

# BONDS PAYABLE SYSTEM

*by*

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# Bonds Payable System

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## **Overview**

The *Bonds Payable System* is a product of Investment Systems Company, a computer software firm specializing in providing superior software services to the financial community. The software is being offered as a package to organizations which issue bonds and need to track them from issuance to maturity.

System features include automatic generation of almost all transactions. Interest accruals and payments, amortization and appreciation adjustments, prorata redemptions, maturities at sinking dates and final maturities are generated by the system. Historical reports can be printed for any time period requested. Debt Service reports are available for the life of an issue or for particular pay periods across issues. Valuation reports can be printed for the current position or at any point in the future based on the pending redemptions and maturities.

The entire system is menu-driven and provides full on-line inquiry to the bonds database. Data entry is also an on-line function and all data elements are fully edited before being posted to the system. The software is written in COBOL and runs on the IBM AS/400.

General Ledger transactions can be generated from each transaction posted to the system. This reduces the amount of data entry and eliminates any keying mistakes. A general ledger file or table is used to cross reference the type of transaction with the appropriate debit and credit accounts.

Samples of each of the menus used in the system can be found in Appendix A. The system is described in more detail in the following pages.

## **File Structures**

### **Accounts**

The accounts on the system correspond to an issue. The account should be at the level for which one portfolio can be viewed. Accounts can be consolidated for reporting in order to see an issue which had been subdivided into multiple accounts as one portfolio.

### **Securities**

Securities define a particular bond. A security is defined for each maturity date and rate. One security may have many sinking fund dates. Each security is owned by one account.

### **Positions**

The positions define the amount of a security issued and outstanding by an account. Non-sinking fund bonds will have one position per security. Bonds with sinking funds have one position (lot) for each sinking fund date and one position for the final maturity date. The total of these lots equals the total issued for the bond.

### **Pending Transactions**

The Corporate Action file contains the pending transactions generated by the system. When the Issue Bond transaction is entered into the system, either a maturity or sinking fund transaction is generated for the appropriate date. It resides on the corporate action file until that date is reached. Then the sinking fund or maturity transaction is automatically generated which reduces the outstanding position of that bond. In addition to the system generated pending transactions, redemptions for each call are entered onto the pending file to be processed on the date specified.

### **Example**

A single family bond issuance was issued on January 1, 1990. It consists of a serial bond that matures on March 1, 1999, March 1, 2000 and March 1, 2001 and a term bond that matures on March 1, 2001 with three sinking dates. One account number is created that defines the issue. Four securities are set up; one for each of the three maturity dates for the serial bond and one for the term bond. The three serial bonds have one position record for each bond with the maturity date as the ending date. The position balance equals the amount of the total issuance for the bond. The term bond has three lots with the sinking dates as the ending dates and a fourth lot with the maturity date as the ending date. The total of the four lots equals the amount of the total issuance for the bond.

## **Inquiry**

### **Description**

The Inquiry function provides full on-line access to your files. This often can replace the need for hard copy reports. Inquiry can in the form of lists or can display all the data about one particular record. Inquiry for the position file shows both the current and last month end outstanding par value, book value, the total amount accreted or amortized, the original issue amount and the number of bonds if appropriate.

By using the Future Processing Menu, inquiry can be run for positions at any date in the future. This shows the position after any redemptions, maturities or sinking fund transactions through a specified date in the future.

Transactions on the history file can be viewed in order to review the activity affecting a particular bond or an account.

The interest file inquiry shows the amount of interest accrued and paid for each pay date for each bond.

Appendix B contains samples of Inquiry screens.

## **Data Entry**

### **Description**

The manual transaction entry program is used to enter the original Issue Bond transactions. Each sinking fund date is entered as a separate issue transaction. This issue transaction both creates the original position for the bond and generates the pending transaction for either the sinking fund date or maturity date.

All other transactions used by the system can be entered manually using the transaction entry program. However, these transactions are typically generated by the system to reduce the data entry process.

### **Pending Transactions**

The sinking fund and maturity transactions are automatically generated by the system as described above. Redemption (call) transactions must be entered into the pending file. These are entered based on a date and security. They can be specified as a direct redemption in which case the actual lot must be identified by sinking date. Otherwise, they can generate redemptions based on either a LIFO method or prorata method. These two methods will result in multiple lots (sinking dates) being called.

### **Interest Transactions**

Interest accruals are automatically generated, usually on a monthly schedule. On pay dates, a program is run which generates the actual interest payment. This amount equals the total accrued for that particular pay date.

### **Appreciation/Amortization Transactions**

The system automatically generates appreciation and amortization adjustment transactions for bonds coded as needing those types of adjustment. An accretion table is entered for each bond that accretes. This per bond amount is used to determine the amount of adjustment for accretion transactions. Amortization amounts are computed based on the yield to maturity for the bond. The level yield method is used for computing amortization. Note that the original cost for the bond can always be computed.

Appendix C contains samples of Transaction screens.

## **File Maintenance**

### **Description**

File updates are processed both on-line and in a batch mode. The reference files, such as the account file, security file and table file, are updated completely on-line. The balances on the position file can only be updated by processing a transaction. Requiring a transaction to update a position insures that a complete audit trail is maintained. Transactions which affect the holdings are processed in a combination of on-line and batch modes. Any transaction that does not do a complete on-line update will memo post to the file, insuring that an accurate position is maintained at all times. All changes to the master files are fully edited before the files are actually updated. Descriptive error messages are displayed on the screen if errors are encountered during the update process.

### **Table File**

The table file provides a flexible way of maintaining a variety of information used during system processing. Sample tables are transaction codes, security subtypes, group codes and error messages. The on-line updating of the file allows changes to be made by the user without the need for programmer intervention

Appendix D contains samples of File Maintenance screens.

## **Reports**

### **Description**

There are three basic types of reports available from the system. The first type is a listing which is a hard copy showing the requested file. The second type is a regular report where information from many files is sorted and processed in a particular format. Samples of these types of reports are debt service schedules and call history reports. The third type consists of reports which are generated from batch processes such as posting, interest processing and amortization/accretion.

### **Options**

Report options include selection by account number, by range of dates or by security number. These options are entered by the user when reports are selected. All reports except those generated by a batch posting process can be run on the Job Queue which allows your terminal to remain free for use while the report is running.

### **File Downloads**

Several reports generate a file in addition to the printed report. These files can then be downloaded to a PC or integrated with other data in order to print reports which contain data from multiple systems. This is often necessary for disclosure type reporting where data from several software packages must be printed in one report.

Appendix E contains samples of listings and reports.

## **Future Processing**

### **Description**

It is sometimes desirable to view the actual lots that will be called by prorata or LIFO type redemptions. In addition, it may be necessary to produce valuation reports for a date in the future. In order to be able to process for a future date, a future processing subsystem is provided. Files are copied for the account or individual bond to be viewed. Then the pending transactions can actually be generated and posting through whatever date in the future is desired. Once the transactions for that date have posted, reports can be run showing the bonds outstanding at that particular date.

This method allows changes to be made to the pending redemptions in case specific bonds are being called. The process can be rerun as many times as necessary since the production files are not being updated. All reports can be run based on these future files.

## Main Menu

```

MAMENU                                BONDS PAYABLE SYSTEM                                3/12/96
                                        Demonstration System                            15:23:58
                                        Main Menu                                    QSECOFR

Select one of the following:
  1. Set Todays Date  ** Run first every day

  35. Utility Menu
  36. Corporate Action Menu
  37. Interest Menu

  40. Month End Menu
  42. Trustee Interface Menu
  44. General Ledger History Menu
  45. Future Processing Menu

  30. Main Menu
  33. File Maintenance Menu
  Selection or command
  ==> 31_____

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel
F13=Information Assistant  F16=System main menu

```

**Figure 1**

The Main Menu is used to access the other individual menus used by the system. The only exception is the first option which is used to set the current date on the Bonds Payable System. This date file allows the software to be independent from the system date on the computer. It also indicates whether the day is a business day or not which is sometimes needed for interest accruals.

## Inquiry Menu

```
INMENU                                BONDS PAYABLE SYSTEM                                3/12/96
                                        Demonstration System                            15:24:37
                                        Inquiry Menu                                QSECOFR

Select one of the following:
  1. Security File                                10. Closed Inventory File
  2. Account File
  3. Table File
  4. History File
  5. Holdings Files
  6. Date File
  7. Interest File
  8. Long Table File
  9. AA, IA Transaction File                    20. More Files...

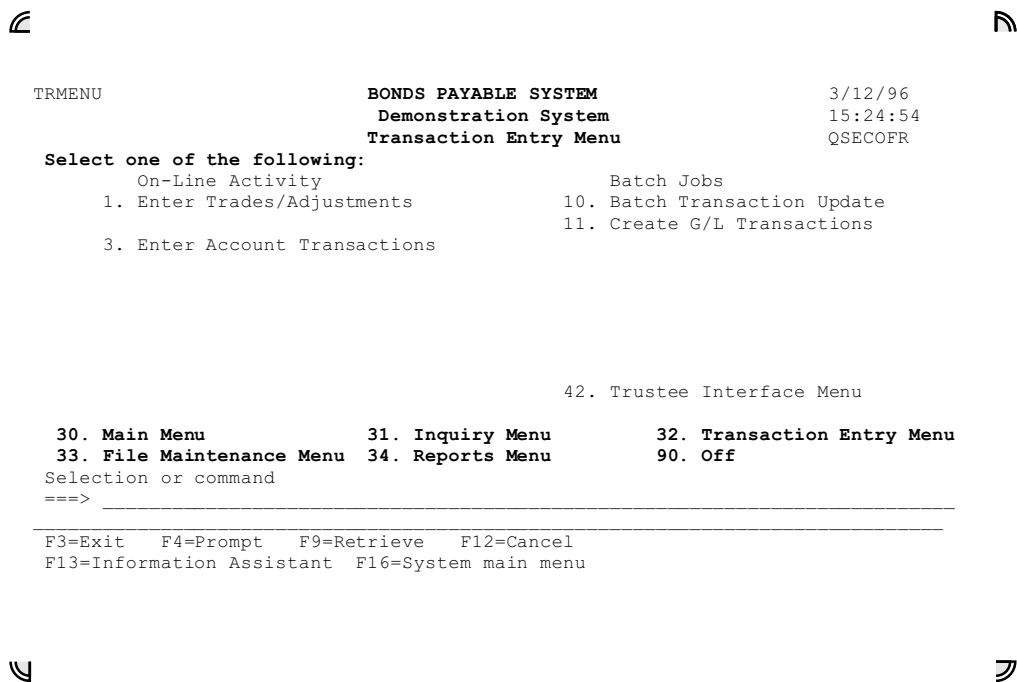
30. Main Menu                                31. Inquiry Menu                                32. Transaction Entry Menu
33. File Maintenance Menu                    34. Reports Menu                                90. Off
Selection or command
===>

-----
F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel
F13=Information Assistant   F16=System main menu
```

**Figure 2**

The Inquiry Menu provides immediate access for viewing the data contained in each file listed. Once the process is started, a selection option screen is displayed to allow the user to specify the type of inquiry, such as a short listing or detailed display, as well as to enter data for identifying which records should be displayed.

## Transaction Entry Menu



**Figure 3**

The Transaction Entry Menu is used to enter data into the system. There are two major sections to Data Entry. The first section, options 1 through 3, is the data entry programs. These programs allow the data to be entered and edited, to update the files and to generate the transactions. Any transactions which do not update the system in real time are memo-posted.

The second section consists of batch jobs. The first is the Batch Update, which completes the update process and writes the transactions to the History file. The other batch job generates General Ledger transactions for interfacing to a G/L package.

## File Maintenance Menu

```

      ⤵                                           ⤴

FIMENU                                BONDS PAYABLE SYSTEM                    3/12/96
                                      Demonstration System                15:25:00
                                      File Maintenance Menu                QSECOFR

Select one of the following:
      On-line Updating                                Batch Updating
  1. Security File                               10. Company File                20. Month End Processing
  2. Account File
  3. Table File
  4. History File
  5. Holdings Files
  6. Date File
  7. Long Table File
  8. AA, IA Txn File
  9. Accretion Table

                                         22. Set Yield on Lots

                                         25. Add new dates

30. Main Menu                               31. Inquiry Menu                   32. Transaction Entry Menu
33. File Maintenance Menu                   34. Reports Menu                   90. Off
Selection or command
====>
-----
F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel
F13=Information Assistant  F16=System main menu

      ⤵                                           ⤴
```

Figure 4

The File Maintenance Menu starts the programs used to update the reference files. The files on the left-hand side of the screen are updated in an on-line mode. In all cases, a verification screen is displayed prior to actually updating the record allowing you to review the data first. Note that the Holdings Files can only be updated for fields such as yield to maturity. Position amounts on the Holdings File must be updated using transactions in order to maintain complete audit trails.

The programs on the right hand side of the screen run in a batch mode. Month end processing runs a series of programs including generating amortization and appreciation adjustments and rolling current balances to last month end positions.

## Report Menu

```
REMENU                                BONDS PAYABLE SYSTEM          3/12/96
                                       Demonstration System          15:25:11
                                       Report Menu                  QSECOFR

Select one of the following:
    Listings                          Reports
  1. Security File                      10. Regular Reports
  2. Account File
  3. Table File
  4. History File
  5. Holdings Files
  6. Closed Inventory File
  7. Long Table File
  8. Interest File
  9. More Files...

30. Main Menu                          31. Inquiry Menu              32. Transaction Entry Menu
33. File Maintenance Menu             34. Reports Menu              90. Off
Selection or command
====>

-----
F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel
F13=Information Assistant   F16=System main menu
```

Figure 5

The Report Menu is used to print listings of files or a variety of reports. All the listings can be run either interactively or in batch which frees up the terminal for other work. Listings are actually hard copy reports of each file, similar to the inquiry for a file. The listing jobs provide a screen for requesting ranges in case only a portion of the file is to be printed as well as to specify how the listing should be displayed, e.g., simple or detailed or with a specific sort.

The job started under the reports column produces reports which are more than just file listings. These reports are the client reports and back office reports. Up to ten reports can be run at once. After selecting the reports, a variety of sorting and selection options are displayed, depending upon the reports to be produced. Multiple accounts can be selected at the same time using either ranges or multiple entries of individual account numbers.

Sample reports are shown in Appendix E.

### Lot Position Detail Inquiry

|                        |                             |                 |                     |
|------------------------|-----------------------------|-----------------|---------------------|
| IFM030-6               | PORTFOLIO ACCOUNTING SYSTEM | 1/31/95         |                     |
|                        | <b>Lot Record Display</b>   | 16:00:00        |                     |
| Act Nbr: 90F           | 1994 SINGLE FAMILY          |                 |                     |
| CUSIP: IHA06           | 1990 SERIES F-2 CAP APR 6.9 |                 |                     |
|                        | 7/01/2002 6.90000           |                 |                     |
| Trade Date: 12/01/1990 | Settle Date: 12/19/1990     |                 |                     |
| Rcd Nbr: 950020038     | Sink/Mtry: 1/01/1999        |                 |                     |
| Number of Bonds: 337   |                             |                 |                     |
|                        | Quantity                    | Unit Cost       | Book Value          |
|                        |                             | Price           | Market_Value        |
| Current Month:         | 337,000.000                 | 95.21690        | 320,881.09          |
|                        |                             | 100.00000 *     | 337,000.00          |
| Last Month:            | 345,000.000                 | 57.98630        | 200,053.02          |
|                        |                             | 100.00000       | 345,000.00          |
| Accreted thru: 1/31/95 |                             | Accretion:      | 125,468.27          |
|                        |                             | Original Cost:  | 195,412.82          |
| Last Pay Prd: 1/01/95  |                             | Cur Prd Income: | 1,834.52            |
| Original Issue:        | 345,000.000                 | Prior Prd Cost: | 319,046.57          |
|                        |                             |                 | *-price not current |
| F3=End                 | F12=Cancel                  |                 |                     |

**Figure 6**

Figure 6 is a sample inquiry screen for a position on the ID Lot holding file. It shows a lot owned by Account 90F. The security name, number, maturity and rate for bonds, is shown at the top. Then the dates associated with the lot are displayed. The record number is a system assigned number.

Both the amounts for the current position and last month end are shown. The amount of the accretion is shown and underneath is the original cost of the position. The current period income displays the amount that has accrued but not posted to the book value column. The Prior Period cost is the amount of the book value at the last pay period. The original issue amount shows the amount of the lot prior to any redemptions or sinking fund maturities.

## Average Cost File Inquiry

|                               |                                 |                   |
|-------------------------------|---------------------------------|-------------------|
| IFM030-2                      | PORTFOLIO ACCOUNTING SYSTEM     | 1/31/95           |
|                               | Average File Current Position   | 16:01:59          |
|                               | ACCOUNT: 90F 1994 SINGLE FAMILY |                   |
|                               | Reposition to CUSIP:            | F4-list           |
| <br>                          |                                 |                   |
| Name                          |                                 |                   |
| CUSIP                         | Nbr_Bonds                       | Cur Mth Cost      |
|                               |                                 | Cur Mth Quantity  |
|                               |                                 | Memo_Posted       |
| <br>                          |                                 |                   |
| 1990 SERIES F-2 SERIAL BONDS  |                                 |                   |
| IHAF21                        |                                 | 100,000.00        |
|                               |                                 | 100,000.000       |
| 1990 SERIES F-1 SENIOR BONDS  |                                 |                   |
| IHA01                         |                                 | 1,000.00          |
|                               |                                 | 1,000.000         |
| 1990 SERIES F-1 SR BONDS 7.55 |                                 |                   |
| IHA02                         |                                 | 509,000.00        |
|                               |                                 | 509,000.000       |
| 1990 SERIES F-2 CAP APR 6.9   |                                 |                   |
| IHA06                         | 2,450                           | 1,282,775.41      |
|                               |                                 | 2,450,000.000     |
|                               |                                 | 10,000.000        |
| TEST                          |                                 |                   |
| TEST                          |                                 | 1,000.00          |
|                               |                                 | 1,000.000         |
|                               |                                 | .000              |
| <br>                          |                                 |                   |
| F3=Exit                       | F12=Cancel                      | Bottom            |
|                               |                                 | Roll up/Roll Down |

**Figure 7**

Figure 7 is a sample inquiry screen for the Average Cost Holding file. This file contains one record per account and security. If the security has sinking funds, the average cost record contains the total of all the sinking fund dates and the final maturity date. The sample screen displays the current month positions. The Memo Post line is used to indicate if transactions have been entered but not run through the batch update process. If the bond appreciates, the number of bonds outstanding for the security is displayed.

## History Inquiry

```

HIM030-5          PORTFOLIO ACCOUNTING SYSTEM          1/31/95
                  History File Detail Display          16:05:27
                  Account Code:
Account: 90F      1994 SINGLE FAMILY                   Txn Code: SR
CUSIP: IHA02     1990 SERIES F-1 SR BONDS 7.55       Rcd Nbr: 950310018
                  Corp Act Exdate: 1/01/1995
Trade Date: 1/01/1995   Sink/Mtry:                   Corp Act Seq: 01
Posting Prd: 95/01
Date Entered: 1/31/95   Prin/Income:
Quantity:             1,000.000-
Gross Amount:         1,000.00          Accrued Interest:      37.75
Net Amount:           1,000.00          OID:                   .00
Broker:

Cost:                 1,000.00-
Gain_Loss LT:         .00
ST:                   .00
SS:                   .00
AVG:                  .00
Sell Method: 0        G/L Refer Nbr:
Description:
Nominee:
CK 3: End CK 12: Previous Screen          Tax Year: 95
ENTER: Continue

MATCHING
Trade Dt: 12/01/90
Rcd Nbr: 950020037
    
```

**Figure 8**

Figure 8 is a sample inquiry screen for the transaction history file. It shows a special redemption (SR) transaction for Account 90F, a 1994 Single Family Issue. 1,000 par value of bond IHA01, 1990 Series F-1 SR Bond, was redeemed. The cost was \$1,000 and there was interest paid of \$37.75. The matching trade date and record number identifies the lot that was redeemed. The Corporate Action data in the top right hand side of the screen shows that the transaction was automatically generated.

## Security File Inquiry

```
SRM010-12          BONDS PAYABLE SYSTEM          1/31/95
                   SECURITY BOND SECTION          15:31:42
Security No: 196478FX4
Short Name: CHFA SGL FAM 85A 11.125

Issue Date: 4/04/1985          Issue Price: 100.0000
Maturity Date: 9/01/2014      Amortize: A CAP APR
Denomination: 5,000
Rate: 11.12500                Variable Rate: N NO
Yield to Maturity:           Stepped Rate:

Day Count Basis: 1 30 / 360    Long Payment: N
Interest Method: 2 SEMI-ANNUALLY No Interest:
Day Type:

PAY DATES -> Date 1: 3/01 Date 2: 9/01 Date 3:      Date 4:
Call Indicator:
---- Call Data -----          --- Conversion Data ---
Call Date:                      Conv Date:
Call Price:                     Conv Price:

QUALITY RATINGS -> Moody's:      S & P:
```

**Figure 9**

Figure 9 is a sample inquiry screen for the Security File. It displays the bond data describing a single family bond. The screen shows the issue and maturity date. The denomination of the bonds is used to determine the number of bonds for an issue. The amortization indicator specifies that the bond appreciates using an accretion table. The rate is the coupon paid annually. A variety of fields are available for defining how the bond accrues interest including the day count basis and frequency of accrual. Call and conversion dates and prices can be entered. Quality ratings can also be entered.

An additional screen of information further defines the security with information such as a long name, prices, and codes defining the security type, subtype, group code, etc.

## Data Entry Selection

```
IFM010-1                                BONDS PAYABLE SYSTEM                                1/31/95
                                           Transaction Selection                                16:06:45

Enter the transaction code:
C - Cancel or review transactions already entered for account:
To enter a cancel transaction, type a C after the transaction code.
For example, an Issue Bond Cancel is ISC.

Txn Description                          Txn Description                          Txn Description
AA ACCRETION ADJUSTMENT                  ND NAME CHANGE DEPOSIT                  ZZZ DUMMY TXN-INTERFACE
AVG AVERAGE COST ADJ.                   NW NAME CHANGE WITHDRWL
CA COST ADJUSTMENT                       OI ORIGINAL ISSUE DISC.
CB CALLED BOND                           OR OPTIONAL REDEMPTION
CD CASH DEPOSIT                          QAV ADJUST AVERAGE QTY
CW CASH WITHDRAWAL                       S SELL
IA INTEREST ACCRUAL                      SD SECURITY DEPOSIT
IAR INTEREST ACCRUL/RCPT                 SK SINKING FUND SALE
ID ID COST ADJUSTMENT                    SR SPECIAL REDEMPTION
IP INTEREST PAID                         ST SETTLE TRADE
IS ISSUE BOND                            SW SECURITY WITHDRAWAL
MT MATURITY                              UP UNEXPENDED PROCEEDS

F3=Exit      F12=Cancel                                Bottom
                                           Roll up/Roll Down
```

**Figure 10**

Figure 10 is the data entry screen showing all the transactions available. Note that cancel transactions are created by adding a C after the regular transaction code, e.g. ISC is an issue bond cancel. To enter a transaction, the transaction code is entered on the first line. To review or cancel transactions that have not been posted, a C is entered as the transaction code and a list of transactions is then displayed.

## Issue Bond Verification

```
IFM010-3                                BONDS PAYABLE SYSTEM                1/31/95
                                         ISSUE BOND                          VERIFICATION                       16:07:34

      TYPE Y TO ENTER THIS TRANSACTION:

Account Number: 03585A   CHFA SF 1985A
                  CUSIP: 196477KL6 CHFA MULTI FAM 82A 12.5%
    Trade Date:  1/01/94                               SETTLE DATE:  1/01/94
Posting Period:  0/00
   Sinking Date: 1/01/2000
   Par/Quantity: 100,000.000                          Unit Price:   100.00000
   Cash/Gross Amt: 100,000.00                          Accrued Interest: .00

Net Amount(+Int): 100,000.00                          Yield to Mtry:

      Txn Type:
      Desc:
      Suppress Txn:

      F3=Exit   F12=Cancel
```

**Figure 11**

Figure 11 is the verification screen displayed when an Issue Bond transaction is entered. The previous screen is where the data are entered. After the data have passed all the edits, the verification screen is displayed. Names for the account and security are shown to insure that the correct account and CUSIP have been entered. A warning message is displayed if the quantity times the price does not equal the gross amount to help prevent mistakes.

If the information entered is correct, a Y is entered and then the transaction is actually generated and files are updated. If any data are incorrect, N is entered and the data entry screen is redisplayed to allow the data in error to be corrected.



## Report Selection

```
REM010-1                                BONDS PAYABLE SYSTEM                1/31/95
                                         Report Selection Menu                16:08:06
                                         Job #: 00220

To run only 1 report, enter the number next to the report name.
                                REPORT NUMBER: 00
To run multiple reports, type 1 next to the desired reports.

Type option, press ENTER
1=SELECT
Opt # Report                                Opt # Report
- 1 Debt Service by Issue
- 2 Debt Service by Month
- 3 Disclosure Report
- 4 Call History Schedule
- 5 Bond Valuation
- 6 Bonds Outstanding

F3=End   F12=Cancel                                Roll Up/Roll Down                                Bottom
```

**Figure 13**

Figure 13 shows the list of reports available from the system. Depending upon the report(s) selected, the screens following are used to enter specific requests appropriate for that type of report. For example, position reports may need as of dates while transaction type reports need a from and to date range. Sorting options can be entered as well as the account range desired.

Sample reports follow.