

DEVELOPMENT, TESTING AND IMPLEMENTATION
OF THE SOFTWARE PACKAGE
FOR THE AUTOMATION OF
KRIBHCO, STATE MARKETING OFFICE
(VOL. I)

The Project Report Submitted to
THAPAR INSTITUTE OF ENGG. & TECH, PATIALA
in partial fulfilment of the requirements
for the award of degree of
MASTER OF COMPUTER APPLICATION

Submitted by :
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(Deemed to be a University)

1991

C E R T I F I C A T E

This is to certify that the project report entitled

**DEVELOPMENT, TESTING AND IMPLEMENTATION OF THE
SOFTWARE PACKAGE FOR THE AUTOMATION OF
KRIBHCO, STATE MARKETING OFFICES**

contains the work done by

TARNINDER KAUR GUJRAL

of

**THAPAR INSTITUTE OF ENGINEERING AND TECHNOLOGY,
PATIALA**

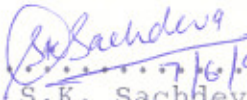
under the guidance of

Mr. Arvind Gupta

and

Mr. S.K. Sachdeva.

This work has not been submitted to any other
Institution/University for the award of any degree.

.....

..... 7/6/91
S.K. Sachdeva
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(Consultant)

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THE ORGANISATION

Tata Consultancy Services (T.C.S) ,a division of TATA SONS LIMITED is the largest computer and management consultancy firm in South Asia. Established in 1968 , TCS has pioneered and successfully executed a number of prestigious management and computer projects both in India and abroad. These projects cover a wide spectrum of business and industry. TCS professionals , numbering about 2800 , of which 2300 are computer professionals , hold highly impressive academic records from leading universities in India and abroad and are handling a variety of management and computer assignments.

TCS provides a wide spectrum of professional services in Information Technology, Management Consultancy and Training. These services cover all aspects of systems and software engineering including Information Needs Analysis, Computer Hardware Planning and Selection, User and EDP Staff Training, Systems Analysis and Design, System Conversion, Customised Application Software Development and implementation and System Software Development. In addition, expertise in Data Base Management System, Specialised System Software and Computer Graphics acquired through successful execution of a variety of sophisticated foreign projects is offered to the Indian market.

The range of services offered by TCS also include Capacity Planning for Computer Systems, Quality Assurance, Computer-Aided Instructions, Computer-Aided Engineering and Design, Office Automation and Computer Communication Networks.

TCS has developed ready-to-use, interactive, menu driven and user-friendly packages for minicomputers and microprocessor based systems. Apart from these applications software products, TCS offers a number of tools for productivity, software development and system conversion.

TCS recognises that while Information Technology plays a vital role in enhancing the effectiveness and efficiency of systems in an organisation, these systems are a part of a larger management process. In recognition of this needs, it offers Management consultancy in the areas of Corporate Strategy, Organisation Design and Development, Human Resource Development, Management Planning and control systems, Financial and Materials Management, Productivity Enhancement and Project Management. These services are characterised by a multi disciplinary approach, commitment to implementation and the use of the latest approaches to problem solving such as Systems Engineering and Cybernetics. TCS has also set up a center for Systems Engineering and Cybernetics to enable its consultants to use these techniques in the analysis and solution of complex organisational and social problems.

While training is an integral part of the process of implementation and transfer of skills to the client organisation, TCS also conducts public training workshops in the state of art information technology and management disciplines as well as in company programmes tailored to specific needs both in India and abroad.

Being in the knowledge industry, TCS lays a major corporate emphasis on the development of its human resources ranging from intensive initial training for new entrants to a wide array of continuing education programmes and experience sharing sessions in the state of the art information technology.

TCS is committed to the development of fellow professionals and organises training programmes. These programmes cover technical areas of relevance to the computer professionals as well as management and personnel development areas. The programmes are periodically offered to the employees according to the requirements. These programmes are conducted by experienced TCS consultants, guest faculty from institutes of higher learning

In India, TCS clientele includes the Government of India, State Government Departments, large Public and Private Sector organisations as well as small and medium sized companies.

In the overseas market, TCS has undertaken and successfully completed over 400 assignments in about 250 organisations spread all over the world. Over 4500 man years of consultancy have been provided on these assignments. To support project sites the world over, TCS has established representative offices in Sydney, Bahrain, Melbourne, Japan, Kuwait, Arnhem(the Netherlands), London, Singapore, Hong Kong, Zug(Switzerland), Edinburgh, Dallas, New York, Chicago, Boston, California, Washington, Florida, Germany and Paris.

EXISTING SYSTEM

2.1 Krishak Bharati Cooperative Ltd.

KRIBHCO is a co-operative sector fertilizer company with its manufacturing plant located at Hazira in Gujarat.

For effective marketing and distribution of the fertilisers, KRIBHCO has a network of State Marketing Offices (SMO), Area Offices (AO), Krishak Bharati Seva Kendras (KBSK) and Field Representatives (FR).

KRIBHCO had decided to set up a computerised information system for its state marketing offices. In this connection, Tata Consultancy Services (TCS) were retained as consultants to study the various functional areas of specified state marketing offices, design and develop the software required to achieve the objectives of computerisation.

2.2 SCOPE OF THE PROJECT.

The functional areas identified for computerisation are to as under :

Payroll

Invoicing

Sales Analysis

General Ledger

Accounts Receivable

The computerised system is to be initially provided for the SMOs in the states of Gujarat, Maharashtra, Uttar Pradesh, Punjab and Rajasthan .The author has been associated with only invoicing, sales analysis , general ledger and accounts receivables module The major chunk of the developmental activity has been done for the accounts receivables and general ledger modules. For the rest two modules testing has been done . The author has also been associated with the modification/development of invoicing module for Gujarat.

2.3 Existing system

Presently, the billing ,invoicing ,sales analysis and financial accounting in KRIBHCO SMO is done manually. The main focus in the company is on marketing and sale of fertilisers. The various type of sale is described below alongwith the documents used in the company for information flow :

- RO (Release Order) based sale/Federation Sale/Credit Sale
- ROCIR (Release Order cum Invoice cum Receipt) based sale
/ Direct Sale
- Seva Kendra Sale
- Other types of sales

RO BASED SALE (FEDERATION SALE / CREDIT SALE) :

This type of sale is primarily made by the SMO to the various state co-operative societies(apex bodies). This type of sale is basically a credit sale and the sale document is a release order. ROs can also be issued by the FRs and the Area

Offices. The concerned society approaches the SMO with its requirement of fertilisers. The SMO prepares release orders for the fertilisers required, copies of which are given to the customer and the concerned warehouse. Release order is for a single customer , single product and single warehouse.

If the actual details of fertiliser lifted is different from that on the RO, a RO change/cancellation document is initiated. Based on the change/cancellation, credit or debit notes are issued to the customer.

Payments are received from the customers through cheques or DDs corresponding to which there is a bank receipt voucher. The payment details are used to update the customer balance.

When the customer lifts material, the warehouse issues a Material Lifting Certificate (MLC), a copy of which is sent to the SMO. MLCs will be used by the system for inventory and stock accounting.

ROCIR BASED SALES (DIRECT SALES) :

In this type of sale, fertilisers are sold directly to individual co-operative societies. Direct sales are carried out mainly by Field Representatives(FRs). The FRs issue a Release Order Cum Invoice cum Receipt to the customer on receiving a cheque or DD for the material required.

The warehouse issues a challan/MLC, countersigned by the customer for the material lifted, to the FR.

The ROCIRs are sent to the SMO where they are used for accounting and sales analysis. ROCIRs are considered as receipts for accounts receivable purposes.

The FRs deposit the cheques/DDs along with the challans at the local co-operative bank. Depending on the product sold and the prevailing terms and conditions with the banks, there is a maturity period associated with the cheques/DDs. When the amounts mature the local co-operative banks transfer the amount to the state co-operative bank and send an advice to the SMO. The state co-operative banks transfer the amounts to the bank of the SMO. Alternatively, the FR sends the cheques/DDs directly to the SMO. The FR maintains a payment register (passbook) of his remittances which will be either in the form of a bank deposit register or pay-in slip register.

During the monthly meetings at the Area Offices, the FR submits copies of the ROCIRs, MLCs and the passbook.

If any changes are required to be made to the original ROCIR when lifting details differ from that on the original, a ROCIR change/ cancellation document will be used. A clearance certificate from either the warehouse or the FR will be used to certify the lifted and unlifted details before issue of the ROCIR change document. The ROCIR change document along with the clearance certificate will be sent to the SMO where it will be input to the system.

SEVA KENDRA SALES :

Seva Kendra sales are retail sales to small farmers across counters. It is essentially a **cash sale** and the person in-charge of the Seva Kendra issues cash memos for the sale of fertilisers. The **Seva Kendras** send **summary sales reports** to the SMO where it is used for purposes of financial, inventory and sales accounting.

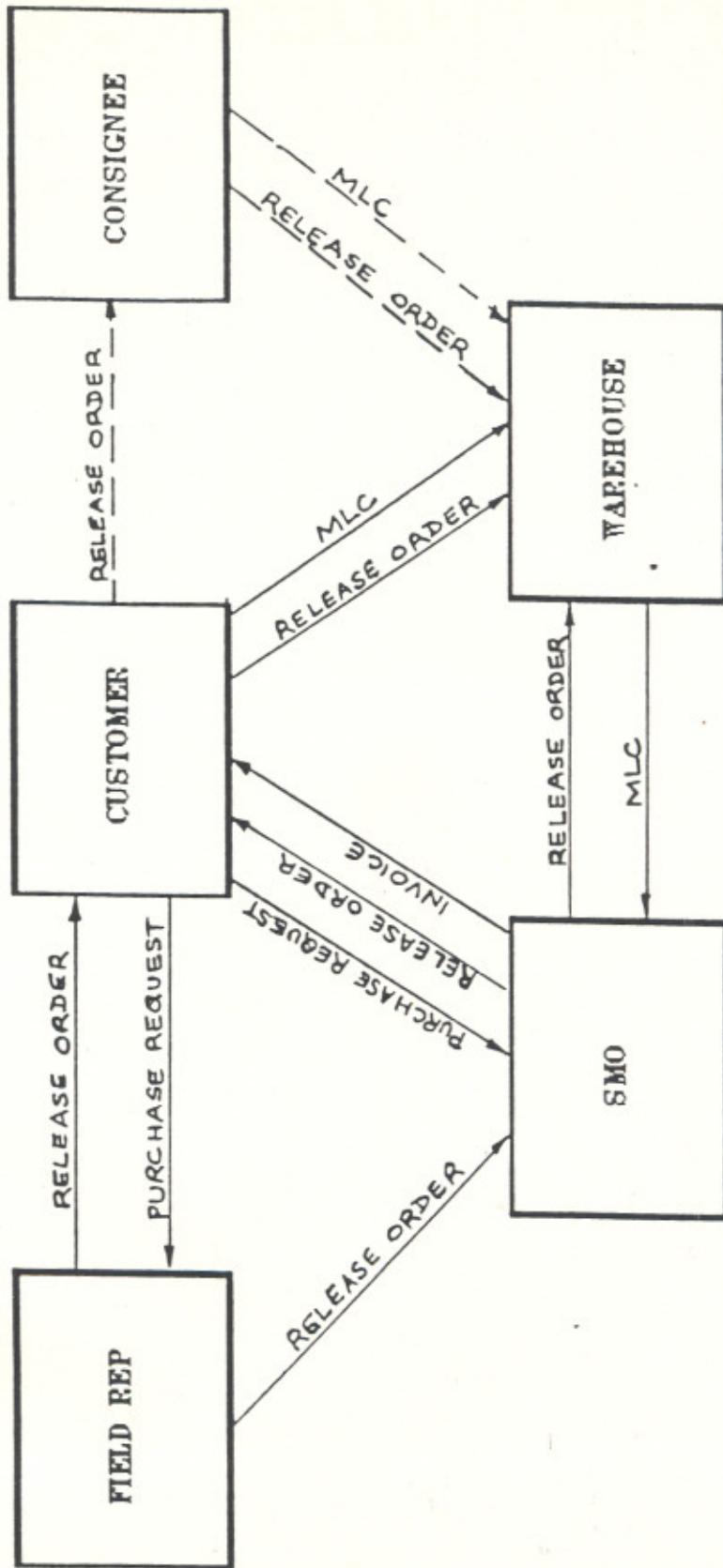
OTHER TYPES OF SALES:

GUJARAT

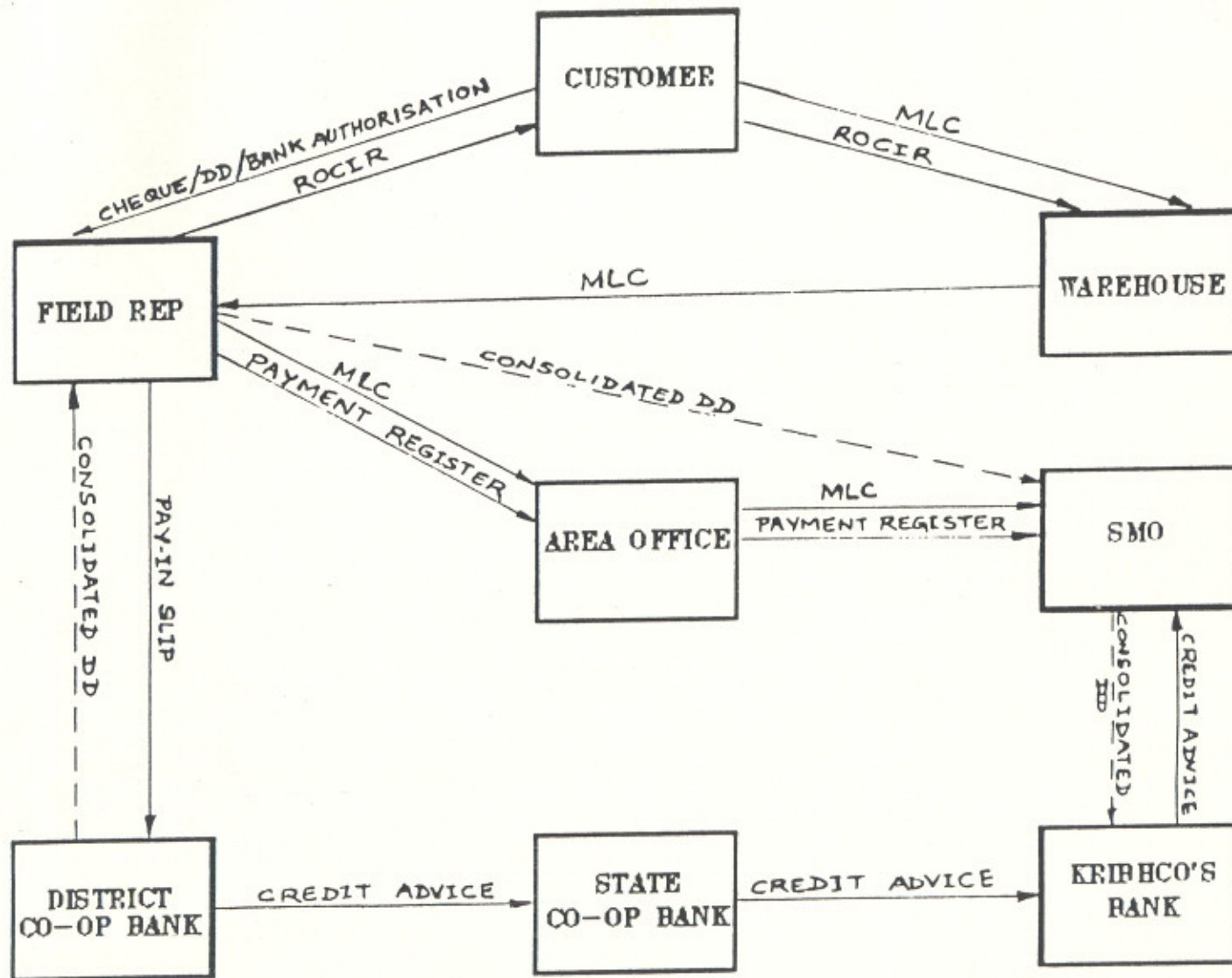
In the state of Gujarat, there is only one apex body, GUJCOMASOL. For all accounting purposes, GUJCOMASOL is the only customer. The sale of materials is based on **Material Despatch Advices (MDAs)** rather than on ROs. MDAs are prepared at the plant and the material is despatched directly to the individual co-operative societies. Instead of MLCs, Consignment Receipt Reports (CRRs) are used to indicate the receipt of material. A copy of the MDA is sent to the SMO . A consolidated invoice for all MDAs processed in a day is generated and sent to the customer.

Problems with the Manual System

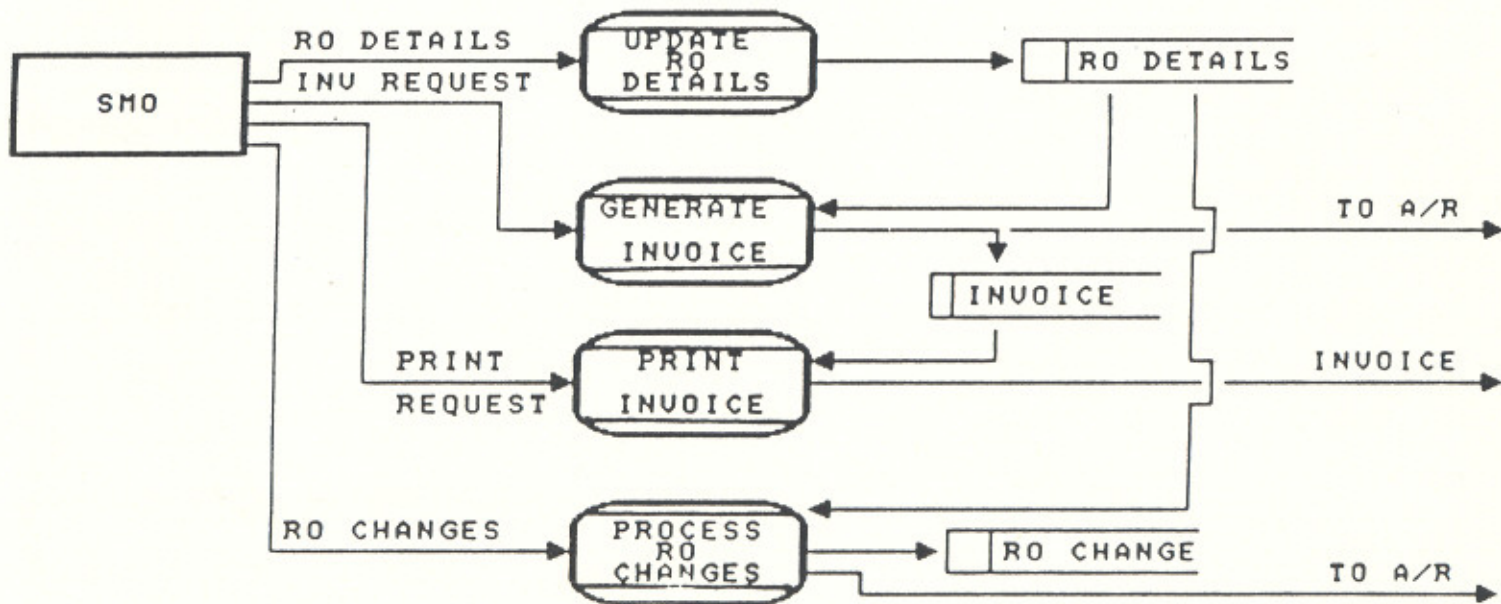
- Lack of Accuracy
- Less efficient
- Laborious due to massive data requirements
- Man Dependent
- Time consuming



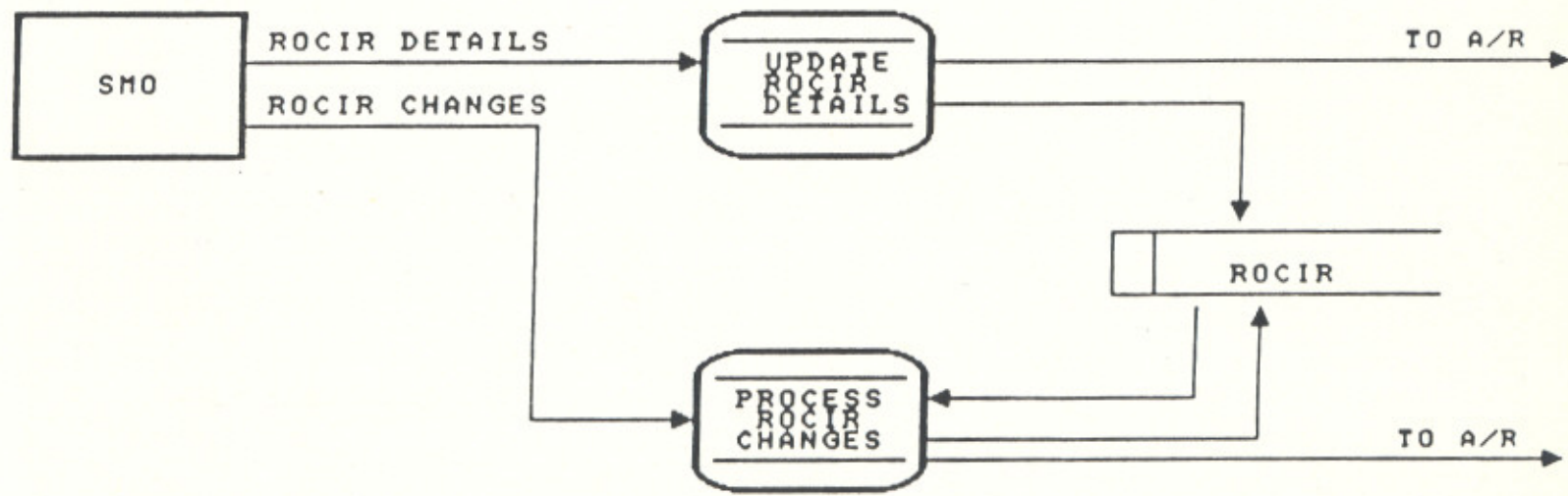
DOCUMENT FLOW
RO BASED SALES



DOCUMENT FLOW
ROCIR BASED SALES



INFORMATION FLOW - RO BASED SALES



INFORMATION FLOW - ROCIR BASED SALES

DESIGN

3.1 System Objectives

- Ease in data handling and maintenance
- Fast and Accurate report generation
- Ease in computations
- Invoice Generation

3.2 System Modules

The system has four main modules besides the housekeeping and master maintenance module .These are :-

1. INVOICING MODULE
2. GENERAL LEDGER
3. ACCOUNTS RECEIVABLES
4. SALES ANALYSIS

INVOICING

The invoicing module generates invoices based on the release orders input to the system. The release orders which are prepared manually at the SMO are input to the system using screens provided. Invoices will be generated using various sales terms parameters stored in the system like octroi, discounts, sales tax, commissions, transport subsidy etc., and the information on the release order for which the invoice is being generated.

The module will also allow entry of RO changes and cancellations. This information is used for manual updating the customer's balance. ROCIRs will also be input to the system for updating the customer's balance and sales figures for sales analysis. ROCIR changes / cancellations would also be input to the system to update customer balances and sales figures.

Invoicing Inputs

Release Order/Material Despatch Advice (RO/MDA).

- on screen entry in invoicing
- for credit based sale
- is for a single customer, single warehouse
and a single product
- input in system for generation of invoices
- automatic updation of sales analysis figures

Release Order Change / cancellation

- on screen entry in invoicing
- issued against a single RO
- Debit/Credit Note issued , if required
- automatic updation of sales analysis figures

Release Order Cum Invoice cum Receipt (ROCIR).

- on screen entry in invoicing
- cheques/ DD sent to SMO directly
or pay_in slip register sent monthly
- automatic updation of sales analysis figures

ROCIR change / cancellation

- on screen entry in invoicing
- automatic updation of sales analysis figures
- against a single ROCIR

Seva Kendra Summary

- on screen entry in invoicing
- monthly sales summary for on the counter cash sales
- automatic updation of sales analysis figures

Invoicing Outputs

1. **Invoices** on pre-printed stationery

2. Master/transaction **checklists**

3. **Status Reports**

List of invoices/ committed/cancelled/not committed

RO/ROCIR Status Report

List of ROs pending for invoicing

List of MDAs invoiced (for Gujarat)

Productwise Sales register

FR Wise MDA/ROCIR list

Warehouse wise MDA list

S.K Summary - List of Differences

4. **Period End Reports**

RO based Sales Day Book

ROCIR Based Sales Day Book

SK Summary Sales Day Book

Processing

The ROs prepared manually by the SMOs will be entered into the system using a screen. Once the details of a release order have been entered into the system, an invoice can be generated for it using a pre-defined set of parameters. Invoice can be generated in any one of the following ways.

- a) Automatically generated by Invoicing module on basis of RO entered into system. The details are made available to AR module.
- b) Prepared manually by SMO and entered through appropriate screens.

The system will maintain two different series of invoice numbers based on seasons, viz Rabi and Kharif seasons. The invoice number will be generated by the system.

The invoice contains the customer, product and quantity details as per the RO. The amount details are split into issue price, pre-tax amount, taxes, and post-tax amounts based on the predefined invoice parameters.

A request for printing the invoice can then be submitted to the system which will cause the invoice to be printed on pre-printed stationery.

The posting of an invoice/ROCIR/SK Summary will also cause the balance of the customer to be updated.

SALES ANALYSIS

The sales analysis module will perform the following functions :

1. Compare actual area office sales Vs plan.
2. Compare actual district sales Vs plan.
3. Compare actual FR sales Vs plan.

Sales Analysis Inputs

The following inputs will be provided to the system:

1. Area office/District office/ FR Sales plan.

Screens will be provided for the entry of the sales plan. The sales plan will contain monthly targetted sales figures for each of the areas, districts, field representatives and the state as a whole.

Sales Analysis Outputs

The following outputs will be available from the system:

1. Sales performance reports.
2. Sales Target lists

Sales Performance reports

The sales performance report lists the targetted , actual and deviation from targets of the sales figures for each month, product wise. The report can be produced for each of State , Area ,District and Field representative levels. The report is printed in the order of product code.

Sales Target Lists

Through this report, the user can see the target set for each month for a particular SMO and for a particular product. The report is listed for a particular date. The report is ordered by target level, Level Code & Product in the same hierarchical order.

Processing

The field representative, district and area masters should first be input to the system using the screens provided for the purpose. This will be an one-time activity after which the masters will need to be updated only if there are any changes to be made to the information in the masters using maintenance screens.

Once the master data is ready the sales plan is input to the system using screens provided by entering the month-wise targeted sales figures for each area, district and field representative. Information is to be entered separately for each of the products.

The values of the actual sales figures for any month for each product will be updated automatically by the system using the information from the invoicing module (Invoices and ROCIRs) and the accounts receivable module (Seva Kendra sales summaries).

The actual sales achieved against targets can be compared using the sales performance reports which will be printed monthly.

ACCOUNTS RECEIVABLES

The AR module of the system maintains the ledgers of all customers. It keeps track of amounts due and received from customers. It also enables the SMO to get various analysis from the ledgers. In addition to this, this module will provide facilities for tallying the amount realisable from banks against cheques received by the Field Representatives. This will help in credit reconciliation.

Accounts Receivables Inputs

Credit Notes

- onscreen entry in AR module
- prepared manually to adjust the balance of customer

Debit Notes

- onscreen entry in AR module
- prepared manually to adjust the balance of customer

Pay-in-slips

- onscreen entry in AR module
- maintained by the FRs for all the cheques and DDs deposited in the bank

Pre-paid advices

- onscreen entry in AR module
- prepared against DDs received by FR for the material TO be lifted from seva kendras
- sent to SMO along with monthly sales summary

Posted Invoice/ROCIR/SK Summary Details

- obtained from invoicing module

Posted Payment/Receipts/Journal Vouchers

- Obtained from GL module

Accounts Receivables Outputs

1. Master/Transaction Checklists

2. Status Report

Customer Outstanding Statement

Productwise customer Outstanding statement

Agewise Analysis of Outstanding

Agewise Analysis of Overdue

Statement of Delayed Payments

3. Day Book

Credit Notes Day Book

Debit Notes Day Book

4. Period End Report

Customer Ledger

Customer Trial Balance

5. Reconciliation Report

Cheques Received & not deposited

Processing

The various input documents are entered into the system using transaction screens. These transactions are to be "posted" using a separate action. An unposted transaction can be maintained thru transaction screens. On posting each transaction updates the customer balances and the transaction becomes O/S if any voucher amount is still non-zero.

O/S documents can be referred to by new documents to adjust the amounts outstanding. Payments could be specific to one or more invoices with the matching logic either specific or on account. Similarly Invoices, Cr notes and Dr notes could be specific to one reference document.

For Direct Sales, the amount received is computed based on Bank deposit Register/Pay-in-slip/ROCIR details. When Creditadvices from Co-operative banks are entered, amount actually realised is computed. Based on this, credit reconciliation report is generated giving details of amount realisable against amount realised at district level. Further reconciliation is possible on the availability of credit transfers from various cooperative banks.

GENERAL LEDGER

This module will provide facilities to permit entry of all documents required for GL. Provision for establishing, maintaining and posting vouchers to subsidiary ledgers will exist.

General Ledger Inputs

Journal Voucher

- prepared manually for adjustment of accounts
- on screen entry in GL

Bank Payment Voucher

- prepared manually by SMO when cheque/DD is given to a party or an employee
- on screen entry in GL

Bank Receipt Voucher

- prepared manually by SMO when cheque/DD is received from a party or an employee
- on screen entry in GL

Cash Payment Voucher

- prepared manually by SMO when cash is given to a party or an employee
- on screen entry in GL

Cash Receipt Voucher

- prepared manually by SMO when cash is received from a party or an employee
- on screen entry in GL

Posted AR Module transactions

Posted Invoicing module transactions

General Ledger Outputs

1. Master/Transaction Checklists

2. Period End reports

Journal Book

Bank Book

Cash Book

General Ledger

Subsidiary Ledger

Trial Balance (General ledger)

Trial Balance (Subsidiary Ledger)

P & L statement - Summarised
- Detailed

Balance Sheet - Summarised
- Detailed

Processing

The system allows entry of various vouchers thru a generalised entry screen. Transaction once entered can be verified and changed thru maintenance screens. After 'posting' thru a separate option, no change will be allowed. Posting will update the account balances.

HOUSEKEEPING

Housekeeping plays a very vital role in the day-to-day operations of the SMO system and also for successful maintenance of the system. The access to this function is given only to the Database Administrator, who will be identified at the beginning of implementation. The individual functions are explained below.

Backup Procedure : In order to maintain the system data it is essential to take daily backups. This will ensure the data integrity of the system whenever there is a failure of hard disk or machine. maximum data loss will be upto a single day.

The backup procedure will be implemented as follows:

On a daily basis, the database files and before image files will be copied onto another media which can be either cartridge tape or the normal tape drive. This will ensure that the image of the entire database is backed up. This backup will be labelled with the date and preserved by the Database Administrator. Once in three days, the tapes can be rotated.

Restoration/Recovery : Restoration of data is required when there is loss of data due to hardware failure or errors due to any procedural or operational mistakes committed. This is exactly the reverse process of backup. The backup files will be copied from the backup media onto hard disk and the database state will be restored to the last stage before the backup. In order to bring the system to the current state, all the operations which were carried out after the last backup should be repeated.

Addition of user : A new user can be added or some old password may be changed through this file.

Master Maintenance

Through this module , various masters can be updated or deleted .The master listings can also be obtained through this module. The master files in the system are :-

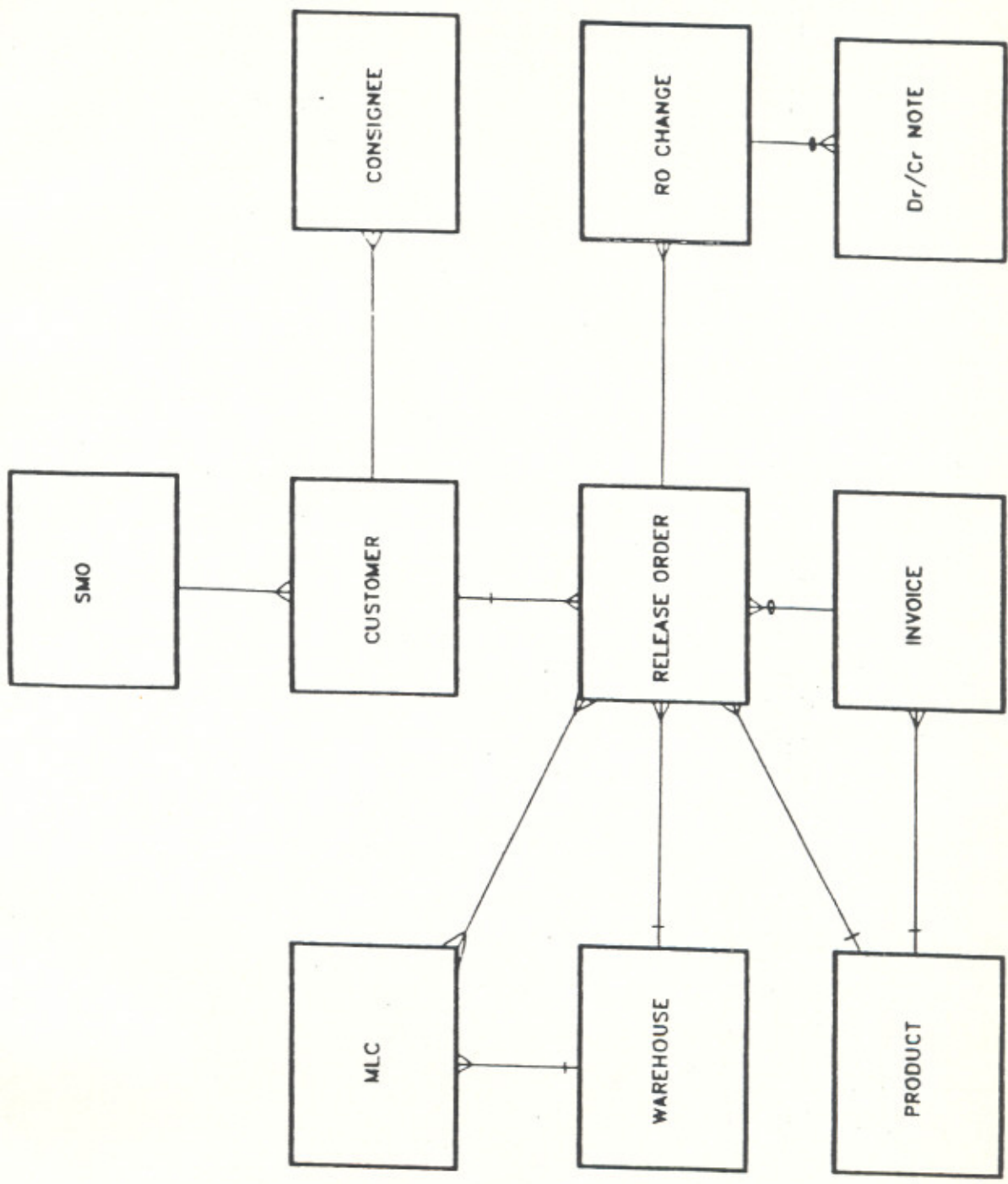
1. Customer
2. Product
3. Warehouse
4. Account
5. Seva Kendra
6. Subsidiary Ledger
7. Employee Master
8. SL type

Besides the various codes maintained in the system are also updated through this module. These are

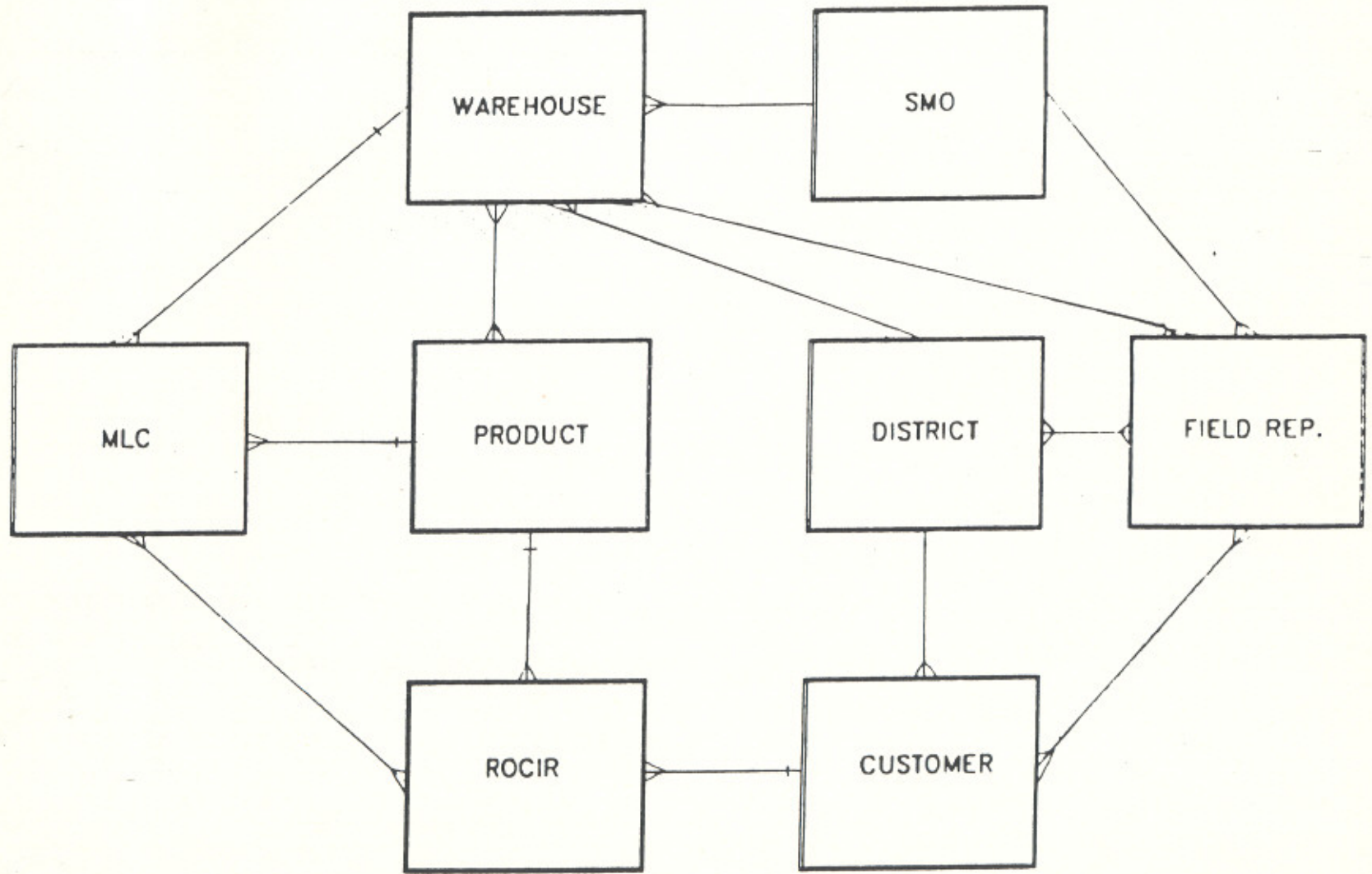
1. Abbreviated Account Codes
2. Codes and descriptions(FR/AREA/DISTRICT)
3. Document Codes (Codes of all transaction vouchers)

3.3 Database

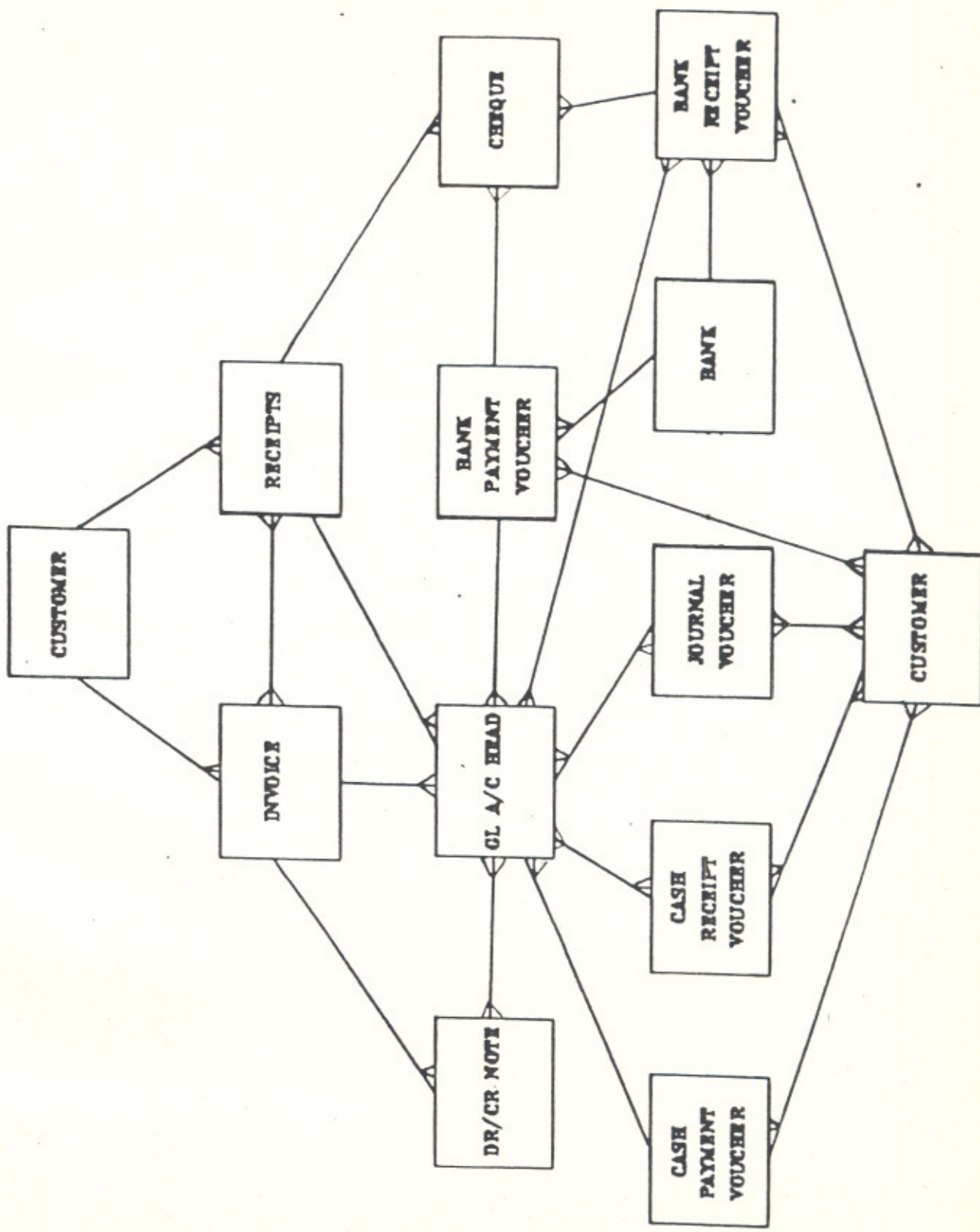
The various database tables have been described with their contents in the appendix I along with their key fields. Various data models have been used to depict the data for the various modules of the system, namely Invoicing, Sales Analysis and Financial Accounting in the next few pages.



DATA MODEL -- RO BASED SALES



DATA MODEL ROCIR BASED SALES



DATA MODEL - FINANCIAL ACCOUNTING

INPUT/OUTPUT FORMATS

In the SMO system screens form the basic and only interface between the user and the system. All the functions available in the system will be accessed through menus and parameter screens. Thus all the inputs and outputs to the system are done through the screens.

Screens are designed based on the functionality within each module. The types of screens can be as follows :-

- Menu Screens
- Data entry/query/update screens
- Report generation screens
- Process initiating screens

Menu Screens provide access to different functions within the system. There are upto 3 levels of menu which are hierarchical in design. The last level of menus are the screens, reports etc.

Data Entry/Query/Update Screens These screens provide means of storing and retrieving information on-line. These screens are normally based on the input document formats in order to make data entry efficient.

Report Generation Screens These are at the same level as data entry screens. There may be an additional screen to take in report parameters before generating the reports.

Process Initiating Screens These are basically functions provided in the menus which call a batch program for execution and control is passed back to the calling menus.

INPUT FORMATS

The input screens for the various modules number over 70 screens. Thus only sample screens for GL module are shown. GL module has been shown here as sample because the author was associated with the development of screens for this module. The hierarchical pattern of screens for all other modules is similar. Some of the screens are self explanatory. For them no description has been given. For others, the insert, query, update and delete modes have been explained briefly.

FORM NO : 200 _____

MAIN MENU

- 1. INVOICING
- 2. GENERAL LEDGER
- 3. ACCOUNTS RECEIVABLE
- 4. SALES ANALYSIS
- 5. PAYROLL
- 6. HOUSEKEEPING
- 7. MASTER MAINTENANCE
- X. EXIT

SELECT OPTION _

FORM NO : 300 _____

GENERAL LEDGER MAIN MENU

- 1. TRANSACTION
- 2. REPORTS
- 3. PARAMETERS
- 4. PERIOD END PROCESSES
- X. EXIT

SELECT OPTION _

FORM NO : 301 _____

GENERAL LEDGER TRANSACTIONS MENU

- 1. CASH RECEIPTS
- 2. BANK RECEIPTS
- 3. CASH PAYMENTS
- 4. BANK PAYMENTS
- 5. JOURNAL VOUCHERS
- X. EXIT

SELECT OPTION _

FORM NO : 311 _____

CASH RECEIPTS

ARC CODE _____ DOC CODE _____ DOC DATE _____ DOC NO _____
CASH CODE _____ AMOUNT _____

ABRV CODE	A/C NO.	SLC	DR/CR	AMOUNT	REFERENCE TYPE	NO.	DATE
--------------	------------	-----	-------	--------	-------------------	-----	------

DEBIT TOTAL _____ CREDIT TOTAL _____ CONFIRM DELETION _

4.1.1.1 CASH RECEIPTS

FORM NO. : S311(CASH RECEIPTS) : TYPE DATA ENTRY

FUNCTION : THIS FORM IS USED TO ENTER, QUERY AND UPDATE
CASH RECEIPT VOUCHERS.

SCREEN DESCRIPTION :

ENTRY MODE : Voucher level details are accepted and are validated so that the document number is unique within doc. code, within the current year. The voucher level GLC will be copied as cash code. At the end of the amount field, cursor moves to second block and accounting details are accepted with proper validations.

Reference details are accepted and validated , debit and credit totals are dynamically displayed in the third block depending on voucher amount and transaction amount(CASH code is DEBITED in this case). COMMIT is allowed only if debit and credit totals tally.

QUERY/UPDATE MODE : In this mode, KEY details are taken from first block(Voucher Level) and the details are retrieved in both the blocks. Modifications are allowed for NON KEY fields. Totals are displayed accordingly.

Account description and other display fields are also decoded in this mode, as in entry mode.

DELETE PROCESS : Deletion is available in QUERY mode where the records to be deleted are first retrieved in query mode by giving key values in the first block. If the entire voucher is to be deleted, delete key will be pressed in first block which will trigger the following:

- Confirm deletion (Y/N)
- Delete corresponding records in gl_txn_dtl
- delete header record from gl_txn_hdr
- commit deletion process

FORM NO : 312

BANK RECEIPTS

ARC CODE _____ DOC CODE _____ DOC DATE _____ DOC NO _____
BANK CODE _____ GLC CODE _____ AMOUNT _____

ABRV CODE	A/C NO.	SLC	DR/CR	AMOUNT	REFERENCE TYPE	NO.	DATE
--------------	------------	-----	-------	--------	-------------------	-----	------

DEBIT TOTAL _____ CREDIT TOTAL _____ CONFIRM DELETION _____

FORM NO : 313

CASH PAYMENTS

ARC CODE _____ DOC CODE _____ DOC DATE _____ DOC NO _____
CASH CODE _____ AMOUNT _____

ABRV CODE	A/C NO.	SLC	DR/CR	AMOUNT	REFERENCE TYPE	NO.	DATE
--------------	------------	-----	-------	--------	-------------------	-----	------

DEBIT TOTAL _____ CREDIT TOTAL _____ CONFIRM DELETION _____

4.1.1.2 BANK RECEIPTS

FORM NO. : S312(BANK RECEIPTS) | TYPE DATA ENTRY|

FUNCTION : THIS FORM IS USED TO ENTER, QUERY AND UPDATE
BANK RECEIPT VOUCHERS.

SCREEN DESCRIPTION :

ENTRY MODE : Voucher level details are accepted and are validated so that the document number is unique within doc. code, within the current year. In this case bank code is entered which is validated from the ABRV_AC_CODES and the account number against this is brought to the next field. The bank code, account no. and amount of the header is copied to the first line of the next block with DC_IND as 'D' and the cursor is brought to the REF_DOC_NO of the first record in the next block.

Reference details are accepted and validated, debit and credit totals are dynamically displayed in the third block depending on voucher amount and transaction amount(CASH code is DEBITED in this case). COMMIT is allowed only if debit, credit totals as well as the header amt tally.

QUERY/UPDATE MODE : In this mode, KEY details are taken from first block(Voucher Level) and the details are retrieved in both the blocks. Modifications are allowed for NON KEY fields. Totals are displayed accordingly.

Account description and other display fields are also decoded in this mode, as in entry mode.

DELETE PROCESS : Deletion is available in QUERY mode where the records to be deleted are first retrieved in query mode by giving key values in the first block. If the entire voucher is to be deleted, delete key will be pressed in first block which will trigger the following:

- Confirm deletion (Y/N)
- Delete all detail records in second block
- delete header record
- commit deletion process

4.1.1.3 CASH PAYMENTS

FORM NO. : S313(CASH PAYMENTS) | TYPE DATA ENTRY|

FUNCTION : THIS FORM IS USED TO ENTER, QUERY AND UPDATE
CASH PAYMENT VOUCHERS.

SCREEN DESCRIPTION :

ENTRY MODE : Voucher level details are accepted and are validated so that the document number is unique within doc. code, within the current year. The voucher level GLC will be copied as cash code. At the end of the amount field, cursor moves to second block and accounting details are accepted with proper validations. The header amount is taken to the credit total of the last block. Reference details are accepted and validated, debit and credit totals are dynamically displayed in the third block depending on voucher amount and transaction amount(CASH code is CREDIT in this case). COMMIT is allowed only if debit and credit totals tally.

QUERY/UPDATE MODE : In this mode, KEY details are taken from first block(Voucher Level) and the details are retrieved in both the blocks. Modifications are allowed for NON KEY fields. Totals are displayed accordingly.

Account description and other display fields are also decoded in this mode, as in entry mode.

DELETE PROCESS : Deletion is available in QUERY mode where the records to be deleted are first retrieved in query mode by giving key values in the first block. If the entire voucher is to be deleted, delete key will be pressed in first block which will trigger the following:

- Confirm deletion (Y/N)
- Delete all detail records in second block from gl_txn_dtl
- delete header record from gl_txn_hdr
- commit deletion process

FORM NO : 314

BANK PAYMENTS

ARC CODE _____ DOC CODE _____ DOC DATE _____ DOC NO _____
BANK CODE _____ GLC CD _____ AMOUNT _____

ABRV CODE	A/C NO.	SLC	DR/CR	AMOUNT	TYPE	REFERENCE NO.	DATE
_____	_____	_____	_____	_____	_____	_____	_____

DEBIT TOTAL _____ CREDIT TOTAL _____ CONFIRM DELETION _____

FORM NO : 315

JOURNAL VOUCHERS

ARC CODE _____ DOC CODE _____ DOC DATE _____ DOC NO _____
AMOUNT _____

ABRV CODE	A/C NO.	SLC	DR/CR	AMOUNT	TYPE	REFERENCE NO.	DATE
_____	_____	_____	_____	_____	_____	_____	_____

DEBIT TOTAL _____ CREDIT TOTAL _____ CONFIRM DELETION _____

4.1.1.4 BANK PAYMENTS

FORM NO. : S314(BANK PAYMENTS) | TYPE DATA ENTRY|

FUNCTION : THIS FORM IS USED TO ENTER, QUERY AND UPDATE
BANK PAYMENT VOUCHERS.

SCREEN DESCRIPTION :

ENTRY MODE : Voucher level details are accepted and are validated so that the document number is unique within doc. code, within the current year. In this case bank code is entered which is validated from the ABRV_AC_CODES and the account number against this is brought to the next field. The bank code, account no. and amount of the header is copied to the first line of the next block with DC_IND as 'C' and the cursor is brought to the REF_DOC_NO of the first record in the next block.

Reference details are accepted and validated, debit and credit totals are dynamically displayed in the third block depending on voucher amount and transaction amount(CASH code is DEBITED in this case). COMMIT is allowed only if debit, credit totals as well as the header amt tally.

QUERY/UPDATE MODE : In this mode, KEY details are taken from first block(Voucher Level) and the details are retrieved in both the blocks. Modifications are allowed for NON KEY fields. Totals are displayed accordingly.

Account description and other display fields are also decoded in this mode, as in entry mode.

DELETE PROCESS : Deletion is available in QUERY mode where the records to be deleted are first retrieved in query mode by giving key values in the first block. If the entire voucher is to be deleted, delete key will be pressed in first block which will trigger the following:

- Confirm deletion (Y/N)
- Delete all corres records from GL_TXN_DTL table
- delete header record from GL_TXN_HDR
- commit deletion process

FORM NO : 302 _____

GENERAL LEDGER REPORTS

1. G L MASTER LIST
2. G L TRANSACTION LIST
3. G L PERIOD END REPORTS
- X. EXIT

SELECT OPTION _____

FORM NO : 321 _____

GENERAL LEDGER MASTER LIST

1. SUBSIDIARY LEDGER MASTER LIST
2. ACCOUNT MASTER LIST
3. ABC MASTER LIST
4. ACCOUNT BALANCES
5. ABBREVIATED CODE MASTER LIST
- X. EXIT

SELECT OPTION _____

FORM NO : 304

G L PERIOD END PROCESSING

I. POST G L TRANSACTIONS

X. EXIT

SELECT OPTION _

FORM NO : 330

GL PERIOD END PROCESSING PARAMTERS

POSTING OF : CASH RECEIPTS/PAYMENTS
BANK RECEIPTS/PAYMENTS
DEBIT/CREDIT NOTES

START DATE _____

END DATE _____

PROCEED Y/N _

FORM NO : 323 _____

GENERAL LEDGER PERIOD END REPORTS

1. CASH BOOK

2. BANK BOOK

3. JOURNAL

4. GENERAL LEDGER

5. SUBSIDIARY LEDGER

6. TRIAL BALANCE (G L)

7. TRIAL BALANCE (SLC)

X. EXIT

SELECT OPTION _

4.5 HOUSEKEEPING - USER CODE MAINTENANCE

FORM NO. : 505 USERCODE MAINTENANCE | TYPE MENU

FUNCTION : THIS IS THE SCREEN FOR VARIOUS USER
USING THE SYSTEM

SCREEN DESCRIPTION :

This is the screen for granting previlieges to different user with different password for using the system. A user with access level 3 has access to all screen where as menu option 2 gives the user access to a particualr module of the SMO's system.

QUERY/UPDATE : The screen when brought to the user gets all the record from the table. Updation is allowed.

DELETION: A user can be deleted. The screen asks fro confirm-
ation before a user is removed.

FORM NO : 500

HOUSEKEEPING

- | | |
|--------------------------------------|------------------------|
| 1. DATABASE BACKUP | 7. ADD A ORDINARY USER |
| 2. DATABASE RESTORE | 8. ADD A SPECIAL USER |
| 3. CLEANUP PRINT BACKUP FILES | 9. YEAR ENDING |
| 4. REMOVE RECORD MARKED FOR DELETION | X. EXIT |
| 5. USERCODE MAINTENANCE | |
| 6. SYSTEM PARAMETERS | |

SELECT OPTION

FORM NO : 505

USERCODE MAINTENANCE

USERCODE	PASSWORD	MENU OPTION	ACCESS LEVEL
----------	----------	-------------	--------------

FORM NO : SYS01

KBL - SMO
SYSTEM PARAMETERS

CURRENT ARC _____ SYSTEM START DATE _____

CURRENT SMO _____ CUSTOMER ACCOUNT _____

COMPANY NAME _____

MAX CREDIT PERIOD _____ S.K. CONTROL ACCT. _____

ROUNDING OFF AMOUNT _____

FINANCIAL YEAR BEG. _____ (YYYYMM) INTEREST RATE _____

FINANCIAL YEAR ENG _____ (YYYYMM) CURRENT DATE _____

CURRENT MONTH _____ (YYYYMM)

FORM NO.: 624 COMPANY NAME X (40) PAGE :
 RUN DATE: STATE NAME X (40)
 LIST OF MDA'S INVOICED

INVOICE NUMBER: DATED:

MDA NUMBER	DATE	W/H CONSIGNEE NAME	PRODUCT NAME	*QUANTITY	NO OF BAGS	LR No & Date	Truck No.	REMARKS
------------	------	--------------------	--------------	-----------	------------	--------------	-----------	---------

PURPOSE : SUPPORTING DOCUMENT TO BE SENT TO THE CUSTOMER ALONGWITH THE INVOICE FOR GUJRAT
 REPORT TYPE:
 STATUS

FREQUENCY: DAILY	PART NO.	DESTINATION	REPORTING ORDER	PG/LN SKIP	TOTALS	TOTALS LINE DESCRIPTION
STATIONARY:BL; 132; 1+2	1.	CUSTOMER	INVOICE NUMBER	1P		
	2.	JR.AC MGE-SHO	MDA NUMBER	1L	Y	TOTAL QUANTITY
	3.	EXTRA COPYSNO				

REPORTS OPTIONS: INVOICE NUMBER RANGE
 REMARKS:

FORM NO.: 674	COMPANY NAME X (40)	PAGE :
RUN DATE:	STATE NAME X (40)	
	GENERAL LEDGER FOR THE PERIOD	TO

DOCUMENT		REFERENCE		ACCOUNT DESCRIPTION		SHORT NARRATION		DEBIT		CREDIT	
CODE	DATE	NO	TYPE	NO.	DATE			AMOUNT		AMOUNT	

PURPOSE : 1. STATUTORY REQUIREMENT	REPORT TYPE:
------------------------------------	--------------

FREQUENCY:	PART NO.	DESTINATION	REPORTING ORDER	PG/LN SKIP	TOTALS	TOTALS LINE DESCRIPTION
STATIONARY:BL; 132; 1+0	1.		A/C NUMBER	2L	Y	TRANSACTION TOTALS
			DOCUMENT DATE	1L		
			DOCUMENT NUMBER			

REPORTS OPTIONS:DATE RANGE,ACCOUNT RANGE

REMARKS: OPENING BALANCE, TRANSACTION AND CLOSING BALANCE ARE PRINTED FOR EACH ACCOUNT (ON MONTHLY BASIS FOR PERD. OVER ONE MONTH)

INVOICE, ROCIR, MS SUMMARY, Dr/Cr NOTE & RELATED DOCUMENTS ARE TO BE POSTED TO GL BASED ON THE ABOVE REFERRED MONTHLY DAY BOOK SUMMARY.

WHENEVER SL ARE PROVIDED AGAINST A GL, TRANSACTION TOTAL FOR A PERIOD AS PER SL MAY APPEAR IN GL.

FORM NO.: 675	COMPANY NAME X (40)	PAGE :
RUN DATE:	STATE NAME X (40)	
	SUBSIDIARY LEDGER FOR THE PERIOD	TO

GL A/C CD:	GL A/C NAME:	SLC CODE:	SLC DESCRIPTION:
DOCUMENT	REFERENCE DETAILS	SHORT NARRATION	*DEBIT *CREDIT
CODE DATE NO	TYPE NO. DATE		AMOUNT AMOUNT

PURPOSE : 1. STATUTORY REQUIREMENT	REPORT TYPE:
2. RECONCILIATION	

FREQUENCY: SPECIFIED PERIOD	PART NO.	DESTINATION	REPORTING ORDER	PG/LN SKIP	TOTALS	TOTALS LINE DESCRIPTION
STATIONARY:BL; 132; 1+0	1.					
		GL A/C NUMBER	1P	Y		GRAND TOTAL
		SLC CODE	2L	Y		TRANSACTION TOTALS
REPORTS OPTIONS:DATE RANGE,ACCOUNT RANGE		DOC. DATE				
		DOC. NO.				
REMARKS:OPENING BALANCE,TRANSACTION TOTALS						
& CLOSING BALANCE ARE PRINTED FOR EACH A/C						
ON MONTHLY BASIS IF OUTPUT IF FOR PERIOD OF						
OVER ONE MONTH						

FORM NO.: 676	COMPANY NAME X (40)	PAGE :
RUN DATE:	STATE NAME X (40)	
	TRIAL BALANCE AS ON	

A/C NO.	A/C NAME	DEBIT AMOUNT	CREDIT AMOUNT
		TOTAL	CLOSING BALANCE:

PURPOSE : 1. STATUS REPORT 2. RECONCILIATION	REPORT TYPE: STATUS
---	------------------------

FREQUENCY:	PART NO.	DESTINATION	REPORTING ORDER	PG/LN SKIP	TOTALS	TOTALS LINE DESCRIPTION
STATIONARY:BL; 132; 1+0	1.		ACCOUNT NUMBER END OF REPORT		Y	TOTALS
REPORTS OPTIONS:AS ON DATE						
REMARKS:ACCOUNT WITH ZERO BALANCES SHOULD NOT APPEAR.						

FORM NO.:714	COMPANY NAME X (40)	PAGE :
RUN DATE:	STATE NAME X (40)	
STATEMENT OF DELAYED PAYMENTS AND INTEREST AS ON		

INVOICE TYPE DATE NO.	ORIGINAL AMOUNT	ADJUST. AMOUNT	#DOC. TYPE	#DOC. NO.	DUE DATE	PAID AMOUNT/ ADJ	O/S AMOUNT	NO OF DAYS	PRODUCT

PURPOSE :1. CALCULATION OF INTEREST (ACTION REPORT)	REPORT TYPE
2. NIS PURPOSE	

FREQUENCY:ADHOC/MONTHLY	PART NO.	DESTINATION	REPORTING ORDER	PG/LW SKIP	TOTALS	TOTALS LINE DESCRIPTION
STATIONARY:BL; 132 ; 1+0	1.		CUSTOMER INVOICE DATE	2L 1L		CUSTOMER TOTAL
REPORTS OPTIONS: RANGE OF CUST. CODE			INVOICE NO. DOC. DATE			
REMARKS:1.FOR EACH OUTSTANDING INVOICE THE INTEREST DUE TO DELAYED PAYMENT IS CALCULATED. 2. UNADJUSTED CREDITS & INTEREST PAYABLE IS ALSO CALCULATED. 3. NET INT. IS DERIVED ACCORDINGLY.						

FORM NO.:721	COMPANY NAME X (40)	PAGE :
RUN DATE:	STATE NAME X (40)	
CUSTOMER LEDGER FOR THE PERIOD		

DOC TYPE	DOC DATE	DOC NO.	ACC. DESC.	REF TYPE	REF NO.	REF DATE	SHORT NARR.	ALLOCN. AMT.	DEBIT	CREDIT

PURPOSE :	REPORT TYPE
	STATUS

FREQUENCY:	PART NO.	DESTINATION	REPORTING ORDER	PG/LN SKIP	TOTALS	TOTALS LINE DESCRIPTION
STATIONARY:						
REPORTS OPTIONS: RANGE OF CUSTOMER CODE						
REMARKS:						

FORM NO.: 722	COMPANY NAME X (40)	PAGE :
RUN DATE:	STATE NAME X (40)	
	CUSTOMER ACCOUNT TRIAL BALANCE AS ON	

CUST CODE	CUST NAME	DEBIT AMOUNT	CREDIT AMOUNT
TOTAL		_____	_____

PURPOSE : 1. STATUS REPORT 2. RECONCILIATION OF BALANCES	REPORT TYPE: STATUS
---	------------------------

FREQUENCY:MONTHLY/ADHOC	PART NO.	DESTINATION	REPORTING ORDER	PG/LN SKIP	TOTALS	TOTALS LINE DESCRIPTION
STATIONARY:BL; 132; 1+0	1.		CUSTOMER CODE END OF REPORT	1L	Y	GRAND TOTAL
REPORTS OPTIONS:PROCESS MONTH/REPORT DATE						
REMARKS:ACCOUNT WITH ZERO BALANCES SHOULD NOT APPEAR.						

DEVELOPMENT

5.1 SYSTEM ENVIRONMENT

Hardware

Central Processing Unit - Operations Research Group (ORG)
SUPERMAX XL (68030 based), Single CPU.

Memory - 8 MB

Cache Memory - 128 KB

Fixed Disk - 300 MB

Disk Controller Cache - 256 KB

Cartridge Tape Drive - 60 MB

Floppy Disk Drive - 360 KB

I/O(Disk I/O Controller)- 80286 based

Terminals - VT100 (6 nos. + 1 console)

Printers - L&T dot matrix (2 nos.)

Operating System

SMOS (AT&T UNIX Ver. V.3 compatible)

Software

ORACLE RDBMS Version 5.1.17.4

SQLFORMS

SQLPLUS

SQLREPORT

ORACLE UTILITIES (EXPORT, IMPORT)

5.2 INVOICING MODULE (For Gujarat State)

The invoice generation process is different for Gujarat state , because basically , there is a single customer in this state. Thus, whereas there is one invoice per Release Order in other states, in Gujarat there can be a single invoice for a couple of Material Despatch Advices (RO for Gujarat is known as MDA). These MDAs should have same customer, same product, same MDA date and same Warehouse.

Thus, a major change in concept has taken from one RO to one invoice in other states TO many MDAs to one invoice in Gujarat. Due to this, quite a few changes had to be made in the existing programs of the invoicing module and many new ones had to be written. The reports with which the author was associated have been given in detail in the ensuing pages.

1. Invoice Printing for MDAs on preprinted stationery

Process: To print invoice on pre-printed stationery for MDAs | **Process ID** 600GJ

Run Freq: Daily

Procedure summary:

- _ The process picks up details of the invoices to be printed and prints it on pre-printed stationery
- _ Invoice number , date , due date , LC number and LC date RO number and RO date are picked up from the INVOICE table
- _ Customer , consignee , product , warehouse , district and quantity are picked up from SALE_DOC
- _ Amount particulars are obtained from SALE_AMTS

Input Parameters | **Reference**
REP_PARAMS

Table | **Description**

INVOICE	Invoice header
SALE_DOC	Release Order details
SALE_AMTS	Sale amount details
CUSTOMER	Customer master
CR_DAYS	Lifting period, Credit Days

Common Tables SYS_PARAMS

Outputs Outputs on pre-printed stationery

Options 1. Invoice range 2. Cancelled invoice range

Notes

2. List of MDAs invoiced

This is the supporting document to be attached with each invoice for the information of the customer.

Process: To print the list of material | **Process ID**
 despatch advice in an invoice | 624

Run Freq: Daily

Procedure summary:

- The user specifies the invoice number for which he wants the report
- The process picks up release orders for that invoice from the SALE_DOC table to produce the report
- The field representative name is obtained from the CODE_DESC table, the warehouse name from the warehouse master and the product name from the product master
- At the end of the report the total quantity invoiced is printed

Input Parameters | **Reference**
Invoice number range

Table | **Description**

SALE_DOC | Release order details
CODE_DESC | Code description table
WAREHOUSE | Warehouse master
PRODUCT | Product master

Common Tables SYS_PARAMS

Outputs List of MDAs invoiced

Options

Notes Release orders are considered as MDAs for this report

3. List of FR Wise MDA list

This report is sent to the FR for informing him about the MDAs reached to the SMO. Thus, if some MDAs are missing, he can take appropriate action.

Process: To print the field representative wise material despatch advice list | **Process ID**
R625

Run Freq: Monthly

Procedure summary:

- The user specifies the period for which he wants the list
- The release orders for that period are picked up for each field representative in the CODE_DESC table from the SALE_DOC table and the list produced
- The warehouse name is picked up from the WAREHOUSE table, and the product name from the PRODUCT table

Input Parameters | **Reference**
MDA date range (from, to)

Table	Description	Index
CODE_DESC	Code description table	
SALE_DOC	Release order details	
WAREHOUSE	Warehouse master	
PRODUCT	Product master	

Common Tables

Outputs

Options

Notes Release orders are considered as MDAs for this report

4. Warehouse Wise MDA list

This report is generated to help the Field Representative in following up the receipts and disbursement of material from the various warehouses.

Process: To print the warehouse-wise Material Despatch Advice list	Process ID 626
--	--------------------------

Run Freq: Monthly

Procedure summary:

- The user specifies the period for which he wants the list
 - For each warehouse in the WAREHOUSE table , the release order falling in the period are picked up from the SALE_DOC table and listed
 - The field representative name is obtained from the CODE_DESC table and the product name from the PRODUCT table for producing the report
-

Input Parameters MDA date range(from,to)	Reference
--	----------------------

Table	Description	Index
WAREHOUSE	Warehouse master	
SALE_DOC	Release order details	
CODE_DESC	Code description table	
PRODUCT	Product master	

Common Tables SYS_PARAMS

Outputs Warehouse wise MDA list

Options

Notes Release orders are treated as MDAs for producing this report

3. General Ledger Trial Balance

The main purpose of printing trial balance is reconciliation. The debit and credit balances for all the accounts must tally in the double entry system. If they do not tally then some problem is there, which can be found by verifying the opening and closing balances with the corresponding general ledger.

This report program should be initiated after the transaction for the month are posted. Opening balance, debit and credit totals related to the period and closing balance are printed.

Process: Report program for printing Trial Balance		Process ID R676
Run Freq: Monthly/Adhoc		
Procedure summary:		
<ul style="list-style-type: none">- This program prints trial balance for the given period.- Credit and Debit balances for all transactions between the financial year beginning and report date are taken from Account_bal table for each general ledger account.- Net balance for each account is derived from the difference of credit and debit balances		
Input Parameters		Reference
1. upto date		
Outputs TRIAL BALANCE(GL)		
Table	Description	Index
ACCOUNT_MASTER ACCOUNT_BAL	ACCOUNT DETAILS Account Balances (CONSOLIDATED for month year)	
Common Tables SYS_PARAMS		
Outputs General Ledger Trial Balance		
Options		
Notes		
If the end date is put as null then it is equated with the start date. Date input should be in DD-MON-YY form		

5.4 Account Receivables

1. Custmer Trial Balance

This program generates customer trial balance giving customer wise balances as on date. Only customer having non zero balances will be printed.

```
-----
Process: Report pros. for printing           Process ID
customer trial balances                       R711
-----
```

```
Run Freq: Monthly/Adhoc
-----
```

Procedure summary:

- Debit and Credit totals for all transactions between the financial date and report date are calculated from customer_bal for each customer
- The difference of he two gives the net balance

```
-----
Input Parameters 1. Processing month          Reference
                  2. Report date
-----
```

```
-----
Table           Description                 Index
-----
CUSTOMER        Customer name
CUSTOMER_BAL    Balances
-----
```

```
-----
Common Tables  SYS_PARAM
-----
```

```
-----
Outputs Customer trial balance
-----
```

Options

```
-----
Notes This report reflects the status of customer balance
as on date and provides useful information. Customer
transaction have to be posted before this report is processed.
-----
```

Process: Report program for printing
Customer Ledger

Process ID R721

Run Freq: Monthly/Adhoc

Procedure summary:

- Opening balances are derived from Customer_bal for each customer .For other transactions whose cosolidated totals are not available in customer_bal, the details are picked from voucher_dtl
- The transaction for the period are listed from voucher_dtl
- closing balance for the month is calculated
- only customers which have transactions for the month are printed.

Input Parameters

- | | |
|-----------------|---------------|
| 1. Start date | 2. End date |
| 3. A/C no. from | 4. A/C no. to |

Reference

Table

Description

Index

CUSTOMER	Account details	
CUSTOMER_BAL	Account balances	
VOUCHER_DTL	Transaction details	

Common Tables SYS_PARAMS

Outputs Customer Ledger

Options

Notes

If the end date is set to null it will be equated to the start date. Date input is to be in DD-MON-YY form.

3. Productwise customer outstanding

This report lists the customer outstanding as in previous report except that it is ordered by product. Within a product, the customer and for a customer all the outstanding documents against it are printed.

Process: Report program for printing customer outstanding (product wise) **Process ID** R712

Run Freq: Adhoc

Procedure summary: This program generates productwise customer outstanding report in a summerised way giving for each product, details of customer outstanding documentwise. The transactions are picked as in case of customer outstanding and printed. However, instead of using voucher_dtl for picking the transactions, various other tables are used GL_TXN_DTL for picking the general ledger transaction details PAY_SLIP_DTL to pick up the pay in slip details SALE_AMTS to pick up the Invoice/ROCIR details

Input Parameters 1. Report date **Reference**

Table	Description	Index
GL_TXN_DTL	GL txn details	
PRODUCT	Product details	
CUSTOMER	Customer name	
PAY_SLIP_DTL	Pay in slip dtl	
SALE_AMTS	Invoice/ROCIR dtl	

Common Tables SYS_PARMS

Outputs Customer outstanding statement

Options

Notes

Following forms have been done by the author . The trigger listing of these forms has been given in volume II

Cash Receipts(S311)
Bank Receipts(S312)
Cash Payments(S313)
Bank Payments(S314)
Journal Voucher(S315)
Year Ending(S506)
Invoice Regeneration(S262R)

Besides these , the author was involved in the modifications of various reports and forms.

TESTING

In the initial contract signed between KRIBHCO and TCS for the analysis, design and development of the SMO package, a special clause was laid down for the test phase. According to this, once the user tests, verifies and accepts the system, TCS will not be associated for any modification/enhancement of the system except its implementation. Thus, the user group were quite keen to debug the system completely to avoid any problems at a later stage. A special test team consisting of two marketing accounts personnel Mr Lakshmikant Dhingriwala, Asst. Manager Accounts and Mr P. Armugaswamy, Dy. Mgr Accounts was assigned from KRIBHCO to test the system completely. A comprehensive test strategy was used by the test team to carry out destructive testing of the system. The development team was actively associated in this phase and any problems encountered were immediately cleared.

TEST DATA

The test data was designed by the user test team. It consisted of a mix of sample live data and some specially designed data which when run on the system, could highlight potential problems in the system. The data was designed for three months of April, June and July, 1990.

TESTING METHODOLOGY

The data for all the master files was fed in the first phase of testing because existence checks and other validations are carried against the masters in the transaction data entry screens. After this the user team entered the transaction data entry for each month one by one so that any problem in the entry forms could be detected and removed. This hands on endeavour by the user also resulted in some new requirements for the existing entities. All such points were noted, and after discussion, the importance of such requirements were ascertained, and if found useful were incorporated in the system.

In the next phase, various transaction checklists were generated and manually compared with the test data. Not many problems were encountered at this juncture. After this, the posting for various transactions was done.

The physical concept of posting in the system involves setting up of the posting status field for each transaction, equal to 1, for all transaction lying in the posting period. For all the invoicing transactions, the corresponding entries update the sale_amts table alongwith the corres. account and customer balances. The Accounts Receivable module's transaction posting involves updating the customer balance figures, apart from setting the posting status flag to 1. Similarly, for GL transaction posting, account balances are updated. After posting, consolidated data for a particular month and year is available in these two tables for all transactions relating to a particular account.

After this, all the period end reports and status reports were generated. Then, a main report, say general ledger was compared to all the checklists. Once, it was established for accuracy, all the related reports were compared with this report. This minimised the effort required on the part of the test team. After, all the problems were debugged and verified, the module was cleared and acceptance given. The same approach was followed for each module.

Problems encountered in the test phase

In the testing phase, it was noticed that complex reports which were accessing the details of a large number of transaction vouchers like outstanding reports and ledgers, were quite slow. This was so because for each entity that is, a transaction voucher, a separate table was used. Though this was good in a way since the design became very simple and easy to understand, problems arose because accessing such a large number of tables was time consuming task.

Thus, to overcome this problem, the concept of centralised database was used. Thus, all the transactions from different tables were posted to a single table (Voucher_dtl) using a posting program written in Pro* C. The posting status flag for all transactions posted through this program was set to 2. Posting status of 0 indicates unposted transaction and that of 1 indicates ordinarily posted transaction.

All the major time consuming reports like customer outstanding, general ledger, subsidiary ledger, customer ledger were rewritten using this table. The CPU execution time for each such report was reduced to half.

Invoice Regeneration in case of MDAs

In case of invoice generation for Material Despatch Advice, the key used was combination of MDA date, Product code, Warehouse code and invoice group code. Later a user requirement came through which required that the warehouse code should be made optional in the key combination. This was done basically to allow the user to pick the material from various warehouses. If against an MDA of 100 MT, 50 MT were picked from Warehouse1 and 50 from Warehouse2 then by taking warehouse as a key, invoice will be generated against Warehouse1. The customer may not entertain such an invoice so in such cases warehouse should not be taken as a key.

If an invoice was regenerated for such cases, two invoices may be made for the same MDA - one with warehouse as a key and other without it. Thus, regeneration was disallowed on the same screen. A separate screen was designed for regeneration purposes. The trigger listing for this form S262 R is given in volume 2.

FORM : 262 R

REGENERATION OF INVOICE

MDA's DATE : _____

INVOICE

NO.	DATE	MDA NO.	CUST CD	PROD	WE CD	INV	GRP	QTY	MT	QTY	KG
-----	------	---------	---------	------	-------	-----	-----	-----	----	-----	----

PRESS 'f3' TO SELECT

INVOICE NUMBER

INVOICE DATE

PROCEED (Y/N) _

SYSTEM HIGHLIGHTS

System Overview

The SMO system uses screens to capture information centrally from documents prepared manually at various locations.

The documents of sale are prepared manually at the field, area office and at the SMO . These documents are collected at the SMO and input to the system which is located at the SMO . The system provides for the following :

- Generation and printing of invoices
- Analysis of actual sales vs targetted sales
- Financial accounting
- Accounting for receipt of payments from customer .

System Highlights

On-Line functions

- Maintenance of master data and parameters
- Entry and validation of transactions
- Enquiries on input data .
- Printing of checklists of master / transaction data
- Printing of invoice and reports
- Posting of the transactions

On-line routine system maintenance

- Addition and deletion of auser
- Archiving and re-loading

System integrity

Whenever possible the system will check for integrity using cross-validations , existence checks , domain checks and edit checks on the data being entered and processed .

Date fields

Where Year-month fields are used the format will be YYYY-MM i.e. the century is included in the year number .

Ease in data entry

Query can be done against some fields which lists all enterable values for that field. This facilitates ease in data entry since relevant values can be viewed onscreen. Wherever possible, when a code is entered on the screen, its corresponding description would be displayed.

User Interface

In the SMO system screens form the basic and only interface between the user and the system. All the functions available in the system will be accessed through menus and parameter screens.

Screens are designed based on the functionality within each module. The types of screens can be as follows :-

- Menu Screens
- Data entry/query/update screens
- Report generation screens
- Process initiating screens

Interface between modules

- Sales analysis figures will be updated on-line from information on RO , ROCIR , RO change and ROCIR change transactions
- Manual interface to produce Dr/Cr notes based on RO change and ROCIR change information
- Posting done in the different modules makes this data available for generation of ledgers and outstanding statements in the accounts receivables and general ledger modules.

Flexibility

The system is highly parameterised lending itself to easy adaption to changes in business practices.

Functionality

Screens are grouped according to the business functionality making it easier for the user to operate.

Security

To ensure security of important data, the SECURITY feature is built into the SMO system. Security in system ensures that only the authorized persons can access the SMO system. Organisation of users in SMO is in the form of groups which corresponds to the functional module of the system. Furthermore, the users are also organised in terms of the duties they perform, the levels of duties can be understood as the access level if the

user. A user whose job is to enter the daily data should not be allowed to do period end processing as a precautionary measure against inadvertant mistakes. For each user group, a notified authority at each SMO will control issue of usercodes and passwords.

The system allows the DBA to enter/modify new usercode/password combination through housekeeping menu .

Security Levels

For each usercode/password the system maintains an access level associated with usercode. There are three levels available in the SMO System :-

1. LEVEL 3 - This is the highest level and is allotted to only one notified authority at the SMO who will act as the database administrator (DBA). DBA will be responsible for creation/deletion of new usercode in the SMO system besides other housekeeping jobs.

2. LEVEL 2 - This is the next lower level and the users with access level '2' can perform all the functions within this module. They cannot access any module other than for which they have been allowed by the DBA.

3. LEVEL 1 - This is the lowest level. Users with access level '1' can perform only routine jobs within their module like transactions data entry, checklist reports, etc. They will not be allowed to delete the records or to initiate batch processes like posting of transactions.

ENTITY NAME : CODE DESCRIPTION

TABLE NAME : CODE_DESC | TYPE NAME-DESC

DESCRIPTION : CODE Vs DESCRIPTION TABLE FOR AREA DISTRICT
AND FR CODES

DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
CODE_TYPE *	N	2	01 - Area 02 - District
CODE *	C	6	03 - FR 00 - Code
SHT_DESC	C	15	
LONG_DESC	C	40	
SUB_CODE	C	6	Area Code for CODE TYPE 02 records

NOTES: '*' MEANS KEY-FIELDS

ENTITY NAME : SALE DOCUMENT
 TABLE NAME : SALE_DOC | TYPE TRANSACTION
 DESCRIPTION : RELEASE ORDER (RO) AND RELEASE ORDER CUM
 INVOICE CUM RECEIPT (ROCIR) SALES DETAILS

DATA ELEMENT		TYPE	SIZE	REMARKS
STATUS_CD		N	1	
OP_ID		C	14	
TSTMP		D	7	
POSTING_STATUS		N	1	
POSTING_TSTMP		D	7	
SMO_CD	*	C	2	
DOC_CD	*	N	2	32 - RO ; 82 - ROCIR
DOC_NO	*	N	6	RO/ROCIR Number
DOC_DATE		D	7	
WH_CD		N	4	Warehouse Code
CUST_CD		N	6	
DISTT_CD		N	2	
FR_CD		N	6	
CONS_NAME		C	40	Consignee Name
CONS_ADDR_LINE_1		C	30	Consignee Address
CONS_ADDR_LINE_2		C	30	
CONS_ADDR_LINE_3		C	30	
CONS_PIN_CD		N	6	

NOTES:

ENTITY NAME :			
TABLE NAME : SALE_DOC (sheet - 2)			
DESCRIPTION :			
DATA ELEMENT	TYPE	SIZE	REMARKS
PROD_CD	N	4	
QTY_MT	N	4	
QTY_KG	N	3	
NO_OF_BAGS	N	6	
AMT	N	14 (12+2)	ROCIR Amount
RMK	C	50	
INV_NO	N	6	For ROs to link with consolidated invoices.
INV_DATE	D	7	
AMT_PAID	N	14 (12+2)	For ROCIR only
CORRECT_AMT	N	14 (12+2)	For ROCIR only
INV_GRP_CD	N	2	
AMT_REC'D	N	14 (12+2)	
AMT_ADJUSTED	N	14 (12+2)	
ADJUST_SIGN	N	1	
UNIT_RATE	N	14 (12+2)	

ENTITY NAME : INVOICE
 TABLE NAME : INVOICE | TYPE TRANSACTION
 DESCRIPTION : FOR INFORMATION PERTAINING TO INVOICES
 GENERATED FROM RO

DATA ELEMENT		TYPE	SIZE	REMARKS
STATUS_CD		N	1	
OP_ID		C	14	
TSTMP		D	7	
POSTING_STATUS		N	1	
POSTING_TSTMP		D	7	
SMO_CD		C	2	
DOC_CD	*	N	2	81 for Invoice
DOC_NO	*	N	6	Invoice number
DOC_DATE	*	D	7	Invoice date
DUE_DATE		D	7	
RO_NO		N	6	
RO_DATE		D	7	
LC_NO		N	6	
LC_DATE		D	7	
INV_AMT		N	14 (12+2)	
AMT_PAID		N	14 (12+2)	
COMMIT_STATUS		C	1	
SYS_MANUAL		C	1	
OVERIDE_CD		N	1	

NOTES:

TABLE NAME : SALE_AMTS | TYPE TRANSACTION

DESCRIPTION : SALE AMOUNT INFORMATION FOR INVOICE
AND ROCIR AND SEVA KENDRA SUMMARY

DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
POSTING_STATUS	N	1	
POSTING_TSTMP	D	7	
SMO_CD	C	2	
DOC_CD *	N	2	81 - INVOICE 82 -ROCIR
DOC_NO *	N	6	84 - SK SUMMARY
DOC_DATE *	D	7	
ABBR_CD	C	4	
ACCT_NO	N	6	
SUB_ACCT_NO	N	4	
SL_CD	N	6	
DR_CR_IND	C	1	
AMT	N	14 (12+2)	
SHORT_NARR	C	25	AMOUNT DESC. (GLC DESC)
REF_DOC_CD	N	2	
REF_DOC_NO	N	6	
REF_DOC_DATE	D	7	
AMT_TYPE	N	2	01-Issue price 02-pre tax 03-Taxes 04-post tax
RATE	N	14 (12+2)	
SIGN	C	1	'+' OR '-'
RATE_IND	N	1	0 - AMOUNT 1 - PERCENTAGE
OVERIDE_CD	N	1	

NOTES:

ENTITY NAME : SALE CHANGE
 TABLE NAME : SALE_CHANGE : TYPE TRANSACTION
 DESCRIPTION : INFORMATION FOR RO CHANGES AND ROCIR CHANGES

DATA ELEMENT		TYPE	SIZE	REMARKS
STATUS_CD		N	1	
OP_ID		C	14	
TSTMP		D	7	
POSTING_STATUS		N	1	
POSTING_TSTMP		D	7	
SMO_CD		C	2	
DOC_CD	*	N	2	38-RO CHANGE 83-ROCIR CHANGE
DOC_NO	*	N	6	
DOC_DATE	*	D	7	
NEW_DISTT_CD		N	2	
REF_DOC_CD		N	2	DOC CODE OF ORIGINAL DOC
REF_DOC_NO		N	6	32-RO; 82-ROCIR
REF_DOC_DATE		D	7	
LST_CHG_NO		N	6	
LST_CHG_DATE		D	7	
CLR_CERT_NO		N	6	
CLR_CERT_DATE		D	7	
DOC_TYPE		C	2	'CH' FOR CHANGE 'CN' FOR CANCELLATION.
NEW_WH_CODE		N	4	
NEW_PROD_CD		N	4	
NEW_QTY_MT		N	4	
NEW_QTY_KG		N	3	
NEW_NO_OF_BAGS		N	6	
NEW_AMT		N	14	
			(12+2)	
RMK		C	50	REMARKS

NOTES:

ENTITY NAME : ROCIR RECEIPTS

TABLE NAME : ROCIR_RCPT | TYPE TRANSACTION

DESCRIPTION : RECEIPT INFORMATION OF ROCIR

DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
POSTING_STATUS	N	1	
POSTING_TSTMP	D	7	
SMO_CD	C	2	
DOC_CD *	N	2	82 - ROCIR
DOC_NO *	N	6	
DOC_DATE *	D	7	
ABBR_CD	C	4	
ACCT_NO	N	6	
SUB_ACCT_NO	N	4	
SL_CD	N	6	CUSTOMER CODE
DR_CR_IND	C	1	
AMT	N	14	
		(12+2)	
SHORT_NARR	C	25	
REF_DOC_CD	C	2	CH-CHEQUE DD-DRAFT
REF_DOC_NO	N	6	CHEQUE/DD NUMBER
REF_DOC_DATE	D	7	CHEQUE/DD DATE

NOTES :

ENTITY NAME : ROCIR ALLOCATION

TABLE NAME : ROCIR_ALLOC | TYPE TRANSACTION

DESCRIPTION : ROCIR ALLOCATED AMOUNT INFORMATION

DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
POSTING_STATUS	N	1	
POSTING_TSTMP	D	7	
SMO_CD	C	2	
DOC_CD *	N	2	82 ROCIR
DOC_NO *	N	6	
DOC_DATE *	D	7	
REF_DOC_CD	C	2	CHEQUE/DD ETC.
REF_DOC_NO	N	6	CHEQUE/DD NUMBER
REF_DOC_DATE	D	7	CHEQUE/DD NUMBER
AMT	N	14 (12+2)	
DR_CR_IND	C	1	
FLAG	N	1	

NOTES :

ENTITY NAME : SEVA KENDRA SUMMARY

TABLE NAME : SK_SUMRY : TYPE TRANSACTION

DESCRIPTION : INFORMATION PERTAINING TO SEVA KENDRA SUMMARY

DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
POSTING_STATUS	N	1	
POSTING_TSTMP	D	7	
SMO_CD	C	2	
DOC_CD *	N	2	
DOC_NO *	N	6	SK SUMMARY NO.
DOC_DATE	D	7	
SK_CD	N	4	SEVA KENDRA CODE
YR_MTH	N	6	(YYYYMM) FORMAT
TOT_SALES_VAL	N	14 (12+2)	
DISTT_CD	N	2	
PROD_CD	N	4	
ACCT_CD	N	6	
QTY_SALES	N	10 (7+3)	
RATE	N	14 (12+2)	
AMT	N	14 (12+2)	
CORRECT_AMT	N	14 (12+2)	
CASHMEMO_FROM	N	6	
CASHMEMO_TO	N	6	

NOTES:

ENTITY NAME : SEVA KENDRA SUMMARY

TABLE NAME : SK_SUMRY (PAGE-2) | TYPE TRANSACTION

DESCRIPTION : INFORMATION PERTAINING TO SEVA KENDRA
SUMMARY.

DATA ELEMENT	TYPE	SIZE	REMARKS
TOT_PAY_REC'D	N	14 (12+2)	
AMT_REC'D	N	14 (12+2)	
INV_GRP_CD	N	2	

NOTES:

ENTITY NAME : CUSTOMER MASTER

TABLE NAME : CUSTOMER | TYPE MASTER

DESCRIPTION : CUSTOMER MASTER

DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
LST_UPDT_TSTMP	D	7	
SL_TYPE	N	2	
CUST_CD *	N	6	
CUST_NAME	C	40	
CUST_SHT_NAME	C	15	
ADDR_LINE_1	C	30	
ADDR_LINE_2	C	30	
ADDR_LINE_3	C	30	
PIN_CD	N	6	
ADDR2_LINE_1	C	30	
ADDR2_LINE_2	C	30	
ADDR2_LINE_3	C	30	
PIN2_CD	N	6	
TEL	C	20	
TLX	C	20	
FAX	C	20	
CR_DAYS_GRP_CD	N	2	For Invoice due date
INV_GRP_CD	N	2	For Invoice Parameters
CUR_BAL	N	14 (12+2)	CURRENT BALANCE
DISTT_CD	N	2	
DR_CR_IND	C	1	

NOTES:

ENTITY NAME	: CUSTOMER BALANCE		
TABLE NAME	: CUSTOMER_BAL	:	TYPE MASTER
DESCRIPTION	: CUSTOMER BALANCE AT START UP OF SYSTEM AND REGULAR UPDATION BY TRANSACTIONS		
DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
LST_UPDT_TSTMP	D	7	
ARC_CD	N	4	
ACCT_NO	*	N	6
SL_CD	*	N	6
			CUSTOMER CODE
REC_TYPE	N	1	0 OPENING BAL RECORD 1 NORMAL RECORD
ACCT_PERD	N	6	YYYYMM
DR_AMT	N	14 (12+2)	BALANCE FOR TYPE 0 REC.
CR_AMT	N	14 (12+2)	
NOTES:			

ENTITY NAME : PRODUCT MASTER			
TABLE NAME : PRODUCT		: TYPE MASTER	
DESCRIPTION : PRODUCT MASTER			
DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
PROD_CD *	N	4	
PROD_NAME	C	40	
PROD_SHT_NAME	C	15	
STD_UOM	C	3	STANDARD UNIT OF MEASURE
STOCK_UOM	C	3	
SALES_UOM	C	3	
CF_STOCK_UOM	N	7	CONVERSION FACTOR
		(4+3)	
CF_SALES_UOM	N	7	CONVERSION FACTOR
		(4+3)	
UNIT_DESC	C	6	
NOTES:			

ENTITY NAME : WAREHOUSE MASTER

TABLE NAME : WAREHOUSE | TYPE MASTER

DESCRIPTION : WAREHOUSE MASTER

DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
SL_TYPE	N	2	
WH_CD *	N	4	
WH_NAME	C	40	
WH_SHT-NAME	C	15	
ADDR_LINE_1	C	30	
ADDR_LINE_2	C	30	
ADDR_LINE_3	C	30	
PIN_CD	N	6	

NOTES:

ENTITY NAME	:	DOCUMENT CONTROL		
TABLE NAME	:	DOC_CONTROL	:	TYPE MASTER
DESCRIPTION	:	CONTAINS INFORMATION OF EVERY TYPE OF DOCUMENT ENTERED MAINLY USED FOR GENERATING INVOICE NUMBERS		
MAX REC SIZE	:	95 CHARS	:	MAX POP :40
			:	RETENTION
DATA ELEMENT		TYPE	SIZE	REMARKS
STATUS_CD		N	1	
OP_ID		C	14	
TSTMP		D	7	
LST_UPDT_TSTMP		D	7	
DOC_CD	*	N	2	
SEASON_CD	*	N	2	
ABBR_DESC		C	3	MNEMONIC DOCUMENT NAME
LONG_DESC		C	40	
LST_DOC_NO		N	6	
LST_DOC_DATE		D	7	
ACCT_NO		N	6	MAJOR ACCOUNT NO FOR DOCUMENT
ACCT_NO_2		N	6	
NOTES:				

ENTITY NAME	:	SALES ANALYSIS		
TABLE NAME	:	SALES_ ANALYSIS	:	TYPE MASTER
DESCRIPTION	:	SALES TARGETS FOR DISTRICTS, AREAS & FR's AND ACTUAL SALES		
DATA ELEMENT		TYPE	SIZE	REMARKS
STATUS_CD		N	1	
OP_ID		C	14	
TSTMP		D	7	
LST_UPDT_TSTMP		D	7	
CODE_TYPE	*	N	2	01-DIST 02-FR 03-ECA
CODE	*	N	6	DISTRICT/FR CODE
SUB_CODE	*	N	6	DIST CODE FOR CODE TYPE 02 REC.
PROD_CD	*	N	4	
YR_MTH	*	N	6	
TGT_SALES_QTY		N	10 (7+3)	
ACT_SALES_QTY		N	10 (7+3)	
NOTES:				

ENTITY NAME	:	CREDIT DAYS			
TABLE NAME	:	CR_DAYS	:	TYPE MASTER	
DESCRIPTION	:	INFORMATION ON CREDIT DAYS GROUPS AND PRODUCT WITH VALID FROM DATES			
DATA ELEMENT		TYPE	SIZE	REMARKS	
STATUS_CD		N	1		
OP_ID		C	14		
TSTMP		D	7		
CR_DAYS_GRP_CD	*	N	2		
PROD_CD	*	N	4		
VALID_FROM_DATE	*			D	7
CR_DAYS		N	4		
LIFTING_PERIOD		N	3		
NOTES:					

ENTITY NAME : SEASON MASTER

TABLE NAME : SEASONS | TYPE MASTER

DESCRIPTION : SEASONS START DATE AND END DATE

DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
SEASON_CD *	N	2	
SEASON_DESC	C	40	
SEASON_SHT_DESC	C	15	
START_DATE	D	7	
END_DATE	D	7	
START_DATE_2	D	7	
END_DATE_2	D	7	
START_DATE_3	D	7	
END_DATE_3	D	7	

NOTES :

ENTITY NAME				: ABBREVIATED ACCOUNT CODES
TABLE NAME		: ABBR_AC_CODES	: TYPE MASTER	
DESCRIPTION				: ABBREVIATED ACCOUNT CODES FOR MAIN ACCOUNT CODES & SUB ACCOUNT CODES
DATA ELEMENT		TYPE	SIZE	REMARKS
STATUS_CD		N	1	
OP_ID		C	14	
TSTMP		D	7	
ABBR_CD	*	C	4	
ACCT_NO		N	6	
SUB_ACCT_NO		N	4	
NOTES:				

ENTITY NAME	:	SYSTEM PARAMETERS				
TABLE NAME	:	SYS_PARAMS	:	TYPE PARAMETERS		
DESCRIPTION	:	SYSTEM PARAMETERS				
DATA ELEMENT	:	TYPE	:	SIZE	:	REMARKS
STATUS_CD	:	N	:	1	:	
OP_ID	:	C	:	14	:	
TSTMP	:	D	:	7	:	
CO_NAME	:	C	:	40	:	COMPANY NAME
ARC_CD	:	N	:	4	:	
SMO_CD	:	C	:	2	:	
FIN_YR_BEG	:	N	:	6	:	YYYYMM
FIN_YR_END	:	N	:	6	:	YYYYMM
CURR_MTH	:	N	:	6	:	YYYYMM
SMO_NAME	:	C	:	40	:	
SMO_SHT_NAME	:	C	:	15	:	
MAX_CR_PERIOD	:	N	:	3	:	
ROUND_OFF_AMT	:	N	:	5	:	
	:		:	(3+2)	:	
SYS_START_DATE	:	D	:	7	:	
CUST_ACCT	:	N	:	6	:	
NOTES: Single record						

ENTITY NAME	:	REPORT PARAMTERS		
TABLE NAME	:	REP_PARAMS	:	TYPE PARAMETERS
DESCRIPTION	:	REPORT PARAMTERS		
DATA ELEMENT	:	TYPE	:	SIZE
STATUS_CD	:	N	:	1
OP_ID	:	C	:	14
TSTMP	:	D	:	7
REP_ID *	:	C	:	6
REP_START_DATE *	:	D	:	7
REP_END_DATE *	:	D	:	7
ACCT_NO	:	N	:	6
SUB_ACCT_NO	:	N	:	5
DOC_CD	:	N	:	2
START_CODE	:	C	:	6
END_CODE	:	C	:	6
REP_MONTH	:	N	:	6
INVOICE_NO	:	N	:	6
INV_DATE	:	D	:	7
NOTES:				

ENTITY NAME : INVOICE PARAMETERS

TABLE NAME : INV_PARAMS : TYPE PARAMETERS

DESCRIPTION : INVOICE PARAMETERS FOR GENERATING INVOICE

DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
DOC_CD	N	2	81 INV 82 ROCIR 84 SK SUM.
PROD_CD *	N	4	
INV_GRP_CD *	N	2	
VALID_FROM_DATE *	D	7	
AMT_TYPE	N	2	1 ISS. PRICE 2 PRE TAX 3 TAX 4 AFTER TAX
ACCT_NO	N	6	
AMT_DESC	C	35	
RATE_IND	N	1	0 AMOUNT 1 PERCENTAGE
UNIT_RATE	N	14 (12+2)	
SIGN	C	1	
SL_NO	N	2	
BASE_CD	N	2	
BASE_IND	C	1	

NOTES:

ENTITY NAME	:	ACCOUNT MASTER			
TABLE NAME	:	ACCOUNT_MASTER	:	TYPE	
DESCRIPTION	:	THIS HAS ACCOUNT CODES WITH DESCRIPTION AND ATTRIBUTES USED IN SMO SYSTEM. IT BASICALLY CONTAINS CHART OF ACCOUNTS OF KRIBHCO.			
DATA ELEMENT	:	TYPE	:	SIZE	REMARKS
STATUS_CD		N		1	
OP_ID		C		14	
TSTMP		D		7	
ACCT_NO	*	N		6	ACCOUNT NUMBER
SUB_ACCT_NO	*	N		4	SUB ACCOUNT NUMBER (FOR FUTURE USE)
SHT_DESC		C		15	SHORT DESCRIPTION
LONG_DESC		C		40	LONG DESCRIPTION
SL_TYPE		N		2	SUB LEDGER TYPE
CASHBANK_IND		C		2	CASH/BANK INDICATOR (CA-CASH, BK-BANK)
ACCT_TYPE		C		2	ACCOUNT TYPE
NOTES: '*' MEANS KEY-FIELDS					

ENTITY NAME	:	ACCOUNT BALANCE		
TABLE NAME	:	ACCOUNT_BAL	:	TYPE MASTER
DESCRIPTION	:	THIS TABLE CONTAINS MONTHWISE DEBIT/CREDIT TOTALS FOR EACH ACCOUNT		
DATA ELEMENT		TYPE	SIZE	REMARKS
STATUS_CD		N	1	
OP_ID		C	14	
TSTMP		D	7	
ACCT_NO	*	N	6	
SUB_ACCT_NO	*	N	4	NOT USED CURRENTLY
SL_CD	*	N	6	SUB LEDGER CODE
REC_TYPE		N	1	1- OP. BAL, 2 - NORMAL
ACCT_PERD		N	6	YYYYMM
DR_AMT		N	14	DEBIT TOTAL(12,2) (BALANCE FOR 0 TYPE)
CR_AMT		N	14	CREDIT AMOUNT(12,2) (BALANCE FOR 0 TYPE)
NOTES: '*' MEANS KEY-FIELDS				

ENTITY NAME	:	SUBSIDIARY LEDGER CODES				
TABLE NAME	:	SUB_LEDGER	:	TYPE MASTER		
DESCRIPTION	:	THIS TABLE CONTAINS CODES FOR EACH SUBSIDIARY LEDGER TYPE MENTIONED IN ACCOUNT MASTER				
DATA ELEMENT	:	TYPE	:	SIZE	:	REMARKS
STATUS_CD	:	N	:	1	:	
OP_ID	:	C	:	14	:	
TSTMP	:	D	:	7	:	
SL_TYPE	:	N	:	2	:	TYPE OF SLC (EMPLOYEES) CODE TO IDENTIFY THE SUB LEDGER ACCOUNT
SL_CD	:	N	:	6	:	
SHT_DESC	:	C	:	15	:	
LONG_DESC	:	C	:	40	:	
NOTES: '*' MEANS KEY-FIELDS						

ENTITY NAME	:	ABBREVIATED CODES		
TABLE NAME	:	ABRV_CODES	:	TYPE MASTER
DESCRIPTION	:	THIS TABLE CONTAINS ABBREVIATED CODE FOR ACCOUNT CODES(FREQUENTLY USED) FOR EASE OF DATA ENTRY		
DATA ELEMENT	:	TYPE	SIZE	REMARKS
STATUS_CD	:	N	1	
OP_ID	:	C	14	
TSTMP	:	D	7	
ABRV_CD	*	C	4	
ACCT_NO	*	N	6	ACCOUNT CODE
SUB_ACCT_NO		N	4	SUB ACCOUNT CODE (FOR FUTURE USE)
NOTES: '*' MEANS KEY-FIELDS				

ENTITY NAME : G L TRANSACTION HEADER

TABLE NAME : GL_TXN_HDR | TYPE TRANSACTION

DESCRIPTION : STORES HEADER INFORMATION FOR ALL ACCOUNTING
TRANSACTIONS (RECEIPT, PAYMENT, JV, DR/CR NOTES)

DATA ELEMENT		TYPE	SIZE	REMARKS
STATUS_CD		N	1	
OP_ID		C	14	
TSTMP		D	7	
PSTG_STATUS		N	1	
PSTG_TSTMP		D	7	
DOC_CD	*	N	2	IDENTIFIES TYPE OF DOC.
DOC_NO	*	N	6	SERIAL NO. OF DOCUMENT
DOC_DATE	*	D	7	DOC. DATE
DOC_GLC		C	4	ABBREV. CODE OF GL A/C LINKED TO THIS DOCUMENT
DOC_AMT		N	14 (12,2)	AMOUNT OF THE DOCUMENT
NARR		C	60	NARRATION OF THE DOC.
CODE		N	6	

NOTES: '*' MEANS KEY-FIELDS

ENTITY NAME : G L TRANSACTION DETAIL				
TABLE NAME : GL_TXN_DTL TYPE TRANSACTION				
DESCRIPTION : STORES DETAIL INFORMATION FOR ALL ACCOUNTING TRANSACTIONS (RECEIPT, PAYMENT, JV, DR/CR NOTES)				
DATA ELEMENT		TYPE	SIZE	REMARKS
STATUS_CD		N	1	
OP_ID		C	14	
TSTMP		D	7	
PSTG_STATUS		N	1	
PSTG_TSTMP		D	7	
DOC_CD	*	N	2	IDENTIFIES TYPE OF DOC.
DOC_NO	*	N	6	SERIAL NO. OF DOCUMENT
DOC_DATE	*	D	7	DOC. DATE
ABBR_CD		C	4	ABBREV. CODE OF GL A/C LINKED TO THIS DOCUMENT
ACCT_NO		N	6	ACCOUNT CODE TO BE DEBITED/CREDITED
SUB_ACCT_NO		N	4	SUB ACCOUNT NO.
SL_CD		N	6	SUB LEDGER CODE
DC_IND		C	1	DR/CR INDICATOR
AMT		N	14 (12,2)	TRANSACTION AMOUNT TO BE DEBITED/CREDITED
SHT_NARR		C	25	PARTICULARS
REF_DOC_CD		C	2	DOC CODE/CH/DD/AD/OA
REF_DOC_NO		N	6	
REF_DOC_DATE		D	7	
NOTES: '*' MEANS KEY-FIELDS				

ENTITY NAME : PAY-IN-SLIP HEADER
 TABLE NAME : PAY_SLIP_HDR | TYPE TRANSACTION
 DESCRIPTION : STORES HEADER INFORMATION FOR
 BANK PAY-IN-SLIP

DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
PSTG_STATUS	N	1	
PSTG_TSTMP	D	7	
DOC_CD *	N	2	IDENTIFIES TYPE OF DOC.
DOC_NO *	N	6	SERIAL NO. OF DOCUMENT
DOC_DATE *	D	7	DOC. DATE
CONS_DD_NO	C	8	CONSOLIDATED DD NUMBER
AMOUNT	N	14	CONSOLIDATED DD AMOUNT
DEP_BANK_CD	C	(12,2) 4	ABBREVIATED BANK CODE
FR_CODE	N	6	
CONS_DD_DATE	D	7	
DEP_BANK_AC_NO	C	6	

NOTES: '*' MEANS KEY-FIELDS

ENTITY NAME	:	PAY-IN-SLIP DETAIL		
TABLE NAME	:	PAY_SLIP_DTL	:	TYPE TRANSACTION
DESCRIPTION	:	STORES DETAIL INFORMATION FOR BANK PAY-IN-SLIPS		
DATA ELEMENT		TYPE	SIZE	REMARKS
STATUS_CD		N	1	
OP_ID		C	14	
TSTMP		D	7	
PSTG_STATUS		N	1	
PSTG_TSTMP		D	7	
DOC_CD	*	N	2	IDENTIFIES TYPE OF DOC. SERIAL NO. OF DOCUMENT DOC. DATE
DOC_NO	**	N	6	
DOC_DATE	*	D	7	
CHQ_TYPE		C	2	
CHQ_NO		C	4	CHEQUE/PAY ORDER NO. CHEQUE/PAY OREDER DATE AMOUNT DEPOSITED
CHQ_DATE		D	7	
CHQ_AMT		N	14	
			(12,2)	
CUST_CD		N	6	CUSTOMER FROM WHOM THE CHEQUE HAS BEEN RECEIVED
REF_DOC_CD		C	2	REF. DOC.(ROCIR/INV.)
REF_DOC_NO		N	6	
REF_DOC_DATE		D	7	
NOTES: '*' MEANS KEY-FIELDS				

ENTITY NAME	:	PRE-PAID ADVICE HEADER		
TABLE NAME	:	PRE_PAID_HDR	:	TYPE TRANSACTION
DESCRIPTION	:	STORES HEADER INFORMATION FOR PRE-PAID ADV.		

DATA ELEMENT		TYPE	SIZE	REMARKS

STATUS_CD		N	1	
OP_ID		C	14	
TSTMP		D	7	
PSTG_STATUS		N	1	
PSTG_TSTMP		D	7	
DOC_CD	*	N	2	IDENTIFIES TYPE OF DOC. SERIAL NO. OF DOCUMENT DOC. DATE
DOC_NO	*	N	6	
DOC_DATE	*	D	7	
PREPAID_AMT		N	14 (12,2)	
CUST_CD		N	6	CUSTOMER CODE
FR_CD		N	6	FR CODE
SK_CD		N	6	SEVA KENDRA CODE FROM WHERE MATERIAL IS ISSUED
DISTT_CD		N	2	
CHQ_NO		C	8	
CHQ_DATE		D	7	
REF_DOC_CD		N	2	(PAY-IN-SLIP)
REF_DOC_NO		N	6	
REF_DOC_DATE		D	7	

NOTES: '*' MEANS KEY-FIELDS				

ENTITY NAME	:	PRE-PAID ADVICE DETAIL		
TABLE NAME	:	PRE_PAID_DTL	:	TYPE TRANSACTION
DESCRIPTION	:	STORES DETAIL INFORMATION FOR PRE-PAID ADV.		
MAX REC SIZE :		MAX POP :	RETENTION 24 MONTHS	
DATA ELEMENT		TYPE	SIZE	REMARKS
STATUS_CD		N	1	
OP_ID		C	14	
TSTMP		D	7	
PSTG_STATUS		N	1	
PSTG_TSTMP		D	7	
DOC_CD	*	N	2	IDENTIFIES TYPE OF DOC. SERIAL NO. OF DOCUMENT DOC. DATE
DOC_NO	*	N	6	
DOC_DATE	*	D	7	
CASHMEMO_NO		N	6	
CASHMEMO_DATE		D	7	
PROD_CD		N	4	PRODUCT CODE
QTY_SALE		N	10	
VALUE_SALE		N	14	
NOTES: '*' MEANS KEY-FIELDS				

ENTITY NAME : TRANSACTION DETAILS

TABLE NAME : VOUCHER_DTL | TYPE TRANSACTION

DESCRIPTION : STORES DETAIL INFORMATION FOR ALL TRANSACTION
(RO,ROCIR,RECEIPT,PAYMENT,JV,DR/CR NOTES,
SK Summary,Pre paid,Pay in slip)

DATA ELEMENT	TYPE	SIZE	REMARKS
STATUS_CD	N	1	
OP_ID	C	14	
TSTMP	D	7	
SMO_CD	C	2	
DOC_CD	N	2	IDENTIFIES TYPE OF DOC.
DOC_NO	N	6	SERIAL NO. OF DOCUMENT
DOC_DATE	D	7	DOC. DATE
FR_CD	N	6	
PROD_CD	N	4	
QTY_MT	N	4	
QTY_KG	N	3	
INV_GRP_CD	N	2	
ABBR_CD	C	4	ABBREV. CODE OF GL A/C LINKED TO THIS DOCUMENT
ACCT_NO	N	6	ACCOUNT CODE TO BE DEBITED/CREDITED
SUB_ACCT_NO	N	4	SUB ACCOUNT NO.
SL_CD	N	6	SUB LEDGER CODE
DR_CR_IND	C	1	DR/CR INDICATOR
AMT	N	14 (12,2)	TRANSACTION AMOUNT TO BE DEBITED/CREDITED
SHT_NARR	C	25	PARTICULARS
REF_DOC_CD	C	2	DOC CODE/CH/DD
REF_DOC_NO	N	6	
REF_DOC_DATE	D	7	

NOTES: '*' MEANS KEY-FIELDS

Status Code updation in master and transaction files

The general guidelines for updating the status code in the tables is described below. The status codes are codified as follows :

- 0 - Active Record which is under use
- 1 - Suspended transaction or master record
(Eg: Customer transaction temporarily stopped)
- 2 - Cancelled (Cancelled Invoice, Release Order, etc.)
- 3 - Updated record
- 4 - Invoiced & not printed (for control purpose)
- 5 - Invoiced and printed (status check)
- 9 - Logically deleted

Every transaction screen or master screen updates the following information in the base tables or other tables accessed by the screen.

- Operator Id (OP_ID) - Usercode of the person initiating the screen
- Time Stamp (TSTMP) - date and time when the record was entered or updated(SYSDATE)
- Status Code(STATUS_CD) - As appropriate
- Last Update Time Stamp(LAST_UPDT_TSTMP)
- Posting Status(POST_STATUS) - for transaction files
(0 - unposted, 1 - posted)
- Posting Time stamp(POST_TSTMP) - Date and time of posting(SYSDATE)

CONCLUSION AND REMARKS

The analysis , design , development and testing of the KTRIBCO SMO Project involving the computerisation of invoicing, sales analysis, accounts receivables , payroll and general ledger is complete. The invoicing, sales analysis and payroll modules of the system have gone live in the states of Punjab, Haryana and Maharashtra. The Accounts Receivables and General Ledger module have gone for implementation in Gujarat and Maharashtra. The last site for implementation will be Lucknow where preliminary preparations like master entry is still going on.

No performance problems have been encountered in these states so far and none are anticipated for the remaining modules in other states. This can be attributed to the thorough testing done in the test phase with the view of proving the system wrong than proving it right.

For the convenience of whosoever does the maintenance , an effort has been done to provide a very thorough documentation for all the phases, namely analysis , design and development.

The author found the testing phase most fruitful in experience since appropriate exposure to client was available in this phase. Besides the problems faced in this phase provided a better insight to the sort of problems that can crop up in the development cycle of the system and their possible solutions.

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