TABLES / AS
USER'S GUIDE

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TABLES/AS USERS' GUIDE

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SECTION 1

TABLES/AS
INTRODUCTION

TABLES /AS reduces the work effort needed to design and maintain screens required for table maintenance in CICS and IMS environments.

TABLES /AS is user friendly, operating through a series of menus and help facilities to define the various options. The entire system is on-line allowing all functions from creation to testing to be performed on-line.

One of the simplest ways to understand TABLES/AS is to examine the block diagram below. TABLES/AS has three major components. They are:
TABLES /MS
Screen Generation
Screen Processing

These components interact with each other as shown below:

```
  ┌──────────────┐        ┌──────────────┐
  │  Screen      │────────│  Screen      │
  │  generation  │        │  processing  │
  └──────────────┘        └──────────────┘
           \                    /
            \                  /
             ┌──────────────┐
             │  Tables / MS │
             │              │
             └──────────────┘
```
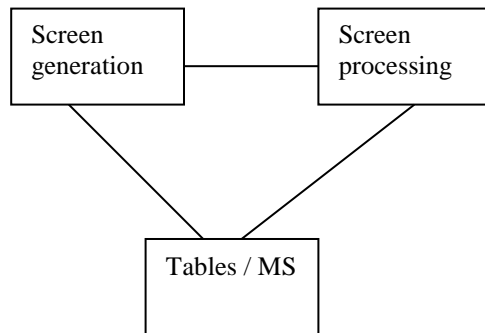
An overview of each of these components follows. This manual discusses the Screen Generation and the Screen processing in detail. A detailed discussion of TABLES/MS can be found in the TABLES/MS User's Guide.

SCREEN GENERATION

      The Screen Generator is used to create, copy and modify 3270 display screens, which include editing of fields on the screen and mapping of fields between screen and table.

COMPONENTS

```
┌──────────┐   ┌──────────┐   ┌──────────┐        ┌──────────┐
│ SCREEN   │   │ FIELD    │   │ RELATIO  │        │ TABLE    │
│          │   │          │   │          │        │ PROCES   │
└────┬─────┘   └────┬─────┘   └────┬─────┘        └─────┬────┘
     └──────────┐   │   ┌──────────┘                    │
┌──────────┐  ┌─┴───┴───┴┐                        ┌─────┴────┐
│ UTILITY  │──│ SCREEN   │────────────────────────│ MAPPIN   │
└──────────┘  └────┬─────┘                        └─────┬────┘
          ┌────────┴────────┐              ┌────────────┼────────────┐
     ┌────┴─────┐      ┌─────┴────┐    ┌────┴────┬──┬───┴───┬──┬──────┴───┬──┐
     │ TEST     │      │ SCREEN   │  SCR│ IMS/VS │IELD│ DB2  │LATI│ TABLES │IT│
     └──────────┘      └──────────┘    └─────────┴──┴───────┴──┴──────────┴──┘
```
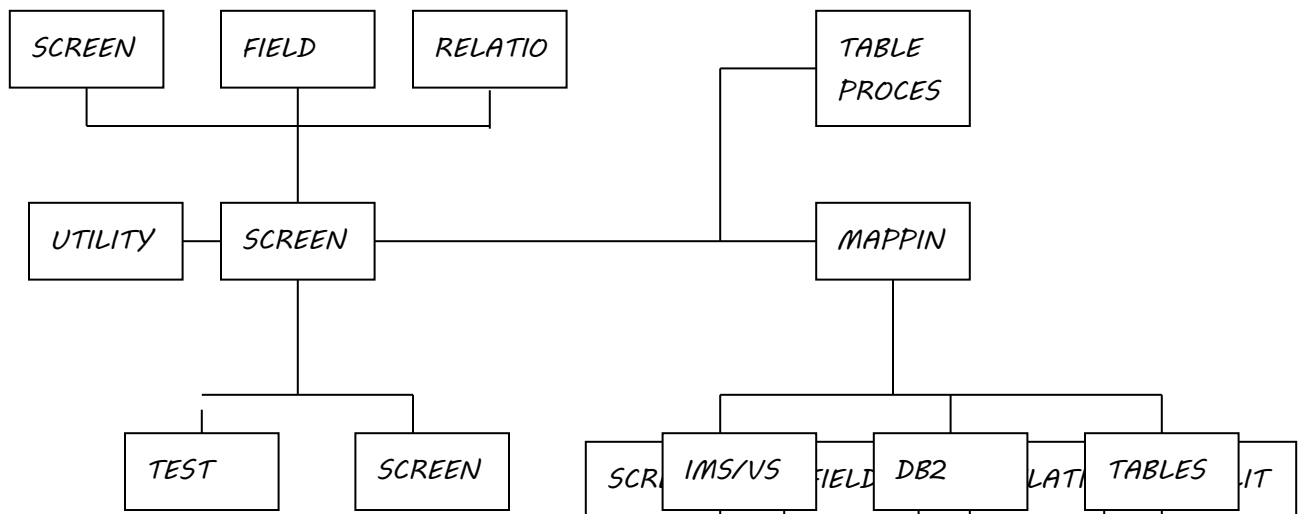
SCREEN DESIGN FUNCTIONS
. Add
-Default Screen
-Field Selection Option
-Field List Option
. View
. Change:
-Screen Description
-Screen Format
-Standard Field Attributes
-Extended Field Attributes

-Color Attributes
- Upper / Lower Case
- Update Field Names
- Resequence Fields in the Copy Code
- View
. Delete
. Copy

EDIT DEFINITION FUNCTIONS

- Define Field Edit Rules
- Define Relational Edit Rules
- View Field Edit Rules
- View Relational Edit Rules
- Delete All Edit Rules
- Create Module For Screen Testing
- Test Screen Edit Rules

TABLE MAPPING FUNCTIONS

- Add a New Table Map
- Change a Table Map
- View a Table Map
- Delete Table Map and Processing

TABLE PROCESS FUNCTIONS

- Define Table Process Requirements (Add, Change, Delete, Inquire)
- Screen Switching
- Logically Connected Table Processing

UTILITY FUNCTIONS

- Inquire/Maintain Control Tables
- Create COBOL/PL1 Screen Copy Code
- Create Screen Documentation and Load Module
- Print Screen Images
- Extract Table Layout from COBOL/PL1 Copy Code
- Produce table and screen cross-reference reporting
- Load table in main memory (TLOD transaction)
- IMS users may also:
  - Convert Screen from MFS to TABLES/AS
  - Extract Segment Search Data from DBD
  - Create TABLES/MS Definition Module
- Effectivity Control

Screens are designed to contain up to 14 different Table types in which each table type has multiple entries of its own. By selecting the table processing options in the mapping facility, it is possible to integrate fields on a screen to IMS or VSAM files, DB2 tables, and TABLES/MS tables.

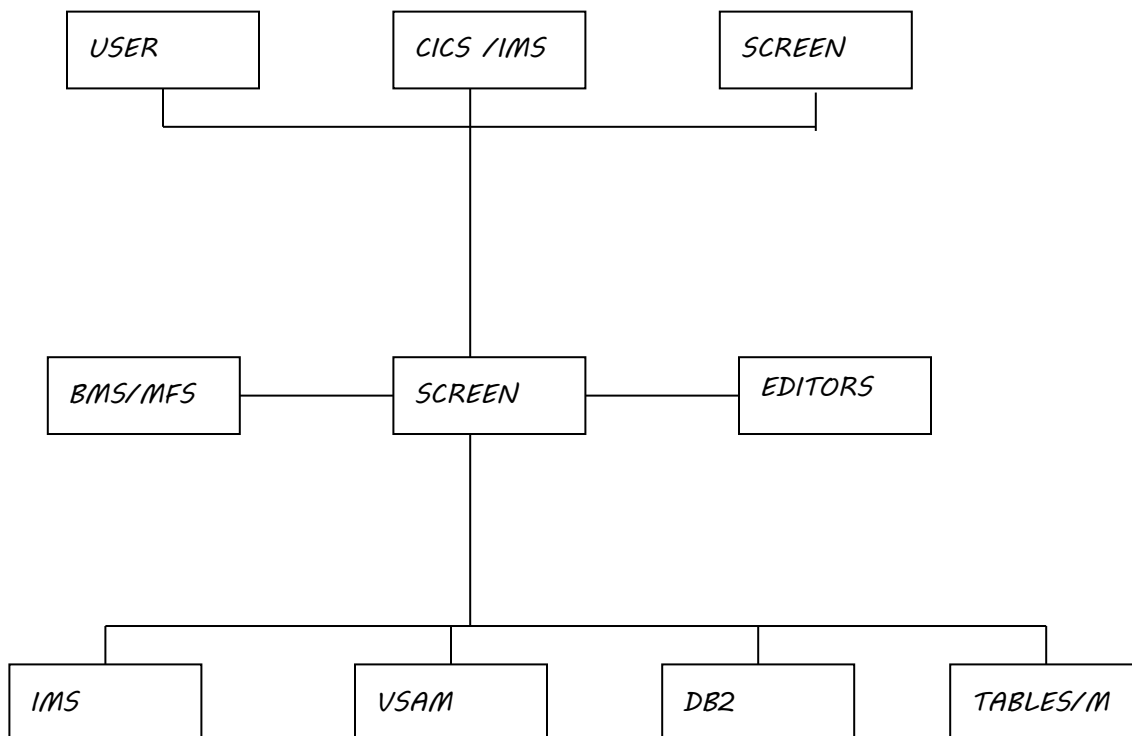Immediate execution of screens can take place in two modes:
- Test mode allows on-line execution without updating databases.
- Screen Processor mode allows on-line execution including database updating.

A switching facility permits switching between Test, Screen Processor Screen Generator, and TABLES/MS.
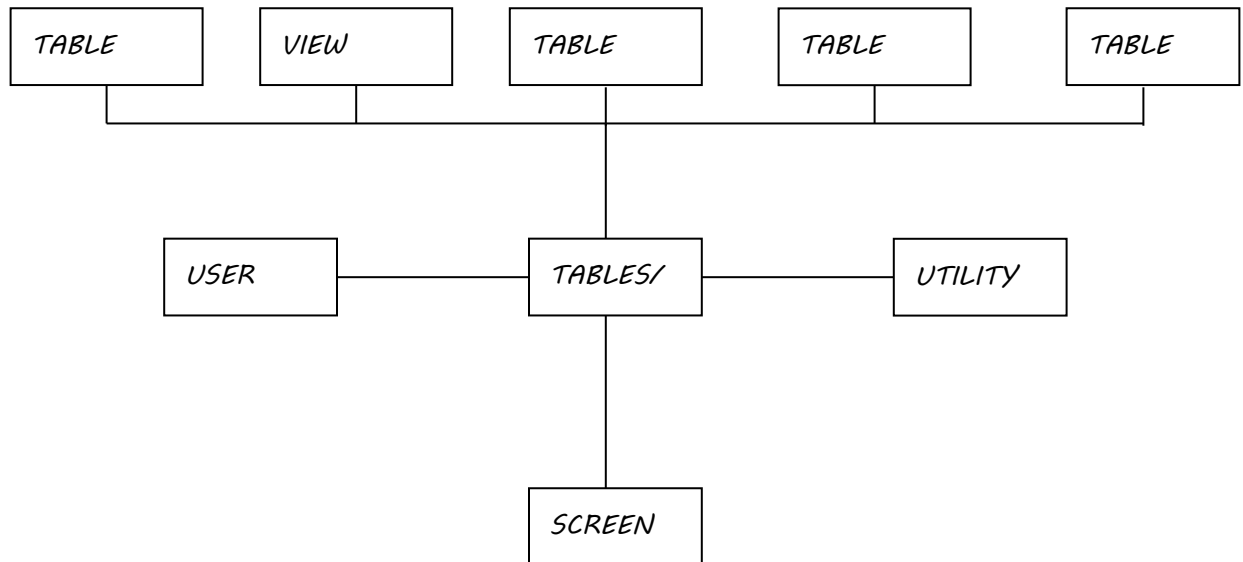
SCREEN PROCESSING
The screen processor executes the screens created by the Screen Generator and is used to support various applications by itself or in conjunction with user written programs without having a need to assign new CICS/IMS transaction codes. A two-way switch is made to the screen processor from any other transaction and MFS/BMS screen. It is also possible to switch to the Screen Processor from a TABLES/AS screen for partial processing and then switch back to the user transaction to complete the processing of that screen. The Screen Processor is initiated from any authorized terminal. Switching between TABLES/MS, the Screen Processor and the Screen Generator is permitted.

COMPONENTS

```
┌──────────┐      ┌──────────┐      ┌──────────┐
│  USER    │      │ CICS /IMS│      │  SCREEN  │
└────┬─────┘      └────┬─────┘      └────┬─────┘
     └────────────┐    │    ┌────────────┘
                  │    │    │
                  │    │    │
┌──────────┐      ┌────┴─────┐      ┌──────────┐
│ BMS/MFS  ├──────┤  SCREEN  ├──────┤ EDITORS  │
└──────────┘      └────┬─────┘      └──────────┘
                       │
        ┌──────────┬───┴───┬──────────┐
┌───────┴──┐  ┌────┴─────┐ ┌─┴──────┐ ┌─┴────────┐
│   IMS    │  │   VSAM   │ │  DB2   │ │ TABLES/M │
└──────────┘  └──────────┘ └────────┘ └──────────┘
```

TABLES/MS

TABLES/MS is an on-line table management facility with its own internal storage (TABLES/VSAM and TABLES/DLI) as well as with a DB2 component with utility programs for printing, extracting and recovering tables. It provides methods of accessing tables from user-written, on-line and batch programs. A switching facility is provided from TABLES/MS to the Screen Generator.

COMPONENTS

TABLE	VIEW	TABLE	TABLE	TABLE

USER	TABLES/	UTILITY

SCREEN

BENEFITS OF USING TABLES/AS

APPLICATION/SCREEN DESIGN

- A prototype of screens is developed in hours or days instead of weeks or months.
- Automatic screens can be generated for instant processing.
- User involvement begins with the screen and edit definitions.
- Applications are generated to access and maintain tables in TABLES/MS, DB2, VSAM files and IMS/DB segments including secondary indexes.
- The screen design process is significantly reduced.

PROGRAMMING

- Programming of screen edits is eliminated.
- Programmer involvement begins with the application specific coding needs. Programming of edits is eliminated.
- Immediate testing of changes is made.
- There is no need for programmers to bother with screen field attributes.
- There is direct mapping capability between a screen and TABLES/MS definitions, IMS/DB, DB2 catalog, COBOL/PL1 copy-lib.
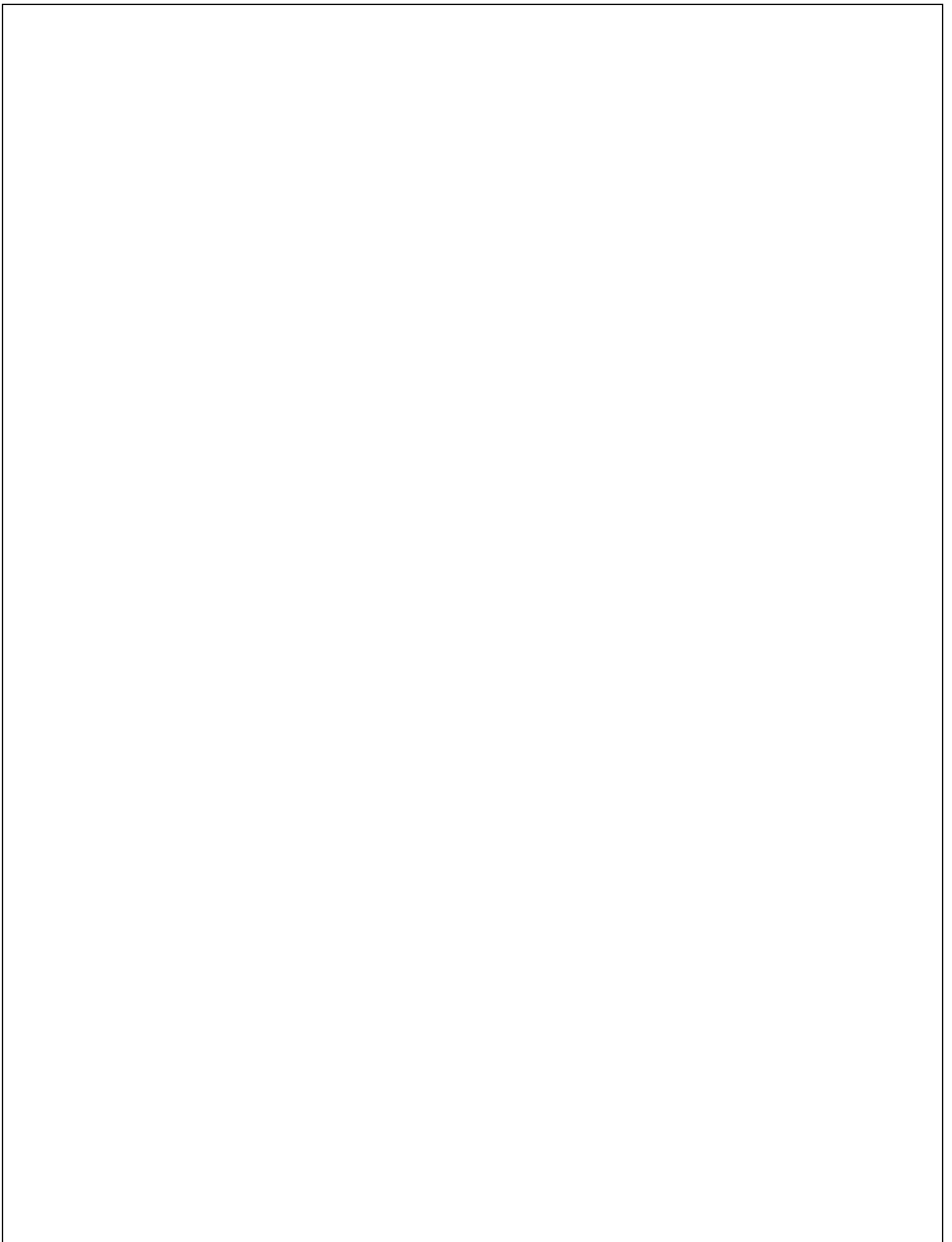
PRODUCTION

- Screens generated by TABLES/AS are executed without assigning IMS/CICS transaction codes.
- Production transaction time is reduced through:
  - Tight efficient assembler code performing all screen handling.
  - Compression of data transmitted across the communication lines.
  - Elimination of MFS I/O processing within IMS.
  - Elimination of BMS I/O processing within CICS.

STANDARDIZATION

- Automatic documentation of screen and edits is generated.
- COBOL and PL1 copy-lib members are generated based on the screen definitions. Standardization of field names and edits is achieved.

PRODUCTIVITY

- Enhanced productivity throughout each stage of application development (initial design through ongoing maintenance).

BASIC STEPS

The basic steps in the processes of designing, testing, and installing a new screen for production are:

- Paint a new screen or select a default screen
- Paint any changes desired
- Define field edits for required fields
- Test the screen with edits as defined
- Define mapping of screen fields to table (not required for default screen)
- Test the screen
- Install in production

PF KEYS

TABLES/AS is designed with several function keys to assist in defining screens. The PF keys correspond to IBM SAA standards.

PF KEYS - SAA

PF1/13	Help	
	To see help information	
PF2/14	Run	
PF3/15	End	
	Save current screen then exit to previous	
PF4/16	Return	
	Save current screen then exit to top menu	
PF5/17		
PF6/18	Select	
PF7/19	Backward	
	Scroll backward (toward top of list)	
PF8/20	Forward	
	Scroll forward (toward bottom of list)	
PF9/21	Print	
	Print output	
PF10/22	Left	
	Scroll left	
PF11/23	Right	
	Scroll right	
PF12/24	Cancel	
	Cancel then exit to previous screen	
ENTER	Process data entered	

PREPARATORY STEPS FOR USING TABLES/AS

INSTALL TABLES/AS
Performed by your technical staff, establishing the necessary transactions, files and databases. See TABLES/AS Installation Guide.

ESTABLISH ONE OR MORE APPLICATION IDs
Application IDs provide for different transaction codes for each application. See TABLES Technical Guide.

TABLES/AS has more extensive data processing capabilities than this manual covers in detail. A brief summary of some of these capabilities follows. A technical discussion is given in the TABLES/AS and TABLES/MS Technical Guides.
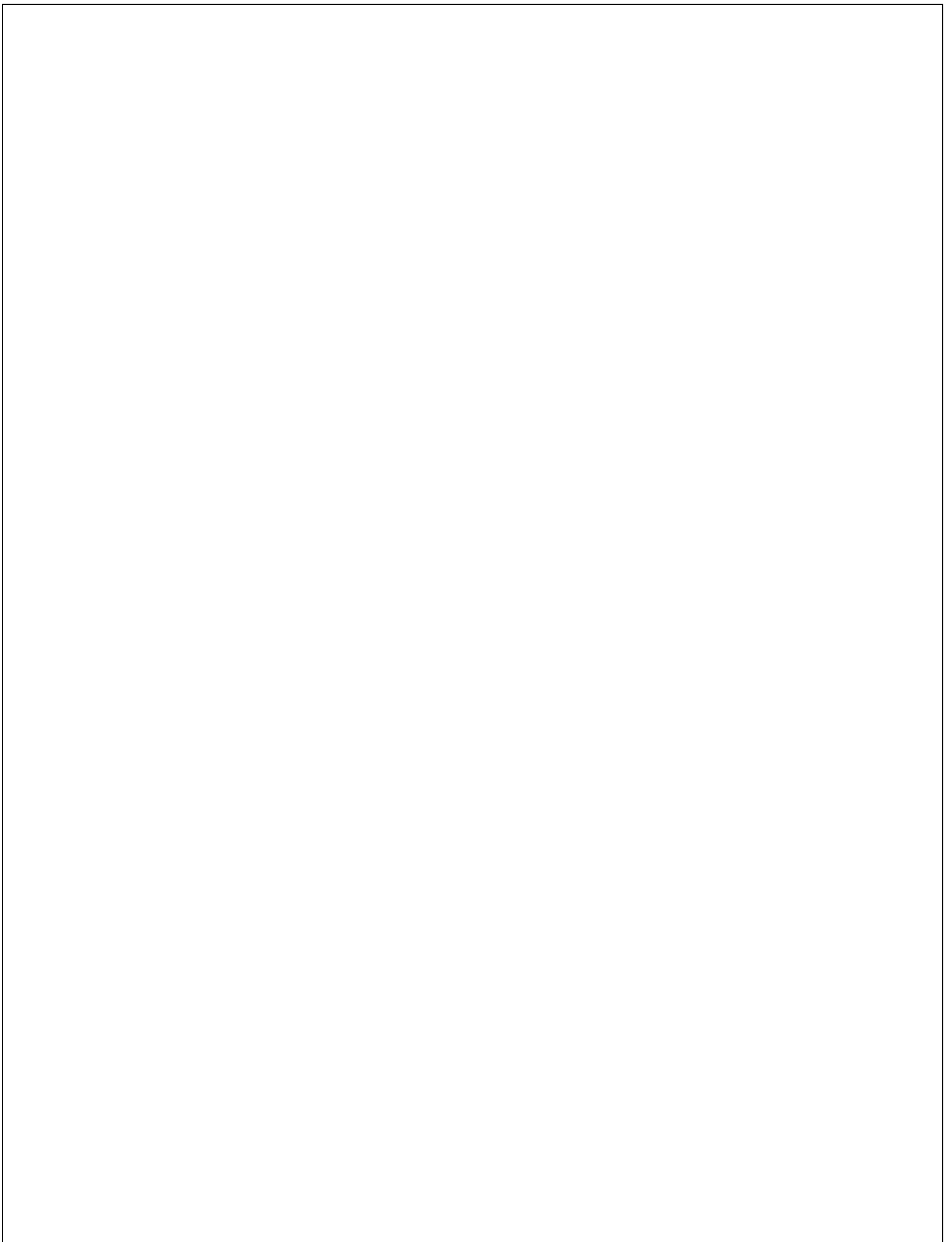
EDITOR PROGRAMMING
• Through editor programming, you can provide for validating against derivable fields, access to other database management systems, etc.

To access TABLES/AS, you must sign on to your CICS or IMS system and enter the TABLES/AS transaction.

Check with your technical staff to see if you should use a different transaction code.

Optionally, you may enter TBLS transaction to obtain the TABLES System menu. See Appendix F.

Your application may also be established to process tables via a customized screen and related transaction code.

The default starting point is the TABLES/AS Primary Option menu. See Figure 1-1.


```
.................... TABLES/AS PRIMARY OPTION MENU ...................
SELECT OPTION ===> A                                              DATE:
                                                                  TIME:
  1  SCREEN DESIGN      · Create and Update Screens
  2  EDIT DEFINITION    · Define Field and Record Editing
  3  RECORD MAPPING     · Define Mapping To and From The Screen
  4  PROCESSING OPTIONS · Specify Different Processing Options
  5  PREPARE SCREEN     · Prepare Screen for Execution
  6  TEST FACILITY      · Test Field Edits and Record Mapping
  7  UTILITIES          · Tables Utility Selection Menu
  8  TABLES/MS          · Switch to Tables/Management System
  9  SCREEN PROCESSING  · Switch to Screen Execution Processor


     SCREEN NAME   ===>            (Optional)
     APPLICATION ID ===>           (May be Required)


                        (C) COPYRIGHT        SSI, Inc.


PF 1=HELP        2=      3=END     4=RETURN      5=          6=
PF 7=            8=      9=        10=           11=         12=
```

Figure 1-1

THE OPTIONS ARE:

OPTION ===> 1 - SCREEN DESIGN
· Custom design a screen or select automatic screen generation
· View an existing screen
· Modify the format of an existing screen
· Delete an existing screen
· Copy one screen to another
· Display a list of screens currently defined

OPTION ===> 2 - EDIT DEFINITION
· Define edit rules for each field
· Define rational edit rules between fields
· View edit rules defined for a field
· View relational edit rules defined for a screen
· Delete all edit rules defined for a screen

OPTION ===> 3 - RECORD MAPPING
· Define screen-to-table and table-to-screen mapping
· Change existing table mapping
· View mapping as currently defined
· Delete existing mapping criteria

OPTION ===> 4 - PROCESSING OPTIONS
· Specify the functions that are allowed via a screen
· Define any referential integrity requirement among various tables
· Specify IMS/VSAM File information

OPTION ===> 5 - PREPARE SCREEN
- Prepare the screen for execution. It is not required unless a load module is to be created. During test mode, whenever Option 9 is selected, screen will be prepared automatically prior to switching to TABLES/AS processing menu.

OPTION ===> 6 - TEST FACILITY
- Test field edits
- Test relational edits
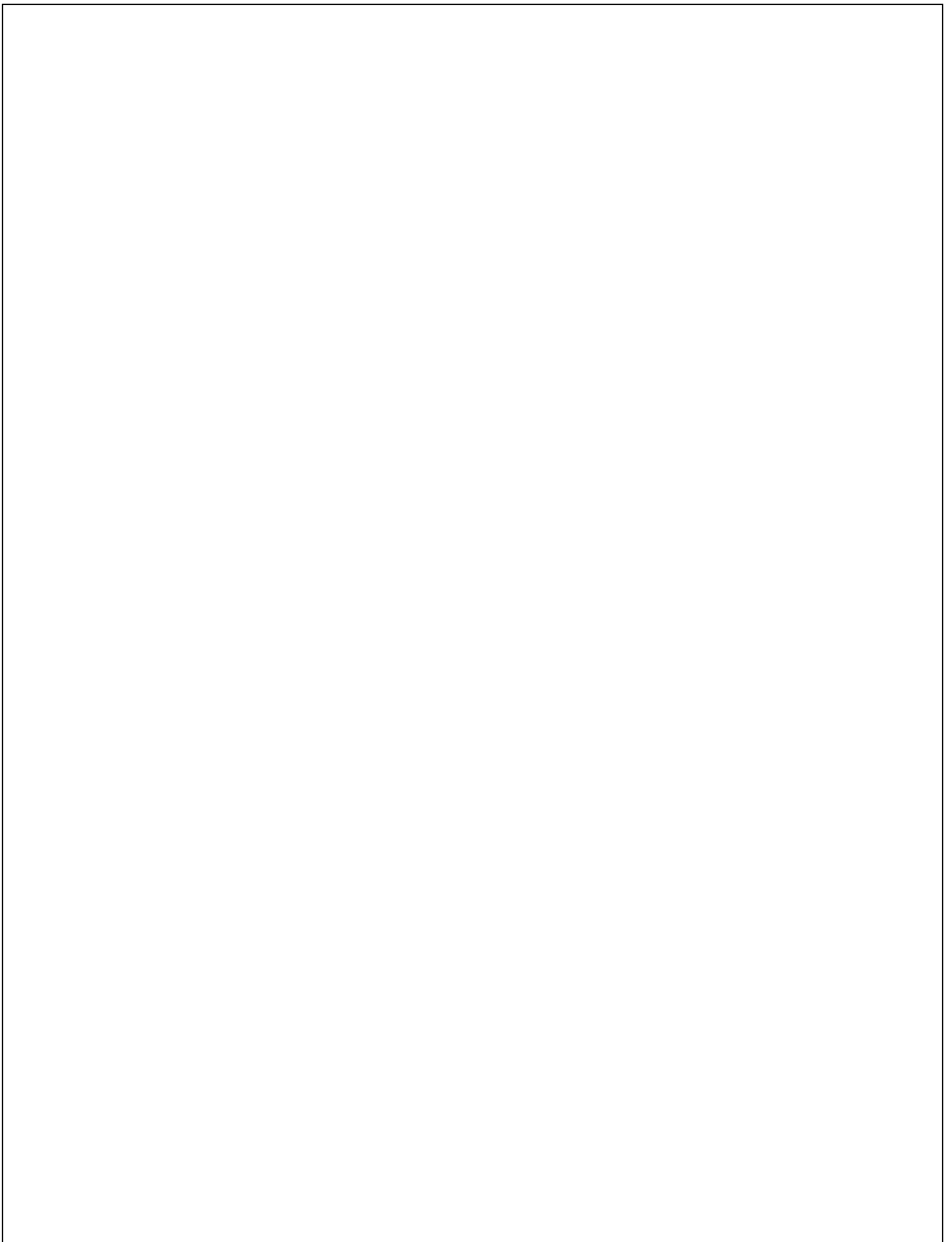- Test record mapping

OPTION ===> 7 - UTILITIES
- Reload a memory resident table
- Specify initial field values for a screen
- Define screen switching
- Perform certain DB2 functions
- Specify Effectivity Control

OPTION ===> 8 - TABLES/MS
- Switch to the TABLES/MS Primary Option menu

OPTION ===> 9 - SCREEN PROCESSING
- Switch to the TABLES/AS Screen Processor

SECTION 2

TABLES/AS

SCREEN GENERATION

PRIMARY OPTION MENU
OPTION ===> 1 - SCREEN DESIGN

The Screen Generator designs and defines the formats and the processing requirements of 3270 display screens. The screens produced are complete programs developed in assembler language. These screens can be programmed to perform any type of field level, highly sophisticated relational editing, and mapping of data from screen to table or table to screen formats. The mapping process performs all conversions of data. The Screen Generator is capable of defining the processing options for screens.

This section of the TABLES/AS Users' Guide covers the options from the TABLES/AS Primary Option menu which are handled by the Screen Generator.

These options are:

1 - SCREEN DESIGN
2 - EDIT DEFINITION
3 - RECORD MAPPING
4 - PROCESSING OPTIONS

When you select Option 1, the system presents the TABLES/AS Screen Design menu. See Figure 2-1.

Figure 2-1

The options are:

A - ADD A NEW SCREEN
C - CHANGE THE DEFINITION AND/OR FORMAT OF AN EXISTING
    SCREEN
D - DELETE A SCREEN FROM THE SYSTEM
E - COPY A SCREEN DEFINITION
V - VIEW A SCREEN DEFINITION
L - LIST SCREEN NAMES

PF KEYS

PF1   HELP
       To view help information, if available, corresponding to the current
       screen
PF3   END
       To save processing done for the current screen and return to the next
       higher level screen, in this case the TABLES/AS Primary Option menu
PF4   RETURN
       To save processing done for the current screen and return to the
       TABLES/AS Primary Option menu
PF12   CANCEL
       To cancel processing done for the current screen and return to the next
       higher level screen, in this case the TABLES/AS Primary Option menu

OPTION ===> A - ADD A NEW SCREEN

ENTER SCREEN NAME ===>

Press ENTER. The system returns the TABLES/AS Screen Design - Description screen. See Figure 2-2. The name of the screen you are defining is displayed in the upper left hand corner.
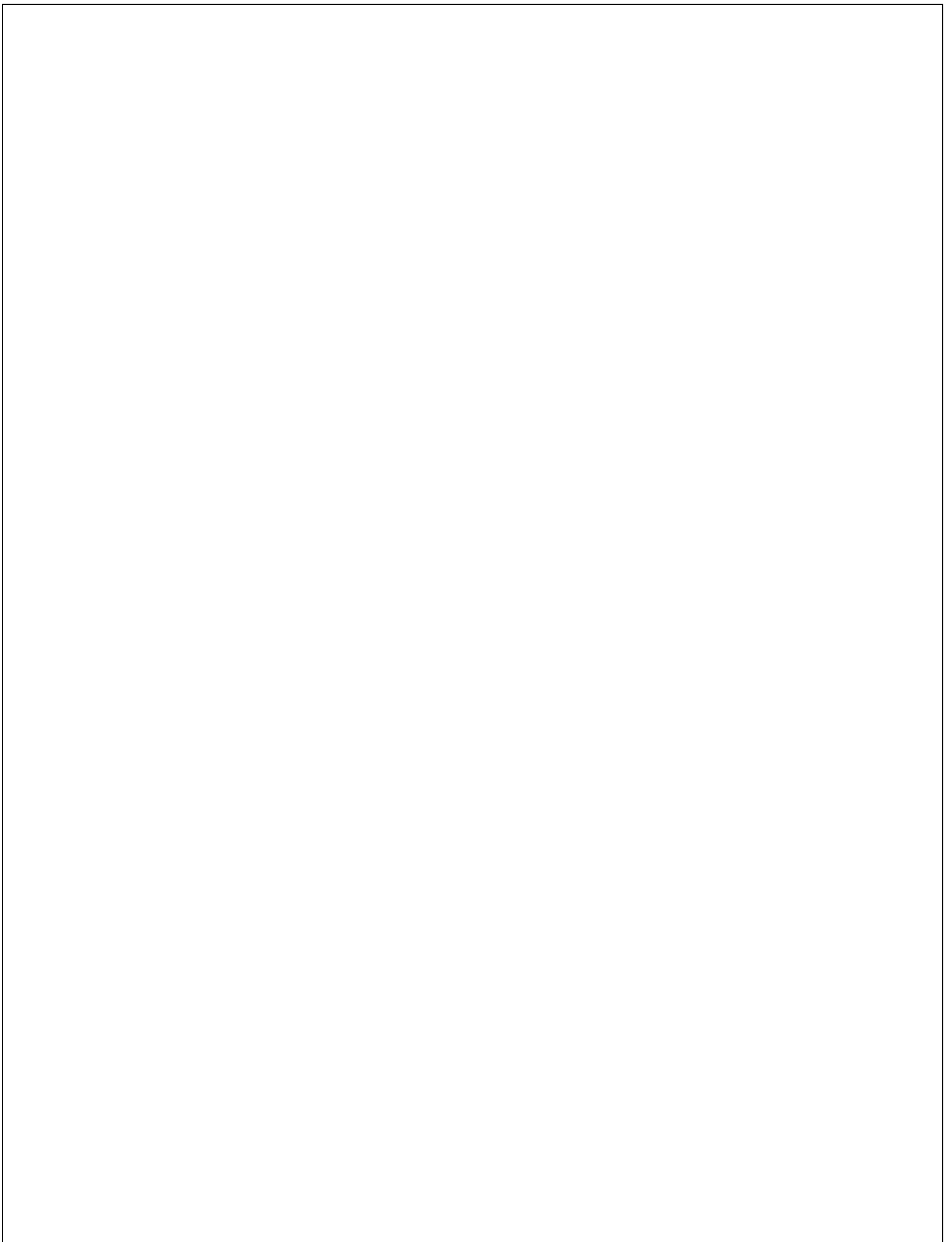

Figure 2-2

This screen is used to describe the screen being added, define the boundaries and the types of fields the screen contains. The boundaries of the screen are fixed to 24 lines with 80 columns. When this screen is entered, the next screen displayed is a blank screen for screen painting.

DESCRIPTION ===>

Describe the purpose of the screen being created. Up to 40 characters may be used. The description is displayed next to the screen name in the List option. It does not appear on the painted screen.

EXTENDED ATTRIBUTES ===>
The default value is N.
N indicates that this screen does not have extended attributes. The system does
not accept values in Position 2 and 3 of the attribute character specifications.

Y indicates extended attributes may be defined for this screen. Valid attributes
may be defined in Positions 2 and 3. This option is specified only when using
terminals supporting extended attributes.

NOTE: If Y is specified, and the terminal is not compatible with
extended attributes, abnormal results occur when viewing or
making changes.

CURSOR POSITION ===>
Cursor position is the field number on the screen where cursor is to be initially
positioned when the screen is sent out for processing. A cursor position 5
indicates that the cursor is to be positioned on the 5th field.

SIZE:
The following parameters specify the boundaries of the screen. Information
keyed outside of these parameters is lost.

LAST LINE ===> 24
Indicates the bottom boundary of the screen.
Must be 24.

LAST COLUMN ===> 80
Indicates the right boundary of the screen.
Must be 80.

TABLE NAME ===>
A table name can be entered as a base table for designing the screen. DB2 table
names must be entered fully qualified, i.e., including the authorization ID.
IMS segment name must be entered as Segment Name + DBD Name."

SOURCE ===>
Source of the table may be DB2, TABLES/MS or VSAM/IMS. For DB2, the
definition of the table is retrieved from DB2 catalogue.

DEFAULT SCREEN ===>

YES - Indicates that a processing screen is requested. The next screen displayed
is the fully generated screen (with date, time, function code, and message
fields) ready to process all the fields in the named table.
SEL - Indicates that a default screen is required after specific fields from the
table have been selected. A field selection screen is displayed.
NO - Indicates that a custom designed screen is not required. A blank screen
is displayed for painting a custom screen.

===> T   FIELD STANDARD ATTRIBUTE

Characters have been reserved to indicate the field type associated with the field start indicator. These are required when an ACS is entered. See Appendix A, Standard Attribute Characters.

===> H   FIELD EXTENDED ATTRIBUTE

Characters have been reserved to indicate further highlight attributes of a field. Blank is the default.

The Extended Attributes field (at the top of this screen) must be set to Y in order to use the extended highlight attribute. See Appendix A, Highlight Attribute Characters.

The terminal must have extended attributes within its hardware in order to support blinking, reverse video, or underlining.

===> C   FIELD COLOR ATTRIBUTE

Characters have been reserved to indicate color attributes of a field. Blank is the default.

The Extended Attributes field (at the top of this screen) must be set to Y in order to use the extended color attribute. See Appendix A, Color Attribute Characters.

The terminal must have extended attributes within its hardware in order to support color features.

===> Y   ALLOW UPPER AND LOWER CASE

Enter a Y to allow for upper/lower case or blank to allow only upper case.

PF KEYS

PF1   HELP
          Display list of valid attributes
PF12   CANCEL
          Return to previous screen, Screen Design Functions
ENTER   NORMAL
          A blank screen appears when in the Add a New Screen mode
          Changes are saved and the Change Menu screen returns when in the
          Change a Screen mode

FIELD SELECTION OPTION ==>

When default starter screen is required with field selection option (DEFAULT SCREEN = 'SEL') the following screen is displayed:

Figure 2-3

Field names displayed may be selected by entering S to select or X to exclude. Optionally, a sequence number may be entered next to each field to indicate its relative position on the screen and to indicate its selection. PF3 entry on this panel terminates field selection and a default starter screen is displayed next for screen design. DATE, TIME, FUNCTION and MESSAGE fields are automatically built on the default starter screen.

PF KEYS

PF1   Help
PF2   Cancels previous selection and redisplays all fields again
PF3   Save fields selected and return to starter screen with fields on the screen
PF7   Scroll up by one page
PF8   Scroll down by one page
PF12 Cancel field selection and return to description screen

FIELD LIST OPTION ==>

During screen painting, if there was a base table entered, a list of fields within
the base table may be obtained by selecting PF key 5 or 17. The following
screen appears when PF key 5 or 17 is selected:

Figure 2-4

ID
These are field identification codes assigned internally and they can be used on
the screen being painted to select and position a field on the screen. For
example, to place the field FCHAR, enter _BF at the desired location on the
screen, and use the field type character to pad the field to its desired length.

LEN
Minimum length of a field that will be required on the screen, and the type of
field: A = Alpha, D = Date, Q = Quantity, N = Numeric.

FIELD NAME
Name of a field in table.

PF KEYS

PF1   Help
PF3   Cancel list option and return to screen painter
PF7   Scroll list up by one page
PF8   Scroll list down by one page
PF12   Cancel list option and return

OPTION ===> C - CHANGE A SCREEN

ENTER SCREEN NAME ===>
Press ENTER. The system returns the TABLES/AS Screen Design - Change menu. See Figure 2-5. The screen name you entered is displayed. You may change the screen name on this panel if you wish.


```
--------------------- TABLES/AS SCREEN DESIGN - CHANGE MENU ---------------------
SELECT OPTION ===>

  1  DESCRIPTION              - Change Screen Description and Defaults
  2  FORMAT                   - Update the Screen
  3  STANDARD ATTRIBUTES      - Change the Standard Field Attributes
  4  HIGHLIGHTING             - Specify Underlining, Reverse Video, or Blinking
  5  COLORS                   - Change Field Colors
  6  UPPER/LOWER CASE         - Allow Upper/Lower Case or Just Upper Case
  7  FIELD NAMES              - Change the Screen Field Names
  8  RESEQUENCE COPY CODE     - Change Order of Fields in the Copy Code
  9  VIEW                     - Display the Screen

         SCREEN NAME    ===>              (Required)




PF 1=HELP          2=      3=END     4=RETURN        5=            6=
PF 7=              8=      9=        10=             11=           12=CANCEL
```

Figure 2-5

The options are:

OPTION ===> 1 - SCREEN DESCRIPTION
Change screen dimensions, description, field identifiers and field attributes.

OPTION ===> 2 - SCREEN FORMAT
Change an existing screen format by adding, deleting or changing fields or literals.

SCREEN PAINTING GUIDELINES:

• See CHANGE A SCREEN (screen format)

• SPECIAL FIELDS REQUIRED FOR SCREEN PROCESSING

MESSAGE FIELDS - one or more message fields must be painted so that the edit and informational messages may be displayed during table processing. Message fields must be defined as alphanumeric fields of lengths 1 to 80 characters.

FUNCTION FIELDS - Function code fields are required for multi-function screens. For example, if a screen is being designed for inquiry only, or add only, a function code field is not required. However, if a screen is being designed for update function, a function code field is required.

Function code field must be defined as alphanumeric field of length 1. For a multi-row screen, each row should be provided with its own function code so that multiple updating (change and delete) may be performed from the same screen. Function code fields do not require edit definition.

SEARCH OPERATORS - The first row of any table on a screen may be used to set up search values for selection of records. To provide a capability for searching on less than, greater than, etc., search operators are required. A search operator can be attached to each field of a table where operators may be entered for searching on conditions other than the equal to condition.

Search operators must be defined as alphanumeric field of length 1. Search operators do not require edit definition.

Figure 2-6 is an example of a screen format that may be changed.

Figure 2-6

SPECIAL CHARACTERS

_	Field start character for input/output fields with low intensity in the screen description function.
(	Field start character for a literal field to be highlighted.
&	Field start character for a literal field to be shown with normal intensity.
01-99 *and* AA-ZZ	Field ID (FLDID) numbers assigned sequentially to input/output fields having a length of two or more characters.
0-9 *and* A-Z	Field ID (FLDID) characters assigned sequentially to input/output having a length of one character.

GUIDELINES

- NEVER use the ERASE-EOF key while painting a screen. The entire screen is erased from the point of the cursor.
- FLDID (first two positions of displayed fields) values may not be changed.
- Input/output fields may not be removed from the screen if edits have been defined for that field. Delete the edits first.
- Date input/output fields can be a maximum of 20 characters.
- Numeric input/output fields can be a maximum of 20 characters.
- Quantity input/output fields can be a maximum of 20 characters which include the sign and decimal point.
- Alphanumeric input/output fields which require format characters are limited to 20 characters. For example; if a social security number is in the format of NNN-NN-NNNN, the field is defined with 11 As.

ADD A FIELD
- Position the cursor where the field is being added.
- Enter a field-start character followed by:
  - LITERALS - Any character string including blanks and special characters excluding field-start characters.
  - INPUT/OUTPUT FIELDS

  Date field: Up to 20 Ds
  Numeric field: Up to 20 Ns
  Quantity field: Up to 20 Qs. Allow enough for the digits, decimal
                           point, and sign.
  Alphanumeric field: Any number of As
  - CHARACTER REPEAT

  To repeat an input/output character N times, for example, if character A is to be repeated 20 times, enter __A(20).

NOTE: Use the following to process DB2 fields defined as:
         DATE, TIME, and TIMESTAMP formats:

         DATE: Length 10 (YYYY-MM-DD)

         TIME: Alphanumeric, length 8 (HH:MM:SS)

         TIMESTAMP: Alphanumeric, length 26 (YYYY-
                       MM-DD-HH:MM:SS:MMMMMM)

CHANGE A FIELD
Position the cursor and type in the changes.

DELETE A FIELD
Position the cursor and press the space bar until the field or characters desired are deleted.

PF KEYS

PF1/13   Help for screen painting and change
PF2/14   Shift to Line Commands screen to perform line copies, moves, repeats and shift left or right. Data may be changed in line command mode.
PF3/15   Save changes and return to the TABLES/AS Screen Design - Change menu
PF4/16   Save changes and return to the TABLES/AS Primary Option menu
PF12/24   Cancel changes and return to the TABLES/AS Screen Design - Change menu

Figure 2-7 is a previously painted screen in which PF key 2/14 is pressed to perform line commands.

Figure 2-7

The screen format is shifted to the right and the last six (6) characters of the screen do not show (they still exist). Four dots are inserted in front of each line. Line commands are entered there.

To exit the line command facility, press PF 3 to return to screen painting. Press PF3/15 to save changes. To cancel changes made, press PF12 from the TABLES/AS Screen Design - Change menu.

LINE COMMANDS

A   (After) The first line of the range or copy is moved to the line
           following the A. Used in move and copy commands.

B   (Before) The last line of the range or copy is moved to the line
           preceding the B. Used in move or copy commands.

C   (Copy a Single Line) Indicates a line to be copied.

CC   (Copy Multiple Lines) Indicates two or more lines to be copied.

D   (Delete a Line) Deletes all information on a line. Subsequent
           lines on the screen are shifted up one line.

DD   (Delete Multiple Lines) Deletes all information on two or more
           lines. All lines following the second DD are shifted up to
           immediately follow the first DD.

I   (Insert a Blank Line) A blank line is inserted immediately
           following the line with the I command. The new line is
           protected and you can not enter anything on it.

INN   (Insert Multiple Blank Lines) The specified number (NN)
           of blank lines is inserted immediately following the line
           with the I command. The new lines are protected and you
           can not enter anything on any of them.

M   (Move a Single Line) This command moves the information from
           one line on the screen replacing information in another line on
           the screen.

MM   (Move Multiple Lines) Indicates two or more lines to be moved.

RNN   (Repeat a Line) Repeats a line the specified number (NN) of
           times.

RR   (Repeat Multiple Lines)   Indicates two or more lines to be
           repeated.

SLNN   (Shift Left) Shifts information in a line to the left by the
           number (NN) of positions specified. SL80 blanks out a line.

SRNN   (Shift Right) Shifts information in a line to the right by the
           number (NN) of positions specified. SR80 blanks out a line.

(NN   (Shift Left) Shifts information in a line to the left by the
           number (NN) of positions specified. (80 blanks out a line.

)NN   (Shift Right) Shifts information in a line to the right by the
           number (NN) of positions specified.)80 blanks out a line.

EXAMPLES OF VALID LINE COMMANDS

1	2	3	4	5	6	7	8
....	....	....	....	SL10	CC..	R4..	....
....	....	....	....	....	....	....	....
C...	B...	CO..	A...	SR.6	....	....	....
....	....	....	....	SR05	CC..	....	RO4.
A...	C...	CC..	MM..	SR80	....	....	....
....	....	A...	....	....	....	....	....
....	....	....	MM..	....	B...	....	....
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....

1 Copy (C) a line after (A) the line specified
2 Copy (C) a line before (B) the line specified
3 Copy (CC CC) a range of lines beginning after (A) the line specified
4 Move (MM MM) a range of lines beginning after (A) the line specified
5 Shift left (SL) and shift right (SR)
6 Copy (CC CC) a range of lines beginning before (B) the line specified
7 Repeat (R4) a line four times
8 Repeat (R04) a line four times

LINE COMMAND RESTRICTIONS

· A or B characters cannot be within the range of lines defined by a set of MM or CC characters.

· Lines cannot be moved, copied or repeated before Line 1 or after Line 24.

· Lines cannot be shifted more than 80 characters left or right.

· Only one set of M/A or M/B; MM/MM/A; or MM/MM/B; C/A or C/B; CC/CC/A or CC/CC/B; or RNN can be entered at one time. Any number of SLNN and SRNN commands can be entered at one time. They must not be mixed with any other commands.

· The command must begin in the left most position, i.e., R2.. not .R2.

· If you copy, insert, or repeat one or more lines, there must be sufficient blank lines at the bottom of the screen

PF KEYS

PF1/13   Help for navigating through screen painting and change
PF2/14   Shift to line commands screen to perform line copies, moves, repeats, and shift left or right
PF12   Return to Change menu (SCREEN PAINTING)

OPTION ===> 3 - STANDARD ATTRIBUTES

The first time this option is selected the input/output fields defined are replaced with the standard attribute character assigned for input/output fields on the Screen Description screen. Selecting this option after standard attributes are changed shows the changed attributes.

Figure 2-8 is an example of a painted screen in which standard field attributes are selected.

Figure 2-8

CHANGING AN ATTRIBUTE
• Position the cursor over the attribute being changed.
• Input a valid standard attribute character.
  A   Input/output field, low intensity
  B   Input/output field, high intensity
  C   Input/output field, non-displayable
  D   Output field, low intensity
  E   Output field, high intensity
  F   Output field, non-displayable
  G   Input/output protected field, low intensity, modified data tag on
  H   Input/output protected field, high intensity, modified data tag on
  I   Input/output protected field, non-displayable, modified data tag on (used
       to hide fields on the screen)
• Repeat this process for all fields being changed.
• Press ENTER to make the changes.

If invalid standard attributes are entered, the standard attribute for the field with the error is automatically reset to the standard attribute defined for input/output fields on the Screen Description screen (Position 2).

PF KEYS

PF1/13   Help for list of valid standard attributes
PF3   Save changes and return to the **TABLES/AS** Screen Design - Change
         menu
PF4   Save changes and return to the **TABLES/AS** Primary Option menu
PF12   Cancel changes and return to Change menu
ENTER   Save changes

OPTION ===> 4 - HIGHLIGHTING

The first time this option is selected the input/output fields defined are
replaced with the highlight attribute character assigned for input/output fields
on the Screen Description screen (Position 3). Selecting this option after the
highlight attributes are changed shows the changes.

Figure 2-9 is an example of a painted screen in which extended attributes are
selected.

Figure 2-9

CHANGING AN ATTRIBUTE
• Position the cursor at one of the attributes being changed.
• Use the arrow keys to move to valid locations on the screen. This is required
  because blank is the device default.

- Input a valid attribute character
    - B   Blink
    - R   Reverse video
    - U   Underline
    - Blank   Device default
- Repeat this process for all the fields being changed.
- Press ENTER to make the changes.

If invalid highlight attributes are entered, the highlight attribute for the field with the error is automatically reset to the highlight attribute defined for input/output fields on the Screen Description screen (Position 3).

PF KEYS

PF1/13	Help for list of valid highlight attributes
PF3	Save changes and return to the TABLES/AS Screen Design - Change menu
PF4	Save changes and return to the TABLES/AS Primary Option menu
PF12	Cancel changes and return to Change menu
ENTER	Save changes

OPTION ===> 5 - COLORS

The first time this option is selected the input/output fields defined are
replaced with the color attribute characters assigned for input/output fields
on the Screen Description screen (Position 4 - a blank). Selecting this option
after the color attributes are changed shows the changes.

Figure 2-10 is an example of a painted screen in which extended attributes,
colors, are selected.

Figure 2-10

CHANGING AN ATTRIBUTE
• Position the cursor at one of the attributes being changed.
  Use the arrow keys to move to valid locations on the screen. This is required
  because blank is used as the device default.
• Input a valid color attribute character.
  B Blue   G Green   N   Neutral
  R Red   T Turquoise   Blank   Device Default
  P Pink   Y Yellow
• Repeat this process for all the fields being changed.
• Press ENTER to make the changes.

If invalid color attributes are entered, the color attribute for the field with the
error is automatically reset to the color attribute defined for input/output
fields on the Screen Description screen (Position 4).

PF KEYS

PF1/13	Help for list of valid color attributes
PF3	Save changes and return to the TABLES/AS Screen Design - Change menu
PF4	Save changes and return to the TABLES/AS Primary Option menu
PF12	Cancel changes and return to Change menu
ENTER	Save changes

OPTION ===> 6 - UPPER/LOWER CASE

By turning CAPS off on the terminal, the screen is shown with upper/lower case characters. With CAPS on, the screen displays only upper case.

The first time this option is selected the input/output fields defined are replaced with the upper/lower case characters assigned for input/output fields on the Screen Description screen (Position 5 - a blank). Selecting this option after the standard attributes are changed shows the upper/lower case characters that were changed.

Figure 2-11 is an example of a painted screen in which the attribute, upper/lower case, is selected.

Figure 2-11

CHANGING AN ATTRIBUTE

- Position the cursor at one of the attributes being changed.
  Use the arrow keys to move to valid locations. This is required because the upper case only attribute is a blank.
- Input a valid upper/lower case attribute character. If invalid values are entered, the upper/lower case attribute for the field in error is automatically reset to the value defined for input/output fields on the Screen Description screen (Position 5 - a blank).

  Y   Input field is used to enter data in upper & lower case.
  BLANK   Data entered in lower case is converted to upper case.
- Repeat this process for all the fields being changed.
- Press ENTER to make the changes.

PF KEYS

PF1/13	Help for list of valid upper/lower case values
PF3	Save changes and return to the TABLES/AS Screen Design - Change menu
PF4	Save changes and return to the TABLES/AS Primary Option menu
PF12	Cancel changes and return to Change menu
ENTER	Save changes

OPTION ===> 7 - UPDATE FIELD NAMES

Field names are assigned or changed using this option. Figure 2-12 shows the format of the TABLES/AS Screen Design - Field Names screen.

Figure 2-12

The screen is divided into two sections. The upper section shows a portion of the designed screen. The lower portion has the Field ID (FLDID) characters which have been assigned to each field. Next to each Field ID is a place to enter up to an eight character name.

A maximum of 32 fields are shown in the lower portion of the screen at a time. If there are more than 32 fields on the screen, another 32 fields are shown by pressing ENTER. The first of the fields shown is the last field from the prior screen. It serves as a reference point.

The upper portion of the screen is scrolled up or down using PF 7/8. Use this to review the Field IDs assigned.

The upper and lower portion of the screens may not be in the same sequence, since Field IDs are assigned in the sequence they are defined. Use the Resequence Copy Code option (Change menu - Option 8) to get the upper and lower portions of the screen in the same sequence.

Figure 2-13 is an example of a painted screen in which Update Field Names is chosen.

Figure 2-13

Fields are named prior to using any of the functions of TABLES/AS beyond designing the screen. The initial screen has TABLES/AS assigned field names. To change the assigned name, type in a name up to 8 characters long and press ENTER. Pressing ENTER assigns field names as FIELDNNN for any field not named.

Use the repeat command if there are repeating groups of fields using the same set of field names. Assign the name to the first set of fields in the group. Position the cursor where the name of the next field goes and type in the repeat command, RRTTFF.
  * RR0501 repeats 5 times the previous name.
  * RR0605 repeats 6 times the previous 5 names.

Fields added to the custom screen using the change option are automatically assigned the field name FLDNNNNN. These assigned names can be changed at any time. If a field is deleted, the name is also deleted.

PF KEYS

PF3   Save changes and return to the TABLES/AS Screen Design - Change
           menu
PF4   Save changes and return to the TABLES/AS Primary Option menu
PF7   Scroll up the screen (the designed screen in the upper section)
PF8   Scroll down the screen (the designed screen in the upper section)
PF12   Return to the Change menu without making name changes
ENTER   Assign field names as entered or in the format FIELDNNN and
           either return to the menu or present more fields to be named

OPTION ===> 8 - RESEQUENCE COPY CODE

Specify the sequence of the input/output fields as they appear in the copy code
generated. The first field defined to the last field defined is the sequence of
the copy code generated. Added fields are at the end of the copy code unless
moved using the resequencing facility.

Figure 2-14 shows the format of the TABLES/AS Screen Design - Resequence
Copy Code screen.

Figure 2-14

SEQ-NO.
A numerical value beginning with one (001) and incremented by one for each
input/output field defined on the screen. The numbers increase from left-to-
right and top-to-bottom. This is the exact sequence the fields occur in the copy
code.

NAME
The name assigned to the field using the Change menu (Option 7 - Field Names.)
If field names are not assigned, there are none shown.

ID
The FLDID value assigned by TABLES/AS product. It is either a two digit
numeric value assigned to input/output fields of two or more characters, or it
is a single alphabetic character assigned to fields of one character. It is this set
of values which is used in the resequence process.

STEPS TO RESEQUENCE FIELDS

- Determine the Field ID (FLDID) of a field being moved.
- Determine the Field ID (FLDID) of the field to move this field after.
- Position the cursor on the FIELD ID of the field being moved.
- Enter the Field ID of the field you want this one to follow.
- Press ENTER.
  The Change Menu returns with the message
      FUNCTION COMPLETED
      or
      An error message, *FLDID NOT FOUND*, and the invalid field IDs
      highlighted.
- Return to the Change menu and select Option 8 (Resequence Fields
  in the Copy Code) and repeat these steps until all the fields have been moved.

  NOTE: To establish a field as the first field in the copy code
         you must:
            • • Move that field immediately after the current first
              field.
            • • Move the current first field anywhere after the field
              you just moved.

Only one field is resequenced at a time. If more than one resequence is
attempted at a time, the first one encountered is made and subsequent ones are
ignored.

Figure 2-15 shows an example of the screen with resequenced fields on it.

Figure 2-15

PF KEYS

PF4   Automatically resequences all fields in the copy code into the sequence
        in which the fields are on the screen. (Line # / col # sequence).
PF12   Cancel changes and return to the Change menu.

CAUTION: CURSOR POSITIONING, DEFINED IN EDITOR
PROGRAMS OR SCREEN SWITCHING WHERE FIELD
NUMBERS ARE USED TO ESTABLISH POSITIONING, MAY
NEED TO BE REVISED IF FIELDS ARE RESEQUENCED IN
THE COPY CODE.

OPTION ===> 9 - VIEW

The named screen is displayed. See Figure 2-16 for an example of a customized screen.

Figure 2-16

PF KEYS

PF3   Return to the TABLES/AS Screen Design - Change menu
PF4   Return to the TABLES/AS Primary Option menu
PF12   Return to the TABLES/AS Screen Design - Change menu

OPTION ===> D - DELETE A SCREEN

The named screen is displayed. See Figure 2-17 for an example of a defined screen. Press ENTER and the screen is deleted.

Screen can be deleted even if edits are defined on any of the fields.

Figure 2-17

PF KEYS

PF3	Confirm delete request and return to the TABLES/AS Screen Design - Change menu
PF4	Confirm delete request and return to the TABLES/AS Primary Option menu
PF 12	Cancel delete request and return to the TABLES/AS Screen Design- Change menu
ENTER	Confirm delete request and return to the TABLES/AS Screen Design- Change menu

OPTION ===> E - COPY A SCREEN

When you select Option E on the TABLES/AS Screen Design menu, you must also enter the name of the screen you wish to copy. The system displays the TABLES/AS Screen Design - Copy screen. See Figure 2-18.

Figure 2-18

At this point, you may change the FROM SCREEN ===> to copy from a different screen.

PROCEDURES TO COPY A SCREEN

1. Enter the name of the new screen being copied to.
2. Select the amount of data being copied by entering the appropriate level number in COPY LEVEL ===>.

   SCREEN FORMAT ONLY (Level 1)
   Only the screen format is copied to the new screen. Edits, field names, and mapping on the From screen are ignored and must be redefined for the new screen if desired.

   The next screen displayed is a copy of the From screen. Any changes to the screen format can be made to this screen.

   See the section, Change Screen Format, for more information on changing the screen format.

SCREEN FORMAT + FIELD NAMES (Level 2)
Copy the screen format and the field names to the new screen. Edits and
mapping on the From screen are ignored and must be redefined on the new
screen if desired.

The next screen displayed is a copy of the From screen. Any changes to the
screen format can be made on this screen.

SCREEN FORMAT + FIELD NAMES + EDITS (Level 3)
Copy the screen format, field names, and edits to the new screen. Mapping
on the From screen is ignored and must be redefined on the new screen.

The next screen displayed is a copy of the From screen. Any changes to
the screen format can be made on this screen.

SCREEN FORMAT + FIELD NAMES + EDITS + MAPPING
Copy everything on the From screens (screen format, field names, edits, and
record conversions) to the new screen.

The next screen displayed is a copy of the From screen. Any changes to
the screen format can be made on this screen.

PF KEYS

PF3   Save changes on the new screen and return to the TABLES/AS Screen
          Design menu
PF4   Save changes on the new screen and return to the TABLES/AS
          Primary Option Menu
PF12   Cancel copy function and return to TABLES/AS Screen Design menu

OPTION ===> V - VIEW

The named screen is displayed. See Figure 2-19 for an example of a customized screen.

Figure 2-19

PF KEYS

PF3   Return to the TABLES/AS Screen Design menu
PF4   Return to the TABLES/AS Primary Option menu
PF12   Return to the TABLES/AS Screen Design menu

OPTION ===> L - LIST SCREEN NAMES

The screen name specified on the Screen Design menu provides the starting point for the display list. It need not be a valid screen name. If a G is entered, the list begins with those screens beginning with character G. If the screen name is left blank, all existing screens are displayed.
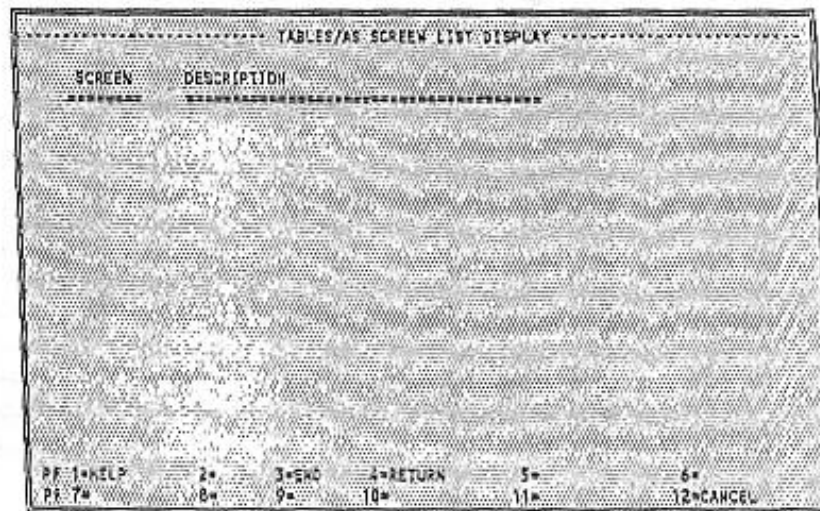
Figure 2-20 is an example of the list screen.

Figure 2-20

The screen displays the screen name and 40 character description. If you do not enter a screen description, the system displays *DESCRIPTION OMITTED*.

PF KEYS

PF3	Return to the TABLES/AS Screen Design menu
PF4	Return to the TABLES/AS Primary Option menu
PF12	Return to the TABLES/AS Screen Design menu
ENTER	Display the next page of screen names