trial balance are forwarded to the credit manager, the treasurer and the sales manager. The open file is then returned to the accounts receivable department where it is kept during the month because that department uses it for applying cash and for reference purposes.

Before applying the cash received at the beginning of the next month, the credit department, using a copy of the customer statement as a source, removes any zero-balance accounts or any balancing debit and credit cards from the file. These conditions occur, for example, when a partial payment is made on an invoice before the credit has been entered into the file, where an on-account payment is balanced by invoices, etc. The cards removed from the file are listed and zero-balanced to insure that the debits and credits removed are in balance, and to provide an audit trail. Figure 13 is an overall flow chart of statement and trial balance preparation.

This, then, is an outline of one typical accounts receivable application using an open-item approach. There are, of course, many variations to the procedure described. For example, accounts receivable cards may be manually punched from invoices rather than automatically summary-punched . . . when cash is applied, the amount paid and the discount taken can be mark-sense-punched instead of being first written on the cash cards and then manually punched . . . on partial payments, instead of punching a card for the amount of the payment, a card can be punched for the receivable balance left after the partial is applied . . . the aged trial balance can be run before statement preparation rather than after . . . and so on. These are only a few of the variations possible. The flexibility of punched card accounting permits procedures to be designed specifically to meet individual requirements.

SALES-MAN	CUSTOMER NUMBER	CUSTOMER NAME	DATED	CURRENT	30-60 DAYS	60-90 DAYS	90+OVER	TOTAL
11	1001	A C BIDDLE CO	1003.10	20.26				1023.36
66	1002	BIGEMANN HARDWARE		181.34				181.34
39	1004	BIDEREAUX CO		443.10				443.10
72	1007	BIGNAY FLOOR COVERS			153.26	114.14 cr	1.12	40.24
34	1010	BILL & BOB HARDWARE		367.94	101.74			469.68
20	1018	BILL & RALPH SPORTS					.71	.71
23	1028	BIRDS HARDWARE CO	24.12	122.81				146.93
66	1035	BLACKMOOR MFG		26.30	26.30 cr			
42	1040	BLACKSTONE STORE			49.42			49.42
41	1052	BLAKELY SPORT SHOP	31.29	192.52				223.81
66	1053	BLANCHARD VARIETIES				8 cr		8 cr
11	1061	E W BLISSIL CO		217.82				217.82
36	1067	BLODGETT HOME SUP		106.95				106.95
18	1070	BLONDIN RADIO			869.40			869.40
15	1078	BLUE HILL STORES		196.35				196.35
55	1088	BOBS TEXACO		21.93	1.94			23.87
66	1095	CHARLES B BOGLE		1.10	476.33	174.96 cr	394.46	696.93
70	1096	MRS M BOHUN		35.87	35.95			8

Figure 12. Aged Trial Balance
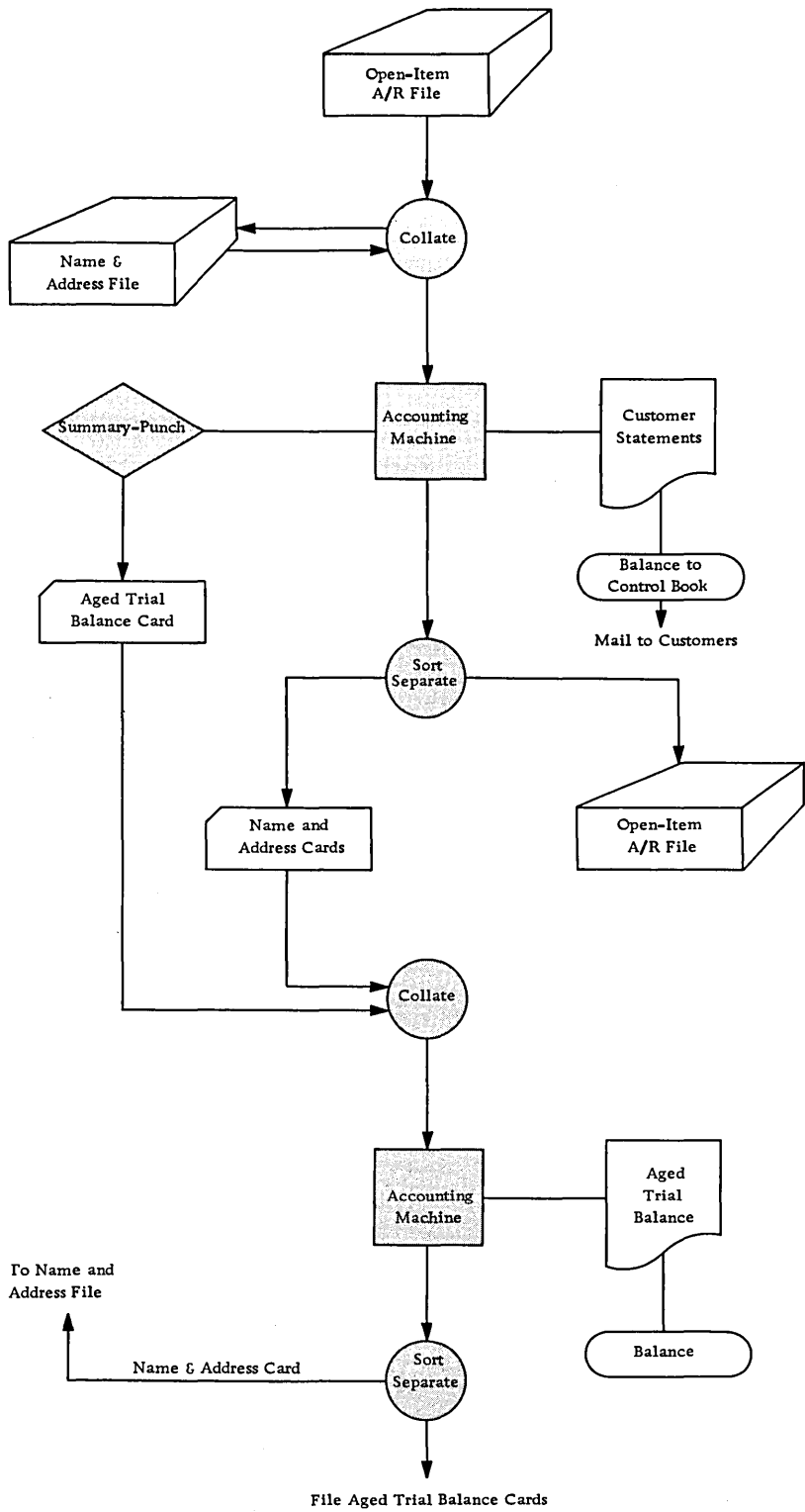
Figure 13. Statement and Trial Balance Preparation

Balance-Forward

While balance-forward procedures are followed by most companies that deal directly with the consumer, they are also followed by many concerns that deal with other businesses—usually, where a relatively large number of on-account payments and partial payments are received. While there are many variations of the balance-forward approach, the following typifies what is being done. Bear in mind that throughout the procedure modifications may be made to suit individual requirements.

Entries to Accounts Receivable

Invoices

As invoices are printed on the accounting machine a billing summary card (Figure 14) is punched for each invoice. The summary cards are listed on the invoice register and balanced with the total of the invoices billed. Since in this approach the information in the invoice summary cards is used not only for sales analysis, but also for salesman's commission determination and for accounts receivable, an accounts receivable card is reproduced. The invoice summary cards are held for use in preparing sales reports. The accounts receivable cards are then sorted into account-number sequence, used to prepare the accounts receivable register, and then placed in the receivable file pending statement preparation.

Credit Memorandums

Credit memorandums are issued for returns, short shipments and similar entries which reverse or adjust invoices rendered. They are prepared on the accounting machine and an accounts receivable card is created in a similar manner as described for invoices. (However, in many procedures the credit memos are typewritten and the receivables cards are then manually punched.)

Journal Vouchers

Journal vouchers are prepared by the accounting department to adjust small differences, write off bad debts, and provide for other miscellaneous entries. Since the volume of these entries is low, they are written up at the end of the week in the accounting department and forwarded to the data processing department, where one accounts receivable card is punched and verified for each entry. The cards are then interpreted, listed on the accounts receivable register, and placed in the accounts receivable file.

Figure 15 shows the procedure discussed thus far.

Figure 14. Billing Summary Card

Figure 15. Entries to Accounts Receivable (Invoices, Credit Memorandum, Journal Entries)

Cash Receipts

After the mail is opened and the payments are separated from other correspondence, the payments are sorted alphabetically. If the customer has returned the remittance stub portion of his statement, the amount of the payment is indicated on the stub. (Where the check amount agrees with the stub, the printed amount is circled; if it differs, the amount of the check is written on the stub.) If the customer has not returned the remittance stub portion, the clerk pulls the remittance stub off the duplicate statement (kept on her desk in alphabetic sequence for this purpose) and enters the amount paid on it. (In other approaches the clerk fills in a handwritten remittance advice for payments received without remittance stubs.)

After all payments have been processed in this manner, adding machine tapes are taken on the checks and on the amounts on the remittance statements. The two totals are then balanced and the checks deposited (a copy of the adding machine tape is stapled to the deposit slip). The remittance stubs and the adding machine tapes are then forwarded to the data processing department where one card is punched and verified for each cash receipt.

The cash receipts cards (Figure 16) are punched with the customer number, payment amount and any discount taken. The date and transaction code are automatically duplicated into each card. The cards are then listed on the cash receipts register (shown below) and balanced to the control tape; the total payment amount is posted to the control sheet. Figure 17 is a flow chart of the cash receipts procedure just described.

DATE			CUSTOMER NUMBER	CUSTOMER NAME	CODE	ACCOUNTS RECEIVABLE CREDIT	NET PAYMENT	CASH DISCOUNT
MO	DAY	YR						
8	30	6 –	1 2 3 4		C A	8 3 4 6 0	8 2 5 7 0	8 9 0
8	30	6 –	1 2 8 6		C A	1 2 4 8	1 2 2 3	2 5
8	30	6 –	1 3 2 5		C A	8 6 4 0	8 4 6 7	1 7 3
8	30	6 –	1 3 9 6		C A	1 1 2 6	1 1 2 6	
8	30	6 –	1 4 0 9		C A	7 5 1 3	7 3 6 3	1 5 0
8	30	6 –	1 4 6 1		C A	3 3 9 0	3 3 2 2	6 8
8	30	6 –	1 4 9 0		C A	3 8 4 1 6	3 7 6 4 8	7 6 8
8	30	6 –	1 6 3 0		C A	2 8 2 7 5 0	2 7 7 0 9 5	5 6 5 5
8	30	6 –	1 6 3 9		C A	2 8 9 8 4	2 8 4 0 4	5 8 0
8	30	6 –	1 7 2 5		C A	2 4 6 6	2 4 6 6	
8	30	6 –	1 7 8 0		C A	9 4 1 2 5	9 2 2 4 3	1 8 8 2
8	30	6 –	1 9 2 0		C A	6 2 2 2 2	6 2 2 2 2	
8	30	6 –	1 9 8 5		C A	3 7 2 1	3 7 2 1	
8	30	6 –	1 9 9 3		C A			

Figure 16. Cash Receipts Card and Cash Receipts Register

Figure 17. Cash Entries to Accounts Receivable

Statement Preparation

At the end of the period (in this case a week, although more commonly a month) the transaction cards, after being balanced to the daily controls, are sorted into account-number sequence and merged with the corresponding balance cards and name and address cards. (Name and address cards for inactive accounts are selected and set aside.) The cards are then placed into the accounting machine to prepare statements (Figure 18). Where statements are prepared monthly, the transaction cards are usually filed by account daily—or every few days—so that reference to account status can be easily made.

The machine first lists the customer name and address, skips to the body of the statement and prints the balance-forward amount from the previous statement period, then lists all current transactions, and finally prints the total amount due. After skipping to the next statement, the machine repeats the procedure just described.

At the same time that the statements are being prepared, new balance-forward summary cards are automatically punched. These cards contain the account number, the total balance forward, and a breakdown of the overdue amounts for the past four weeks. This aging is automatically determined by the accounting machine, which applies payments to the oldest amounts due. The process is described in more detail later in the manual.

The statements are prepared in duplicate. One copy is mailed to the customer, who uses the right-hand portion as a remittance stub; the left-hand portion of the second copy is filed by customer and the right-hand portion is held for use as the duplicate remittance stub in case the customer does not return his.

Aged Trial Balance

The name and address cards are sort-separated from the transaction cards and the old balance cards, and are merged with the new balance-forward summary cards. The aged trial balance (Figure 19) is then prepared on the accounting machine. After it is balanced to the control figures, it is distributed to the

Figure 18. Customer Statement

Figure 19. Aged Trial Balance

credit manager and the controller. The period's transaction cards and the old balance cards are filed in the history file, the name and address cards are collated back into the name and address file, and the new balance-forward cards are held for the next period. Figure 20 is a flow chart of a common procedure used for statement and trial balance preparation.

This, then, is an outline of one typical accounts receivable application using a balance-forward approach. There are, of course, many variations to the procedure described. For example, accounts receivable cards may be manually punched from invoices rather than automatically summary-punched . . . a prepunched remittance stub with provision for mark-sensing exception payments can be used to apply cash, rather than manually punching a cash card . . . the aged trial balance can be run before statement preparation rather than after . . . and so on. The flexibility of punched card accounting permits procedures to be tailored specifically to individual requirements.
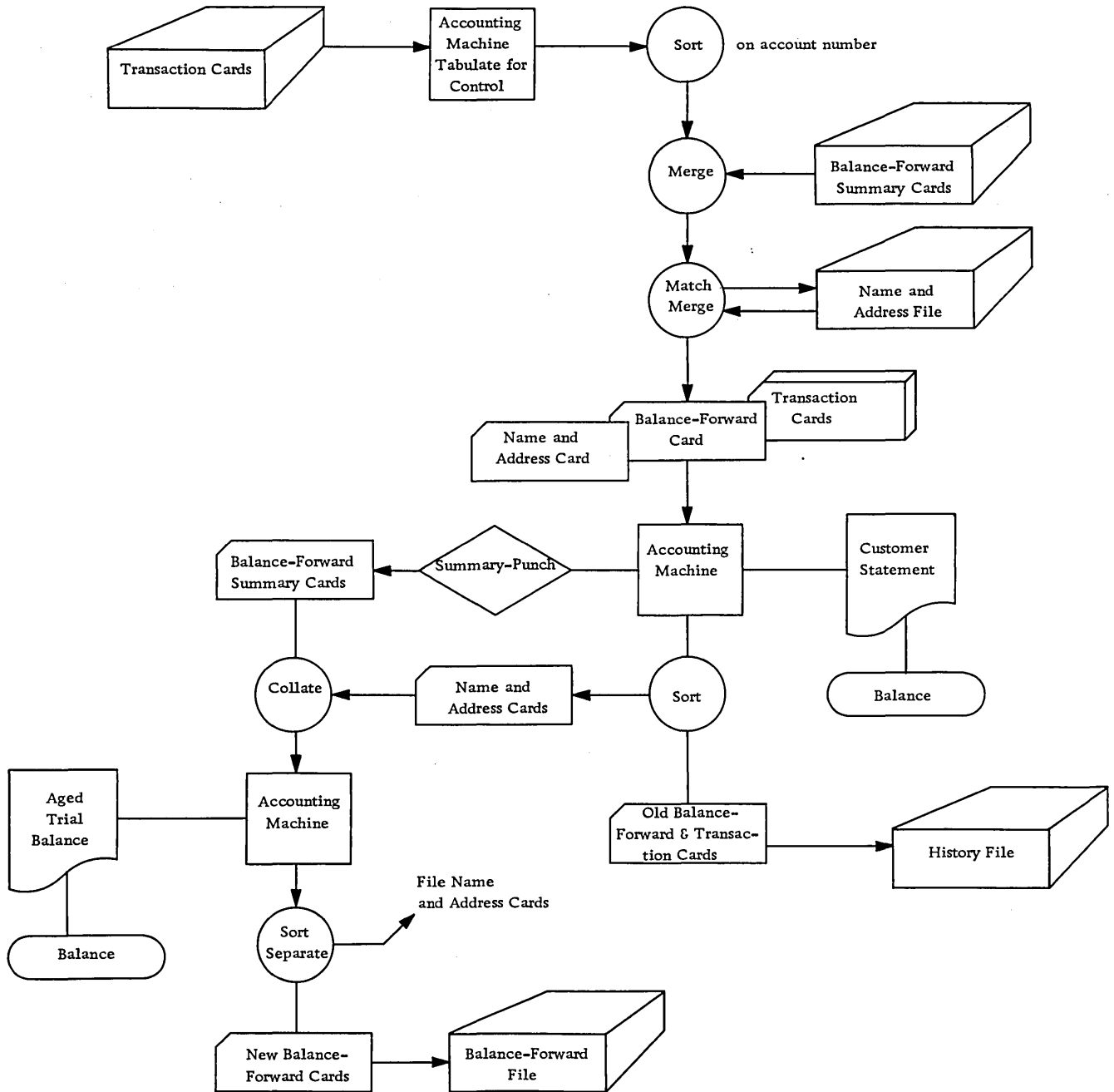
Figure 20. Statement and Trial Balance Preparation

Procedural Details

Accounting Control

Accounting controls are an important part of IBM machine accounting, as they are of all good accounting procedures. In accounts receivable, these controls check the functioning of both the procedure and the personnel, and in many cases also provide the entries to be made to the general ledger. Essentially, a typical control procedure is as follows:

As a group of accounts receivable cards is created for each group of invoices, credit memos, or cash receipts, they are listed on the accounting machine to prepare control registers. These registers show the details of each transaction and the total of each group of transactions. The totals are checked with predetermined totals from the originating source for each type of transaction and are then recorded on the control sheet. The cards representing the transactions are filed in the accounts receivable file (except for cash receipts under open-item procedures).

At the end of the month, the items recorded on the control sheet are totaled and combined with the previous month's balance to obtain the current month's balance. The cards in the accounts receivable file are then listed on the accounting machine to prepare the trial balance. Since all entries were proved back to the pre-established controls, and since the trial balance total is obtained by reading and accumulating the information previously punched in the accounts receivable cards, the trial balance usually balances. However, if any discrepancies do occur, they can be located relatively easily, because the accounts receivable and paid files can be automatically sorted into date sequence and the control totals re-established to locate any discrepancies, and because sufficient data has been provided on the registers so that any transaction can be reconstructed. Figure 21 shows this concept in outline form and the following paragraphs describe it in more detail.
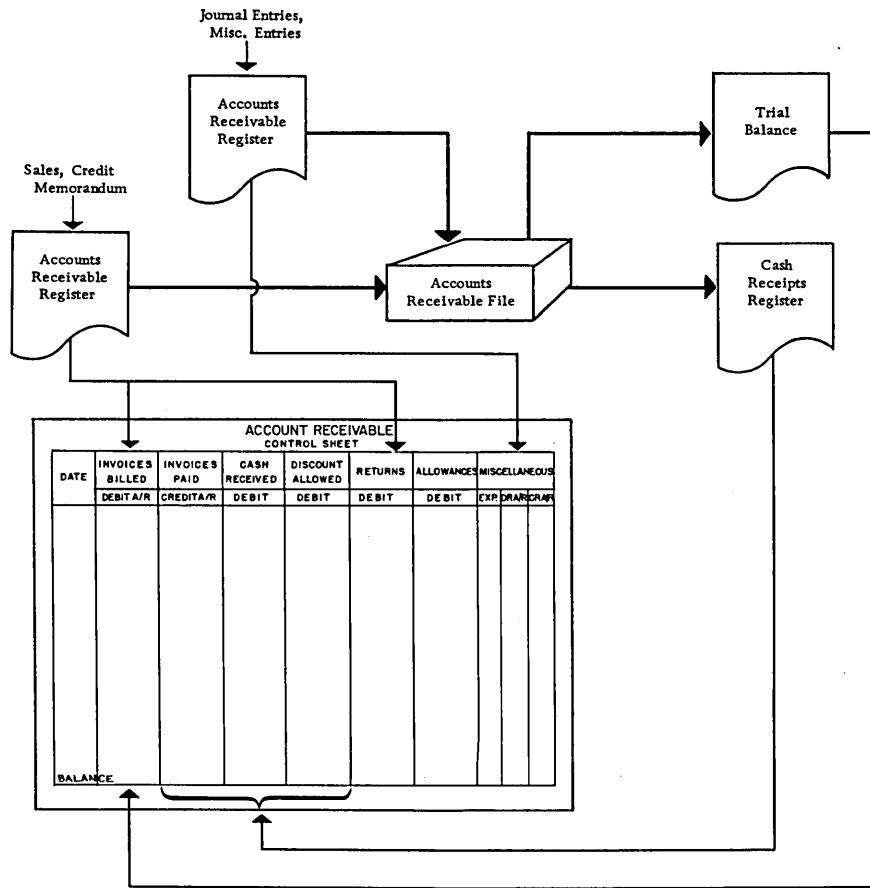
Figure 21. Control Procedure

The Control Sheet

At the start of each accounting period, the accounts receivable balance from the previous accounting period is entered on the control sheet. Then each day, as debits and credits affect the accounts receivable balance, they are posted to the control sheet in summary form. The control sheet then represents the latest status of the accounts receivable. Let us consider the source of the entries to the illustrative control sheet shown in Figure 22.

Invoices, Credit Memorandums and Journal Entries

Each day, the accounts receivable debit cards representing the day's billing are listed on the accounts receivable register. This register, then, is a completely detailed list of all invoice entries to the accounts receivable. The total billing figure (arrived at during the billing procedure) is balanced with the total receivables amount (from the accounts receivable register) and is posted to the accounts receivable control sheet. Thus, for example, on December 31 the total of the invoices billed, $7,764.44, is posted to the control sheet.

In a similar manner summary figures are balanced and posted to the control sheet for credit memorandums and journal entries.

Cash Receipts

Cash receipts can be entered into IBM cards by any one of several methods, to suit the needs of the business and to comply with either the open-item method or the balance-forward method. In either case, as soon as the cards have been prepared, they are detail-printed on the accounting machine, producing the cash receipts register.

ACCOUNTS RECEIVABLE
CONTROL SHEET   MONTH OF December

DATE	INVOICES BILLED (DEBIT A/R)	INVOICES PAID (CREDIT A/R)	CASH RECEIVED (DEBIT)	DISCOUNT ALLOWED (DEBIT)	RETURNS (DEBIT)	ALLOWANCES (DEBIT)	MISC. EXP	MISC. DR A/R	MISC. CR A/R
BALANCE LAST MO.	62,565 16								
12 1	10,468 06	4,528 60	4,473 19	55 41					
2	8,487 27	6,818 93	6,774 08	44 85					
3	9,296 20	1,993 68	1,981 50	12 18		61 80			
6	6,435 33	3,654 82	3,633 57	21 25					
7	5,061 40	2,413 97	2,358 45	55 52					
8	9,091 84	751 28	749 87	1 41					
9	5,438 39	2,782 15	2,751 84	30 31					
10	6,695 23	6,877 39	6,749 70	127 69		316 65			
13	5,927 66	11,892 44	11,753 61	138 83					
14	7,289 61	2,822 97	2,772 32	50 65		261 17			
15	6,908 23	8,680 86	8,544 03	136 83					
16	7,165 16	7,153 88	7,037 95	115 93					
17	7,642 18	12,360 82	12,264 78	96 04	25 25				
20	7,468 82	19,562 50	19,259 84	302 66	525 75				
21	9,608 77	2,468 56	2,442 70	25 86	138 50				
22	6,950 16	3,067 43	2,996 10	71 33	163 47				
23	8,211 62	3,178 43	3,109 98	68 45					
24	7,679 56	15,170 86	14,862 58	308 28		401 83			
27	9,301 84	10,876 39	10,822 15	54 24					
28	7,574 57	9,556 07	9,444 94	111 13					
29	7,925 28	9,888 62	9,708 97	179 65					
30	7,402 15	15,697 80	15,484 02	213 78			JE		395 42
31	7,764 44								
BALANCE									

Figure 22. Control Sheet

This register serves several purposes. Its immediate function is to prove that the accounts receivable cards are in balance with actual cash receipts. It is also a permanent record of accounts receivable cash entries, and provides a means of ready reference. Furthermore, it is the basis for auditing credit entries to the accounts receivable ledger file.

When the cash receipts register has been proved, the clerk uses it to post entries to the control sheet, and the payments-received cards are either filed in the accounts receivable ledger file as credit entries to the individual accounts (in the balance-forward method) or filed in the history file (in the open-item method). Notice in Figure 23 that the total credit to accounts receivable of $6,975.07 and the corresponding debits to cash of $6,904.21 and to discount allowed of $70.86, all of which were accumulated on the cash receipts register, are posted to the control sheet.

Thus at the end of the period, the control sheet contains the totals of all entries made to the accounts receivable file. These totals are added down and the new accounts receivable balance is:
- The total outstanding at the beginning of the accounting period
- Plus all invoices issued during the period
- Less the invoices paid
- Less all returns
- Less any allowances made
- Plus (or minus) the totals of any journal entries, debit memorandums, or any other miscellaneous entries.

The resulting total is the control figure to which the accounts receivable ledger file must balance.

A slight variation to the above, frequently used, is to maintain a running total of the outstanding accounts receivable by crossfooting the control sheet daily and adding the result to (or subtracting it from) the previous day's total.

CASH RECEIPTS REGISTER

CUSTOMER NAME	CUSTOMER	BR	SALESMAN	ENTRY	INVOICE NUMBER	INVOICE DATE MO	DAY	ACCOUNTS RECEIVABLE CREDIT	CASH DEBIT	DISCOUNT ALLOWED DEBIT
CASTLE HARDWARE CO	8062	25	1 3	1 1	11506	11	8	4 92 17	4 92 17	
CENTRAL UNION SUPPLY	8257	34	7 1	1 1	12300	12 2 3		3 6 9 0 3	3 6 1 6 5	7 3 8
CHANEL WHOLESALE	1123	42	2 7 9	1 1	12324	12 2 8		5 0 0 0 0	4 9 0 0 0	1 0 0 0
COVENTRY OIL	1928	51	9 5	1 1	12292	12 2 3		9 50 97	9 31 95	1 9 0 2
HASKEL IND SUPP CO	3651	2	1 1 6	1 1	12318	12 2 8		4 15 33	4 0 7 0 2	8 3 1
KELVINAIRE CORP	4503	5	10 7 4	1 1	11686	11 2 3		3 8 1 6 6	3 8 1 6 6	
MAIZE REFINING CO	5809	12	2 7 9	1 1	12285	12 2 2		2 52 56	2 47 51	5 0 5
NEWTON PARK AND CO	6104	3	4 18	1 1	11239	11 1		7 6 1 3 1	7 6 1 3 1	
NEW MEXICO COMPANY	5975	11	3 6 7	1 1	11993	11 3 0		1 0 0 0 0 0	1 0 0 0 0 0	
N Y GAS AND ELEC CO	6122	12	2 4 6	1 1	12325	12 2 8		1 0 5 5 0 3	1 0 3 3 9 3	2 1 1 0
VESTAL STEEL CO	7805	0	7 6 9	1 1	10452	10 8		1 4 6 6 1	1 4 6 6 1	
							1	6 5 0 4 0	6 5 0 4 0	
								6 9 7 5 0 7	**6 9 0 4 2 1**	**7 0 8 6**

ACCOUNTS RECEIVABLE CONTROL SHEET   MONTH OF *December*

DATE	INVOICES BILLED DEBIT A/R	INVOICES PAID CREDIT A/R	CASH RECEIVED DEBIT	DISCOUNT ALLOWED DEBIT	RETURNS DEBIT	ALLOWANCES DEBIT	MISCELLANEOUS EXP	DR A/R	CR A/R
BALANCE LAST MO.	62 565 16								
12 1	10 468 06	4 528 60	4 473 19	55 41					
2	8 487 27	6 818 93	6 774 08	44 85					
3	9 296 20	1 993 68	1 981 50	12 18	6 80				
6	6 435 33	3 654 82	3 633 57	21 25					
7	5 061 40	2 413 97	2 358 45	55 52					
8	9 091 84	751 28	749 87	1 41					
9	5 438 39	2 782 15	2 751 84	30 31					
10	6 695 23	6 877 39	6 749 70	127 69	316 65				
13	5 927 66	11 892 44	11 753 61	138 83					
14	7 289 61	2 822 97	2 772 32	50 65	261 17				
15	6 908 23	8 680 86	8 544 03	136 83					
16	7 165 16	7 153 88	7 037 95	115 93					
17	7 642 18	12 360 82	12 264 78	96 04	25 25				
20	7 468 82	19 562 50	19 259 84	302 66	525 75				
21	9 608 77	2 468 56	2 442 70	25 86	138 50				
22	6 950 16	3 067 43	2 996 10	71 33	163 47				
23	8 211 62	3 178 43	3 109 98	68 45					
24	7 679 56	15 170 86	14 862 58	308 28		401 83			
27	9 301 84	10 876 39	10 822 15	54 24					
28	7 574 57	9 556 07	9 444 94	111 13					
29	7 925 28	9 888 62	9 708 97	179 65					
30	7 402 15	15 697 80	15 484 02	213 78			JE		395 42
31	7 764 44	6 975 07	6 904 21	70 86					
BALANCE									

Figure 23. Posting Cash Receipts

Accounting Entries

Maintaining the control sheet is, in effect, keeping the control account for accounts receivable. Let us illustrate how the control entries relate to the accounting system by examining how typical accounts receivable transactions might be handled using the T accounts shown below.

1. When a sale is made, the sales account is credited for $500, reflecting sales in that amount. The accounts receivable account is debited an equal amount, which in this case indicates setting up an asset of $500.

2. At some later date the customer who made the $500 purchase under transaction 1 pays his bill. Assume he is entitled to a 2% discount. Since he has discharged his obligation, accounts receivable is credited for $500. Payment of his bill has also increased the cash account, so it is debited for $490. The difference between cash and accounts receivable is represented by a discount of $10. From the vendor's standpoint, this represents an expense of doing business. It is reflected on his books by debiting discounts allowed, which is an expense account.

3. A sale of $350 is made to the same customer, resulting in a credit to sales and a debit to accounts receivable of $350.

Assuming that these three transactions represent the entire business for the month, the effect on the financial statements at the end of the month would be as follows:

Accounts receivable of $350 would be closed out to the balance sheet as a current asset.

Cash of $490 would be closed out to the balance sheet as a current asset.

Sales of $850 would be closed out to the profit and loss statement as income.

Discounts allowed of $10 would be closed out to the profit and loss statement as expense.

Reconstruction

While the procedures outlined above provide for tight controls, occasionally the accounts receivable file does not balance with the control sheet. Since all entries to accounts receivable are in the form of cards, finding errors becomes a relatively routine procedure. One method of locating errors is as follows:

a. Recheck the arithmetic on the control sheet.

b. Check the postings to the control sheet from the invoice and cash receipts registers to insure that there are no manual transcription errors.

c. Check the setup of the accounting machine and rerun the cards, in case of a setup or machine error in the original running of the trial balance.

d. Sort the current month's paid file and open-item file by entry date. Separate the cards with entry dates that are prior to the current period from those with dates after the current period.

e. Tabulate the previous period's cards and check the total against the previous trial balance total. If the figures balance, go to step f. It not, use the prior period's cards to prepare a trial balance. Check this report with the previous period's trial balance until the account in error is located.

f. Tabulate the cards and check the daily totals against control totals.

g. List the cards for the day in error and check the list against the register for the day until the error is isolated.

This method applies to open-item procedures and is only one of the many ways of reconciling errors. It does, however, illustrate the relatively quick and straightforward manner in which errors can be located under punched card procedures.

Accounts Receivable		Sales		Cash		Discounts Allowed	
(1) $500	(2) $500		$500 (1)	(2) $490		(2) $10	
(3) $350			$350 (3)	$490		$10	
$850	$500		$850				
$350							

Aged Trial Balances

Aged trial balances, in addition to performing standard trial balance functions, serve an important credit function. These reports flash the condition of each account, make delinquent accounts stand out prominently, and provide an overall picture of the state of collections and of the age of the accounts receivable. They also provide much of the information required to determine the collection procedure to be applied.

Under data processing procedures it is possible to prepare an aged trial balance with substantially the same amount of time and effort as one that does not show aging. This is important because the value of this report is based particularly on its timeliness. Aged trial balances can be prepared under both open-item and balance-forward approaches, as described below.

Aging Open-Item Accounts

When payments are applied to the open-item accounts receivable file, they are credited against specific invoices, according to the identifying data on the remittances. The cards for the corresponding invoices are removed from the file. In cases where a payment does not cover an invoice or a group of invoices in full, a card is generally punched for the partial payment amount. This card usually contains the actual date of the payment and the entry date of the invoice to which it applies. Thus, all the cards in the open file contain the dates required for machine analysis of the receivables.

At the end of the accounting period the open file is placed in the accounting machine, which automatically classifies the transactions into the proper age groups. Normally, the categories used are current, over 30, over 60 and over 90 days, although the machine can be programmed to provide other categories if required (such as over 120 days, dating, etc.). Naturally, if the accounting period were a week instead of a month, the age categories would be changed to reflect this. The entries to each individual account are analyzed and then listed on the aged report, which shows the total of the current items and a horizontal spread of the past-due items into age categories. The totals of each age category for the entire receivables can also be accumulated. Figure 24 illustrates the type of trial balance usually prepared. While this report is in summary form, in that it lists only the totals for each account, it is possible, if desired, to show the age of each open invoice.

	AGED TRIAL BALANCE								
PAGE OF							DATE	0 4 / 3 0 / 6 -	
CUSTOMER	ACCOUNT NUMBER	BR	SALES MAN	BALANCE	CURRENT	OVER 30 DAYS	OVER 60 DAYS	OVER 90 DAYS	
CRANDAL & COMMINS	4 6 3 4 6	1	4 4	5 0 3 4 2	5 0 3 4 2				
CULVER CONSTRUCTION CO	5 8 6 0 7	1	1 9	1 6 9 6 3 4	1 3 1 5 6 7	3 8 0 6 7			
CUMBERLAND DAIRY	3 2 2 6 4	3	7 2	3 7 9 0 5	3 7 9 0 5				
CUTTERBILL INC	8 8 2 1 1	1	6 8	7 9 1 2 2	6 0 2 1 9	1 8 9 0 3			
CUYENSTAHL DIE WORKS	1 0 9 1 0	1	4 3	4 5 3 7 2 9	4 5 3 7 2 9				
DADAROLA CONTRACTING	1 9 7 7 7	1	1 1	5 5 8 0			5 5 8 0		
DADE & FORSTERMAN INC	2 0 7 9 1	2	3 0	7 4 7 6 5	7 3 7 6 5			1 0 0 0	
DAHL DAHL & YONKO	4 9 3 8 2	2	1 9	9 2 1 0	9 2 1 0				
DARCHESTER PLATING CO	1 1 0 7 1	1	8 4	1 4 6 4 3	1 4 6 4 3				
DEAN HARDWARE CO	5 2 0 8 6	1	2 6	8 7 5 0		8 7 5 0			
DEBLEVIN SUPPLY CO	1 4 1 2 5	1	4 4	1 7 2 7 7 7	1 7 2 7 7 7				
DEVENY AND SONS	2 2 7 6 7	1	1 1	5 4 8 3	5 4 8 3				

Figure 24. Aged Trial Balance

Aging Balance-Forward Accounts

In the balance-forward approach to handling receivables, the identity of the prior month's outstanding items is not maintained and cash receipts are applied against the total outstanding balance. Thus, a different method of aging than described for open-item receivables must be used. Instead of aging each entry individually, the aging procedure is applied to the total outstanding for each age period (i.e., 30, 60, 90 days, etc.) and cash receipts are credited successively to these periods.

Figure 25 shows the type of balance card used in this procedure. Note that the account balance of $1,696.34 is made up of $1,000.67 which is current, $380.67 which is over 30 days past due, and $315.00 which is over 60 days past due, as of March 31. When the April trial balance is to be prepared, the April transaction cards are collated with the March balance cards. The cards are then placed in an accounting machine which is programmed to automatically age the balances in the following manner:

The machine first compares the total current purchases with the total outstanding account balance. If the two agree, it is obvious that no aged items are present, and the operation is normal. If, however, the total amount due is larger than current purchases, the accounting machine begins a special program to age the account.

Payments are first credited to the oldest balance category. If a payment covers more than the oldest category, the remaining amount paid is applied to the next balance, and so on, until receipts have been fully applied. Charges are, of course, added to the current field. In this manner, maximum speed and efficiency are achieved because the machine recognizes the delinquent accounts immediately and goes through the special aging program only when necessary.

After each account is analyzed, the results are printed on the trial balance and a new balance-forward summary card is punched for next month's use. The total of the trial balance is checked with the accounts receivable control sheet, and the operation is complete. Figure 26 is a schematic of this processing as it would be performed on an IBM 403 Alphabetical Accounting Machine with the special programming feature. Similar procedures could be followed with other accounting machines. It is also possible to utilize any IBM calculating punch for the aging function and for punching the new aged balance-forward summary cards, and then to list the resulting cards on an accounting machine to prepare the printed report.

Figure 25. Aged Balance Forward Summary Card

Figure 26. Schematic of Balance-Forward Aging

Dating

Many companies use dating terms under which payment for merchandise sold is not required until some months after the merchandise is delivered. Thus, for example, the first invoice shown in Figure 27 was rendered on April 13, but is not due until September. If the invoice were paid prior to September 10 the customer would be entitled to a 2% cash discount. This type of dating is frequently used in such industries as jewelry, garment, toy, etc., primarily because of the seasonal nature of the demand in these industries and the desire of vendors to minimize peak shipping and warehousing loads. Dating reduces these peaks, since customers will accept merchandise sooner in the season (payment is not usually required until the peak selling period is reached), thus spreading the vendor's volume more evenly.

In addition to providing dating terms, many vendors also write invoices on normal discounting terms and on net terms, and in some cases even permit anticipation. Under these circumstances the usual type of balance-forward statement, which does not show previous month's outstanding invoices, is not very helpful to the customer in figuring his net monthly remittance, since he requires more information than is shown. However, open-item approaches can provide for the preparation of customer statements which show individual invoices and the monthly amount due, taking dating into consideration.

Figure 27 is typical of the statements that can be prepared. It shows all outstanding items regardless of their date and provides a complete picture of the status of the account. All open invoices are listed with the current, dated and past-due invoices falling in their respective columns. After all the open transactions for an account, the statement shows the total outstanding balance, the amount of future datings, the amount of invoices due for payment, the cash discount available on the current invoices, and the total net amount due. Thus a single statement gives each customer a complete, easy-to-understand picture of his immediate and future obligations. In addition, the statement contains a remittance stub listing the invoice numbers of all outstanding invoices and the invoice amounts on all items due. When the vendor makes his payment, the remittance stub can be used to identify the items paid.

There are naturally many variations of the procedure and the statement described. The use of open-item procedures, however, has proved to be a very effective means of handling accounts receivable where dating and other items are used. Another benefit of an open-item file, where dating is involved, is that the file can be sorted by due date and a tabulation of the cash due by all future due dates can be prepared, thus enabling management to forecast more effectively their cash positions at various times in the future.

Figure 27. Typical Statement Showing Dating Details

History and Reference Information

As pointed out in the introduction, the data processing procedures used for maintaining account balances, for credit authorization, for determining delinquent accounts, and for preparing trial balances and statements provide for most of the necessary data flow between accounts receivable and the credit and other departments. However, additional information, not provided by the above means, may often be desired by these departments. The following are some of the ways in which this information can be obtained.

Use of Card Files

In open-item procedures, the accounts receivable file is frequently used when the current status of an account is required, since the file contains all outstanding items in account sequence. The current paid file can also be maintained in similar sequence for reference purposes. When this is done the paid file is maintained until the end of the period and then used to run a history report.

In balance-forward approaches the card files representing cash received and invoices written in the current period can be maintained in account sequence and used for reference purposes.

History Listings

A common method of providing reference information is through history reports (Figure 28) prepared by periodically listing the cards in the paid file. In one application, for example, a report is run each quarter, with each successive quarter showing the previous quarter's transactions as well as the current ones. Because these reports are relatively compact they can usually be kept on the credit man's desk for ease of reference. In addition to showing in detail all individual transactions, these reports usually show summary figures of sales and returns.

Use of Statements

Balance-forward statements generally show all transactions that occurred during the period for which they were prepared. Thus, a history of all accounts can be kept if an extra copy of the statements is prepared and filed by account, or if the statements are bound by month in account-number sequence.

CUSTOMER HISTORY RECORD														
CUSTOMER NAME	CUSTOMER NUMBER	BR	SALES MAN	ENTRY CODE	TRANS-ACTION DATE MO	DAY	YR	INVOICE OR REFERENCE NUMBER	TRANSACTION AMOUNT	DATE PAID MO	DAY	YR	CASH	DISCOUNT ALLOWED
AMERICAN STEEL CO	1281	8	58	11	7 10	6 -		6140	40 3 01	7 20	6 -		39 5 04	8 06
	1281	8	58	11	7 17	6 -		6921	57 5 50	7 23	6 -		56 3 99	1 1 51
	1281	8	58	11	8 03	6 -		7562	34 5 05	8 16	6 -		34 5 05	
	1281	8	58	11	8 12	6 -		7931	70 0 60	8 17	6 -		68 6 59	1 40 01
	1281	8	58	11	8 17	6 -		8304	25 3 40	8 25	6 -		24 8 33	5 07
	1281	8	58	11	8 22	6 -		8609	45 50	8 29	6 -		44 59	91
	1281	8	58	11	8 27	6 -		9103	37 25	9 12	6 -		37 25	
	1281	8	58	11	8 30	6 -		9209	69 60	9 12	6 -		69 60	
	1281	8	58	11	9 06	6 -		9632	75 50	9 15	6 -		73 99	1 51
	1281	8	58	11	9 11	6 -		9841	10 7 05	9 18	6 -		10 4 91	2 14
	1281	8	58	11	9 14	6 -		10033	11 5 40	9 18	6 -		11 3 09	2 31
	1281	8	58	11	9 19	6 -		10327	34 5 10	9 23	6 -		33 8 20	6 90
	1281	8	58	11	9 20	6 -		10701	16 5 35	9 23	6 -		16 2 04	3 31
	1281	8	58	11	9 27	6 -		10849	31 6 05	10 11	6 -		31 6 05	
	1281	8	58	11	10 03	6 -		10986	40 65	10 16	6 -		40 65	
	1281	8	58	11	10 04	6 -		11017	55 40	10 16	6 -		55 40	
	1281	8	58	11	10 09	6 -		11174	40 25	10 16	6 -		39 44	81
	1281	8	58	11	10 20	6 -		11468	35 0 70	11 04	6 -		35 0 70	
	1281	8	58	11	11 05	6 -		11503	72 80	11 19	6 -		72 80	
	1281	8	58	11	11 10	6 -		11599	11 2 9 12	12 13	6 -		11 2 9 12	
	1281	8	58	11	12 10	6 -		12218	52 6 15	12 20	6 -		51 4 40	1 2 11
	1281	8	58	11	12 13	6 -		12232	15 5 82	12 30	6 -		15 5 82	
	1281	8	58	11	12 16	6 -		12255	19 0 16	12 29	6 -		19 0 16	
	1281	8	58	11	12 20	6 -		12270	10 2 0 22	12 24	6 -		99 6 76	2 3 46
									71 3 6 08 ✻				70 4 3 97 ✻	9 2 11 ✻
APALACHIN LUMBER CO	2179	1	35	11	7 04	6 -		5840	79 20	7 14	6 -		77 62	1 58
	2179	1	35	11	7 11	6 -		6527	10 6 45	7 22	6 -		10 6 45	
	2179	1	35	11	7 15	6 -		6792	21 0 30	7 20	6 -		20 6 10	4 20

Figure 28. History Listing

Use of the Trial Balance

In many cases trial balances are run weekly, or on request, to provide the credit department with current information. Provision can also be made to indicate payments received on a copy of the previous period's trial balance. In one procedure, for example, the receivables clerk lines out accounts that have been paid in full and notes the amount paid for accounts on which partial payments have been made. This approach can be used with balance-forward or open-item procedures but is more prevalent with the former. Copies of statements are occasionally used in a similar manner.

Use of the Balance Record

In balance-forward procedures a balance record is maintained for each account. This record, whether in cards or on magnetic tape or disks, usually shows the balance due and perhaps an aging of the outstanding balance. In addition, it is frequently possible to include additional history and reference in the record. Thus, for example, sales information (year-to-date sales, returns, net sales, etc.), accounts receivable data (highest balance, number of months delinquent last year, this year, etc.) and customer reference information (credit rating, type of account, credit limit, etc.)

can be maintained. Figure 29 shows a record of the type described.

Ledger Cards

Since the underlying function of conventional ledger cards, as a working record to store account balances, is performed by use of punched card ledger files, data processing procedures do not require their use to maintain account balances. Similarly, many of the other functions of the ledger card, such as its use as a source for preparing aged trial balances, providing a current balance, showing sales volume, etc., are performed by the punched card ledger file and by reports prepared from the file. When ledger cards are required, however, they can be obtained in the following ways.

Facsimile-Posted Ledger Cards

The IBM 954 Facsimile Posting Machine provides an inexpensive and efficient method of transferring to a ledger card a complete line of printed data from a master sheet prepared by an accounting machine. The 954 model 2 uses a heat-transfer method of posting which results in easily read, evenly aligned and permanent ledger cards prepared as follows:

Figure 29. Customer Master Record (Including History and Reference Data)

An original listing becomes a master sheet from which postings are made. The continuous-form masters are prepared by an accounting machine in the usual manner of preparing reports, except that a reverse carbon impression is made on the back of the report from heat-transfer carbon paper. The carbon master listing is then fed into the facsimile posting machine, and the line to be posted is brought under the pressure bar. The form advances automatically, line by line, during posting. The master sheets, since they are unaffected by posting, can be used as permanent file copies.

Each ledger form is manually placed on the posting table and aligned under a posting-line indicator. When the motor bar is depressed, card grippers automatically feed the sheet to the transferring position. Heat and pressure are then simultaneously applied to transfer a portion of the carbon deposit to the ledger card for a permanent record. Standard ledger card stock can be used. At the end of the cycle, the ledger form is returned to the original position and the master sheet is automatically spaced ahead for the next line to be posted.

Figure 30 shows a customer ledger posted by this method. Invoices are posted from a copy of the invoice register and payments from a copy of the cash receipts register.

Another approach is to periodically take all transaction cards and merge them with balance-forward summary cards (showing the outstanding balance of each account). The transaction cards and the corresponding balance cards are then processed in the accounting machine to prepare a facsimile posting master sheet containing the transactions and the resulting new balances to be posted to the ledger card. New balance cards are summary-punched and then collated back with the remainder of the balance cards. This approach can be used with open-item or balance-forward procedures.

Ledger Cards Posted on the 557 Interpreter

The IBM 557 Alphabetical Interpreter provides another approach to posting ledger cards. This machine makes it possible to mechanically post individual transaction cards or summary cards to punched card ledger files.

Figure 30. Facsimile-Posted Ledger Card

Perhaps the most common use of this type of ledger card is where a monthly summary is posted; posting summary figures minimizes posting time and results in a very easily analyzed ledger card. Figure 31 shows a ledger card of this type, prepared as follows:

While printing customer statements, a summary card is punched which contains account number, account balance, total charges, payments and credits, and an aging of the account balance. Following a balancing operation, the new balance cards are match-merged with the accounts receivable ledger card file,

the summary card falling ahead of the ledger card. The cards are then placed in the interpreter and the information is posted to the ledger card. After posting, each set of cards goes to a different pocket. The transaction summary cards are put into a history file and the ledger cards are collated back into the ledger file.

While the above procedure provides for posting all summary cards to the same posting line, it is possible to post each transaction to the next open posting line if the Selective Line Printing feature is used.

ACCOUNT NUMBER			NAME				ADDRESS				
1 4 0 2 2 9 9 8 0			MRS CLARENCE CALVERT				4 5 0 FONTANA AVE				
TYPE	CREDIT RATING	YR. ACCOUNT OPENED					CITY AND STATE				
1	C	6 0					ASHEVILLE NORTH CAROLINA				
DATE	CHARGES	PAYMENTS	CREDITS	SERVICE CHARGE	BALANCE	OVER 60	OVER 90	OVER 120	REMARKS		
JAN 60	1 2 8 0 0	7 0 0 0			1 2 8 0 0						
FEB 60	3 2 0 5	1 2 8 0 0			3 2 0 5						
MAR 60	9 6 9 4				1 2 8 9 9						
APR 60	3 3 4 5	1 2 8 9 9	1 5 0 0		1 8 4 5						
MAY 60	1 3 5 0 0	1 8 4 5			1 3 5 0 0						
JUNE 60					1 3 5 0 0						
JULY 60		1 1 0 0 0			2 5 0 0	2 5 0 0					
AUG 60					2 5 0 0		2 5 0 0				
SEP 60	2 0 0 0	2 5 0 0			2 0 0 0						
OCT 60											
NOV 60											
DEC 60											
JAN 61											
FEB 61											
MAR 61											
APR 61											
MAY 61											
JUNE 61											

Figure 31. Ledger Card Posted on the IBM 557 Interpreter

Mechanized Cash Posting

The substitution of machine processing for manual and key-driven steps provides the basic advantage of data processing procedures, and, generally speaking, the more steps performed automatically, the more effective the procedure. Thus, many accounts receivable approaches provide for the automatic entry and application of cash receipts. In typical balance-forward procedures a machine-readable remittance document is prepared. It is usually a 51-column prepunched card but can also be a 22- or 80-column card or a paper stub that can be read by optical character sensing (Figure 32). The remittance stub (which is frequently referred to as a payment coupon, payment card, payment notice, etc.) is returned with the customer's payment.

For payments differing from the prepunched amount, provision is made either to mark-sense or manually punch the amount paid. The payment stubs are then converted to full-size cards—unless they are already 80-column cards or, in some cases, 51-column cards. The payment cards are then balanced with the cashier's total of cash received. Next, they are sorted into account-number sequence and used to prepare the cash receipts register. Finally, the cards are used to automatically update the accounts receivable records. This may be done in many ways:

• The payment cards may be collated with last period's balance cards and this period's charge cards. At the end of the period all cards in the file are used to prepare customer statements and to summary-punch new balance cards containing the new account balance. These cards, minus any with zero balances, provide the starting point for next month's accounts receivable processing.

• The payment cards may be collated against the balance file on account number and amount, and all matching balance cards pulled from the file. These

80 column card

51 column card

paper coupon (machine readable)

22 column card

Figure 32. Payment Coupons

balance cards represent accounts paid in full and their absence from the balance file indicates that the accounts are current.

Payment cards for partial payments or overpayments are collated into the file behind their respective balance cards. At the end of the period the balance and payment cards still in the file are summary-punched into new balance cards. These balance cards represent all past-due accounts and are merged with the cards representing current charges. The resulting file is used to prepare customer statements and is the basis for next month's accounts receivable file.

• The payment cards may be collated against the balance file on account number, the corresponding balance and transaction cards are then processed, and the new balance information is calculated and punched into the transaction cards, which become the new balance cards.

Mechanized cash posting is found very commonly in public utilities, life insurance companies, banks, gasoline companies, department stores and similar industries where a large volume of cash receipts is handled and where a large percentage of them cover the exact amount due. Examples of mechanized posting are given later in the manual under "Industry Approaches."

At the present time, only a small percentage of open-item procedures provide for automatic cash posting, because of the individual handling required. However, where data processing systems are used for open-item accounts receivable, provision is usually made for analyzing and applying the majority of payments mechanically, with only a small portion requiring manual attention. The more common method of applying cash in open-item procedures — that is, by manually selecting cards for items paid — was discussed in the section of the manual covering typical open-item procedures.

Industry Approaches

The procedures described in this section have been selected because most people are familiar with the products and services of the industries involved and because they illustrate principles that can be applied to other accounts receivable applications. We shall briefly outline the areas chosen before covering them in more detail.

Credit Card Plans

The use of credit cards has grown tremendously in recent years and shows every sign of continued rapid growth. Department stores were probably the first large local users of this approach; gasoline companies were probably the first to apply it on a nationwide basis. In recent years, more and more people have been using both nationwide credit plans (American Express, Carte Blanche, the Diners' Club, etc.) and local credit plans (Bank of America, Chase Manhattan Bank, etc.).

Gasoline Credit Plans: All major gasoline companies allow their customers to purchase gasoline, oil, etc., on a charge plan basis, which generally operates as follows:

After an application has been approved, a plastic credit card is sent to the customer. When he purchases gasoline, the credit card is used to imprint the sales ticket with his name, address and account number; the details of the transaction are entered by hand. The customer is given part 2 of the sales ticket and the original (usually a 51-column card) is forwarded to the company's central office.

At the central office the required information is punched into the sales tickets, which are then mechanically sorted and filed by account. At the end of a billing cycle, the 51-column sales tickets and the payments are summarized into 80-column cards which are merged with name and address cards and with balance-forward cards for accounts with unpaid balances. Customer statements are then prepared on an accounting machine. The statements are usually 80-column cards with a 51-column portion to be returned when payment is made. After being microfilmed the sales tickets and the statements are forwarded to the customers.

Nationwide Credit Plans: These differ somewhat from the plan just described because of the large number of credit card holders (in the millions), and because of the widespread distribution and the many kinds of establishments honoring the cards. Never-theless, the approach used by these plans is similar in broad outline to the gasoline credit card.

Local Credit Plans: These plans are similar to nationwide plans, but usually cover a smaller area such as a state or major city.

Retail Credit Card Plans: Department and specialty stores have been using credit plans for many years. Many kinds are in use, the two most common being the regular 30-day charge plan and the revolving credit charge plan. A typical retail accounts receivable application will be discussed to illustrate this area of accounts receivable.

Public Utility Accounts Receivable

Almost every family in the country receives one or more utility bills every month, a large percentage of which are prepared by data processing methods. This area of accounting, which the utilities call customer accounting, usually includes service order writing, preparation of meter reading cards, calculating and printing customer bills, remittance accounting, cash posting, preparation of delinquency notices, and cycle balancing. We shall concern ourselves with the last four functions mentioned and shall describe a commonly followed approach to performing them.

Loan Accounting

Mortgage loans and installment loans (automobile, appliance, boat, home modernization, personal, etc.) are the two most common types of loan extended by financial institutions. They are issued by commercial banks, credit unions, personal loan companies, savings and loan associations, savings banks, and similar organizations. The large-volume, repetitive clerical nature of loan accounting, combined with its rapid growth, has accounted for the widespread use of IBM procedures for this application.

While there are many variations in use, and while loan accounting is in a slightly different category from most accounts receivable procedures, the application is characterized by the following accounts receivable functions:

Use of prepunched coupons for remittances.

Machine posting of payments.

Mechanical calculation of balances, late charges and payment allocations.

Machine-prepared trial balances and customer statements.

A typical mortgage loan application will be described to illustrate these functions.

Retail Accounts Receivable

Department stores, specialty stores and similar retail concerns provide charge plans allowing their customers to buy merchandise on credit. Some stores offer as many as five, and it is not unusual for one customer to use several of them concurrently. Because of the growth in the number of plans and the increasing volume of charge sales, many retailers are providing for the mechanization of this function. The approaches followed generally provide for the use of punched card sales checks and for their processing on either unit record machines or data processing systems. We shall describe one approach using an IBM 1401 Data Processing System to show what can be done. The procedure outlined uses cycle billing, where the accounts receivable is subdivided into groups and each group is rendered statements on a separate date. This eliminates the peak loads that would occur if all statements were prepared at one time.

Input

Sales

The punched card sales check (Figure 33) is the main source of input. This document, once punched, is machine-sorted to account number, creates cycle totals, bills the customer, merges with the customer statement automatically — and may be machine-inserted into an envelope. For ease of conversion from paper sales checks, the card form is generally designed to correspond to the previously used sales check, with only slight rearrangement of information. Thus, there is usually little difficulty in introducing the card check on the sales floor. These sales checks may be obtained in individual sets or in books, and in either case their writing remains the same as under the previous sales floor procedures.

While the punched card sales check can be easily used with differing sales audit requirements, we shall describe a procedure based on a typical floor audit system. The cash register envelope is prepared and balanced in basically the same manner as under previous audit procedures. During balancing, the total of the charge sales is written on a register card which is placed in front of the charge sales checks. The cards and register envelopes are then forwarded to the punching section, where the following data is punched:

Register Card: Card code, total of charge sales, date and register number.

Sales Checks: Type of account, account number or four or five letters of name in lieu of account number, sales check amount and date.

The sales checks are then balanced (on the accounting machine) to the charge totals punched into the register cards.

While the procedure outlined above was chosen because of its simplicity, it is also possible to follow a procedure combining sales audit functions and the punching of the sales check. Furthermore, the use of optical character sensing, in conjunction with point-of-sale recorders, permits the automatic entry of data into the accounts receivable procedure. The exact approach followed here is, of course, a matter to be determined by individual retailers according to their specific requirements.

Credits

Credit forms for customer returns and adjustments are designed similarly to the card sales check and are written in the same manner as at present. As credits are received in the office they are visually reviewed and an adding machine total is taken by batch. This batch total is entered on a control sheet. The following information is punched:

Figure 33. Punched Card Sales Check

Credit Cards: Date, type of credit (cash, C.O.D., charge, etc.), department, sales person, amount, and, for charges only, account number or four or five letters of name when account number is not shown.

The credits are then listed and balanced to the batch controls. Since the credit cards are used in the sales audit procedure as well as accounts receivable, they are automatically reproduced so that the originals may be promptly forwarded to the receivables processing.

Payments

The customer statement is printed on an IBM stub card (Figure 34) with a returnable payment stub which is machine-processable. It is generally advisable to design statements with a 51-column payment stub, as illustrated, to allow customers to enter name and address changes on the stub. Experience has shown that when a card statement is used, a higher percentage of payments are received with stubs than when a paper statement is used.

Before mailing, the statement is automatically punched with the customer's account number and amount due, to provide an automatic entry to credit the customer's account when the payment is received. If the amount is paid as billed, a special position on the back of the statement is mark-sensed. If the amount differs, the exact amount paid is mark-sensed.

A second payment form is used when the payment is made without the returnable portion of the statement. This is also an IBM stub card; however, the machine-processable part of the form is an 80-column card. The payment forms are handled in the following manner:

If the customer pays at the store and has the statement with him, his portion is validated with the amount of payment. One validation appears on the customer's portion and one on the store portion. The store's portion is mark-sensed on the back of the card and placed in a receptacle. If the customer does not have the statement, his credit plate is used to imprint the identification on the payment form; otherwise it is manually written. The card is then validated as before. Mail payments are handled in a similar fashion.

The payments are forwarded by the cashiers in two groups: statement stubs and handwritten 80-column payment cards. The stubs are mark-sense-punched and reproduced, while the 80-column cards are manually punched with the customer account number or four or five letters of name, the date and the amount paid. Both groups of cards are then listed and balanced to the cashier's totals.

Preliminary Processing

After all transactions for the day have been balanced, the charge transactions are brought together for the accounts receivable processing. The transactions having an account number are separated from those transactions where the credit plate was not carried and where no account number is on the sales check. Those without numbers are machine-sorted by four or five letters of name (punched only where the account number is not indicated), to facilitate looking up and entering account numbers. The account number is then punched in the sales checks and they are usually held for processing with the following day's transactions.

Today's transactions, including sales, returns, payments, adjustments, address changes, inquiries and new accounts, are combined with the previous day's transactions which required account-number lookup, and are sorted by account number.
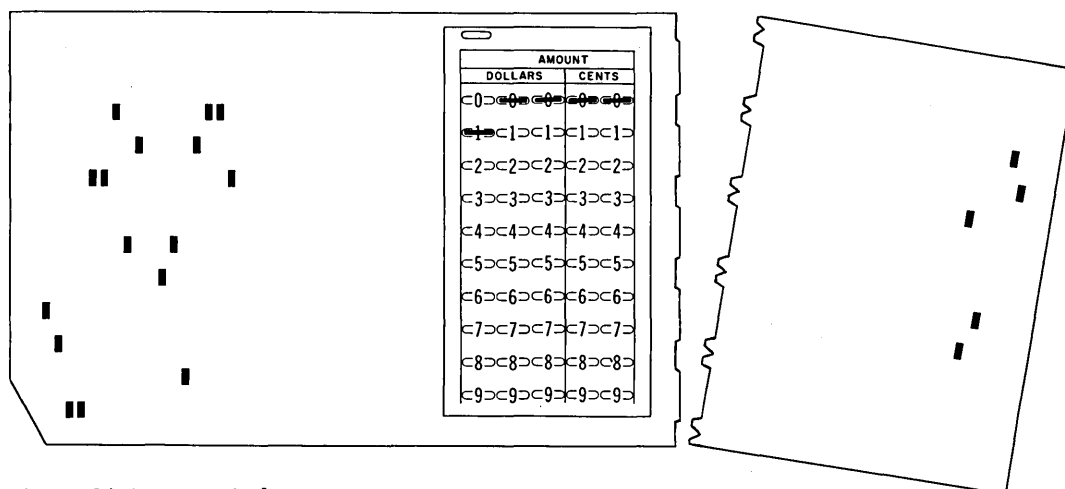
Figure 34. Payment Stub

Updating and Analysis of Accounts

Customer Master Record

A complete record of each customer's account is stored on magnetic tape. This record serves as the basis for the evaluation of credit risk, for customer billing (including addressing) and for collection follow-up. The data maintained can be varied to meet individual requirements. Figure 35 shows a typical master record.

Processing

In account sequence, all of the day's transactions are read into the 1401 and processed against the customer master tape. Each account is updated and analyzed to determine whether the transactions just processed have created a condition which should be brought to the attention of the authorization or collection sections. Flasher cards are automatically punched and forwarded to these groups to bring to their notice conditions such as accounts over credit limits, unusual buildups, payments or purchases made on collection accounts, etc.

Since buildups are relative to individual customer habits, the 1401, through its logical ability, can be programmed to consider a variety of factors before reporting a buildup. The factors considered, for example, could be number of sales checks, credit rating, previous high balance, purchases this year to date and last year, etc.

Control

A control record is kept on tape for each cycle. As the accounts are updated, the day's transactions are accumulated and are added to the starting control figure for each cycle. The new control figures are balanced with the sum of all the individual accounts in the cycle (accumulated as each account was processed). Thus cycle control figures are updated and checked, and the customer master file is trial-balanced. In addition, a detailed transaction and cycle control report is prepared, providing an audit trail in customer account-number sequence for ease of reference. All this is done automatically during the daily processing run.

Figure 36 is a flow chart of the updating, analysis and control activities.

Figure 35. Customer Master Record
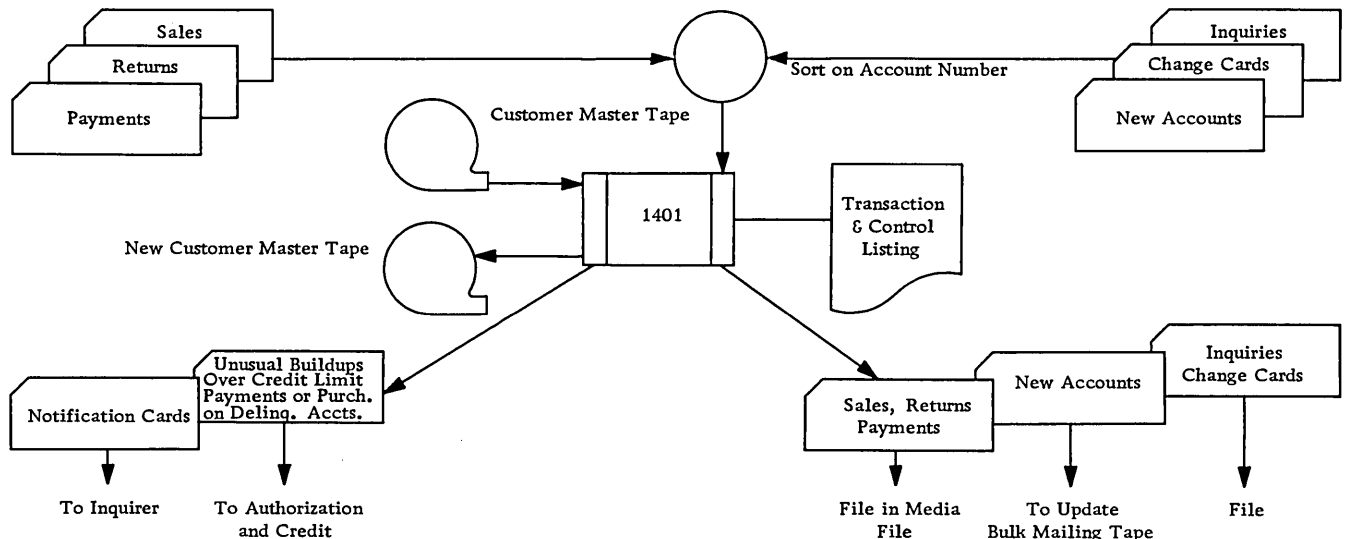
Figure 36. Daily Updating, Analysis, and Control

Billing

After all cycles are updated, analyzed and balanced to controls, the customer master tape representing the cycle to be billed is read into the 1401 and a cycle trial balance prepared. Then on the statement preparation run, each account is analyzed to determine whether there is a balance due. Where applicable, service charges are calculated and added to the balance. For revolving credit accounts, the amount due this month is calculated on the basis of the total balance. The 1401 then prints the customer statement (Figure 37). The customer's name and address is listed, followed by the totals of the account's activity and the balance due.

Simultaneously a statement-punching and aged ledger-posting card is punched. This card is used to reproduce account number, amount due, number of transactions, and mailing and dunning code into the customer statement. The mailing and dunning code, which is determined by the 1401, is used subsequently in handling and mailing customer statements.

Merging Media and Statements

At time of statement preparation, the transactions for the cycle are removed from the files where they are kept during the month and are machine-sorted by account number. The transactions are then machine-collated with the customer statements produced on the 1401. During this step, through the use of the collator counting device, the collator automatically checks to assure that all transactions are included with each bill. If a sales check is missing, an error is automatically signaled.

Mailing

After collating, the statements and the associated media are photographed. They are then broken down by the mailing and dunning code through the use of the group sorting device on the IBM sorter. The code combines postage and delinquency notice requirements, such as 4¢ and 1st reminder notice, 4¢ and 2nd reminder notice, etc. Breaking down the statements in these groupings facilitates the use of automatic inserting and mailing equipment. Statements with credit balances or statements for collection or bad debt accounts are also segregated during this operation.

Ledger Card Preparation

The ledger posting card, containing the aged customer balance developed in the 1401, is used to post the customer's ledger card (see Figure 31, page 31). It is automatically collated with the ledger card and the information read from it is posted onto the ledger by the 557 Interpreter. The interpreter automatically segregates the cards with balances outstanding over 60 days and they are reintroduced into the 1401 to produce the delinquent account listing.

Figure 38 is an overall flow chart of the statement preparation procedure.

10561

RETAIN this **PORTION**

FOR YOUR RECORD OF PAYMENT

ACCOUNT NUMBER
140229980

DATE		
MO.	DAY	YR.
4	21	6—

PAYMENTS AND CHARGES RECEIVED TOO LATE FOR THIS STATEMENT WILL BE INCLUDED IN A SUBSEQUENT STATEMENT

ACCOUNT BALANCE	BALANCE DUE
18.45	18.45

MAIN STREET STORE
ADDRESS

PLEASE FORWARD this PORTION WITH YOUR REMITTANCE

MRS CLARENCE CALVERT
450 FONTANA AVE
ASHEVILLE N C

ACCOUNT NUMBER	DATE		
	MO.	DAY	YR.
140229980	4	21	6—

BALANCE FROM LAST BILL	PURCHASES	RETURNS	PAYMENTS	SERVICE CHARGE	BALANCE DUE
128.99	33.45	15.00	128.99		18.45

PLEASE RETURN SALES TICKETS WITH ANY INQUIRIES

Figure 37. Customer Statement

Customer
Master Tape

Customer
Master Tape

New Customer
Master Tape

1401

1401

Trial
Balance

Customer
Statements

Burst

Customer Statement   1, 3...

Customer Statement   2, 4...

Merge

Control Cards

List and
Balance

Statement Punch-
ing and Ledger
Posting Card   1, 2...

Reproduce

Customer Statement   1, 2...

Current Media
File

Select Cycle
Being Billed

Ledger Card File

Merge

Sort on
Account
Number

Merge

Interpret

Photograph

Sort
Select   File Payments

Interpreted
Ledger Cards

Statement Punch-
ing and Ledger
Posting Cards   (Delinquent
Accounts Only)

Group Sort on
Mailing and
Dunning Code

Delinquent
Account
Listing

1401

Mailing
and Inserting
Machine

Reminder
Notices,
Envelopes

To Collectors

To Customers

Figure 38. Cycle Billing Procedure

Dunning

The customer master tape for the cycle scheduled for collection follow-up is read into the 1401. Each account is analyzed for delinquency and when applicable a delinquency statement is automatically prepared. The statements are printed with the customer name and address, account balance and past-due balance. The type of account and the delinquency code are also indicated. On the same run cards are punched for all delinquency statements prepared. These cards are used to reproduce account number, amount due and the delinquency code into the statements. The delinquency code number refers to the particular follow-up letter which is to be sent with the statement. The statements are forwarded to the collectors for review and mailing. In the latter stages of collection the collector will, of course, decide what letter is to be sent or what action is to be taken.

Authorization

Credit authorization is accomplished primarily from compact files of machine-posted customer history ledger cards which are made more informative through aging. These cards are posted monthly at billing time, from the ledger posting cards, by the 557.

In addition, each day, as the customer master tape record is being updated, signal cards are punched for those accounts that have gone over the credit limit or have experienced an unusually heavy buying activity. The signal cards are machine-listed so that the credit manager is apprised of each unusual situation. The cards are then interpreted and sent to the credit authorizers for filing into the customer ledger file with each corresponding customer ledger card. Similarly, signal cards are automatically punched, interpreted and sent to the credit authorizers for payments against delinquent accounts.

Advantages

Some of the advantages that the above approach offers to medium and large department and specialty stores are:

Opportunities for reduced operating costs.

Tight controls without paying a premium for these controls.

Automatic aging of all accounts.

More complete credit information on a more timely basis.

Reduced time lag from close of cycle to receipt of statements by customers.

Ability to handle peaks without sacrificing schedules or adding a large temporary staff.

Reduced time lag between a charge sale, return or payment and its effect on accounts receivable.

Decreased floor space requirements.

Closer control of conditions such as unusual build-ups, over credit limits, etc.

Public Utility Accounts Receivable

Punched Card Bills

Since the use of a punched card bill is essential to a mechanized procedure we shall start with it and then follow the various receivable functions through the monthly cycle of a typical utility. Most of the utility's customers are sent monthly postcard bills (Figure 39) for the service rendered. These are prepared on a cycle basis, with a different group of customers billed each cycle. The bill contains three parts: an office portion, which is cut off before the bill is mailed to the customer; the center portion, which is retained by the customer; and the cash portion, which is returned when the bill is paid. Bill preparation, including mark-sense punching of the meter reading cards, calculation of the amount to be charged, printing of the current and arrears items, and addressing of the bills, is performed in the data processing department on unit record machines. During the billing procedure the cash stubs are punched with account number, route number, net and gross amount of the bill, date, and the division of the company in which the subscriber is located. Space for sense-marking partial payments is provided on the rear of the cash stub.

The customers pay their bills either through the mail, or to collection agencies or company tellers. A cash discount is given if the account is paid by the discount date (usually ten days after the bill is mailed). When payments are made, the cash stubs become an automatic entry into the data processing procedure, as indicated below.

Figure 39. Typical Utility Bill

Remittance Accounting

Except for some minor differences the cash stubs are handled in the same manner whether they are received by collection agencies, by mail, or by company tellers. The stubs are separated into two groups — one to be reproduced and one to be manually punched. The group to be reproduced contains all types of payments as long as the punched stubs are in good condition. The group to be manually punched, usually around 5% of the total, contains mutilated card stubs and paper stubs from duplicate bills. The stubs are grouped in batches of about 200, an adding machine tape is taken on the amounts paid, and a batch control slip showing the date, the amount collected, and the batch number is prepared.

Since there are several types of payments, all cash stubs (except the batches to be manually punched) are sense-marked so that the appropriate information can be entered into the 80-column cash card created on a subsequent processing step.*

Thus, through the use of mark sensing, it is possible to provide for the automatic punching of all non-mutilated cash stubs and for the subsequent application of the payments to the proper balances (net, gross, or merchandise).

Creating Cash Cards

The batches of cash stubs, both those to be reproduced and those to be manually punched, are forwarded to the data processing department several times each day. The stubs in good condition are automatically reproduced into full-size cash cards by the reproducing punch. On this step the reproducer reads both the information punched into the stub and the amount marked on it and then punches the corresponding data into the cash cards. Either the net payment amount, the gross payment amount or the partial, overpayment or merchandise amount is punched as indicated by the mark sensing on the stub. The district, route and account numbers are reproduced into the cash card and a code is punched to indicate whether the payment is late, gross, partial, over, or merchandise. The appropriate batch number, cash source number and date of payment are also gang-punched on this run. The same information is manually punched into cash cards for mutilated and paper stubs. The cash cards are listed on the accounting machine and balanced to the adding machine batch totals.

* Some of the variations in cash payments are as follows:

Type of Payment	Blocks to be Sense-Marked	Cash Applied to	Category of Payment
Net payment made before due date	N	Net amount	Regular
Net payment made after due date	1	Gross bill amount	Irregular
Gross payment made after due date	G	Gross bill amount	Regular
Overpayment made before due date	1 and amount collected	Net amount	Irregular
Overpayment made after due date	1 and amount collected	Gross bill amount	Irregular
Partial payment	1, L and amount collected	Gross bill amount	Irregular
Payment to apply against merchandise	1, M and amount collected	Merchandise amount	Irregular

CASH RECEIPTS REGISTER

BATCH NUMBER	DATE PAID			SOURCE	AMOUNT	ROUTE	ACCOUNT NUMBER		SUF.	DEL.
	MO.	DAY	YR.				ROUTE	FOLIO NO.		
8 0 2	8	2 5	6 0	3 1	1 5 8 2 CR	5	0 4	1 7 7 8 0		
3 0 1	8	2 5	6 0	3 1	1 4 8 1 CR	5	0 4	1 8 1 8 0		
6 0 4	8	2 5	6 0	3 1	1 5 5 9 CR	5	0 4	2 5 8 5 0		
3 0 1	8	2 5	6 0	3 1	3 8 3 7 CR	5	0 4	2 6 0 4 0		*
6 0 4	8	2 5	6 0	3 1	1 6 0 4 CR	5	0 4	3 3 1 3 0		
8 0 2	8	2 5	6 0	3 1	1 6 9 0 CR	5	0 4	3 8 5 5 0	1	
3 0 1	8	2 5	6 0	3 1	1 6 1 4 CR	5	0 4	4 4 8 6 0	2	
					*1 3 3 6 7 CR					
8 0 2	8	2 5	6 0	3 1	6 8 6 CR	9	1 9	1 9 2 0		
8 0 2	8	2 5	6 0	3 1	2 3 9 CR	9	1 9	1 9 5 5		
8 0 2	8	2 5	6 0	3 1	1 7 0 CR	9	1 9	1 9 6 0		
8 0 2	8	2 5	6 0	3 1	1 0 0 CR	9	1 9	1 9 9 0		
8 0 2	8	2 5	6 0	3 1	2 2 2 CR	9	1 9	1 9 9 5		
					* 3 7 5 1 CR					
3 0 1	8	2 5	6 0	3 1	2 1 7 2 CR	1 5	0 6	1 3 1 6 5		
3 0 1	8	2 5	6 0	3 1	7 3 0 0 CR	1 5	0 6	1 3 1 7 0		
3 0 1	8	2 5	6 0	3 1	1 1 4 0 CR	1 5	0 6	1 3 1 7 5		
3 0 1	8	2 5	6 0	3 1	2 0 4 CR	1 5	0 6	1 3 1 8 0		
3 0 1	8	2 5	6 0	3 1	4 5 2 CR	1 5	0 6	1 3 1 8 5		
8 0 2	8	2 5	6 0	3 1	2 0 4 CR	1 5	0 6	1 3 1 9 0		
6 0 4	8	2 5	6 0	3 1	1 7 0 CR	1 5	0 6	1 3 1 9 5		
6 0 4	8	2 5	6 0	3 1	1 0 0 CR	1 5	0 6	1 3 2 0 0		
					*1 1 7 4 2 CR					
2 5					2 8 8 6 0 CR					

Figure 40. Cash Receipts Register

Cash Receipts Register

At the end of the day, all cash cards are sorted into account-number sequence and are listed in the accounting machine to produce the cash receipts register (Figure 40). This register, showing the district, route, folio number and amount paid, is balanced to the day's cash total and copies are forwarded to the district offices to advise them of payments received on delinquent accounts and to aid them in answering customer inquiries. Note the asterisk printed next to payments made on delinquent accounts. On the same processing step, route control cards are summary-punched for use in maintaining the route control totals.

The cash cards are then sorted into two categories — regular and irregular. Regular cash cards are all cash cards representing full payments of the net amount before the discount date or the full payment of the gross amount after the discount date, and represent about 85% of the volume. The balance of the cards, the irregular payments, include partial or overpayments, net payments made after the discount date, gross payments made before the discount date, etc.

Cash Posting

On the day a cycle is scheduled for cash posting (this can be daily, weekly, the day after the discount date, etc.), the regular cash cards and the accounts receivable open file are placed in the collator. The open file contains cards for all accounts with outstanding balances. At the beginning of the cycle, the file has one card for each service billed during the past month and one card for any previous debit or credit balance in the account. The cards in the open account file whose account numbers agree with the account number of regular cash cards are selected from the file and merged together with the corresponding cash cards. In this manner all accounts paid in full are removed from the open file. The merged cards are listed on the accounting machine and the regular cash posting register (Figure 41) is prepared. On this run the cash cards for each account are zero-balanced with the open-item cards for the account to assure that the cash cards properly cover the open-item cards removed from the file.

After the regular payment cards have been used to select the corresponding open items, the irregular payment cards are merged into the remainder of the open-item file. Thus, after cash posting, the open-item file contains the receivable cards for customers who have not made payments this cycle, and the receivable and cash cards for accounts that have made irregular payments this cycle.

The procedure described thus far is shown in Figure 42.

REGULAR CASH POSTING REGISTER

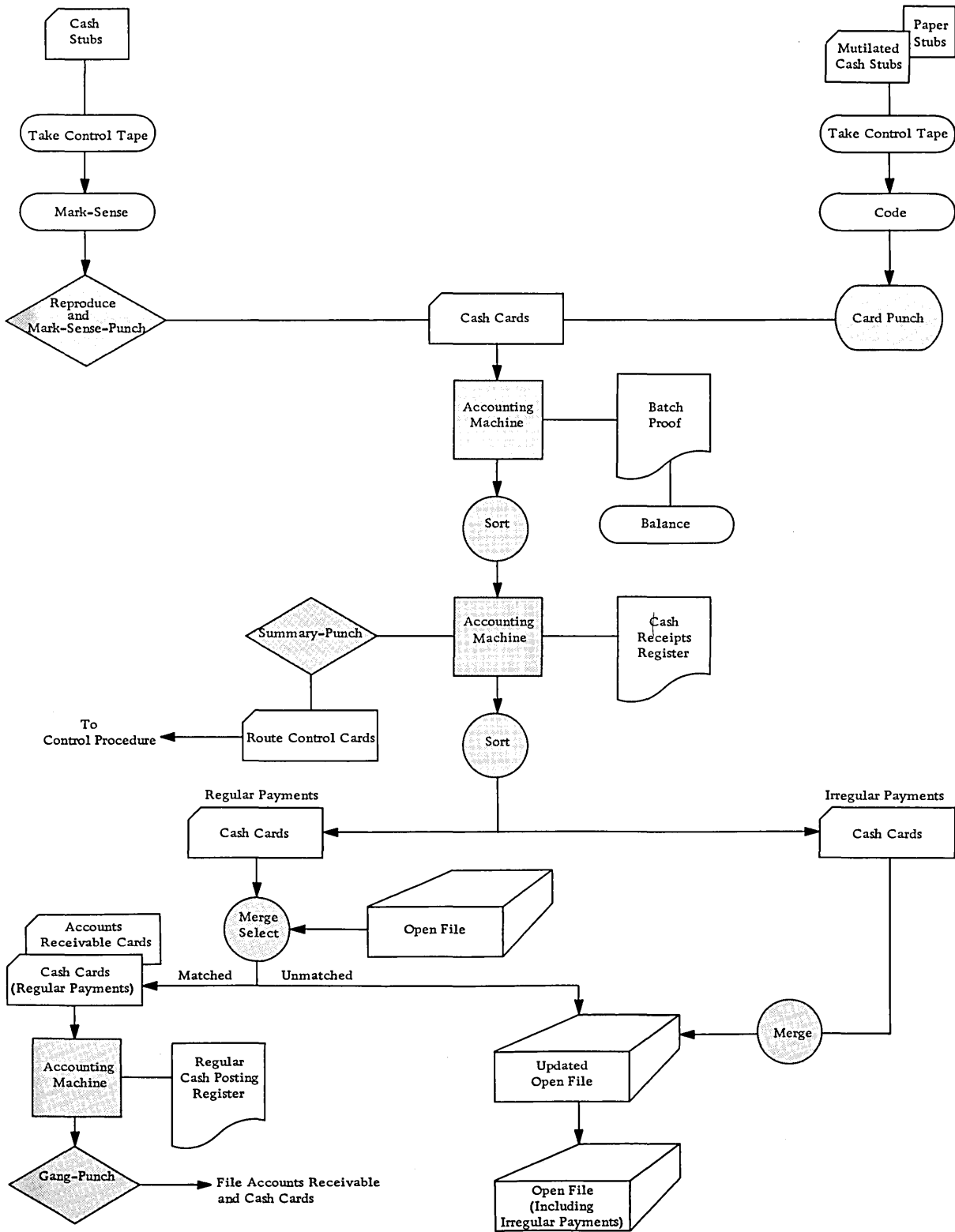| GROSS	NET	BASE	CFDD	MO	YR	METER DESC.	METER NUMBER	PREV. USE	PRB C	PCD/NO	TBC	PRESENT READING	PRESENT USE	MO	DAY	SER	REV CL	SO	LISTED AMOUNT	BALANCE	ROUTE	FOLIO	SUF
											1		1 0 5	8	18	7		3 1	7 8 3CR		2 6 1 6	6 2 0 0	
		3 4	2 0	10	6 -	0 E	1 0 5 5 5 4	4 1			2	4 9 1 8	4 1	7	30	1	2 0		4 2 0		2 6 1 6	6 2 0 0	
				10	6 -	G 5 8	5 4 1 8 9 2 8	1 7			3	4 9 6	1 9	7	30	2	1 0		3 6 3		2 6 1 6	6 2 0 0	
											1		6 0 2	8	15	7		3 1	1 9 2 1CR		2 6 1 6	6 2 2 0	
		5 4	2 0	8	6 -	0 E	1 0 1 0 5 1	5 3			2	5 8 4 7	5 7	7	30	1	2 0		5 2 4		2 6 1 6	6 2 2 0	
				8	6 -	G 5 8	5 3 8 7 8 2 7	1 0			3	3 5 4	2 1	7	30	2	1 0		3 9 7		2 6 1 6	6 2 2 0	
											5			8		18		4 0	1 0 0 0		2 6 1 6	6 2 2 0	
											1		8 0 1	8	12	7		3 1	8 2 0CR		2 6 1 6	6 2 4 0	
		4 6	1 8	4	6 -	5 B A	1 0 3 3 9 1	3 5			2	3 3 4 4	5 2	7	30	1	2 0	₴	4 9 1		2 6 1 6	6 2 4 0	
				4	6 -	T 5 8	2 8 5 7 2 4 5	1 1			3	4 6 4	1 7	7	30	2	1 0		3 2 9		2 6 1 6	6 2 4 0	
											1		9 0 2	8	18	7		3 1	4 9 3CR		2 6 1 6	6 6 8 0	
		2 6	2 3	1	6 -	0 E	1 0 4 5 8 0	2 6	3		2	4 2 6 4	2 7	7	30	1	2 0		3 0 0		2 6 1 6	6 6 8 0	
				1	6 -	T 5 8	1 2 4 8 0 1 0	2 5	3		3	4 4 8	9	7	30	2	1 0		1 9 3		2 6 1 6	6 6 8 0	
											1		6 0 2	8	14	7		3 1	1 3 1 2CR		2 6 1 6	6 9 7 0	1
		2 4	1 9	1	6 -	0 E	9 2 8 8 3	3 8			2	6 0 9 9	3 9	7	30	1	2 0		4 0 5		2 6 1 6	6 9 7 0	1
				7	6 -	T 5 8	3 0 4 5 9 5 9	1 1			3	1 3 0	1 2	7	30	2	1 0		2 4 4		2 6 1 6	6 9 7 0	1
											6					6			6 6 3		2 6 1 6	6 9 7 0	1
											1		9 0 3	8	14	7		3 1	5 9 6CR		2 6 1 6	6 9 9 0	
		3 2	1 3	2	6 -	1 E	1 0 3 7 1 0	2 8			2	1 3 0 1	2 9	7	30	1	2 0		3 1 8		2 6 1 6	7 2 6 0	
				2	6 -	G 5 8	5 5 6 9 1 6 1	1 2			3	6 4	6	7	30	2	1 0		1 4 2		2 6 1 6	7 2 6 0	
											1		7 0 4	8	22	7		3 1	4 7 5CR		2 6 1 6	7 2 8 0	2
3 5 0	3 1 3	3 2	1 2	7	6 -	0 E	6 7 1 5 0	4 0			2	4 0 4 7	2 9	7	30	1	2 0		3 5 0		2 6 1 6	7 2 8 0	2
				7	6 -	G 3 4	3 7 3 7 4 6 3	8			3	2 0 9 1	5	7	30	2	1 0		1 2 5		2 6 1 6	7 2 8 0	2
											1		9 0 3	8	19	7		3 1	7 2 9CR		2 6 1 6	7 3 0 0	
		4 0	1 4	1	6 -	5 M	1 0 2 7 7 6	3 7			2	3 3 1 6	5 1	7	30	1	2 0		4 8 5		2 6 1 6	7 3 0 0	
				3	6 -	C 5 8	1 5 4 0 2 4 5	6			3	2 6 2	1 2	7	30	2	1 0		2 4 4		2 6 1 6	7 3 0 0	
											1		7 9 9	8	18	7		3 1	4 8 3CR		2 6 1 6	7 3 2 0	
		2 0	1 5	12	6 -	0 E	8 5 4 3 0	2 7			2 3	6 2 9 5	2 0	7	30	1	2 0		2 3 9		2 6 1 6	7 3 2 0	
				12	6 -	G 3 4	4 9 4 2 5 2 1	1 2			3 3	5 4 1	1 2	7	30	2	1 0		2 4 4		2 6 1 6	7 3 2 0	
											1		4 0 9	8	11	7		3 1	7 9 1CR		2 6 1 6	7 3 8 0	
		6 6	1 0	9	6 -	0 E	8 3 1 0 3	5 2			2	7 4 7 0	5 8	7	30	1	2 0		5 3 0		2 6 1 6	7 3 8 0	
				9	6 -	G 3 4	4 9 4 2 5 8 9	9			3	5 0 0	1 3	7	30	2	1 0		2 6 1		2 6 1 6	7 3 8 0	
											1		3	8	11	7		3 1	6 8 1CR		2 6 1 6	8 0 3 0	
		3 0	1 8	1	6 -	0 E	9 9 7 0 2	4 8			2	5 1 6 5	4 1	7	30	1	2 0		4 2 0		2 6 1 6	8 0 3 0	
				4	6 -	T 5 8	9 7 8 9 0 7	1 1			3	2 2 1	1 3	7	30	2	3 0		2 6 1		2 6 1 6	8 0 3 0	
											1		1 0 4	8	18	7		3 1	7 0 4CR		2 6 1 6	8 0 9 0	
		3 0	1 6	9	6 -	0 E	1 0 1 0 7 8	4 6			2	4 0 1 2	4 2	7	30	1	2 0		4 2 6		2 6 1 6	8 0 9 0	
				11	6 -	G 5 8	3 9 5 0 0 4 2	1 5			3	2 2 2	1 4	7	30	2	1 0		2 7 8		2 6 1 6	8 0 9 0	
3 5 0	3 1 8																			CR CR			

Figure 41. Regular Cash Posting Register

Figure 42. Cash Posting Procedure

Delinquency Notices

Delinquency notices (Figure 43) are prepared about 15 days after the bills are mailed. The delinquency notice form is in triplicate and shows the details of the current unpaid items and any previous unpaid balance, followed by the name and address of the customer. The completed notices are reviewed to determine whether the preliminary notice, the final notice, or no notice is to be mailed. The first copy of the set is the final notice, the second copy is the preliminary notice and the third copy is the office file copy.

The notices are prepared by merging cards from the open-item file with the name and address file and then listing the statements on the accounting machine.

Cycle Balance

At the end of the monthly cycle, just before preparing the bills for the coming month, all the cards still remaining in the accounts receivable file (i.e., all accounts with debit or credit balances) are listed to prepare the cycle balance and irregular transaction register (Figure 44). This register shows the details of all items still open and of any irregular payments received. Gross and net amounts are shown where applicable and the total amount of forfeited discounts is also indicated.

While the cycle balance register is being listed, arrears cards showing the outstanding balances are summary-punched for all open accounts. After the cycle balance is proved to the accounts receivable controls, the arrears cards are available for their part in the preparation of next month's bills. The open-item cards are filed in the history file as they are no longer required for processing. Figure 45 shows the procedure just described.

The cycle balance register, listing all accounts not fully paid, and the regular cash posting registers, listing all accounts fully paid, thus show all cash postings for the month. These reports, plus the billing register (printed when the bills are prepared), the daily cash receipts register, and the delinquency notices, are forwarded to the district offices and provide the basic information required by them for answering any customer inquiries and for collection follow-up.

Advantages

The features of this system, which have resulted in an effective and economical operation for utilities, can also be used in other industries, and can be summarized as follows:

Automatic punching of over 90 percent of the payments received.

Handling of irregular payments by sense-marking the type and amount of the payment on the reverse side of the cash stub.

Automatic listing of cash receipts to balance teller's cash.

Machine sorting and accumulating of the payments received for the preparation of the cash receipts journal and accounts receivable control.

Automatic application of payments by removing cards for all accounts paid in full and by inserting cards for partial payments.

Cycle balancing (trial balancing) of open file and the summary punching of balance cards for accounts in arrears for use in next month's billing.

Machine preparation of collection notices.

Figure 43. Delinquency Notice

CYCLE BALANCE AND IRREGULAR TRANSACTION REGISTER

GROSS	NET	BASE	CFDD	MO	YR	METER DESC.	METER NUMBER	PREVIOUS USE	P R ABC	P B NDC	CD B	T C	PRESENT READING	PRESENT USE	MO	DAY	S E R	REV CL	SO	LISTED AMOUNT	BALANCE	ROUTE	FOLIO	SUF
		4 2		3	5 8	0 E	9 1 5 8 3	4 2				2	1 7 8	3 4	7	2 4	1	1 0		3 6 1		2 3 0 1	1 2 8 0	
				7	5 6	G 3 4	5 1 5 4 8 5 1	2 4				3	8 8 4	1 2	7	2 4	2	1 0		2 4 4		2 3 0 1	1 2 8 0	
												1	9 0 4	8	6	7			3 1	6 0 5CR		2 3 0 1	1 2 8 0	
												1	9 0 1	8	1 5	7			3 1	7 0 9CR	7 0 9CR	2 3 0 1	1 2 8 0	
4 3 6	3 9 6	3 2	3 1	8	5 3	0 E	7 6 9 5 9	3 2 3				2	2 5 0 8	3 8	7	2 4	1	2 0		4 3 6		2 3 0 1	1 5 1 0	
				1 0	5 3	G 5 8	9 1 1 3 3 5	1 6		3	3	3	5 9 9	3 7	7	2 4	2	1 0		6 6 9	1 1 0 5	2 3 0 1	1 5 1 0	
3 5 0	3 1 8	2 9		9	4 8	5 L T	3 3 4 0 2	2 9		3	3	2	5 6	2 9	7	2 4	1	1 0		3 5 0		2 3 0 1	2 4 8 0	
				4	5 6	G 5 8	3 2 8 5 8 7 0	5		3	3	3	6 1 9	5	7	2 4	2		6	1 2 5		2 3 0 1	2 4 8 0	
												6								4 7 5		2 3 0 1	2 4 8 0	
											1	6		3 0 2	8	1 8	7		3 1	4 7 5CR	4 7 5	2 3 0 1	2 4 8 0	
		5 0	2 4	3	5 8	5 B A	1 1 7 9 0 3	6 9			2	9	5 0 7		6	2 3	1	2 0				2 3 0 1	3 9 2 0	
		1		5	8	G 5 8	1 7 1 3 8 1 3	1 2			3	9	5 2		6	2 3	2	1 2				2 3 0 1	3 9 2 0	
				9	5 4	T 5 8	9 3 0 5 7 6 0		2	2	3	2	4 0		7	2 4	2	1 0				2 3 0 1	5 0 2 0	
5 1 9	4 7 2	1 8	1	9	5 2	5 L T	1 3 8 4 7	1 8		3	3	2	1 9 2	4 9	7	2 4	1	1 0		5 1 9		2 3 0 1	5 1 2 0	1
				4	5 4	G 5 8	4 3 0 5 8 7 0	1			3	3	1 8	1 5	7	2 4	2	1 0		2 9 5		2 3 0 1	5 1 2 0	1
												6								1 2 9 0	2 1 0 4	2 3 0 1	5 1 2 0	1
		7 4	3 0	1	5 3	1 E	8 8 6 5 4	5 6				2	2 1 8 5	5 5	7	2 4	1	2 0		5 1 1		2 3 0 1	5 3 3 0	
				1 0	5 7	G 5 8	5 3 8 8 3 2 9	7			3	3	5 8	8	7	2 4	2	1 0		1 7 6 .		2 3 0 1	5 3 3 0	
											1	6		8 0 1	8	2 0	7		3 1	6 8 7CR	CR	2 3 0 1	5 3 3 0	

Figure 44. Cycle Balance and Irregular Transaction Register

Figure 45 flowchart:

- Open Account Receivable File → Accounting Machine
- Summary-Punch ↔ Accounting Machine
- Summary-Punch → Arrears Cards → To Billing Procedure
- Accounting Machine ↔ Cycle Balance
- Cycle Balance → Balance
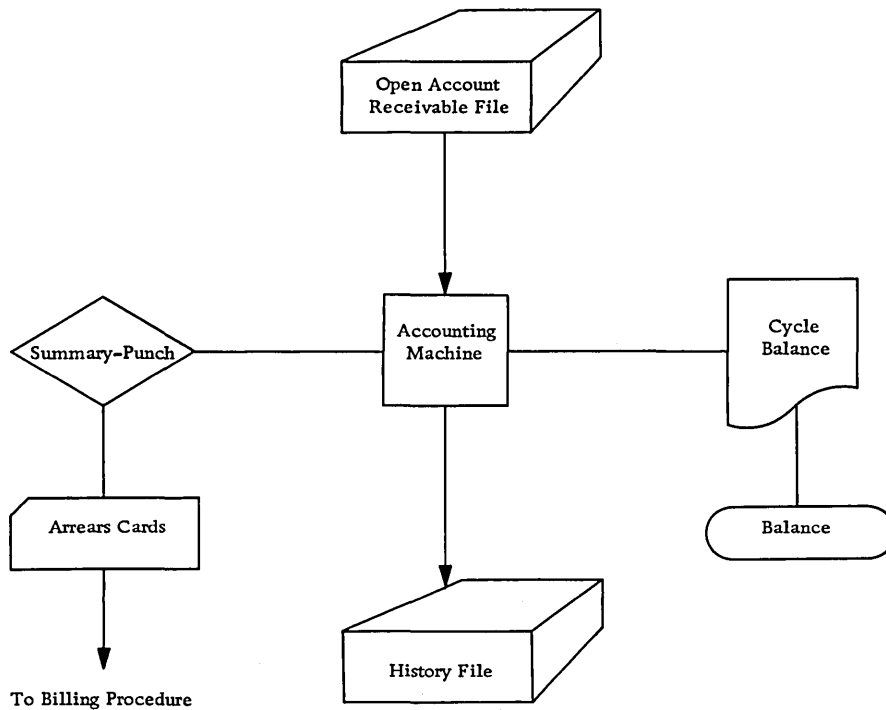- Accounting Machine → History File

Figure 45. At Cycle Balancing Time

Loan Accounting

Coupon Books

Since the majority of loan accounting procedures use some form of coupon books, we shall start with a discussion of their preparation and then follow a typical mortgage loan application through the monthly accounting cycle.

The use of data processing equipment greatly facilitates the preparation of coupon books. Groups of cards are punched for each payment period and the corresponding due date. These payment cards are collated into payment-number sequence, and, from the mortgagor's master card, mortgage number (also the account number) and payment amount are gangpunched into them. After the cards are interpreted and stapled, a prepunched and inexpensive coupon book is ready for distribution to the customer.

Daily Procedure

At the time of payment, checks or cash amounts are received at the tellers' windows or through the mail, each accompanied by a portion of the mortgage payment coupon. The mortgagor retains the stub of the payment coupon for his record of payment.

After the coupons are balanced to the teller's con-trols, they are sent to the data processing department, where they are sorted by mortgage number and initiate the daily mortgage procedure. In mortgage-number sequence, they are used to pull from the mortgage balance file those balance cards (Figure 46) with activity. The coupon cards have served their purpose and are filed for historical reference.

The balance cards are processed by the IBM 602 Calculating Punch; interest, principal payment, new escrow balance and principal balance are calculated and punched in the cards. The cards are used to prepare a daily mortgage payment journal in block control order. General ledger entries and block control entries are posted from this report.

The balance cards are now history cards and are filed with preceding history cards to be held for preparation of annual statement. Before filing, however, they are reproduced, transferring the new balance fields and thereby creating new balance cards for the mortgage balance file, which are ready for application of the following monthly payment.

Irregular payments, such as additional principal or escrow payments, or increases in mortgages, are handled on a daily basis by punching a miscellaneous transaction card. The transactions are coded and applied, as the code indicates, to the balance cards in the mortgage balance file. Figure 47 shows the procedure described for regular payments.
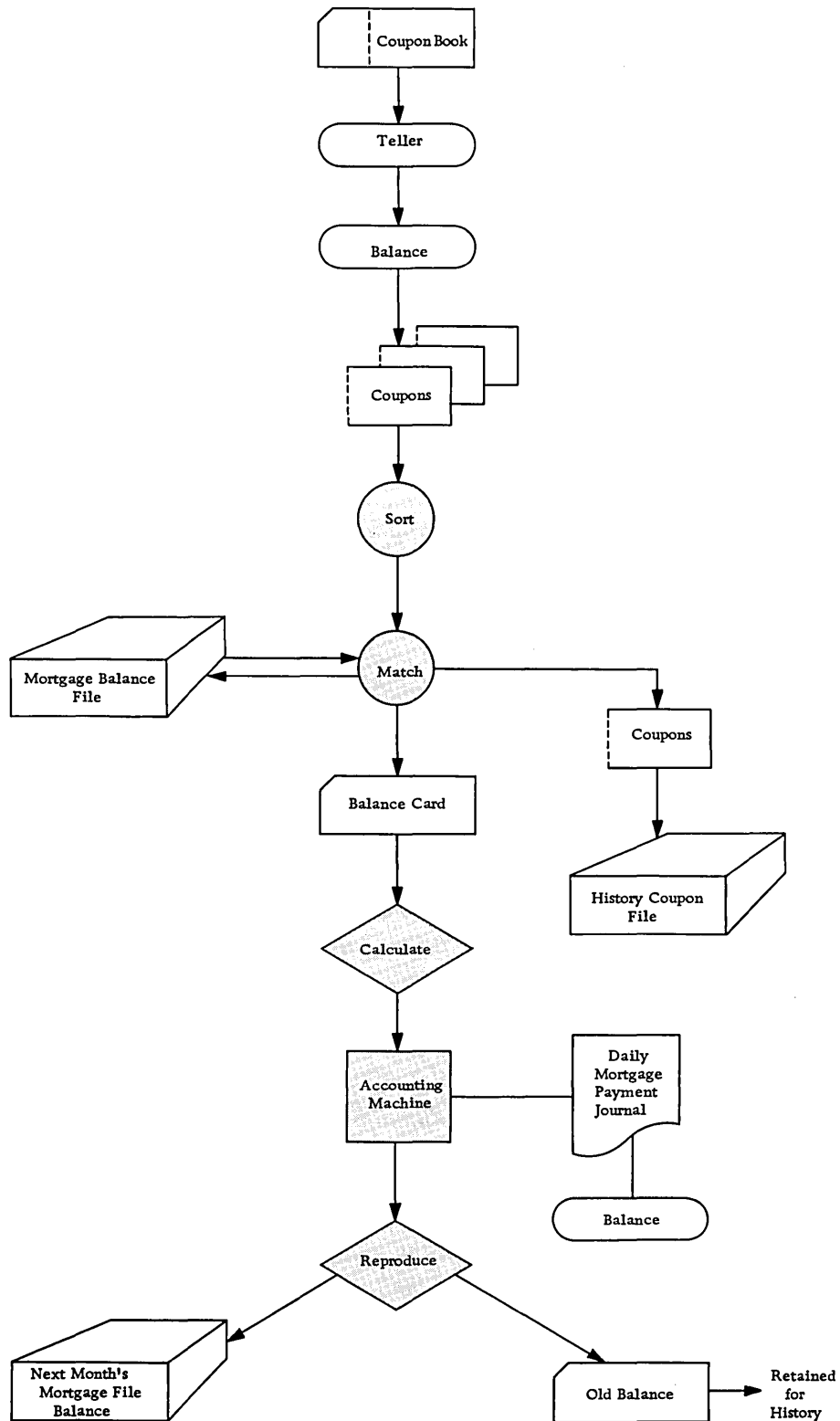

Figure 46. Mortgage Balance Card

Figure 47. Daily Procedure

Delinquent Procedure

On the 15th of the month, all customers whose payments have not yet been received for the period are sent reminders. Cards from the open-item file are merged with name and address cards, and past-due notices (Figure 48) are written on the 402 Alphabetical Accounting Machine.

On the 31st of the month, when all unpaid items become delinquent, the cards representing these accounts are automatically coded and sent to the 602 Calculating Punch, where delinquent interest is computed and added to the principal balance and to the total delinquent interest due, to arrive at the new balances; these amounts are then punched in the cards.

As delinquent payments are received, the balance card is reproduced and filed with the unpaid items for the current month. If both the delinquent and current payments are received, the balance cards are handled with the daily work. Figure 49 shows the procedures just described.

Trial Balance

Just before the end of the month, the mortgage balance file is listed on the accounting machine to prepare the trial balance. This report lists the indicative and balance data for each mortgage. Control figures for each block of mortgages, showing the totals of the interest, principal and escrow balances, are also shown.

Monthly Statements

Many mortgage loan accounting procedures, instead of providing for coupon books, use monthly statements. These statements show payments due for any months in arrears, the distribution of the coming month's payment, any escrow disbursements (bills paid by the bank for the mortgagor) and the mortgage balances. They are thus similar in many respects to statements rendered by other businesses, and are automatically prepared by listing the required cards on the accounting machine.

Advantages

Some of the advantages of mechanized loan accounting, many of which are applicable to similar receivables procedures, are as follows:

The automatic preparation of payment coupons.

The elimination of manual calculating and posting.

Positive control of all accounting and late charge balances.

Wide choice in the method of maintaining account history for credit reference.

Rapid preparation of trial balances.

Tight control of delinquent accounts and machine preparation of late notices.

The automatic preparation of accounting and analytical reports.

The ability to increase the number of loans outstanding without a proportional increase in personnel and equipment.

Figure 48. Notice of Mortgage Payment Past Due

FOR THE 15th OF THE MONTH   FOR THE 31st OF THE MONTH

```
Open Item
Unpaid File                    Unpaid File

Open Item Cards                Gang Punch

Name and Address   Match       Calculate
Card               Merge

Name and Address               Balance Card
File
                                              Delinquent File
Delinquent    Accounting
Reminders     Machine
                               When Pay-
                               ment made

Name and Address   Sort        Reproduce
Card

Unpaid Item Cards              Balance Card

Unpaid File
```
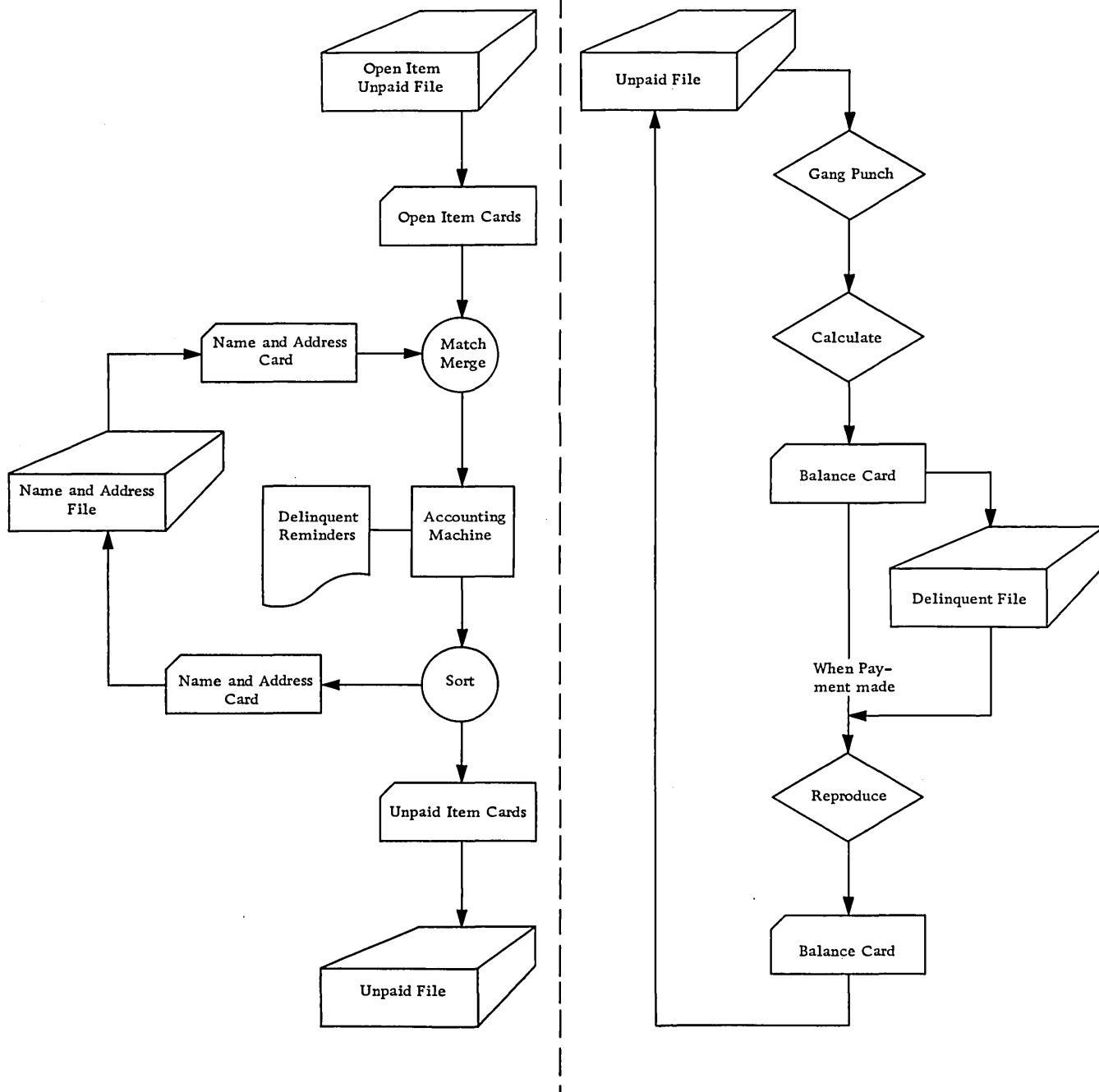
Figure 49. Delinquency Procedures

Data Processing Systems

The use of data processing systems has grown very rapidly, and it is likely that in the near future more work will be performed on these systems than on standard punched card accounting machines. Both tape and random access computers have been applied to accounts receivable accounting, and we shall discuss each one individually.

Tape systems were initially used for large-volume balance-forward applications in such industries as public utilities and insurance. However, in recent years, particularly with the development of low cost tape processors, many more industries, including retail, gasoline, banking, etc., have turned to these systems for their accounts receivable processing. These approaches usually provide for maintaining a tape master record for each account and updating the record when bills are rendered and when cash is received. The master tape is processed at the end of the accounts receivable cycle to prepare trial balances, customer statements, listings of past-due accounts and any other required reports. In addition to balance-forward receivables applications, some companies that require open-item approaches for their receivables accounting have provided for the maintenance of variable length accounts receivable records
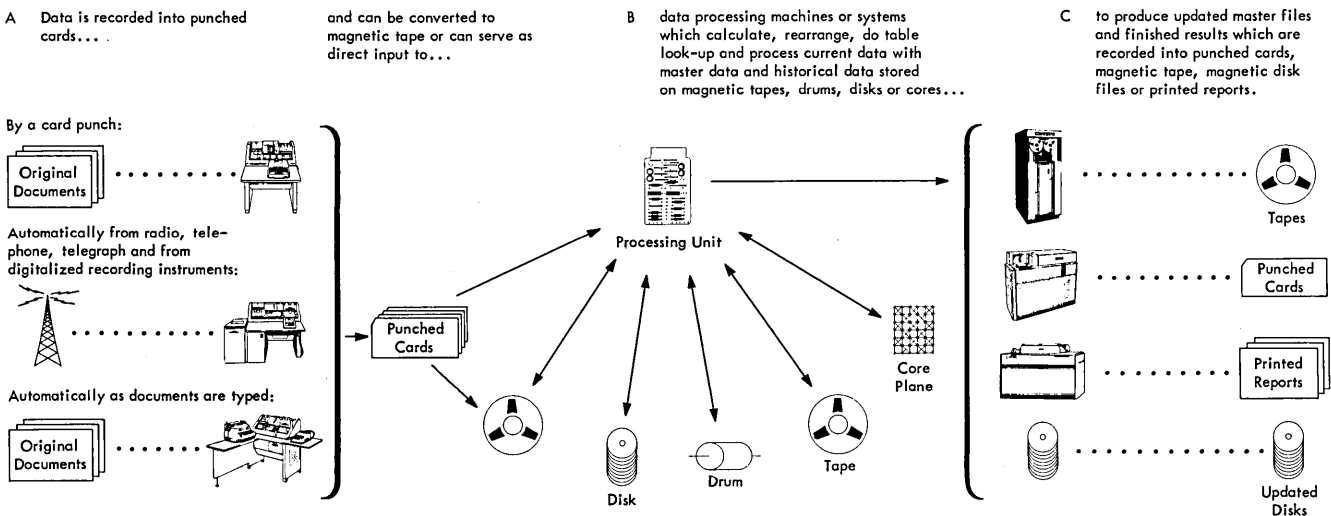
and for applying cash received to individual entries maintained on tape.

The use of random access systems for accounts receivable is a relatively recent development, with the insurance and motor freight industries among the first users. In the insurance industry, provision is usually made to record information on outstanding policies in disk storage and to search the disk records periodically for policies falling due. The policyholders are then sent renewal notices and when a payment is received it is applied to the insured's disk record.

In motor freight applications a record of each outstanding bill is maintained. When cash is received the file is cleared of all paid bills. Periodically the file is checked for delinquent items and trial balances are prepared. In addition, many companies using random access systems for billing and inventory control also provide for maintaining accounts receivable balances in disk storage as a means of screening credit on new orders.

Thus it can be seen that the use of data processing systems, which have been with us only a few years, is playing an ever increasing part in accounts receivable as well as in many other commercial and scientific applications.

ABCs of IBM Data Processing

A Data is recorded into punched cards... .

and can be converted to magnetic tape or can serve as direct input to...

B data processing machines or systems which calculate, rearrange, do table look-up and process current data with master data and historical data stored on magnetic tapes, drums, disks or cores...

C to produce updated master files and finished results which are recorded into punched cards, magnetic tape, magnetic disk files or printed reports.

By a card punch:
Original Documents

Automatically from radio, telephone, telegraph and from digitalized recording instruments:

Automatically as documents are typed:
Original Documents

Punched Cards

Processing Unit

Disk

Drum

Tape

Core Plane

Tapes

Punched Cards

Printed Reports

Updated Disks

IBM RAMAC® 305

IBM 1401

IBM 1410

IBM 7070

Glossary

ACCOUNTS RECEIVABLE LEDGER. The overall record of customer indebtedness, regardless of system. It might be a ledger book, a file of individual customer ledger cards, a file of IBM punched cards, a magnetic tape, etc.

AGED TRIAL BALANCE. Same as a trial balance except that the open items are listed in separate groups according to age—for example, all items billed between 30 and 60 days ago, all items billed between 60 and 90 days ago and all items billed in excess of 90 days ago. Such a report gives management the ability to quickly analyze problem accounts and take appropriate action.

ALLOWANCE. An adjustment to a customer's bill, generally authorizing additional credit.

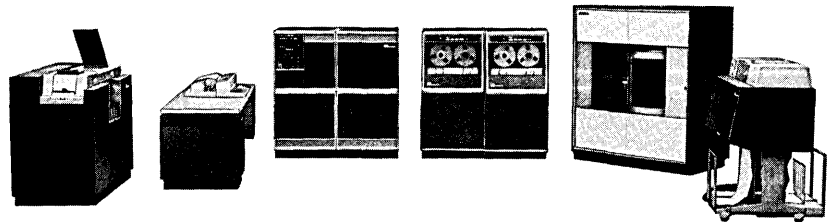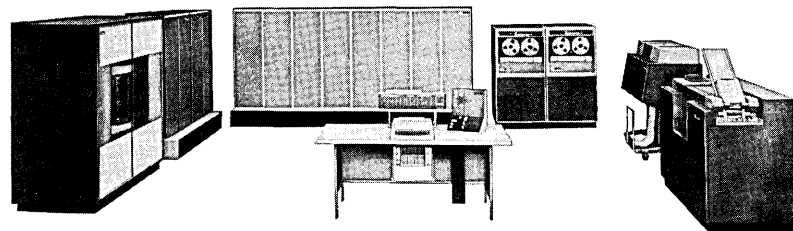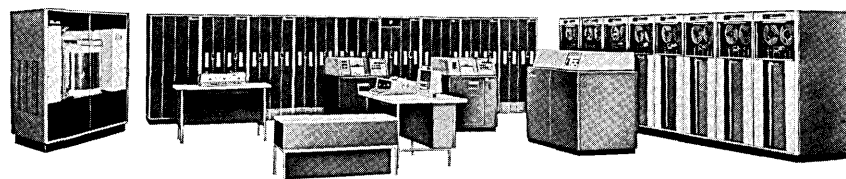BAD DEBTS. Unpaid items of long standing and eventually uncollectible. They are cleared from the accounts receivable ledger and charged to an account called Bad Debts.

CASH. A term used to designate money. It includes currency, bank drafts, checks, express and postal money orders.

CASH DISCOUNT. A sum deducted from the invoice amount and allowed by the seller for prompt payment within the time limits specified on the invoice.

CASHIER. Generally the person assigned the responsibility of accounting for and controlling customer payments in the form of cash or check.

CONTROL SHEET. A document, generally posted daily with summary totals from other reports, which is used to prove that all entries affecting the accounts receivable ledger have been properly posted and that the accounts receivable ledger itself is correct.

CONTROL TAPE. Generally an adding machine listing of amounts from source documents such as invoices, credit memos, cash remittances, etc. The total from this tape, once proved, is used to assure that corresponding entries to the accounts receivable ledger are made correctly.

CREDIT. In the actual accounting portion of the accounts receivable application, a decrease in indebtedness in a customer's account.

CREDIT MEMO. A document authorizing credit to a customer because of damaged merchandise, a billing error, returned goods, etc.

CURRENT BALANCE. The total amount owed by a customer at any given time.

CYCLE BILLING. In some industries, the practice of subdividing the entire accounts receivable ledger by alphabetic groupings, then rendering statements to each group on different dates. This eliminates peak loads that would occur if all statements were rendered at the same time.

DEBIT. An increase in the indebtedness of a customer's account.

DEBIT MEMO. A document increasing the original amount of an invoice because of a billing error, shipment error, etc.

ENTRY DATE. The date on which an invoice, payment or adjustment is entered into the accounts receivable file. It might differ from the billing date.

INVOICE REGISTER. A daily listing of invoice totals by customer. It also shows indicative and classification data such as date, invoice number, terms, etc.

JOURNAL VOUCHER. An internal document used as a source for making an accounting entry.

OPEN ITEM. A bill that has not been paid.

PARTIAL PAYMENT. A customer remittance covering only part of an unpaid invoice.

PAYMENT COUPON. Usually a card, but occasionally a paper form, prepared by the vendor for the use of customers when making their payments. In most cases the coupon is prepunched with the customer number and amount due, in order to serve as an automatic entry to accounts receivable.

REMITTANCE STATEMENT. A document prepared by either the customer or the vendor and enclosed with the vendor's check to describe the invoice(s) being paid. It generally shows invoice numbers, invoice amount(s) and discount(s) and is used by the vendor to facilitate proper crediting of the customer's account.

RETURN. Merchandise returned by the customer to the vendor for credit.

TRIAL BALANCE. A periodic listing of all open items to prove that the accounts receivable ledger is in balance with the control sheet.

STATEMENT. A document sent by the vendor to the customer periodically (frequently at month-end)

which usually lists either the transactions for the current period or the unpaid items, and shows the total amount owed to the vendor.

TERMS. The conditions of sale, concerning when payment is due for merchandise received. Industry groups have generally adopted similar terms, although there are variations within the same industry. Some common terms are as follows:

Net 30. The entire amount is payable without discount within thirty days from the receipt of the invoice.

2% 10 days, Net 30. If the invoice is paid within ten days, a 2% discount is allowed; if not, the full amount is due within 30 days.

2% 10 days, Net E.O.M. If the invoice is paid within ten days, a 2% discount is allowed; if not, the full amount is due by the end of the month. In most cases invoices dated after the 25th of any month fall due as if they were dated the first of the next month.

2% 10 Proximo, net 30 days. If the invoice is paid within the first ten days of the next month, a 2% discount is allowed; if not, the full amount is due within 30 days of the date of the invoice.

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Title of Publication	Description	Machines Used	Form No.
Distribution — Chain and Wholesale			
Bigelow and Dowse Company Data Processing	A—Brief	Unit Record	K20—0984
Louis Lehrman & Son Wholesale Food Distributors	A—Brief	Unit Record	K20—1043
Meridian Electronics Punched Card Accounting for Wholesale Parts Distributors	A—Brief	Unit Record	K20—1271
The Rack Jobber	A—Brief	Unit Record	320—6096
Smith Wholesale Drug Company Data Processing with the IBM RAMAC 305	A—Brief	RAMAC 305	K20—1046
West Wholesale Drug Company Accounts Receivable	A—Brief	Unit Record	K20—0923
Distribution — Retail			
The Jones Store Co. Audit and Accounts Receivable	A—Brief	Unit Record	K20—1021
Peck and Peck Retail Sales Audit and Accounts Receivable	A—Brief	Unit Record	K20—1022
Sachs Quality Stores, Inc. Accounts Receivable	A—Brief	Unit Record	K20—0975
IBM 1401 Tape System for Retail Accounts Receivable and Merchandise Management	A—GIM	1401 w/tapes	E20—0217
The IBM RAMAC 305 for Retailer Accounts Receivable	A—Bul.	RAMAC 305	H20—2034
Educational and Institutional			
The Emma L. Bixby Hospital Data Processing System	A—Brief	Unit Record	K20—0979
Hospital Accounting	A—GIM	Unit Record	E20—0007
Medical Clinics	A—Bul.	Unit Record	H20—0080
Patient Billing and Accounts Receivable	A—GIM	Unit Record	E20—0005
Pekin Public Hospital Series 50 Data Processing	A—Brief	Series 50	K20—1146
The IBM RAMAC 305 for Hospitals	A—GIM	RAMAC 305	E20—2030
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Installment Loan Accounting	A—GIM	Series 50	E20—0042
Mortgage Loan Accounting	A—GIM	Unit Record	E20—0043
Mortgage Loan Accounting and Savings Accounting	A—GIM	Unit Record	E20—0040
Personal Credit Loan Accounting	A—GIM	Unit Record	E20—0037

Title of Publication	Description	Machines Used	Form No.
Retail Credit Plan for Banks	A—GIM	Unit Record	E20—0008
Revolving Credit	A—Brief	Unit Record	320—7260
Wilshire Federal Savings and Loan Association of Los Angeles Savings Accounting — Loan Accounting	A—Brief	Unit Record	K20—1017
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Food

Dairy Applications	A—GIM	Unit Record	E20—0048
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