Chapter 4

PTS IN USE

This chapter gives examples of some typical functions which may be performed at a PTS workstation.

4.1 The Front Office

Front office terminals are those which are used to deal directly with the bank's customers, and the devices forming the terminal are chosen accordingly. As was mentioned in Chapter One, the amounts of information processed in the front office are quite small, so normally such a terminal will use a numeric keyboard and a small display.

The most important information produced at such a terminal is the printed record of each transaction. To provide the necessary flexibility in this area a teller terminal printer is normally employed. This allows a record of the transaction to be presented to the customer and also allows the bank to keep a record of each transaction.

The first thing the operator of such a terminal (the bank cashier) would have to do is sign on to the system, usually by entering some kind of identification number from the keyboard. As well as informing the system that the terminal is now working, this procedure allows such operator-dependent information as cash accumulators to be maintained for accounting purposes. It may also restrict the types of transaction the operator is allowed to perform. Similarly, when a cashier has finished at a particular terminal, he should sign off to tell the system the terminal is now vacant.

Once the operator has signed on, he must decide which type of transaction he wishes to execute. The application program will

generally display a screen to inform the operator of the available transactions, and the operator tells the application which of these should be executed by entering a transaction code.

```
ENTER TRANSACTION CODE:

01 CASH A/C DEP.        04 SAV. A/C WITHDR.
02 CASH A/C WITHDR.     05 A/C ENQUIRY
03 SAV. A/C DEP.        06 CURR. EXCHANGE
```

Fig. 4.1 Example Screen Layout for Selecting Transactions

In most PTS applications, the operator identifies the required transaction by pressing a function key, rather than entering a function code, as this facility is available on the keyboards.

4.1.1 Cash Transactions

Many of the transactions carried out in the front office will be concerned with customers depositing and withdrawing cash from their accounts. In general terms, two types of account will exist, cash accounts and savings accounts. The application will contain transactions to handle deposits and withdrawals from both types of account.

If a customer enters the bank and wishes to deposit money on his cash account, the cashier selects the relevant transaction by keying in the transaction code. The application program in the computer would then display the appropriate screen, prompting the operator for the necessary information.

```
CASH ACCOUNT DEPOSIT

ACCOUNT NR.: 99999
NAME: xxxxxxxxxxxxxxxxxxxxx
AMOUNT: 999,999.99
NEW BALANCE: 999,999.99
```

Fig. 4.2 Cash Account Deposit Screen

In the example in Figure 4.2, the operator would enter the account number and the system would respond by displaying the name of the account holder as a check. The operator would then enter the amount and again the system would respond, this time with the new balance on the account. To terminate the transaction, a further screen could be displayed, as follows.

```
CASH ACCOUNT DEPOSIT

ACCOUNT NR.: 99999

PLACE VOUCHER IN PRINTER
```

Fig. 4.3 Transaction Termination Screen

The operator would place the appropriate voucher in the document station of the teller terminal printer, and the transaction details would be printed, together with a summary on the journal roll for the bank's own internal use.

```
RECORD OF CASH DEPOSITED - CASH ACCOUNT

ACCOUNT NUMBER:  99999      DATE: 99/99/99
NAME: xxxxxxxxxxxxxxxxxxxxxxx
BALANCE BROUGHT FORWARD:  999,999.99
AMOUNT DEPOSITED       :  999,999.99
BALANCE CARRIED FORWARD:  999,999.99
```

Fig. 4.4 Print Voucher for Cash Account Deposit

```
TRANS. NR.  9999

TRANS. TYPE 01

A/C NR.     99999

AMOUNT    999,999.99

BALANCE   999,999.99
```

Fig. 4.5 Journal Tape for Cash Account Deposit

After printing, the system may return to the original transaction selection screen.

For savings accounts, the process is basically similar, with the major difference that a passbook is usually used to record the transactions. Instead of printing a voucher, the transaction details would be printed on the next available line of the passbook. The number of the last line printed and the balance remaining when the line was printed can be stored by the application. When the customer wishes to make another withdrawal or deposit, these values can be checked by having the cashier enter the values appearing in the book. So the second screen

for such a transaction could take the following form:

```
SAVINGS ACCOUNT DEPOSIT

ACCOUNT NR.: 99999
ENTER LINE NUMBER: 99
      AND BOOK AMOUNT: 999,999.99
```

Fig. 4.6 Savings Account Deposit Second Screen

If the values shown in the passbook agree with those held by the system, the update may proceed and the final screen may then be displayed.

```
SAVINGS ACCOUNT DEPOSIT

ACCOUNT NR.: 99999

PLACE PASSBOOK IN PRINTER
```

Fig. 4.7 Transaction Termination Screen

The operator would then place the passbook into the document station of the printer. The system would position the passbook to the correct line, the details would be recorded and the transaction terminated, as before.

```
TRANS. NR.  9999
TRANS. TYPE 03
A/C NR.     99999
AMOUNT   999,999.99
BALANCE  999,999.99
```

Fig. 4.8 Journal Tape for Savings Account Deposit

The procedure for cash withdrawals is very similar to that for cash deposits. Only the wording of certain parts of each screen or print line would need changing, as shown in the examples below.

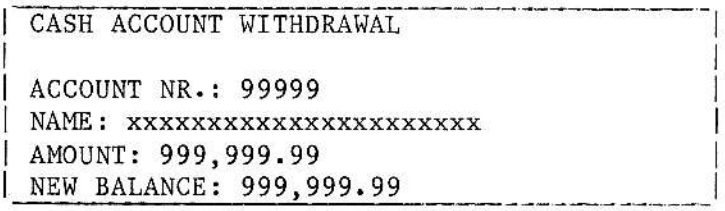

Fig. 4.9 Cash Account Withdrawal Screen

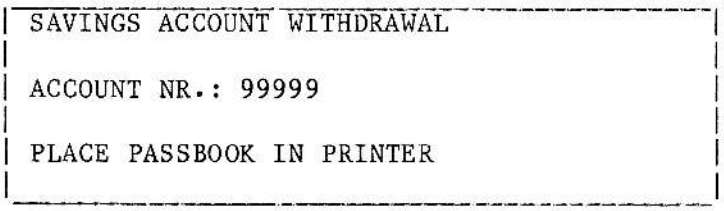

Fig. 4.10 Transaction Termination Screen

4.1.2 Supervisor Functions

For security reasons, certain functions of the front office terminals may have to be restricted to supervisory staff. For example, if the balance or line number on a passbook does not agree with the value held by the application, a correction has to be applied to those internal values. However, the bank may decide that this type of correction is not something an ordinary cashier may perform and that only supervisory staff may make the necessary internal adjustments.

To enable such functions to be performed, PTS application programs may use several methods. One way would be to use the keylock settings on the keyboard. These can be stored by the applicaton, and certain transactions may be restricted to persons holding a particular key. Another way would be for the application to have a number of special operator identities for supervisors. Only these `special´ identities would have access to the restricted transactions.

4.2 The Back Office

The functions performed in the back office are generally more complex and involve larger volumes of information than those in the front office. Consequently, back office terminals will make use of larger displays, alphanumeric keyboards, and printers capable of printing large reports rather than the details of just one transaction.

As with front office terminals, the operator must sign on to the system before any information may be processed.

Once the operator has signed on, the system has once more to be told which transaction is to be run. This could be accomplished in the same way as for the front office, by prompting with a so-called `menu-selection´ screen.

```
                TRANSACTION SELECTION

     01  ACCOUNT ENQUIRY
     02  LIST ALL ACCOUNTS
     03  SET CURRENCY RATES
     04  OPEN SYSTEM
     05  CLOSE TERMINALS
     06  CLOSE SYSTEM

     SELECT TRANSACTION: 99
```

Fig 4.11 Transaction Selection Screen

4.2.1 Transaction Listings

One of the functions of the back office is to produce listings of account details. Two types of listing are often required, details of an individual account or details of all accounts in the system which match certain specified conditions.

Figure 4.12 shows a possible screen layout for details of an individual account. The underlined fields are those which appear at the start of the transaction, the other fields would appear after the account number had been entered.

```
                  ACCOUNT ENQUIRY
     ACCOUNT NUMBER 99999

     NAME     xxxxxxxxxxxxxxxxxxxx
     ADDRESS  xxxxxxxxxxxxxxxxxxxx
     CITY     xxxxxxxxxxxxxxxxxxxx

     CURRENT BALANCE 999,999.99

     LAST 3 TRANSACTIONS
     DATE          AMOUNT        DEP./WITHDR.
     99/99/99      999,999.99    D
     99/99/99      999,999.99    W
     99/99/99      999,999.99    D
           MORE TRANSACTIONS? x        PRINT REQUIRED? x
```

Fig. 4.12 Account Enquiry Screen

The question `More Transactions?´ could be answered `Y´ if the operator wished to see the three preceding transactions on the account, or `N´ otherwise, while the question `Print Required?´ could be used to obtain

a listing of these account details on the printer (see Fig. 4.13). Alternatively, function keys could be used to control these options, and the prompts could be omitted from the screen layout.

```
|                                                                  |
|                                                                  |
|******************************************************************|
|                                                                  |
|      ACCOUNT NUMBER 99999                                        |
|                                                                  |
|      NAME     xxxxxxxxxxxxxxxxxxxx                               |
|      ADDRESS  xxxxxxxxxxxxxxxxxxxx                               |
|      CITY     xxxxxxxxxxxxxxxxxxxx                               |
|                                                                  |
|      CURRENT BALANCE 999,999.99                                  |
|                                                                  |
|      DATE           AMOUNT        DEP./WITHDR.                   |
|      99/99/99      999,999.99     D                              |
|      99/99/99      999,999.99     W                              |
|      99/99/99      999,999.99     D                              |
|      99/99/99      999,999.99     D                              |
|      99/99/99      999,999.99     W                              |
|      99/99/99      999,999.99     D                              |
|                                                                  |
|******************************************************************|
|                                                                  |
```

Fig. 4.13 Account Enquiry List

If the operator requests a list of all accounts, the system would automatically print the details in the same format as for an individual account list, without displaying anything further on the screen. Such a listing could take a long time, particularly for a large branch with a large number of customers. To allow the terminal operator to continue with other transactions while the listing is being produced, the system could start an extra task. This task would not be related to a particular terminal and would only be active for the length of time necessary to produce the listing.

4.2.2 System Start and Closedown

Before any of the above transactions can be performed, the system must obviously be running. Loading the application is a simple matter of pressing two buttons on the front panel of the computer, but the application may demand that certain other functions are performed before any transactions may be entered.

These other functions may range from the relatively straightforward, such as entering the system date and time, to more complex functions such as setting each operator's cash `float' value and starting each individual terminal.

Figure 4.14 gives an example of a simple screen to perform such actions.

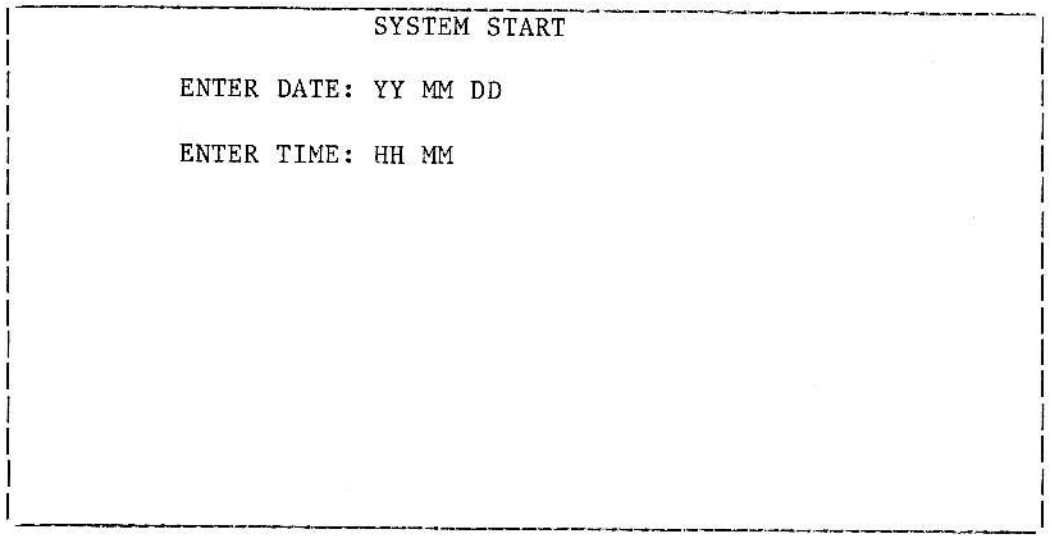

Fig 4.14 System Start Screen

When the day's transactions have been completed, the system has to be closed down correctly to enable processing to resume smoothly the following day. This could be done in two stages, the first to warn the terminal operators that the system is about to be closed and they should therefore not start any new transactions, the second to close the system itself.

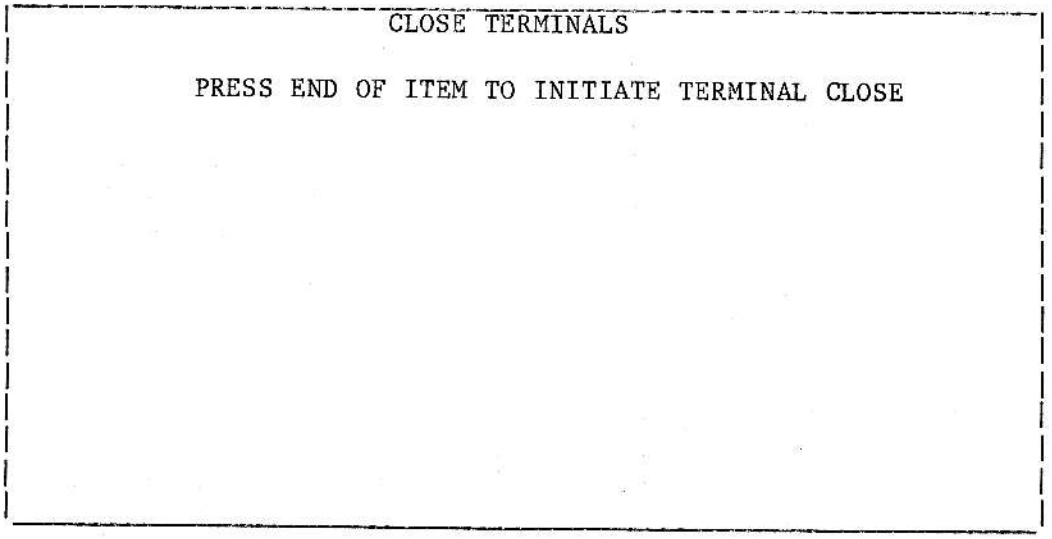

Fig 4.15 Close Terminals Screen

Pressing the End-of-Item function key in response to the prompt in Figure 4.15 would cause a message to be broadcast to each terminal, warning the operators that the system is about to be closed down.

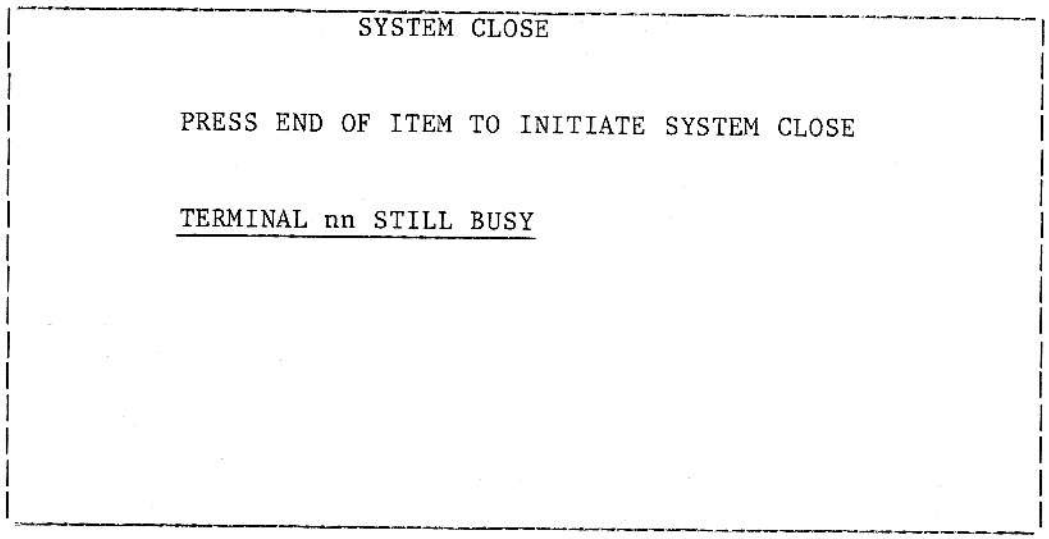

Fig 4.16 Close System Screen

The underlined text in Figure 4.16 could appear if one or more of the terminals had not finished its last transaction. In this case, the System Close function would have to be repeated later to close the system correctly.

4.3 Communication with Computer Centre

PTS computers are often used to pass information to another computer by means of a data communication link. Software modules are available to support a number of standard data communication protocols, and may be included in the Monitor as required.

Data may be transferred in batches, or it may be transferred as the transactions are processed. The latter is known as real-time transmission. Batch transfer means that all the information is collected by the PTS machine and stored on disk, then transferred to the mainframe after normal processing has been completed for the day.

4.4 System Integrity

To maintain the validity of the data stored and processed by a PTS computer, several features are built into the system.

In the event of failure of the processor power supply, the TOSS Monitor is able to store certain vital information in the short interval between detection of the failure and total power loss. When power is restored, other routines in the Monitor re-try the last operation on every active I/O device, including the terminal devices. Thus, the system can continue from the point at which the failure occurred with no loss of data.

If a power failure occurs at any of the terminal devices, optional routines may be included in the Monitor to complete any outstanding request to the device with an error condition. This allows the

application program to perform its own error and recovery routines. If the completion routines are not included in the Monitor, any outstanding I/O requests will be completed as normal, with no error indication.

To preserve the integrity of data files, magnetic tape drives may be included in the system and dumps may be made of critical data at regular intervals, either under the control of the application program or by a free-standing utility program.

If the PTS computer is sending data in real-time to another computer, it is possible for the communication line to become inoperable while the system is running. In this case, the application program in the PTS computer can switch to `off-line´ mode. The details of any transactions occurring while the line is unavailable can be stored on flexible disk. When the line becomes operable again, these details may be forwarded to the mainframe. Depending on the functions involved in the application program, this may involve some loss of functions, but does allow many transactions to be performed without the link to the mainframe (or host) machine.

For example, if the mainframe holds the main data file for the application, enquiry transactions will not be able to be processed while the line is unavailable. Cash deposits may continue to be handled, and the details sent on to the mainframe later.