TABLES/AS

Reference Manual

Part 1

DISCLAIMER

The information presented is subject to change. Every effort has been taken to ensure that this manual is accurate and up to date. However, Specialized Software International, Inc. disclaims any liability for any loss or damage resulting from the use of this manual.

TABLES/AS Generalized Online Maintenance

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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 two major components. They are:

      Screen Generation
      Screen Processing

These components interact with each other as shown below:

```
┌──────────────────┐           ┌──────────────────┐
│ SCREEN           │           │ SCREEN           │
│                  │───────────│                  │
│ GENERATION       │           │ PROCESSING       │
│                  │           │                  │
└──────────────────┘           └──────────────────┘
```
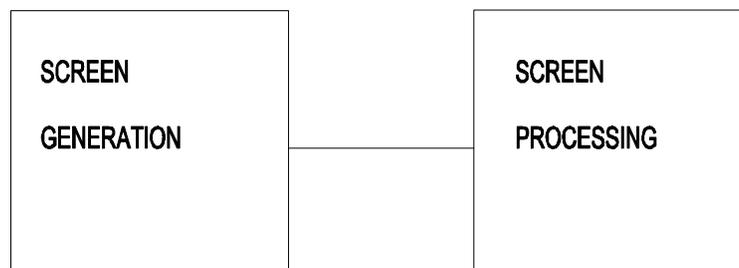
An overview of each of these components follows.

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   │      │ EDIT     │               │ TABLE    │
│          │      │          │               │ PROCESS  │
│ DESIGN   │      │ DEFINITION│              │ OPTIONS  │
└────┬─────┘      └────┬─────┘           ┌───┴──────────┘
     │                 │                 │
     └────────┬────────┘                 │
              │                          │
  ┌────────┐  ┌──────────┐           ┌──────────┐
  │ UTILITY│  │ SCREEN   │           │ TABLE    │
  │        │──│          │───────────│          │
  │PROGRAMS│  │ GENERATOR│           │ MAPPING  │
  └────────┘  └────┬─────┘           └────┬─────┘
                   │                      │
              ┌──────────┐     ┌──────────┐  ┌──────────┐
              │ TEST     │     │ IMS/VSAM │  │ DB2      │
              │          │     │          │  │          │
              │ SCREEN   │     │ COPY CODE│  │ CATALOG  │
              └──────────┘     └──────────┘  └──────────┘
```
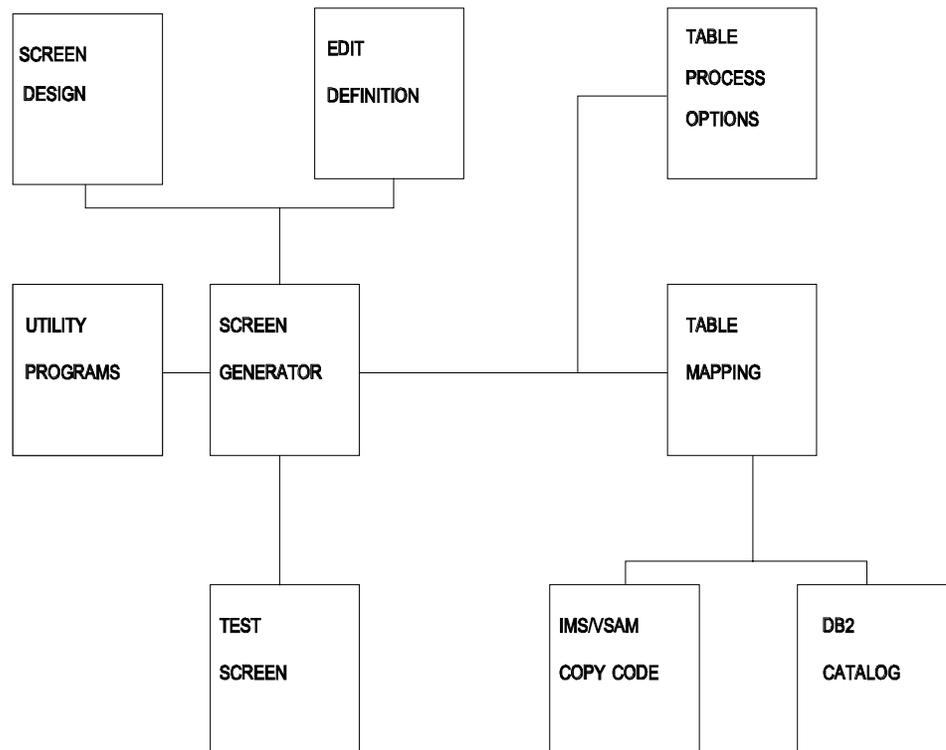
SCREEN DESIGN FUNCTIONS
•Add
  · Default Screen
  · Field Selection Option
  · Field List Option
•View
•Change:
  · Screen Description
  · Screen Format
  · Standard Field Attributes
  · Extended Field Attributes
  · Color Attributes
  · Upper/Lower Case
  · Update Field Names
  · Resequence Fields in the Copy Code
  · View
•Delete
•Copy
•List

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 Processing Requirements (Add, Change, Delete, Inquire)
•Define Logically Connected Table Processing

UTILITY FUNCTIONS
•Define Initial Field Values
•Define Screen Switching
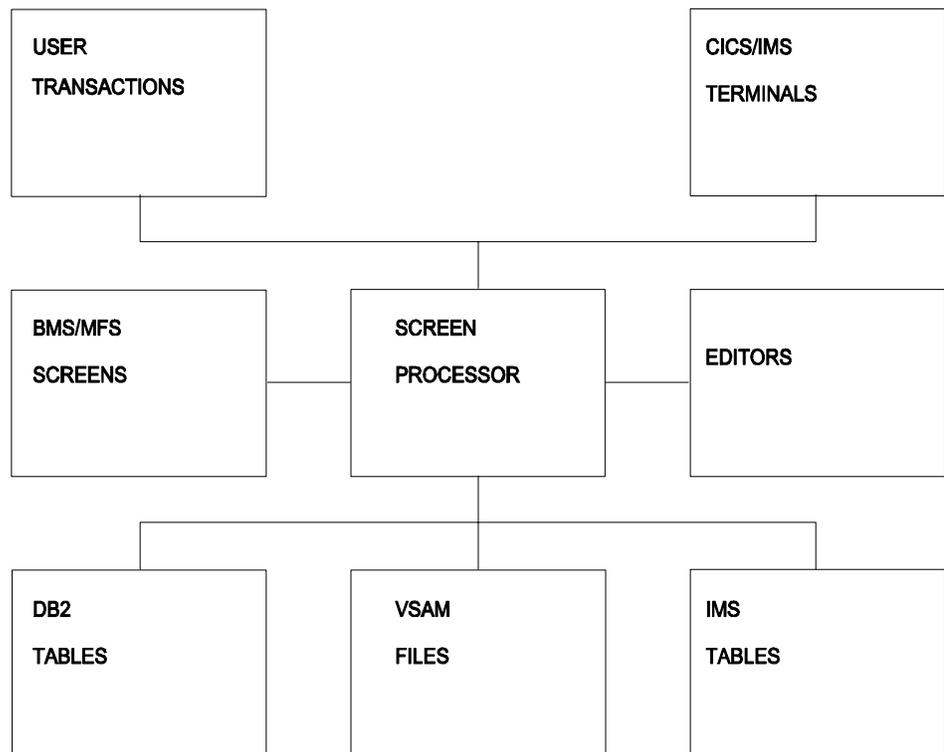•Define Views and Perform Ad Hoc Inquiry
•Define Effectivity Control

TEST SCREEN FUNCTION
Test mode allows immediate execution of screen edit functions without accessing databases.

Screen Processing

The Screen Processor executes 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.

COMPONENTS

```
┌─────────────────┐                          ┌─────────────────┐
│ USER            │                          │ CICS/IMS        │
│ TRANSACTIONS    │                          │ TERMINALS       │
└─────────────────┘                          └─────────────────┘
         │                                            │
         └──────────────────┬─────────────────────────┘
                            │
┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│ BMS/MFS         │  │ SCREEN          │  │ EDITORS         │
│ SCREENS         │──│ PROCESSOR       │──│                 │
└─────────────────┘  └─────────────────┘  └─────────────────┘
                            │
         ┌──────────────────┼─────────────────────────┐
         │                  │                          │
┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│ DB2             │  │ VSAM            │  │ IMS             │
│ TABLES          │  │ FILES           │  │ TABLES          │
└─────────────────┘  └─────────────────┘  └─────────────────┘
```

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 DB2.
•The screen design process is significantly reduced.

NO PROGRAMMING
•Programming of edits to and from screen fields 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 DB2 catalog or a screen and COBOL/PL1 copy-lib, or a screen and IMS/VSAM database.

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.

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

DATA EDITING
•Automatic screens provide instant ability to populate tables with test data and/or retrieve and update existing data.

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
PF1/13   **Help:** To see help information where available

NOTE: Any time the HELP facility is available (PF1/13),
you may type **SYS** in the option field and press ENTER.
This will display a message depicting the TBLOPTS
information at the bottom of the Help panel. After the
message is displayed, you may continue as normal in Help
or press PF3/15 to exit.

PF3/15   **End:** Save current screen then exit to previous
PF4/16   **Return:** Save current screen then exit to top menu
PF7/19   **Backward:** Scroll backward (toward top of list)
PF8/20   **Forward:** Scroll forward (toward bottom of list)
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, and control tables. See **TABLES/AS** Installation Guide.

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

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 TSMM transaction to obtain the TABLES System menu. See Appendix E.

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                - Utility Selection Menu
 8  TABLES/AP                - Switch to Automatic Default Processing
 9  SCREEN PROCESSING        - Switch to Screen Execution Processor


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


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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 cross table validation requirements
- Specify database file information

OPTION ===> 5 - PREPARE SCREEN
- Prepare the screen for execution. During test mode, whenever Option 9 is selected, screen will be prepared automatically prior to switching to **TABLES/AS** Screen Processor.

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

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/AP
- Switch to the **TABLES/AP** 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 also defines the
processing allowed for a screen.

This section of the **TABLES/AS** Reference Manual 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.

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

            A - Add a New Screen          E - Copy a Screen
            C - Change a Screen           V - View a Screen
            D - Delete a Screen           L - List Screen Names


Enter/Verify Information:

            SCREEN NAME ===>       (Required except for List function)










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

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:Return to the **TABLES/AS** Primary Option menu

PF4 RETURN:To return to the **TABLES/AS** Primary Option menu

PF12 CANCEL:To return to the **TABLES/AS** Primary Option menu

Option ===> A - Add a New Screen

OVERVIEW
TABLES/AS Screen Design provides two methods of generating screens for maintaining tables: a default method and a custom method. The default method, which automatically generates a fully executable screen, may be used when a single table is to be processed. The custom method must be used when two or more tables are to be processed on a single screen or when the user doesn't want a screen in the default format.

Both **TABLES/AS** methods end up with a named screen that can then be connected with a menu and other screens to create an entire application.

DEFAULT METHOD
The steps to follow in generating a **TABLES/AS** default screen are found in Appendix I. To specify to **TABLES/AS** that a default screen should be generated enter, on the Screen Design - Description panel, the fully qualified table name along with a YES or SEL for default method.

Specifying YES will generate the screen immediately, using all of the columns in the specified table. If too many columns (max = 120) exist in the table, or there is too much data to be placed on the screen, a screen will not be generated. Instead, a message identifying the cause will be displayed. If the problem is with too much data, use the default method where you specify SEL or develop a custom screen. If there are too many columns, the TABLES product cannot be used to generate a screen.

Specifying SEL will present a list of the columns in the table. Those columns not required on the screen are excluded by entering an 'X' next to the column name. When all excluded columns have been identified, **TABLES/AS** automatically creates a fully executable screen.

You can use all of the facilities of the **TABLES/AS** product to add editing, cross table validation, initial values, switching, etc., to the screen. You can change the processing options to limit the use of the screen. Because it has a name, the screen, once generated can be modified to the full extent of the capabilities of **TABLES/AS**.

CUSTOM METHOD

To identify that a custom screen is required enter NO or blanks to the question 'Default Screen ==>' on the Screen Design - Description panel. The default for this question is 'NO'.

When the enter key is depressed, a completely empty screen will be displayed for 'painting.' If you specified a table name, you will be able to use PF5 to see the columns and associated **TABLES/AS** control information for each column in the table. If a table name was not entered, you will place each field on the screen and identify to **TABLES/AS** the format of that screen field.

Whereas a default screen should only be used when processing a single table, a custom screen expands upon that to include:
• Processing up to 14 tables on a single screen
• Handling multiple record formats per table
• Handling up to 400 fields on the screen
• Allowing any size column, up to 1919 characters
• Allowing for multiple function code fields
• Allowing multiple tables to be updated in a single keystroke
• Allowing independent processing of multiple tables on a screen

All of the functionality of **TABLES/AS** may be specified and built into this screen. The steps to following in generating a fully executable custom screen are shown in Appendix I.

Samples of the screen flows and entries necessary to create an executable custom screen are shown in Appendix J. The examples are:
  ADD A SCREEN - TABLE NAME SPECIFIED
  ADD A SCREEN - TABLE NAME NOT SPECIFIED

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.

SCREEN DESCRIPTION PANEL

```
------------------- TABLES/AS SCREEN DESIGN - DESCRIPTION ------------------
SCREEN:

ENTER/VERIFY THE FOLLOWING FOR THIS SCREEN:
  DESCRIPTION              ===>
  APPLICATION ID    ===>      EXTENDED ATTRIBUTES  ===> N (Y-YES or N-NO)
  DISPLAY/JUST ZEROS   ===>  NULL VALUE CHARACTER ===> \
  CURSOR POSITION      ===> 000   (FIELD NO. FOR INITIAL CURSOR)


SPECIFY MAPPING AND DEFAULT SPECIFICATIONS (FOR NEW SCREENS ONLY):
  TABLE NAME         ===>
  SOURCE           ===> DB2   DEFAULT SCREEN  ===> (YES, NO OR SEL)
  ADDITIONAL SCREENS  ===>
  SEARCH OPERATORS    ===>   (Y)
  SKIP INQUIRY EDITS  ===>   (Y)
ATTRIBUTES: STHCY STHCY    POSITIONS ARE AS FOLLOWS:
          1 =>  A    6 =>              S - SPECIAL CHARACTER TO USE
          2 => &D    7 =>              T - ATTRIBUTE TYPE: 'A' TO 'H'
          3 => IE    8 =>              H - HILITE: R-REVERSE, B-BLINK, U-UNDERSCORE
          4 =>       9 =>              C - COLOR: R,B,G,Y,T,P,N-NEUTRAL
          5 =>      10 =>              Y - CASE: Y-UPPER/LOWER N-UPPER ONLY




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

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.

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.

APPLICATION-ID ===>
Optional. May be used for identification purposes.

EXTENDED ATTRIBUTES ===>
The default value is N. See Appendix A for attributes.
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.

DISPLAY JUST/ZEROS ===>
Allow zero suppression and left/right justification of all decimal columns mapped
to a **TABLES/AS** SCREEN.

blank	Right justified suppression of all zeros (default)
1R	Right justified, no zero suppression
1L	Left justified, no zero suppression
2R	Right justified with leading zero suppression
2L	Left justified with leading zero suppression

NULL VALUE CHARACTER ===> XXXXX
This value indicates which characters to use. The first character of the I/o field
must contain the null character specified here. Valid values are:

'SPACE'	Null columns will be filled with
'BLANK'	spaces
#	Null columns will be filled with # character
/	Null columns will be filled with / character
blank	Character fields will be filled with spaces and numeric fields with zeros

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:

LAST LINE ===> 24
Indicates the bottom boundary of the screen.
Defaults to 24 no matter what is entered.

LAST COLUMN ===> 80
Indicates the right boundary of the screen.
Defaults to 80 no mater what is entered.

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

For IMS segment access:
    If segment name = IMSSEG
    and DBD name = IMSDBD
Enter table name as: IMSSEG + IMSDBD The + is entered and there are no
    imbedded blanks.

For VSAM file access:
Enter the TABLE NAME as specified in the JCL401MC Analyze Copybook
    for this VSAM data set.

SOURCE ===> If a table name was specified, then:
Source of the table defaults to DB2. The definition of the table is retrieved from
DB2 catalogue.

For VSAM/IMS, the definition of the table is retrieved from a copybook.
JCL401MC must have been run for the specified VSAM or IMS table name.

DEFAULT SCREEN ===> XXX,NNNN
Default screens will be single row if all data in a row of the table does not fit within
80 characters. TABLES will build 15 row screens when all data does fit within the
characters. To specify less than 15, follow the YES or SEL by a ',' and a value
from 1-14 for the number of rows desired. If 2 or more rows are built, they will
repeat horizontally. If 1 is specified, the row will be built vertically.

Where XXX =

YESIndicates that a processing screen is requested. The next screen displayed
        is the Change menu. A screen (with date, time, function code, and
        message fields) ready to process all the fields in the named table has
        been created.

SEL Indicates that a default screen is required after specific fields from the table have been excluded. A screen is displayed to identify fields to exclude.

NO Indicates that a custom designed screen is required. A blank screen is displayed for painting a custom screen. See Painting A Custom Screen for information about painting a screen.

Where NNNN = the number of rows desired.

YES,2   YES,02   YES,002 and YES,0002 all generate a 2 row screen.

ADDITIONAL SCREENS ===> XXXXXXXXXXXX
TABLES/AS has the ability to create multiple screens for a table where all the columns cannot be contained on one screen. Format is SCRNAME, # of fields. This may be repeated four times if necessary (example: SCR2, 10   SCR3, 10 SCR4). The TAB key is used to tab between the screen fields.

When additional screens are required, only one row should be generated for the entire series. Any keys are automatically carried forward on each screen. The second through the last screen are always switched for the CHANGE function and should not be changed. Breaking out of a screen in between processing results in a switch to the previous screen with no data retrieved. Use of this facility is recommended for tables that have primary keys and can be processed with search values established on the first screen.

SEARCH OPERATORS ===> X
Blank is the default. **Y** means a search operator will be built for the primary key field only.

SKIP INQUIRY EDITS ===> X
Blank is the default. **Y** will ignore edit errors during an inquiry only function.

ATTRIBUTE CHARACTER SPECIFICATIONS: STHCY
Up to 10 attribute character specifications may be defined for each screen. An attribute character specification (ACS) defines what types of fields can be defined on a screen, input/output or literals.

•Input/Output Fields
  -Defined as the first set of attribute character specifications only.
  -Changed field by field and attribute by attribute through options in the screen change process (Options 3-6).
•Literals
  -Defined or changed through this screen in the 2nd through 10th entry.

Input/output fields or literals can have a number of attributes (high or low intensity, reverse video, underlining, colors, or upper or lower case).

Three ACS defaults are set by the system. They can be added to, modified, or left unchanged.

1===> _A

The underscore character signifies an input/output field with low intensity, no extended attributes, upper case.

2===> &D

The ampersand character signifies a literal field with low intensity, no extended attributes, upper case.

3===> |E

The vertical line signifies a literal field with high intensity, no extended attributes, upper case.

Line 1 is used to define the input/output field. Only one input/output ACS is defined per screen and it must be defined on line 1.

Use the Change menu, Options 3-6, to change the attributes for any special effects or conditions for input/output fields.

Lines 2-10 are used to define the literals, specifying different types of highlighting, color, and upper/lower case characteristics.

ATTRIBUTE SPECIFICATION

===> S FIELD START INDICATOR - IDENTIFYING CHARACTER

Any special character can be used to identify the start of a field or literal (A-Z, blank, 0-9 are not allowed). The character is a signal that an input/output field or literal with special attributes is to follow. A new ACS may be entered, or the products default ACS values may be changed. Remember only the 1st line pertains to I/O fields. Lines 2-9 pertain to literals.

NOTE

Changing the field start indicator after the screen is defined causes unpredictable results.

===> 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.

If not Y, then all fields are converted to upper case.

For literal fields on the screen, the default value is Y for upper/lower case; i.e., the literal fields may be entered in upper/lower case.

This attribute is for literal fields only.

> **NOTE**
>
> Both the terminal and the TABLES transactions must be defined to the operating system as capable of supporting upper/lower case to utilize lower case.

PF KEYS
PF1   HELP   Display list of valid attributes
PF12   CANCELReturn to previous screen, Screen Design Functions
ENTER   NORMALSee DEFAULT SCREEN ===> above for what will occur
                        next when ENTER is pressed.

Field Selection Option ==>

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

```
---------------- TABLES/AS SCREEN DESIGN - FIELD SELECTION -----------------
TABLE: SPS005.DB2TEST                                              ROW 001  of 8

                      ----------FIELD NAME----------

....  FDATE
....  FTIME
....  FSTAMP
....  FCHAR
....  FDEC
....  FHALF
....  FFULL
....  FVAR








Note:  Enter "X" to exclude and press ENTER key.

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

Figure 2-3

Field names may be excluded by entering an X. PF3 entry on this panel terminates field selection and a default screen is created and the next screen displayed is the Change menu. DATE, TIME, FUNCTION and MESSAGE fields are automatically built on the default screen. All fields not excluded will be designed into the default screen.

PF KEYS
PF1	Help
PF2	Cancels previous selection and redisplays all fields again
PF3	Save fields selected and generate a default screen
PF7	Scroll up by one page of field names
PF8	Scroll down by one page of field names
PF12	Cancel field selection and return to description screen

Field List Option ==>

This option is only valid when a table name was entered on the screen description panel. During screen painting, 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:

```
------------------ TABLES/AS SCREEN DESIGN - FIELD LIST ------------------
TABLE:  SPS005.DB2TEST                                        SCREEN: DOC
ID LEN   ----- FIELD NAME ------------ ID LEN  ----- FIELD NAME ----------
BB 0010D FDATE                                          BC 0008A FTIME
BE 0026A FSTAMP                                         BF 0010A
FCHAR
BG 0017Q FDEC                                           BH 0006Q
FHALF
BI 0011Q FFULL                                          BJ 0100A FVAR
BK 0008A DATE (OUTSIDE OF TABLE)               BL 0008A TIME (OUTSIDE
OF TABLE)
BM 0079A MSG (OUTSIDE OF TABLE)                B  0001A FNC (OUTSIDE OF
TABLE)




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

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 followed by eight (8) A's at the desired location on the screen. Note that the field type character to pad this field to its desired length is A. The other field types are Q, N, and D.

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

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. The longest standard message will fit in 78.

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 - To provide a capability for searching on values other than equal to, search operators can be used with a field or fields of a table.

Search operators are defined as alphanumeric fields of length 1. They do not require edit definition.

Search operators are associated with table fields in the mapping process. See ADD A MAP - OPERATOR FIELD NAME.

STATIC SQL modules are generated with specific search operators for the particular fields you specify. Dynamic search operators are not used in STATIC SQL modules.

GUIDELINES

•**NEVER use the ERASE-EOF** key while painting a screen. The entire screen is erased from the point of the cursor.

•It is recommended that the INSERT and DELETE keys NOT BE USED while in screen painting mode.

•Field ID (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.

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.

Figure 2-6 is an example of a screen format that may be changed. As displayed, it is in screen painting mode.

```
|                            O R D E R   E N T R Y

&ENTRY DATE:        01DDDD
&CUSTOMER NUMBER:    02NNNNN  |OR &CUSTOMER SHORT NAME: 03AAAAAAAA
&SHIP-TO LOCATION:   04NN
&REQUESTED SHIP DATE: 05DDDD

&                    TAX   PROMISED                         TAX     PROMISED
&ITEM NO.   QUANTITY CODE  DATE     ITEM NO.   QUANTITY     CODE    DATE
|-------    --------  ----  -----    -------    --------     ----    ------
 06NNNNN    07QQQQQ  B     08DDDD   09NNNNN   10QQQQQ       C       11DDDD
 12NNNNN    13QQQQQ  D     14DDDD   15NNNNN   16QQQQQ       E       17DDDD
 18NNNNN    19QQQQQ  F     20DDDD   21NNNNN   22QQQQQ       G       23DDDD
 24NNNNN    25QQQQQ  H     26DDDD   27NNNNN   28QQQQQ       I       29DDDD




 30AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAA
```

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.

BB-ZZ Field ID (FLDID) numbers assigned sequentially to
and **01-99** input/output fields having a length of two or more characters.

B-Z Field ID (FLDID) characters assigned sequentially to
and **0-9** 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.

•It is recommended that the INSERT and DELETE keys NOT BE USED while in
screen painting mode.

•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 18 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 18 Ds valid lengths are 5, 6, 7, 8, 9, 10, 18.

  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).

Date fields must be entered in a valid date format. TABLES can reformat to other valid date forms.

Numeric fields require the entry of digits in each position of the field. There is no zero suppression nor left zero fill performed on numeric fields.

Quantity (decimal) fields are left zero filled, zero suppressed and decimal point aligned.

> **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 correct field format. See "Add a Field" above. Note: The field name, edits and maps with this field will all be changed.

MOVE A FIELD

Position the cursor and type the exact characters that were originally shown for that field. Blank out the original field area using the space bar.

DELETE A FIELD

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

> NOTE
>
> When changing a field on the screen, any edits defined for that
> field must have been deleted. They may be redefined after the
> change is made.

PF KEYS

PF1/13   Help for screen painting and change

PF2/14Shift to Line Commands screen to perform line copies, moves, repeats and shift left or right. Data may be changed in line command mode.

PF3/15Save changes and return to the **TABLES/AS** Screen Design - Change menu

PF4/16   Save changes and return to the **TABLES/AS** Primary Option menu

PF12/24Cancel 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.

LINE COMMANDS PANEL

```
....|                          O R D E R  E N T R Y
....
....&ENTRY DATE:     _01DDDD
....&CUSTOMER NUMBER:  _02NNNNN  |OR &CUSTOMER SHORT NAME:_03AAAAAAAA
....&SHIP-TO LOCATION:  _04NN
....&REQUESTED SHIP DATE:_05DDDD
....
....&                      TAX PROMISED                            TAX  PROMISED
....&ITEM NO.  QUANTITY        CODE     DATE      ITEM NO.   QUANTITY CODE   DATE
....|-------    --------  ----        -----     ------- --------   ---- ------
...._06NNNNN _07QQQQQ      _B      _08DDDD    _09NNNNN   _10QQQQQ   _C _11DDDD
...._12NNNNN _13QQQQQ      _D      _14DDDD    _15NNNNN   _16QQQQQ   _E _17DDDD
...._18NNNNN _19QQQQQ      _F      _20DDDD    _21NNNNN   _22QQQQQ   _G _23DDDD
...._24NNNNN _25QQQQQ      _H      _26DDDD    _27NNNNN   _28QQQQQ   _I _29DDDD
....
....
....
....
....
....
...._30AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
....
....
```

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.

From Screen Painting, press PF3/15 to save changes, or press PF12 to cancel changes and return to the **TABLES/AS** Screen Design Change menu.

Pressing PF4/16 will save your screen and return you to **TABLES/AS** Primary Option 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...	CC..	A...	SR5.	....	....	....
....	....	....	....	SR05	CC..	....	R04.
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

PF2/14Shift to line commands screen to perform line copies, moves, repeats, and
          shift left or right

PF3/15   Return to Change menu (SCREEN PAINTING)

PF4/16   Save screen and return to Primary Option menu.

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.

```
                            O R D E R   E N T R Y


ENTRY DATE: A
CUSTOMER NUMBER: A                       OR   CUSTOMER SHORT NAME: A
SHIP-TO LOCATION: A
REQUESTED SHIP DATE: A


          TAX    PROMISED              TAX    PROMISED
ITEM NO.  QUANTITY  CODE    DATE       ITEM NO. QUANTITY  CODE     DATE
--------  --------  ----    --------   -------- --------  ----    --------
B         B         A       B          B        B         A        B
```
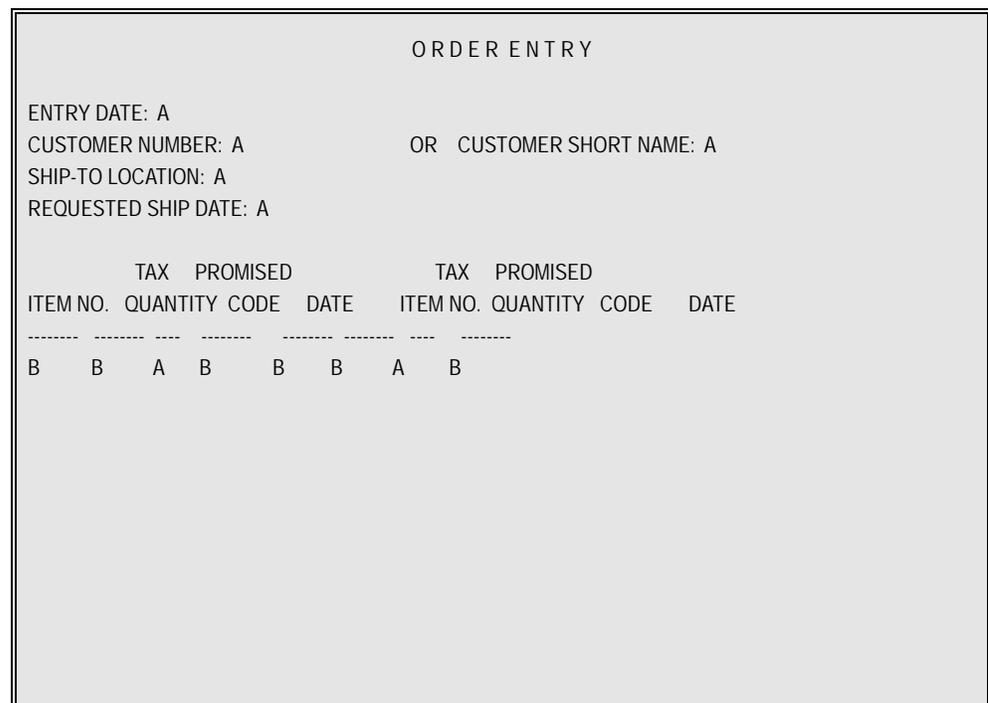
Figure 2-8

CHANGING AN ATTRIBUTE

• Position the cursor over the attribute being changed using the tab keys.

• 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
    IInput/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 (line 1, COLUMN-T).

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. 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 to be selected.

```
                           O R D E R  E N T R Y


ENTRY DATE:
CUSTOMER NUMBER:                          OR       CUSTOMER SHORT NAME:
SHIP-TO LOCATION:
REQUESTED SHIP DATE:


          TAX  PROMISED           TAX   PROMISED
ITEM NO.  QUANTITY  CODE  DATE     ITEM NO.  QUANTITY  CODE   DATE
--------  --------  ----  --------     --------  --------  ----  -------
```

Figure 2-9

CHANGING AN ATTRIBUTE

•Position the cursor at the first position of the screen field you wish to change.

•Use the tab 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 (line 1, COLUMN-H).

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. 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 to be selected.

```
                              O R D E R  E N T R Y


ENTRY DATE:
CUSTOMER NUMBER:                                OR       CUSTOMER SHORT NAME:
SHIP-TO LOCATION:
REQUESTED SHIP DATE:


          TAX  PROMISED              TAX  PROMISED
ITEM NO.  QUANTITY  CODE  DATE     ITEM NO.  QUANTITY  CODE   DATE
--------  --------  ----  --------    --------  --------  ----  --------
```

Figure 2-10

CHANGING AN ATTRIBUTE

•Position the cursor at the first position of the screen field you wish to change.
Use the tab keys to move the cursor between the screen fields 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 (line 1, COLUMN-C).

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

With the TABLES transactions and your terminal defined for upper/lower case capability, you may set upper case only or upper/lower case for each input/output screen field via this option.

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.

```
                          O R D E R  E N T R Y


ENTRY DATE:
CUSTOMER NUMBER:                          OR      CUSTOMER SHORT NAME:
SHIP-TO LOCATION:
REQUESTED SHIP DATE:



         TAX  PROMISED           TAX  PROMISED
ITEM NO.  QUANTITY  CODE  DATE    ITEM NO.  QUANTITY  CODE   DATE
--------  -------- ----  --------    -------- -------- ----  --------
```

Figure 2-11

CHANGING AN ATTRIBUTE

•Position the cursor at the first position of the screen field being changed. Use the tab keys to move the cursor between the screen fields on the screen. 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.
 BlankData 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

PF3Save changes and return to the **TABLES/AS** Screen Design - Change
            menu

PF4Save changes and return to the **TABLES/AS** Primary Option menu

PF12   Cancel changes and return to Change menu

ENTERSave 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.

```
-------------------- TABLES/AS SCREEN DESIGN - FIELD NAMES --------------------
SCREEN:
**********************************************************************************



**********************************************************************************
  NAME   ID   NAME   ID   NAME   ID   NAME   ID
  -------- --   -------- --   -------- --   -------- --








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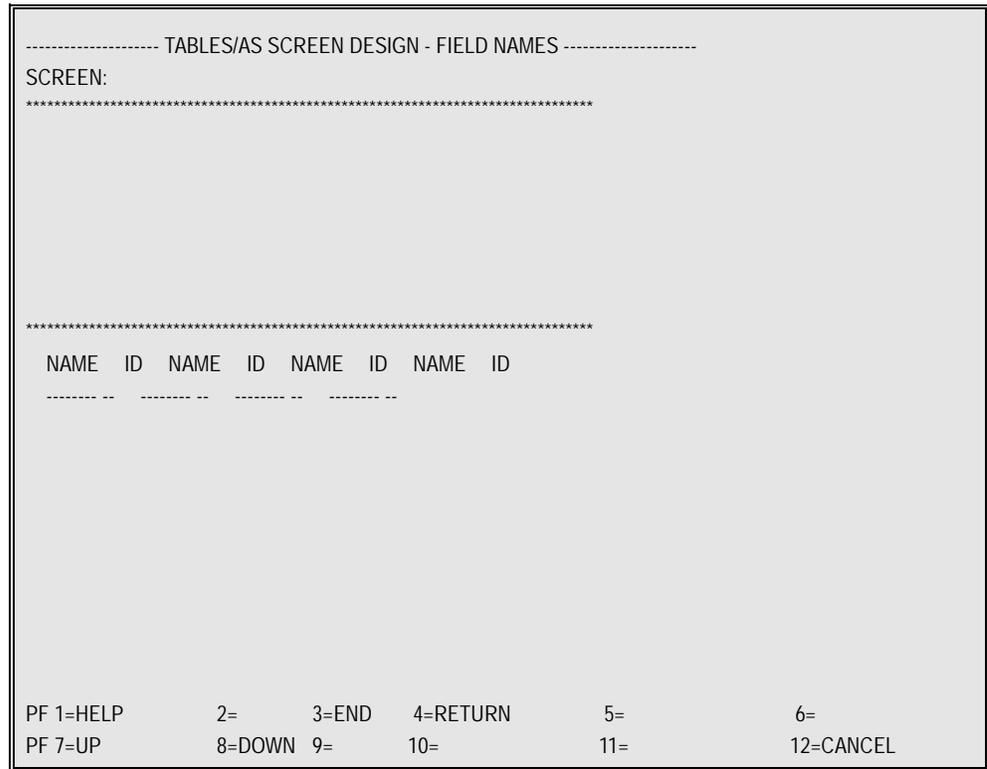
Figure 2-12

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.

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

```
-------------------- TABLES/AS SCREEN DESIGN - FIELD NAMES --------------------
SCREEN: ORDERS
********************************************************************************
|                              O R D E R   E N T R Y

&ENTRY DATE:        01DDDD
&CUSTOMER NUMBER:    02NNNNN   |OR  &CUSTOMER SHORT NAME: 03AAAAAAAA
&SHIP-TO LOCATION:   04NN
&REQUESTED SHIP DATE: 05DDDD


********************************************************************************
  NAME    ID   NAME    ID   NAME    ID   NAME    ID
  -------- --   -------- --   -------- --   -------- --
  ENTRYDT 01   CUSTNO  02   SHORTNAM 03   SHIPT   04
  REQSHPDT 05   ITEMNO1 06   QTY1    07   TAXCD1  B
  PROMSDT1 08   ITEMNO2 09   QTY2    10   TAXCD2  C
  PROMSDT2 11   ITEMNO3 12   QTY3    13   TAXCD3  D
  PROMSDT3 14   ITEMNO4 15   QTY4    16   TAXCD4  E
  PROMSDT4 17   ITEMNO5 18   QTY5    19   TAXCD5  F
  PROMSDT5 20   ITEMNO6 21   QTY6    22   TAXCD6  G
  PROMSDT6 23   ITEMNO7 24   QTY7    25   TAXCD7  H
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAA
PF 1=HELP        2=       3=END    4=RETURN      5=            6=
PF 7=UP          8=DOWN 9=    10=         11=           12=CANCEL
```

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.

The first position field name must be alphabetic. Hyphens are not allowed within
field names. All other COBOL field name restrictions should be adhered to.

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.
     NOTE:_____
     _
     After changing field names, you should review and update as necessary:
     - Mapping
     - Field Edits
     - Relational Edits
     - Processing Options
     - Cross Table Validations
     • Initial Values
     _____

This is especially important if you have created a default screen and then named all
the fields. In this case the map to the default table, the field edits and processing
options will have been deleted.

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

ENTERAssign 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 screen field to the last screen field is the sequence of the copy code generated.

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

```
---------------- TABLES/AS SCREEN DESIGN - RESEQUENCE COPY CODE ----------------
SCREEN:
**************************************************************************************
 SEQ-NO.  NAME  ID    SEQ-NO.  NAME  ID     SEQ-NO.  NAME  ID
  ===  ======== ==     ===  ======== ==      ===  ======== ==

















PF 1=HELP        2=        3=END    4=RETURN        5=              6=RESEQ-ALL
PF 7=UP          8=DOWN  9=        10=            11=             12=CANCEL
```

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 character 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.

> **NOTE**

If the Screen Format option is selected and the screen is saved via PF3/PF4, the
copy code fields will be put back into screen sequence.

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

```
--------------- TABLES/AS SCREEN DESIGN - RESEQUENCE COPY CODE ----------------
SCREEN: ORDERS
**********************************************************************************
 SEQ-NO.  NAME  ID    SEQ-NO.  NAME  ID     SEQ-NO.  NAME  ID
  ===  ======== ==     ===  ======== ==      ===  ======== ==
  001  ENTRYDT 01      002  SHORTNAM 03      003  CUSTNO  02
  004  SHIPT   04      005  REQSHPDT 05      006  ITEMNO1 06
  007  QTY1    07      008  TAXCD1  B       009  PROMSDT1 08
  010  ITEMNO2 09      011  QTY2    10       012  TAXCD2  C
  013  PROMSDT2 11     014  ITEMNO3 12       015  QTY3    13
  016  TAXCD3  D       017  PROMSDT3 14      018  ITEMNO4 15
  019  QTY4    16      020  TAXCD4  E        021  PROMSDT4 17
  022  ITEMNO5 18      023  QTY5    19       024  TAXCD5  F
  025  PROMSDT5 20     026  ITEMNO6 21       027  QTY6    22
  028  TAXCD6  G       029  PROMSDT6 23      030  ITEMNO7 24
  031  QTY7    25      032  TAXCD7  H        033  PROMSDT7 26
  034  ITEMNO8 27      035  QTY8    28       036  TAXCD8  I
  037  PROMSDT8 29     038  ORDMSG  30       00



 PF 1=HELP        2=        3=END     4=RETURN       5=            6=RESEQ-ALL
 PF 7=UP          8=DOWN  9=     10=          11=          12=CANCEL
```

Figure 2-15

PF KEYS

PF6Automatically resequences all fields in the copy code into the sequence
        in which the fields are on the screen. (Line # / col # sequence).

PF12Cancel 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 or if new fields are added on the
screen.

OPTION ===> 9 - VIEW

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

```
                            O R D E R  E N T R Y

ENTRY DATE:  DDDDD
CUSTOMER NUMBER:  NNNNNNN          OR   CUSTOMER SHORT NAME:  AAAAAAAAAA
SHIP-TO LOCATION:  NNNN
REQUESTED SHIP DATE:  DDDDD


         TAX   PROMISED              TAX   PROMISED
ITEM NO.  QUANTITY CODE   DATE     ITEM NO.  QUANTITY  CODE    DATE
-------  -------- ----  ------     -------  --------  ----   ------
NNNNNNN  QQQQQQQ  A    DDDDDD      NNNNNNN  QQQQQQQ   A     DDDDDD
NNNNNNN  QQQQQQQ  A    DDDDDD      NNNNNNN  QQQQQQQ   A     DDDDDD
NNNNNNN  QQQQQQQ  A    DDDDDD      NNNNNNN  QQQQQQQ   A     DDDDDD
NNNNNNN  QQQQQQQ  A    DDDDDD      NNNNNNN  QQQQQQQ   A     DDDDDD





AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAA
```

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.

```
                          O R D E R   E N T R Y

ENTRY DATE:
CUSTOMER NUMBER:            OR   CUSTOMER SHORT NAME:
SHIP-TO LOCATION:
REQUESTED SHIP DATE:



          TAX   PROMISED              TAX   PROMISED
ITEM NO.  QUANTITY  CODE   DATE       ITEM NO.  QUANTITY  CODE    DATE
-------  --------  ----  ------      -------  --------  ----  ------
```

Figure 2-17

PF KEYS

PF3Confirm delete request and return to the **TABLES/AS** Screen Design -
          Change menu

PF4Confirm delete request and return to the **TABLES/AS** Primary Option
          menu

PF 12Cancel delete request and return to the **TABLES/AS** Screen Design-Change
          menu

ENTERConfirm 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.

```
----------------------- TABLES/AS SCREEN DESIGN - COPY -----------------------
Enter/Verify the Following:


   FROM SCREEN ===>
    TO SCREEN ===>


   COPY LEVEL  ===>      --------------------------------------------------
                         ! LEVEL   TO COPY:                   !
                         !  1    Screen Format Only           !
                         !  2    Format + Field Names          !
                         !  3    Format + Field Names + Edits      !
                         !  4    Format + Field Names + Edits + Mapping !
                         --------------------------------------------------













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

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

PF3Save changes on the new screen and return to the **TABLES/AS** Screen Design menu

PF4Save 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 a Screen

The named screen is displayed. See Figure 2-19 for an example of a customized screen. The A's, D's, N's and Q's identify the type and length of the field on this screen.

```
                        O R D E R  E N T R Y

ENTRY DATE: DDDDDD
CUSTOMER NUMBER: NNNNNNN        OR   CUSTOMER SHORT NAME: AAAAAAAAAA
SHIP-TO LOCATION: NNNN
REQUESTED SHIP DATE: DDDDDD


          TAX  PROMISED              TAX   PROMISED
ITEM NO. QUANTITY CODE   DATE    ITEM NO. QUANTITY  CODE   DATE
------- -------- ---- ------     ------- -------- ---- ------
NNNNNNN QQQQQQQ A   DDDDDD    NNNNNNN QQQQQQQ A    DDDDDD
NNNNNNN QQQQQQQ A   DDDDDD    NNNNNNN QQQQQQQ A    DDDDDD
NNNNNNN QQQQQQQ A   DDDDDD    NNNNNNN QQQQQQQ A    DDDDDD
NNNNNNN QQQQQQQ A   DDDDDD    NNNNNNN QQQQQQQ A    DDDDDD





AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAA
```

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.

```
----------------------- TABLES/AS SCREEN LIST DISPLAY -----------------------

  SCREEN              DESCRIPTION
  ========            ======================================














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

Figure 2-20

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

PF KEYS

PF3Return to the **TABLES/AS** Screen Design menu
PF4Return to the **TABLES/AS** Primary Option menu
PF12Return to the **TABLES/AS** Screen Design menu
ENTERDisplay the next page of screen names

Primary Option Menu
Option ===> 2 - Edit Definition

When you select Option 2 on the **TABLES/AS** Primary Option menu, the system displays the **TABLES/AS** Edit Definition menu. See Figure 2-21.

```
-------------------- TABLES/AS EDIT DEFINITION MENU --------------------
SELECT OPTION ===>                                                        DATE:
                                                                          TIME:
 1  FIELD EDITING     - Define Field Edit Rules
 2  RELATIONAL EDITING        - Define Relational Edit Rules
 3  VIEW FIELD EDITS - View Field Edit Rules
 4  VIEW RELATIONAL - View Relational Edit Rules
 5  DELETE ALL EDITS            - Delete All Field and Relational Edit Rules




Enter/Verify Information:


            SCREEN NAME   ===>          (Required)
            CONFIRMATION  ===>                      (Enter Y to Delete Edits)






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

Figure 2-21

The menu is used to define, view and delete edit rules.

The options are:

1 - Define field editing rules
2 - Define relational editing rules
3 - View field edit rules
4 - View relational edit rules
5 - Delete all field and relational edit rules

You must enter the SCREEN NAME ===> you wish to process.

PF KEYS
PF3To return to the **TABLES/AS** Primary Option menu
PF4To return to the **TABLES/AS** Primary Option menu
PF12To return to the **TABLES/AS** Primary Option menu
ENTERTo process the option you have selected

Option ===> 1 - Field Editing

The first screen displayed is the screen format. The input/output fields are
replaced by edit characters.
X Field with no edits
E Field with edits
M Field is defined as a message field
S Field is defined as a special message field.

Figure 2-22 is an example of a screen that appears when selecting Option 1, Define
Field Edit Rules.

```
                        O R D E R   E N T R Y


ENTRY DATE:      X
CUSTOMER NUMBER:   X      OR   CUSTOMER SHORT NAME: X
SHIP-TO LOCATION:   X
REQUESTED SHIP DATE: X


         TAX   PROMISED                                TAX    PROMISED
ITEM NO. QUANTITY  CODE   DATE     ITEM NO.  QUANTITY   CODE DATE
------- --------  -----  ------     ------- --------   ----  ------
X     X        X    X        X     X        X   X




















X
```

Figure 2-22

If the screen contains repeating fields or groups of fields which have the same field
names, then only the first occurrence of the field has the edit character.

The group ITEM NO, QUANTITY, TAX CODE, AND PROMISED DATE
repeats two times. Any edits defined for the first occurrence of the group hold
true for the second occurrence because the same field names are used.

EDIT RULES
To define edits for a field, position the cursor to the edit character for that field. Type an E over the X and press ENTER. Multiple fields may be selected at one time for editing.

CHANGE
To change existing edits for a field, position the cursor at the edit character, type a C (change) over the E, and press ENTER. Multiple fields may be selected at one time for change.

After changing an edit character to E (edit) or C (change) one of four edit screens is displayed depending on the field type being edited:
• Alphanumeric field edits
• Date field edits
• Numeric field edits
• Quantity field edits

Each of these screens contain a number of edit questions. Each of the edit parameters already has a value assigned. They are either previous edits defined for this field on this screen or default values if editing this field for the first time. Pressing ENTER activates the edits.

DELETE
Position the cursor at the edit character. Type a D (delete) over the edit character and press ENTER. Multiple fields may be selected at one time for delete.

MESSAGE FIELDS
To define a field as a common error message field, position the cursor at the edit character. Type an M over the X and press ENTER. That field is now used for the display of error messages only. Define common message field(s) before defining edits for other fields. Edits cannot be defined for this type of field. More than one field may be designed as a common error message field. This allows the system to display more than one error message if the screen contains more than one error.

DEFINE A SPECIAL MESSAGE FIELD
See Special Message Field Name?, under FIELD EDITS ALPHANUMERIC, DATE, NUMERIC, or QUANTITY.

Field Edits - Alphanumeric

Figure 2-23 is an example of the Alphanumeric Field Edits screen.

```
------------------ TABLES/AS EDIT DEFINITION  - FIELD EDITS -------------------
FIELD:                                                       TYPE: ALPHANUMERIC
LENGTH:          TABLE FIELD:


Specify Edit Processing for this Field:

  PRESENCE CHECK ===>      (Y or N)
  FORMAT CHECK  ===>       (Y or N)                    FORMAT ===>
  ALPHA CHECK   ===>       (Y or N)


  RELATIONAL EDIT CONTROL FIELD ===>              (Y or N)
  DISCRETE VALUES AND RANGES   ===>              (Y or N)



Specify Optional Error Message Processing:
                                    STD   EXT   COL
  SPECIAL MESSAGE FIELD NAME ===>      ERROR ATTRIBUTES =>  =>  =>
  CUSTOMIZE ERROR MESSAGES  ===>  (Y or N)



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

Figure 2-23

FIELD NAME
The field for which edits are being defined. It is for display only and is not changed.

TABLE FIELD
This field is the corresponding field name in the table.

LENGTH
The field length currently defined for this field. It is for display only and is not changed.

PRESENCE CHECK ? (Y/N) N
Y requires that data be entered in this field.
N Default

FORMAT CHECK? (Y/N) FORMAT ===>

The maximum length screen field that can be formatted is 20 characters.

Y allows a specific format to be defined for this field. For example, a social security number could be defined as 999-99-9999.

Valid Format Characters
  A Alpha check (characters A-Z only)
  B Alpha & blank check (characters A-Z & blank)
  X Alphanumeric check (characters A-Z & 0-9)
  Y Alphanumeric & blank check (characters A-Z & 0-9 & blank)
  Z Any character including blank
  9 Numeric check (characters 0-9 only)

Special Characters = Any characters excluding A-Z & 0-9. The character(s) entered in the FORMAT must be entered on the screen to be valid.

N Default

ALPHA CHECK? (Y/N)

Y causes the system to only accept alphabetic entries as valid, rejecting numerics and special characters. An alpha character is A-Z or Blank. Format check and alpha check cannot both be answered Y.

N Default

RELATIONAL EDIT CONTROL FIELD? (Y/N)

Y allows relational edits to be defined with this field as a control field.

N Default

DISCRETE VALUES AND RANGES TO BE ENTERED? (Y/N)

Y allows specific values or ranges of values which are valid for this field to be entered. After pressing the ENTER key, another screen is displayed to accept the discrete values. N is entered if discrete values are not entered.

N Default

SPECIAL MESSAGE FIELD NAME?

To display a special message for a defined field, enter the field name. Leave this field blank if the error messages are to be displayed in a common message field or not at all. The same special message field can be used for more than one field. Defining a special message field causes the edit character to change to S. To change the edit character back to X, blank out the special message field name here.

BLANK Default

ERROR ATTRIBUTE? (STD B EXT   COL)
Specify different attributes for a field when in error by entering the standard
attribute and/or the extended highlight attribute and/or the color attribute. See the
APPENDIX for valid values.
STD-B (High Intensity) Default

CUSTOMIZE MESSAGES? (Y/N)
Y causes the system to use predefined, unnumbered error messages for each error
for this field. These messages are further tailored by changing them using the
Customize Messages screen. This screen is displayed after pressing ENTER.

N causes the system to display numbered error messages that are system generated
for this field. For example, if presence check is Y, requiring data to be entered in
this field, and the operator does not enter any data, these possible error messages
appear:

   System generic msg   - E115: Data must be present
   System customized msg   - Data must be entered
   Your tailored custom msg - Please enter a customer number

N Default

Field Edits - Date

Figure 2-24 is an example of a Date Field Edits screen.

```
------------------ TABLES/AS EDIT DEFINITION  - FIELD EDITS -------------------
FIELD:                                                              TYPE: DATE
LENGTH:              TABLE FIELD:

Specify Edit Processing for this Field:

 PRESENCE CHECK ===>      (Y or N)
 DATE FORMAT   ===>       (Y or N)                    FORMAT ===>
 REL. TO CURR  ===>       (Relation to Current Date Operator)

 RELATIONAL EDIT CONTROL FIELD ===>                   (Y or N)
 DISCRETE VALUES AND RANGES   ===>                    (Y or N)



Specify Optional Error Message Processing:
                                 STD   EXT   COL
 SPECIAL MESSAGE FIELD NAME ===>       ERROR ATTRIBUTES  =>   =>   =>
 CUSTOMIZE ERROR MESSAGES   ===>        (Y or N)

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

Figure 2-24

FIELD NAME
The field for which edits are being defined. It is for display only and cannot be changed.

TABLE FIELD
This field is the corresponding field name in the table.

LENGTH
The field length currently defined for this field. It is for display only and cannot be changed.

PRESENCE CHECK ? (Y/N) N
Y Input required for this field
N Default (input not required for this field)

DATE FORMAT? (Y/N)   FORMAT ===>
Default date format is Y. All dates must have a defined format.

FORMAT
See Appendix B - Date Format Codes

REL. CURRENT DATE
Instructs how the date being entered is compared to the current date.

BLANK	The date entered is not compared to the current date.
=	The date entered must be equal to the current date.
¬	The date entered must not be equal to the current date.
<	The date entered must be less than the current date.
L	The date entered must be less than or equal to the current date.
>	The date entered must be greater than the current date.
G	The date entered must be greater than or equal to the current date.

CONTROLLING FIELD IN RELATIONAL EDIT CONDITION? (Y/N)
Y allows the relational edits to be defined for this field.
N Default

DISCRETE VALUES AND RANGES TO BE ENTERED? (Y/N)
Y allows specific values or ranges of values which are valid for this field to be entered. After pressing the ENTER key, another screen is displayed to accept the discrete values. N is entered if discrete values are not entered.
N Default

SPECIAL MESSAGE FIELD NAME?
To display a special message for a defined field, enter the field name. Leave this field blank if the error messages are displayed in a common message field or not at all. The same special message field can be used for more than one field. Defining a special message field causes the edit character to change to S. To change the edit character back to X, blank out the special message field name here.
BLANK Default

ERROR ATTRIBUTE? (STD B EXT COL)
Specify different attributes for a field when in error by entering the standard attribute and/or the extended highlight attribute and/or the color attribute. See the APPENDIX for valid values.
STD-B (High Intensity) Default

CUSTOMIZE MESSAGES? (Y/N)

Y causes the system to use predefined, unnumbered error messages for each error for this field. These messages can be further tailored by changing them using the Customize Messages screen. This screen is displayed after pressing ENTER.

N causes the system to display numbered error messages that are system generated for this field. For example, if presence check is Y, requiring data to be entered in this field, and the operator does not enter any data, these possible error messages appear:

System generic msg	- E115: Data must be present
System customized msg	- Data must be entered
Your tailored custom msg	- Please enter a customer number

N Default

Field Edits - Numeric

Figure 2-25 is an example of a Numeric Field Edits screen.

```
------------------ TABLES/AS EDIT DEFINITION  - FIELD EDITS -------------------
FIELD:                                                              TYPE: NUMERIC
LENGTH:            TABLE FIELD:

Specify Edit Processing for this Field:


  PRESENCE CHECK ===>       (Y or N)



  RELATIONAL EDIT CONTROL FIELD ===>                 (Y or N)
  DISCRETE VALUES AND RANGES   ===>                  (Y or N)



Specify Optional Error Message Processing:
                                 STD   EXT   COL
  SPECIAL MESSAGE FIELD NAME ===>       ERROR ATTRIBUTES  =>   =>   =>
  CUSTOMIZE ERROR MESSAGES  ===>             (Y or N)



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

Figure 2-25

FIELD NAME
The field for which edits are being defined. It is for display only and is not changed.

TABLE FIELD
This field is the corresponding field name in the table.

LENGTH
The field length currently defined for this field. It is for display only and cannot be changed.

PRESENCE CHECK ? (Y/N) N
Y requires that data be entered in this field.
N Default

CONTROLLING FIELD IN RELATIONAL EDIT CONDITION? (Y/N)
Y allows the relational edits to be defined for this field.
N Default

DISCRETE VALUES AND RANGES TO BE ENTERED? (Y/N)
Y allows specific values or ranges of values which are valid for this field to be
entered. After pressing the ENTER key, another screen is displayed to accept the
discrete values. N is entered if discrete values are not entered.
N Default

SPECIAL MESSAGE FIELD NAME?
To display a special message for a defined field, enter the field name. Leave this
field blank if the error messages are displayed in a common message field or not at
all. The same special message field can be used for more than one field. Defining
a special message field causes the edit character to change to S. To change the
edit character back to X, blank out the special message field name here.
BLANK Default

ERROR ATTRIBUTE? (STD B EXT   COL)
Specify different attributes for a field when in error by entering the standard
attribute and/or the extended highlight attribute and/or the color attribute. See the
APPENDIX for valid values.
STD-B (High Intensity) Default

CUSTOMIZE MESSAGES? (Y/N)
Y causes the system to use predefined, unnumbered error messages for each error
for this field. These messages are further tailored by changing them using the
Customize Messages screen. This screen is displayed after pressing ENTER.

N causes the system to display numbered error messages that are system generated
for this field. For example, if presence check is Y, requiring data to be entered in
this field, and the operator does not enter any data, these possible error messages
appear:

System generic msg	- E115: Data must be present
System customized msg	- Data must be entered
Your tailored custom msg	- Please enter a customer number

N Default

PF KEYS
PF3Save edits and return to the **TABLES/AS** Edit Definition menu
PF4Save edits and return to the **TABLES/AS** Primary Option menu
ENTERAccept edits currently defined on the screen. If Customized Messages or
Discrete Values are requested, option screen (SS850103) is presented.
Otherwise, return to the previous screen to select fields for editing.

Field Edits - Quantity

Figure 2-26 is an example of a Quantity Field Edits screen.

```
-------------------- TABLES/AS EDIT DEFINITION  - FIELD EDITS ------------------
FIELD:                                                              TYPE: QUANTITY
LENGTH:          TABLE FIELD:


Specify Edit Processing for this Field:


 PRESENCE CHECK ===>                    (Y or N)
 NEGATIVE SIGN  ===>                    (L-Left, R-Right, N-None)
 DEC POSITIONS  ===>     (Number of Decimal Positions, 0 to 18)


 RELATIONAL EDIT CONTROL FIELD ===>                 (Y or N)
 DISCRETE VALUES AND RANGES   ===>                  (Y or N)



Specify Optional Error Message Processing:
                                  STD  EXT  COL
 SPECIAL MESSAGE FIELD NAME ===>      ERROR ATTRIBUTES =>  =>  =>
 CUSTOMIZE ERROR MESSAGES  ===>            (Y or N)



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

Figure 2-26

FIELD NAME

The field for which edits are being defined. It is for display only and cannot be changed.

TABLE FIELD

This field is the corresponding field name in the table.

LENGTH

The field length currently defined for this field. It is for display only and cannot be changed.

PRESENCE CHECK ? (Y/N) N

Y requires that data be entered in this field.

N Default

NEGATIVE SIGN (L, R, N)
Specify where the negative sign is to be displayed. When entering data on the
screen, the sign can be entered on either side.
L = left, R = right, N = none
Example   L: -100000, 1000000
                R: 100000-, 1000000
                N: 1000000
                N = Default

DEC POSITION (0-18)
Specify the number of decimal positions for this field.
0 Default

RELATIONAL EDIT CONTROL FIELD? (Y/N)
Y allows the relational edits to be defined for this field.
N Default

DISCRETE VALUES AND RANGES TO BE ENTERED? (Y/N)
Y allows specific values or ranges of values which are valid for this field to be
entered. After pressing the ENTER key, another screen is displayed to accept the
discrete values. N is entered if discrete values are not entered.
B Default

SPECIAL MESSAGE FIELD NAME?
To display a special message for a defined field, enter the field name. Leave this
field blank if the error messages are displayed in a common message field or not at
all. The same special message field can be used for more than one field. Defining
a special message field causes the edit character to change to S. To change the
edit character back to X, blank out the special message field name here.
BLANK Default

ERROR ATTRIBUTE? (STD B EXT   COL)
Specify different attributes for a field when in error by entering the standard
attribute and/or the extended highlight attribute and/or the color attribute. See the
APPENDIX for valid values.
STD-B (High Intensity) Default

CUSTOMIZE MESSAGES? (Y/N)

Y causes the system to use predefined, unnumbered error messages for each error for this field. These messages can be further tailored by changing them using the Customize Messages screen. This screen is displayed after pressing ENTER.

N causes the system to display numbered error messages that are system generated for this field. For example, if presence check is Y, requiring data to be entered in this field, and the operator does not enter any data, these possible error messages appear:

    System generic msg   - E115: Data must be present
    System customized msg   - Data must be entered
    Your tailored custom msg - Please enter a customer number

N Default

PF KEYS

PF3 Save edits and return to the **TABLES/AS** Edit Definition menu.
PF4 Save edits and return to the **TABLES/AS** Primary Option menu.
PF12 Cancel edits and return to **TABLES/AS** Edit Definition menu
ENTER Accept edits currently defined on the screen. If Customized Messages or
        Discrete Values are requested, option screen (SS850103) is presented.
        Otherwise, return to the previous screen to select fields for editing.

Edit Options

CUSTOMIZE MESSAGES

Figure 2-27 shows the screen that is displayed if CUSTOMIZE MESSAGES and DISCRETE VALUES are specified on any of the Field Edit screens.

```
----------------------- TABLES/AS - EDIT OPTIONS PANEL -----------------------
SELECT OPTION ===>

  Edit Definition Options for field:

    1    CUSTOMIZE ERROR MESSAGES
    2    DISCRETE VALUES AND RANGES

















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

Figure 2-27

If only one, CUSTOMIZE MESSAGES or DISCRETE VALUES, is chosen for the field, then this option screen is automatically bypassed.

Enter the option code and press ENTER. The next screen displayed is identical to the field edit screen with the exception of having a customized message below each edit question with a positive response, or it is the Discrete Values and Ranges screen. Messages can be entered in lower case and will display that way as long as your terminal and transactions are generated to support upper and lower case.

PF KEYS

PF12Return to the screen to select fields for editing and if values are entered for an option, save the values. If this is the first time on the option screen and any of the options are not selected, change the edit rule definition for that option to N. If an option is selected and all values are cleared, change the edit rule definition for that option to N.

ENTERProceed to the screen pertaining to the option selected.

CUSTOMIZE MESSAGES - ALPHANUMERIC
Figure 2-28 is an example of a Customized Message screen for an alphanumeric
field. Pertinent system messages or previously customized messages will be
shown.

```
---------------- TABLES/AS EDIT DEFINITION  - CUSTOMIZE MESSAGES --------------FIELD:      TYPE: ALPHANU
LENGTH:            TABLE FIELD:

Enter/Change the Message for the Edit Test Above it:

  PRESENCE CHECK ===>        (Y or N)

  FORMAT CHECK  ===>        (Y or N)                         FORMAT ===>

  ALPHA CHECK  ===>        (Y or N)

  RELATIONAL EDIT CONTROL FIELD ===>                  (Y or N)

  DISCRETE VALUES AND RANGES   ===>                  (Y or N)




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

Figure 2-28

The displayed messages may be retained or tailored. To change a message for this field on your screen, position the cursor on the message and type in the new message. To delete a message, position cursor on the message and press ERASE EOF.

PF KEYS

PF3 Save changes and return to the TABLES/AS Edit Options panel
PF4 Save changes and return to the **TABLES/AS** Primary Option menu
PF12　　Return to previous screen; ignore changes
ENTER Accept changes

CUSTOMIZE MESSAGES - DATE
Figure 2-29 is an example of a Customized Message screen for a date field.
Pertinent system messages or previously customized messages will be shown.

```
---------------- TABLES/AS EDIT DEFINITION  - CUSTOMIZE MESSAGES ----------------
FIELD:                                                                     TYPE: DATE
LENGTH:              TABLE FIELD:

Enter/Change the Message for the Edit Test Above it:

 PRESENCE CHECK ===>       (Y or N)

 FORMAT CHECK  ===>        (Y or N)              FORMAT ===>

 REL. TO CURR  ===>        (Relation to Current Date Operator)

 DISCRETE VALUES AND RANGES   ===>                        (Y or N)




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

Figure 2-29

The displayed messages may be retained or tailored. To change a message for this field on your screen, position the cursor on the message and type in the new message. To delete a message, position cursor on the message and press ERASE EOF.

PF KEYS

PF3Save changes and return to the TABLES/AS Edit Options panel
PF4Save changes and return to the **TABLES/AS** Primary Option menu
PF12   Return to previous screen; ignore changes
ENTERAccept changes

CUSTOMIZE MESSAGES - NUMERIC

Figure 2-30 is an example of a Customized Message screen for a numeric field.
Pertinent system messages or previously customized messages will be shown.

```
--------------- TABLES/AS EDIT DEFINITION  - CUSTOMIZE MESSAGES ---------------
FIELD:                                                                TYPE: NUMERIC
LENGTH:            TABLE FIELD:


Enter/Change the Message for the Edit Test Above it:


  PRESENCE CHECK ===>        (Y or N)


  NUMERIC CHECK  ===>        (Y or N)


  RELATIONAL EDIT CONTROL FIELD ===>                   (Y or N)


  DISCRETE VALUES AND RANGES   ===>                    (Y or N)









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

Figure 2-30

The displayed messages may be retained or tailored. To change a message for this field on your screen, position the cursor on the message and type in the new message. To delete a message, position cursor on the message and press ERASE EOF.

PF KEYS

PF3Save changes and return to the **TABLES/AS** Edit Options panel
PF4Save changes and return to the **TABLES/AS** Primary Option menu
PF12   Return to previous screen; ignore changes
ENTERAccept changes

CUSTOMIZE MESSAGES - QUANTITY

Figure 2-31 is an example of a Customized Message screen for a quantity field. Pertinent system messages or previously customized messages will be shown.

```
--------------- TABLES/AS EDIT DEFINITION  - CUSTOMIZE MESSAGES ---------------
FIELD:                                                              TYPE: QUANTITY
LENGTH:              TABLE FIELD:

Enter/Change the Message for the Edit Test Above it:

  PRESENCE CHECK ===>                  (Y or N)

  NUMERIC CHECK  ===>                  (Y or N)

  NEGATIVE SIGN  ===>                  (L=Left, R=Right, N=None)

  DEC POSITIONS  ===>       (No. of Decimal Positions, 0 to 9)

  RELATIONAL EDIT CONTROL FIELD ===>              (Y or N)

  DISCRETE VALUES AND RANGES   ===>               (Y or N)




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

Figure 2-31

The displayed messages may be retained or tailored. To change a message for this field on your screen, position the cursor on the message and type in the new message. To delete a message, position cursor on the message and press ERASE EOF.

PF KEYS

PF3 Save changes and return to the **TABLES/AS** Edit Options panel
PF4 Save changes and return to the **TABLES/AS** Primary Option menu
PF12   Return to previous screen; ignore changes
ENTER Accept changes

DISCRETE VALUES AND RANGES

Figure 2-32 is a Discrete Value Entry screen which allows acceptable values or ranges of values to be entered for a particular field.

```
-------------------- TABLES/AS - DISCRETE VALUES AND RANGES --------------------SCREEN:          LENGTH:


   Enter acceptable values (separate values or ranges with a comma):

















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

Figure 2-32

The values entered must be the same length and format as defined on the field edit rules screen.

Each value or range of values must be separated by a comma. There can be NO imbedded blanks in an entry for a discrete value or range of values except for alphanumeric fields.

To enter a range of values, enter the beginning value followed with a hyphen followed with the ending value. For example: 100-199, 500-599

To delete existing discrete values use the space bar to space over them or use the ERASE EOF key if the values are at the end.

The system automatically resequences the values entered into ascending sequence after ENTER is pressed. Dates are resequenced using a format of year/month/day.

This screen will accept data in upper/lower case. Therefore, upper case values only must be entered in upper case.

To allow spaces as a valid value, enter N for Presence Check on the Edit Definition panel for this field.

SYSTEM MAINTENANCE OF DISCRETE VALUES

The system uses SCRVAL table to keep track of discrete values by screen and field name. Any subsequent changes made to the discrete values cause the system to store those additional values on the SCRVAL table.

PF KEYS

PF3 Save edits and return to the **TABLES/AS** Edit Options panel
PF4 Save edits and return to the **TABLES/AS** Primary Option menu
PF12 Return to **TABLES/AS** Edit Options panel screen; ignore changes
ENTER Accept changes

QUANTITY FIELD EXAMPLES:

Screen Field Length = 7
Sign Position   = Left
Number of Decimals   = 2

Value or Range Desired	Enter As
1) Minus 100 to minus 400	-100.00--400.00
2) Add another range of 333.33 to 999.99 Position yourself to the 1st available blank position	0333.33-0999.99
3) Add another range of minus 500 to minus 888.88 Position yourself to the 1st available blank position	-500.00--888.88
4) Add a range minus 400 to plus 500 Position yourself to the 1st available blank position	-400.00-0500.00

The end result would look like:
-100.00--400.00,-400.00-0500.00,-500.00--888.88,0333.33-0999.99

Option===>2 - Relational Editing

TERMS

A CONDITION
One or more fields having a specific set of operators and values or field names all
of which must be true for the condition to be true.

RELATIONAL CONDITIONS
One or more conditions defined for a relational control field where at least one of
the conditions specified must be true for that control field to pass the relational
edits. When more than one relational control field has relational conditions
defined, each control field must have at least one condition which is true for the
screen to pass the edit checks.

RELATIONAL CONTROL FIELD
A field from a user defined screen designated as such through the field edit
definition process. It is a field which requires the absence, presence, or particular
values to be present in other fields for some given value(s) of this field.

   For example:
- When ITEMNO is greater than 5000
- QTY must be 20-100
- TAXCD must be present
ITEMNO is the relational control field.

RULES FOR REPEATING GROUP FIELDS
A field in a repeating group:
- Must be the control field if checked against non-repeating fields.
- Cannot be checked against fields in other repeating groups.
- Cannot be checked against another occurrence of itself.
- Can be checked against other fields in the same repeating group.

CONDITIONAL STATEMENT FORMAT

SELECTED FIELD	OPERATOR	COMPARE FLD1	COMPARE FLD2
------------------------	--------------	---------------	----------------------

SELECTED FIELD
•The control field is shown first.

•If the control field is a non-repeating group field, all selected fields must be non-repeating group fields.

•If the control field is a repeating group field, all selected fields must be within that set for that repeating group.

OPERATORS

A This field must be absent (left blank) for this condition.

Example: FLDNAM1   A

Values or field names are not acceptable following the operator.

P This field must be present for this condition.

Example: FLDNAM1   P

Values or field names are not acceptable following the operator.

¬ This field must not be equal to the value/field name specified.

Example with a value: FLDNAM1   ¬'2300'

Example with a field name: FLDNAM1   ¬FLDNAM2

= This field must be equal to the value/field name specified.

Example with a value: FLDNAM1   ='2300'

Example with a field name: FLDNAM1   =FLDNAM2

< This field must be less than the value/field name specified.

Example with a value: FLDNAM1   <'2300'

Example with a field name: FLDNAM1   <FLDNAM2

> This field must be greater than the value/field name specified.

Example with a value: FLDNAM1   >'2300'

Example with a field name: FLDNAM1   >FLDNAM2

L This field must be less than or equal to the value/field name specified.

Example with a value: FLDNAM1   L'2300'

Example with a field name: FLDNAM1   LFLDNAM2

G   This field must be greater than or equal to the value/field name specified.

Example with a value: FLDNAM1   G'2300'

Example with a field name: FLDNAM1   GFLDNAM2

R This field must be equal to the inclusive range of values defined by the range of
values specified or the range established by two field names.

Example with a value: FLDNAM1   R'2300'-'4200'

Example with a field name: FLDNAM1   RFLDNAM2-FLDNAM3

Example with a field name & a value: FLDNAM1   RFLDNAM2-'4200'

COMPARE FLD1

A specific value or field name on the screen.

If this is a field name:

•The field name may be the name of a non-repeating group field or a field in the same repeating group if the selected field is a repeating group field.

•The field name must be the name of a non-repeating group field if the selected field is a non-repeating group field.

COMPARE FLD2

Only use this field when the range operator (R) is specified. Separate from COMPARE FLD1 by a hyphen (**-**). All of the rules for COMPARE FLD1 apply.

CODING RULES

•Values are enclosed in single quotes, for example, '2300'
•Field names are not enclosed in quotes.
•Ranges of values are separated by a hyphen, for example, '2300'-'3200'
•Ranges of field names are separated by a hyphen.
•A maximum of 68 conditions for a control field can be defined.

CONDITION TESTING LOGIC

Within a single condition, each line of the condition uses AND logic. For a condition to be true, line 1 must be true AND line 2 must be true AND line N must be true. If any line is not true, the condition fails the test.

Across multiple conditions, each condition uses OR logic. Condition 1 must be true OR condition 2 must be true OR condition N must be true. If a true condition is not found, the relational edits error message is returned.

When there is more than one relational control field defined, each relation must be satisfied to pass the relational edit test.

Figure 2-33 shows the **TABLES/AS** Relational Edit menu.

This screen is used to add, change, or delete conditions for any one of the fields defined as a control field in a relational edit.

```
----------------------- TABLES/AS RELATIONAL EDIT MENU -----------------------
SELECT OPTION ===>                                                     SCREEN:

    A - ADD a Condition                    D - DELETE a Condition
    C - CHANGE a Condition      K - DELETE ALL Conditions

  CONTROL NUMBER  ===>    (Required - From the CTL# fields below)
  CONDITION NUMBER ===>   (For Option C and D Only)

CTL# FIELD   STATUS   CTL# FIELD   STATUS   CTL# FIELD   STATUS
 == ======== ===========  == ======== ===========  == ======== ===========







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

Figure 2-33

The options are:

A Add a condition to a control number

C Change a condition for a control number

D Delete a condition from a control number

K Delete all conditions from a control number

PF KEYS

PF3   Return to the **TABLES/AS** Edit Definition menu

PF4   Return to the **TABLES/AS** Primary Option menu

PF12   Return to the **TABLES/AS** Edit Definition menu

CONTROL NUMBER ===>

Select one of the values listed under CTL # (bottom half of the screen).

CONDITION NUMBER ===>
The number assigned to a specific condition previously defined for this control field. Use Edit Definitions menu, Option 4 - View Relational Edit Rules.

> **NOTE**
>
> If a condition number is deleted, all higher numbered conditions are renumbered. Therefore when deleting two or more conditions, delete the highest number conditions first.

CTL #
The number assigned by **TABLES/AS** for a field name which is specified as a control field in relational conditions.

FIELD
The name of a field which is specified as a control field in relational conditions.

STATUS
A **TABLES/AS** generated message indicating if conditions are defined for this field name (CTL #).

•**NOT DEFINED** - There are no conditions defined for this control field. Select the ADD function to begin defining conditions.

•**DEFINED** - One or more conditions are defined for this control field.
Select add, change, or the delete function for this control field.

RELATIONAL EDIT RULES

ADD NEW CONDITIONS
1. The designed screen is displayed with one of the following characters for each input/output field:

   R Control field in the relational condition.
   X A field which may be selected to participate in a relational condition.
   # A field which may not participate in a relational condition.

   For the X fields, the following characters can be entered for those fields which will participate in this condition:

   P Presence required.
   A Absence required.
   C A field which has specific value(s) to be tested.

   Press ENTER when all participating fields are selected.

Figure 2-34 is an example of a Relational Edit Tests screen.

```
---------------------- TABLES/AS RELATIONAL EDIT TESTS -----------------------
CONTROL FIELD: ITEMNO1          CONDITION NUMBER: 01              SCREEN: ORDERS
       Will there be more conditions using the same fields (Y/N) ===> Y
ITEMNO    ?
QTY       ?
TAXCD     A
PROMSDT   P




















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

Figure 2-34

2.If there are multiple conditions with these fields, enter Y to the question at the top of the screen. This returns the same screen with the same fields to define the next condition with these fields.

  If a field is used more than once in a given condition, position the cursor at the first blank line following the list of field names. Key in the name of the field which is used more than once. Next to each field, enter an operator and the value(s) or field being used to validate for this condition.

  For repeating fields or groups of fields which have common names, all repeating occurrences are automatically established with the relational edits defined once for that group.

  When all of the values are entered for this condition, press ENTER.

3.If the question at the top of the screen is answered Y, the same screen is presented again. If the question is answered N, your designed screen is presented to select other fields for additional conditions.

4.Press PF12 to return to a previous screen. Repeating PF12 returns the Relational Edit menu.

CHANGE A CONDITION

1.The designed screen is displayed with one of the following characters, in each input/output field:

  RControl field in the relational condition
  XAny field not previously identified as participating in this relational condition.
  PA field which has been identified as participating in this relational condition. It must be PRESENT in this condition.
  AA field which has been identified as participating in this relational condition. It must be ABSENT in this condition.
  CA field which has been identified as participating in this relational condition. It is defined with particular values for this condition.

  The following characters can be entered (except for the control field):

  PPresence required.
  AAbsence required.
  CA field which has specific value(s) being tested.
  DDeletes the field from this condition.

  Press ENTER when all changes are made.

2.The **TABLES/AS** Relational Edit Tests screen appears containing all the names of the fields that were coded with R/P/A/C characters on the designed screen.

Next to each field are the current values used for this condition.
Position the cursor to the fields being changed, make the change, and press
     ENTER.

3.The Relational Edit menu is returned.

DELETE A CONDITION

1.The **TABLES/AS** Relational Edit Tests screen appears showing the specific
     values for the fields in the condition you specify to delete.

If this is the condition being deleted, press ENTER. Remaining condition numbers
     are renumbered. Therefore, always delete the highest numbered condition first
     when two or more are being deleted.

When the last condition for a field is deleted, that field is automatically changed
     from a control field in relational conditions. The field is no longer shown on
     the Relational Edit menu screen as a control field. When the field edit rules are
     viewed for this screen, an N appears for the controlling field in relational edits.

2.The Relational Edit menu screen is returned.

DELETE ALL CONDITIONS

1.Enter a K on the Relational Edit menu and the control field number and press
ENTER. The field name is no longer shown in the list of control fields in the
bottom half of the screen.

SAMPLE APPLICATION - **DEFINE RELATIONAL EDITS**

Figure 2-35 is a sample Relational Edit menu screen that is used to step through
defining relational edit rules.

```
----------------------- TABLES/AS RELATIONAL EDIT MENU ------------------------
SELECT OPTION ===>                                                    SCREEN:

    A - ADD a Condition              D - DELETE a Condition
    C - CHANGE a Condition    K - DELETE ALL Conditions

  CONTROL NUMBER  ===>   (Required - From the CTL# fields below)
  CONDITION NUMBER ===>   (For Option C and D Only)

CTL# FIELD   STATUS   CTL# FIELD   STATUS   CTL# FIELD   STATUS
 == ======== ===========  == ======== ===========  == ======== ===========
 01  ITEMNO1  DEFINED




YOU ARE IN VIEW MODE - SELECT A CONTROL NUMBER
PF 1=HELP        2=      3=END    4=RETURN      5=           6=
PF 7=            8=      9=       10=           11=          12=CANCEL
```

Figure 2-35

By selecting Add a Condition (A) and CTL # (01), the screen shown in Figure 2-36 is displayed. This would be your designed screen. We will refer to it as SCREEN 1.

SELECTING FIELDS FOR CONDITIONS

```
                         O R D E R   E N T R Y

ENTRY DATE:      X
CUSTOMER NUMBER:   X      OR   CUSTOMER SHORT NAME: X
SHIP-TO LOCATION:   X
REQUESTED SHIP DATE: X



           TAX   PROMISED                TAX   PROMISED
ITEM NO. QUANTITY CODE  DATE     ITEM NO. QUANTITY  CODE   DATE
------- -------- ---- ------     ------- -------- ---- ------
R    X    X   X       #    #      #    #
#    #    #   #       #    #      #    #
#    #    #   #       #    #      #    #
#    #    #   #       #    #      #    #




#
```

Figure 2-36

- The cursor is positioned under the relational control field.
- The relational control field is identified by an R character.
- The X characters indicate fields which may be selected to participate in this condition.
- The # characters indicate protected fields which are not allowed to participate in relational condition definitions. The following types of fields cannot be used:
  · Fields defined as special message fields.
  · Fields defined as common message fields.
  · The second thru nth occurrence of repeating fields or repeating groups of fields.
  · Fields which have no edits defined.

FIELD EDITS PREVIOUSLY DEFINED

Itemno:Presence not required.
           Discrete values are 1000000 through 8000000
Qty: Presence not required.
           Discrete values are 0000001 through 9999999
Taxcd: Presence not required
           Discrete value is T
Promsdt: Presence not required

ESTABLISHING NECESSARY CONDITIONS

RELATIONAL CONDITION 1:

When itemno is 1000000 through 200000
•QTY must be greater than 100
•TAXCD must be absent
•PROMSDT must be present

An R exists for ITEM NO indicating a relational control field.

Enter   C for Quantity   A field which has specific value(s) to be tested
          A for Tax Code   Absence required
          P for Promised Date Presence required

An example is shown in Figure 2-37.

```
                          O R D E R  E N T R Y

ENTRY DATE:      X
CUSTOMER NUMBER:   X      OR   CUSTOMER SHORT NAME: X
SHIP-TO LOCATION:   X
REQUESTED SHIP DATE: X


          TAX  PROMISED              TAX  PROMISED
ITEM NO. QUANTITY CODE  DATE     ITEM NO. QUANTITY  CODE   DATE
------- -------- ---- ------     ------- -------- ----  ------
R     C    A    P      #     #     #    #
#     #    #    #      #     #     #    #
#     #    #    #      #     #     #    #
#     #    #    #      #     #     #    #




#
```

Figure 2-37

The screen shown in Figure 2-38 (Relational Edit Tests) appears. We will refer to it as SCREEN2.

```
---------------------- TABLES/AS RELATIONAL EDIT TESTS -----------------------
CONTROL FIELD: ITEMNO1          CONDITION NUMBER: 01              SCREEN: ORDERS
        Will there be more conditions using the same fields (Y/N) ===> Y
ITEMNO   ?
QTY      ?
TAXCD    A
PROMSDT  P




















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

Figure 2-38

•Enter Y as an answer to the question at the top of the screen. We will define a
  second condition using this same set of fields.
   ·Note that TAXCD and PROMSDT have the A and P values specified on
     SCREEN1.
   ·There are question marks next to ITEMNO and QTY to identify the fields
     where values must be supplied.
• Position the cursor at the ? next to ITEMNO and enter R'100000'-'2000000'.
• Position the cursor at the ? next to QTY and enter >'000000100'.
• Press ENTER
   ·Relational Condition 1 is established.

RELATIONAL CONDITION 2:
When Itemno is 5000000 through 6000000
•Qty must be less than 50
•TAXCD must be present
•PROMSDT must be present

SCREEN2 appears again, as shown in Figure 2-39.

```
---------------------- TABLES/AS RELATIONAL EDIT TESTS -----------------------
CONTROL FIELD: ITEMNO1        CONDITION NUMBER: 02           SCREEN: ORDERS
      Will there be more conditions using the same fields (Y/N) ===> Y
ITEMNO   ?
QTY      ?
TAXCD    A
PROMSDT   P




















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

Figure 2-39

•Enter a Y as the answer to the question at the top of the screen. There is one other condition using these fields that we will define.

• Position the cursor at the ? next to ITEMNO and enter R'500000'-'6000000'

• Position the cursor at the ? next to QTY and enter <'0000050'
  ·Note that TAXCD and PROMSDT have a ?

• Position the cursor at the ? next to TAXCD and enter P

• Position the cursor at the ? next to PROMSDT and enter P

• Press ENTER
  ·Relational Condition 2 is established.

FINALIZING THIS SET

When ITEMNO is not entered, the other three fields must not be entered either.

SCREEN2 appears again, as shown in Figure 2-40.

```
---------------------- TABLES/AS RELATIONAL EDIT TESTS -----------------------
CONTROL FIELD: ITEMNO1          CONDITION NUMBER: 03          SCREEN: ORDERS
       Will there be more conditions using the same fields (Y/N) ===> N
ITEMNO   ?
QTY      ?
TAXCD    ?
PROMSDT   ?




















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

Figure 2-40

- Leave an N for the answer to the question at the top of the screen. This is the last condition with this set of fields.
- Position the cursor at the ? next to ITEMNO and enter A
- Position the cursor at the ? next to QTY and enter A
- Position the cursor at the ? next to TAXCD and enter A
- Position the cursor at the ? next to PROMSDT and enter A
- Press ENTER
  ·Terminates definitions of this set
  ·SCREEN1 appears
  ·Press ENTER
- We only need the control field for the rest of the conditions.

RELATIONAL CONDITION 4:

Account for ranges 2000001-4999999

The field edits defined stated that ITEMNO could be 1000000-8000000. The first two relational conditions specified numbers in the ranges 1000000-2000000 and 5000000-6000000. It is required when using relational edits that one of the conditions specified must be valid or the relational edit tests fail. Therefore, we must account for the other ITEMNO's or they will fail the relational edit tests when entered.

SCREEN2 appears, as shown in Figure 2-41.

```
---------------------- TABLES/AS RELATIONAL EDIT TESTS ------------------------
CONTROL FIELD: ITEMNO1          CONDITION NUMBER: 01          SCREEN: ORDERS
       Will there be more conditions using the same fields (Y/N) ===> Y
ITEMNO   ?




















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

Figure 2-41

•Enter a Y as the answer to the question at the top of the screen. A second
  condition will be defined using only the control field ITEMNO.
•Position the cursor at the ? next to ITEMNO and enter R'2000001'-'4999999'
•Press ENTER
· Relational Condition 4 is established.

RELATIONAL CONDITION 5:

Account for ranges 6000001-8000000

This condition accounts for the remaining valid item numbers.

SCREEN2 appears, as shown in Figure 2-42.

```
--------------------- TABLES/AS RELATIONAL EDIT TESTS -----------------------
CONTROL FIELD: ITEMNO1          CONDITION NUMBER: 02              SCREEN: ORDERS
        Will there be more conditions using the same fields (Y/N) ===> N
ITEMNO   ?




















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

Figure 2-42

•Leave an N for the answer to the question at the top of the screen. This is the last condition being entered using only this field.

•Position the cursor at the ? next to ITEMNO and enter R'6000001'-'8000000'

•Press ENTER

· Relational Condition 5 is established.

SCREEN1 appears

Press PF3 to return to the Relational Edit menu to select another control field to define or correct relational edits.

Option ===> 3 - View Field Edits

View existing edits, discrete values, or customized messages.

Figure 2-43 is an example of a screen containing edits.

```
                        O R D E R   E N T R Y

ENTRY DATE:      E
CUSTOMER NUMBER:   E     OR   CUSTOMER SHORT NAME: E
SHIP-TO LOCATION:   X
REQUESTED SHIP DATE: E



         TAX  PROMISED              TAX   PROMISED
ITEM NO.  QUANTITY  CODE   DATE     ITEM NO.  QUANTITY  CODE   DATE
-------  --------  ----  ------      -------  --------  ----   ------
E     E    E   E








M
```

Figure 2-43

The selected screen is displayed with the input/output fields replaced by the edit character.
X Field with no edits
E Field with edits
M Field is defined as a message field
S Field is defined as a special message field

Note that if the screen contains repeating fields or groups of fields which have the same field names, only the first occurrence of the field has the edit character.

To view the edits for a field, position the cursor on the E for that field. Type a V (view) over the E and press ENTER. The corresponding field edit screen is displayed showing all existing edits. Multiple fields may be selected. They will be displayed one field after the other.

If this field is defined as having discrete values or customized messages, the Option screen is displayed when ENTER is pressed. These values are viewed by selecting the option and pressing ENTER. If the discrete values or customized messages are not being viewed, press PF12.

RESTRICTIONS
The V is only allowed on fields which have edits defined. The edit character must be E. Message fields have no edits; they cannot be viewed.

PF KEYS

PF3   Return to previous screen
PF4   Return to previous screen
PF12   Return to previous screen
ENTER Show the field edit rules defined for the field selected

Option ===> 4 - View Relational Edits

Figure 2-44 depicts the screen used to select one of the control fields for which relational edit conditions are defined. Each of the conditions defined for that field is presented for viewing one at a time.

```
----------------------- TABLES/AS RELATIONAL EDIT MENU ------------------------
SELECT OPTION ===>                                                    SCREEN:

    A - ADD a Condition               D - DELETE a Condition
    C - CHANGE a Condition     K - DELETE ALL Conditions

  CONTROL NUMBER  ===>    (Required - From the CTL# fields below)
  CONDITION NUMBER ===>   (For Option C and D Only)

CTL# FIELD    STATUS   CTL# FIELD    STATUS   CTL# FIELD    STATUS
 == ======== ===========  == ======== ===========  == ======== ===========




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

Figure 2-44

Enter the control number of a field having a status DEFINED.

The Relational Edit Test screen appears with condition number 01 shown.

This is the only process available to see all the conditions defined for a control field and to determine the condition number.

> **NOTE**
>
> Deleting a condition re-numbers all higher numbered conditions.
> Therefore, when deleting two or more conditions, always delete the higher numbered one first.

Press ENTER to view the next condition or PF3 to return to this screen.

Pressing ENTER after the last condition is displayed returns this screen.

PF KEYS

PF3 Return to the **TABLES/AS** Edit Definition menu
PF4 Return to the **TABLES/AS** Primary Option menu
PF12Return to the **TABLES/AS** Edit Definition menu

Option ===> 5 - Delete All Edits

•Delete all existing edits defined for this screen.
•You must also enter a 'Y' in the CONFIRMATION ===> field.

PF KEYS

PF3 Delete edit rules and return to the **TABLES/AS** Primary Option menu
PF4 Delete edit rules and return to the **TABLES/AS** Primary Option menu
PF12Cancel delete request and return to the **TABLES/AS** Primary Option menu

Record Mapping

Introduction to Record Mapping

Record mapping is the process of relating Screen columns/fields with Table columns/fields. The end result of mapping is a MAP which ties a screen to a table and corresponding fields together.

MAPS are used to:
•Define the table processing functions desired, such as adding, changing, deleting and/or inquiring.
•Define fields to pass from one screen to another when switching occurs.
•Define fields necessary to perform cross table validation, including effectivity testing.
•Define fields on the screen which may be used as criteria in searching, but which may not be updated.

MAPS are also used to perform data conversions back and forth between the screen and the table.
•Convert quantity fields accounting for signs and decimals.
•Convert date fields to different formats (see Appendix B).
•Combine elementary fields into group fields.
•Convert repeating groups into single group occurrences.

TABLE TYPES AND SOURCES FOR MAPPING
DB2 tables from:
• DB2 catalog   **and if needed**
• COBOL/PL1/ASM copy code
  member name

VSAM files from:
•COBOL copy code member
  member name

IMS segments from
• COBOL/PL1/ASM copy code
  member name

WORKING storage areas from:
• COBOL/PL1/ASM copy code
  member name

For a complete Overview of Accessing VSAM data sets see Appendix F. VSAM data sets can only be accessed with the CICS version.

COPY CODE REQUIREMENTS FOR MAPPING

DB2, IMS/VSAM definitions that contain group level fields must have the name of a **copy code** member containing the breakdown of the group fields so the individual level fields can be mapped. If there are no group level fields in the DB2 table, only the DB2 catalog is necessary to complete mapping.

For IMS/VSAM segments, map entirely using COBOL, PL1, or ASM copy code.

Before Mapping:
•Ensure the copy code member exists in a copy code library with all of the elementary fields defined, if required.
•Run batch job JCL401MC to bring the copy code member into **TABLES/AS**.
(See **TABLES/AS** Technical Guide.)

COPY CODE LIMITATIONS

All redefined statements and subordinate levels within the statements are discarded. The elementary level breakdown desired must not be within a redefine.

The picture clause for numeric fields must not contain more than four digits.
•Acceptable: PIC 9(10)
•Unacceptable: PIC 9(00010)

Binary fields must be half words or full words. Double word binary fields are ignored.

The 01 levels with a picture clause do not extract. The 01 level is a name only followed by one or more elementary level items below it.

Only the first three levels within copy code are extracted.
    01, 05, 10   *or*   01, 02, 05   *etc.*

Mapping Possibilities:

```
  FLD1        FLD2        FLD3              FLD4        FLD5

 ----------------------------------------------------------------------------------------
 '  XX'  XX'  XX'  XX   '  XX '
 ----------------------------------        '          XX       ' XX   '
                              '    XX    '    XX        '
                                 '    XX      ' XX   '
```

TABLE FORMATS POSSIBLE FROM THE ABOVE SCREEN FORMAT

FORMAT 1

  FLD1   FLD2   FLD3   Map fields 1-3 to a table format.

FORMAT 2

  FLD4   FLD5
  FLD4   FLD5   Map fields 4-5 to a table format.
  FLD4   FLD5   Only 1 map is required to generate the 4 records.
  FLD4   FLD5

FORMAT 3

  FLD1   FLD2   FLD3   FLD4   FLD5
  FLD1   FLD2   FLD3   FLD4   FLD5   Map fields 1-5 to a table format.
  FLD1   FLD2   FLD3   FLD4   FLD5   Only 1 map is required to generate
  FLD1   FLD2   FLD3   FLD4   FLD5   the 4 records.

FORMAT 4

  FLD1   FLD2   FLD3   FLD4   FLD5   FLD4   FLD5   FLD4   FLD5   FLD4   FLD5
  Map all fields on the screen to a table format.

MAPPING REPEATING GROUPS

TABLES/AS makes a distinction between types of repeating groups and handles each type differently in the mapping process.

1. Horizontal repeating group - has the screen field name assigned two or more times, consecutively with no other intervening fields.

    Jan. Sales   Feb. Sales   March Sales   April Sales - - - - Dec. Sales

                  OR

     Jan. Sales
     Feb. Sales
     March Sales
     April Sales

The copy code contains an occurrences clause for each occurrence of this field. 05 sales occurs 12 times PIC S9 (7) V99. To map this group, the first occurrence of the field name from the screen is mapped to the field name of the occurrence clause. The remaining occurrences are automatically adjusted by the mapping process.

2. Vertical repeating group - has the same set of field names repeated two or more times consecutively within the screen.

| Item | Quantity | Tax | Item | Quantity | Tax |

OR

| Item | Quantity | Tax |
| Item | Quantity | Tax |

OR

| Item | Quantity | Tax | Item | Quantity | Tax |
| Item | Quantity | Tax |

All of the fields repeat as a set. Map the first set of field names from the screen to the field names in the copy code. The remaining occurrences are automatically adjusted by the mapping process.

3. Vertical and horizontal repeating groups are combined.

```
        Jan.      Feb.     Jan.      Feb.            Net
EmployeeSalary  Salary   IRA             IRA         Salary

        Jan.      Feb.     Jan.       Feb.           Net
EmployeeSalary  Salary   IRA             IRA         Salary
```

January/February Salary and January/February IRA are horizontal groups.

Employee, January/February Salary, January/February IRA, and Net Salary is one set of a vertical group.

Primary Option Menu
Option ===> 3 - Record Mapping

When you select Option 3, the system presents the **TABLES/AS** Record Mapping menu.
See Figure 2-45.

```
------------------------ TABLES/AS RECORD MAPPING MENU -----------------------
SELECT OPTION ===>                                                      SCREEN:

      A - ADD a New Map                   D - DELETE a Map
      C - CHANGE a Map        V - VIEW a Map

Enter MAP to process from the List below:

      MAP NUMBER ===>                   (BOTH DIGITS ARE REQUIRED)


==============================================================================
MAP---MAP NAME---- ----MAPPED FROM---- --------------TABLE NAME-------------







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

Figure 2-45

The options are:

A - ADD a new map:Specify the table type and sources for mapping each table

C - CHANGE a map: Change mapping definitions for a previously mapped table

D - DELETE a map: Delete all the mapping and processing for a mapped table

V - VIEW a map: View the current definition of a mapped table

PF KEYS

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

MAP NUMBER ===>
To perform Options C, D, or V, the desired map number must be supplied from the list appearing on the bottom half of the screen.

MAP COLUMN
A list of the automatically assigned numbers appears here when new maps are added. Use a value shown here as MAP NUMBER above when needed.

MAP NAME COLUMN
As tables are defined for mapping, a name is automatically generated by **TABLES/AS** based on the source of the mapping.

MAPPED FROM COLUMN
The name of the source used for mapping is automatically generated by **TABLES/AS**.

TABLE NAME COLUMN
The name of the table for which the map is defined.

Option ===> A - Add a New Map

When you wish to add a new map, you must identify the source. The system
displays the **TABLES/AS** Mapping - Source Definition screen.

See Figure 2-46.

```
-------------------- TABLES/AS MAPPING - SOURCE DEFINITION --------------------

SCREEN:                       MAP NAME:

Select Source with an 'X' and Enter Appropriate Names:

  =>    - DB2 CATALOG                          TABLE NAME ===>

  =>    - COPY CODE SOURCE         VSAM DDNAME / IMS SEGMENT  =>
                                            IMS DBD NAME          => (IMS ONLY)

Specify When Using Copy Code:

  COPY CODE MEMBER NAME ===>                    (Required for VSAM DD or IMS Segment)




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

Figure 2-46

ENTER X NEXT TO SOURCE WHICH DEFINES MAPPING FOR THIS SCREEN
Indicate the source which defines mapping for the screen by placing an X to the left of one of the following:

DB2 CATALOG:
•Enter the DB2 table name fully qualified
•May enter a name next to Copy Code Member Name if there is a need to break down any group fields using copy code

COPY CODE SOURCE INPUT
In CICS
• Place an X to the left of COPY CODE SOURCE INPUT
• Enter VSAM DD ===>
• Enter COPY CODE MEMBER NAME ===>
• Press ENTER

In IMS
•Place an X to the left of COPY CODE SOURCE INPUT
•Enter IMS SEGMENT ===>
•Enter IMS DBD NAME ===>
• Enter COPY CODE MEMBER NAME ===>
• Press ENTER
COPY CODE MEMBER NAME

EXAMPLE - ADD A NEW TABLE MAP
We will map some fields from the Order Entry Screen to the VSAM file ORDHDR
using Copy Code Member ORDHEAD. JCL4OIMC would have been processed
previously for this VSAM file.

   X - COPY CODE SOURCE   VSAM DD => ORDHDR

         COPY CODE MEMBER NAME   ===> ORDHEAD

Pressing ENTER displays the screen that is being mapped to and from so fields
may be selected. See Figure 2-47.

```
                            O R D E R  E N T R Y

ENTRY DATE:      X
CUSTOMER NUMBER:   X      OR   CUSTOMER SHORT NAME: X
SHIP-TO LOCATION:   X
REQUESTED SHIP DATE: X



          TAX   PROMISED              TAX   PROMISED
ITEM NO. QUANTITY CODE  DATE     ITEM NO. QUANTITY  CODE   DATE
------- -------- ---- ------     ------- -------- ---- ------
X      X    X   X        X    X     X    X
X      X    X   X        X    X     X    X
X      X    X   X        X    X     X    X
X      X    X   X        X    X     X    X




#
```

Figure 2-47

Fields marked X are fields that may be mapped from this screen. Enter an M in
place of the X for those fields which you want mapped to the table. Fields marked
with # may not be mapped.

Enter an M for each of the fields at the top of the screen to map the fields from the screen to the order header.

> ENTER DATE: **M**
> CUSTOMER NUMBER: **M** OR   CUSTOMER SHORT NAME: **M**
> SHIP-TO LOCATION: **M**
> REQUESTED SHIP DATE: **M**

Mapping for the ITEM NO, QUANTITY, TAX CODE, and PROMISED DATE would be done later using Add a Map against ORDITEM.

Press ENTER. Figure 2-48 shows the results of mapping the upper portion of the ORDERENT screen to a copy code member named ORDHEAD.

```
--------------------- TABLES/AS MAPPING - FIELD DEFINITION ---------------------
SCREEN:
====== SCREEN ======== ===================== RECORD ================ OPERATOR
 FIELD DTE FLD MAP DTE    FIELD NAME TO MAP  SORT UP CL    FIELD
 NAME  FMT SEQ# SEQ# FMT    TO AND FROM    NO S VA VA   NAME
-------- --- --- --- --- ---------------------- -- - -- --  --------
FLD00004    001 999      CAR_CLASS
            999      MILEAGE_LIMIT
            999      DAILY_RATE
            999  L   EFFECTIVE_DATE
            999  L   EXPIRATION_DATE




















PF 1=HELP         2=       3=END     4=RETURN   5=       6=
PF 7=UP-SCRN       8=DOWN-SCRN  9= 10=UP-REC   11=DOWN-REC   12=CANCEL
```

Figure 2-48

The field names on the right side of the screen came from the copy code member. The field names on the left side, are the field names used in the example screen. Only the field names for those fields which were selected for mapping by placing an M on the previous screen are shown. All others are ignored.

SCREEN DATE FORMAT
The code under the Screen Date Format is automatically placed there based on the date format defined for the screen.

FIELD SEQ #
An automatically assigned sequence number beginning with 001 and incremented by 1 for each field listed. This is the primary field used to map the fields together.

MAP SEQ #
An automatically assigned sequence number always equal to 999 at the beginning of the mapping process. Replace this value with the FIELD SEQ # value for the corresponding field. When mapping is completed, each set of fields with the same FIELD SEQ # and MAP SEQ # is mapped together.

TABLE DATE FORMAT
If the field being mapped to is a date field, enter one of the valid date codes to identify the format. You specify the screen field date format via Field Edit Definition.

See APPENDIX B for valid Date Codes.

TABLE FIELD NAME TO MAP TO AND FROM
This is the name of a field obtained from the source defined for mapping. If copy code was used in addition to another source, the names from the primary source followed by the names of the sub-defined fields for any groups are presented.

SORT NO
Sort sequence number for DB2 row selection. Multiple fields may be selected for sorting. The sort sequence (order by) is stored in SCRORD table. This table may be viewed using **TABLES/AP**, table name = authid.SCRORD.

SORT S
Sort sequence
A = Ascending
D = Descending

UP
VA
Used to initialize and/or update time, date, and time stamp fields. Valid codes are:
blank   = Do not update
A   = Update during ADD only
C   = Update during CHANGE only

B   = Update during ADD and/or CHANGE
Type of field is determined from the DB2 catalog.

CL
VA
Used to update transaction-id, user-id, or terminal-id. Types of fields valid codes
are:
L   = Update column with LTERM name
T   = Update column with transaction name
U   = Update column with userid value

OPERATOR FIELD NAME
Operator Field Name is the name of a field on the screen which may be used to
enter a search operator. A search operator may be entered directly in the map if
the map is being used for cross table validation.

Search operators specify a condition to be met when retrieving records. If a search
operator is not defined, then a default of (=) Equal To the value of the search field
is applied. The following are the valid search operators:
<   Less than
>   Greater than
=   Equal to
L Less than or equal to
G Greater than or equal to
¬ Not equal to

When maps are created for table validation, embedded search operators may be
specified instead of operator field names. The embedded search operators must be
entered with quotes on both sides. For example, search operator greater than (>)
is entered as '>'.

If map being created is to be used for validation; i.e., to look up during an add,
change or delete on a table, the following applies:

1. If table to be validated is under effectivity control, then all the key fields
   including the Break-in-date field must be mapped to enable locating an
   unique row in the table.

   In this condition, the operator field must not be one of the key fields.

2. If table to be validated is not under effectivity control, then no requirement exists
   in terms of which field, if any, may be used as the operator field.

In this case, search operator applies to all the rows selected using the given map. A '<' means that the value of the operator field in the table must be less than the value of the operator field on screen. Similarly, a '>' means that the value of the operator field in the table must be greater than the value of the operator field on screen.

PF KEYS

PF3 Save results of mapping and return to the Table Mapping Option menu

PF4 Save results of mapping and return to the **TABLES/AS** Primary Option menu

PF7   Scroll the screen names up

PF8   Scroll the screen names down

PF10   Scroll the table field names up

PF11   Scroll the table field names down

PF12Return to the table Mapping Option menu without saving the mapping

ENTERResequence the table field names into the sequence of the map sequence
         numbers assigned so far

Option ===> C - Change a Map

When you wish to change an existing map, enter MAP NUMBER ===> on the
TABLES/AS Table Mapping menu. The system displays your screen to select
more fields to include in the map and/or delete some fields from the map by
entering a D over the M. Press Enter.

The system displays the **TABLES/AS** Mapping Field Definition screen. See
Figure 2-49.

```
-------------------- TABLES/AS MAPPING - FIELD DEFINITION --------------------
SCREEN:
====== SCREEN ======== =================== RECORD ================   OPERATOR
 FIELD  DTE  FLD  MAP   DTE     FIELD NAME TO MAP  SORT  UP  CL  FIELD
 NAME   FMT  SEQ# SEQ#  FMT       TO AND FROM     NO S  VA VA  NAME
------- ---  ---  ---   ---   --------------------  -- - -- --  -------
ENTRYDT  1   001  999         WKORDS-ORDKEY
CUSTNO       002  004         WKORDS-SHIPTO
SHORTNAM     003  005    L    WKORDS-RSHIPDAT
SHIPTO       004  001    L    WKORDS-ENTERDATE
REQSHPDT 1   005  002         WKORDS-CUSTNUMB
                  003         WKORDS-SHORTNAME
                  999         WKORDS-ORDERNUMB
                  999         WKORDS-PRICELIST-CODE
                  999         WKORDS-PRIORITY
                  999         WKORDS-HANDLING-CHARGE




PF 1=HELP       2=       3=END     4=RETURN   5=       6=
PF 7=UP-SCRN    8=DOWN-SCRN  9= 10=UP-REC  11=DOWN-REC   12=CANCEL
```

Figure 2-49

This screen shows the mapping definition in effect. You may change it as
described in Add a New Map, earlier in this section.

If MAP SEQ #'s have been assigned incorrectly, delete the fields with the
inaccurate MAP SEQ #'s from the map. Then re-select them as part of the map
and enter the correct numbers.

Option ===> D - Delete a Map

When you wish to delete an existing map, enter MAP NUMBER ===> on the
TABLES/AS Table Mapping menu, press ENTER and the map is deleted.

Remaining map numbers are automatically re-sequenced.

Option ===> V - View a Map

When you wish to view an existing map, enter MAP NUMBER ===> on the
TABLES/AS Table Mapping menu.

The system displays the **TABLES/AS** Mapping Field Definition screen.
See Figure 2-50.

```
--------------------- TABLES/AS MAPPING - FIELD DEFINITION ---------------------
SCREEN:
====== SCREEN ======== =================== RECORD ==============    OPERATOR
 FIELD  DTE  FLD  MAP  DTE    FIELD NAME TO MAP  SORT UP CL  FIELD
 NAME   FMT  SEQ# SEQ# FMT     TO AND FROM    NO S  VA VA   NAME
------- --- --- --- --- --------------------- ---- -- -- ------
ENTRYDT  1   001 999     WKORDS-ORDKEY
CUSTNO       002 004     WKORDS-SHIPTO
SHORTNAM     003 005   L WKORDS-RSHIPDAT
SHIPTO       004 001   L WKORDS-ENTERDATE
REQSHPDT 1   005 002     WKORDS-CUSTNUMB
             003         WKORDS-SHORTNAME
             999         WKORDS-ORDERNUMB
             999         WKORDS-PRICELIST-CODE
             999         WKORDS-PRIORITY
             999         WKORDS-HANDLING-CHARGE




PF 1=HELP       2=       3=END      4=RETURN   5=       6=
PF 7=UP-SCRN     8=DOWN-SCRN  9= 10=UP-REC   11=DOWN-REC   12=CANCEL
```

Figure 2-50

This screen shows the mapping definition in effect.

All fields are protected and you can not change any of them.

Primary Option Menu
Option ===> 4 - Processing Options

Selecting processing options allows you to:

SPECIFY FUNCTIONS TO BE ALLOWED
Select processing functions (A, C, D). Required in order to utilize **TABLES/AS**
Screen Processor.

This is required only for maps that are to be processed using Add, Change, Delete
or Inquire function. Maps that are set up for switching data and table validations
must not be specified under allow functions.

SPECIFY CROSS TABLE VALIDATION
Used to verify that a field is present or absent in another table.
Used to verify that an effective row exists in another table.

SPECIFY VSAM FILE ACCESS DATA, OR IMS SSA DATA
Used to define the file being accessed.

When you select Option 4 on the **TABLES/AS** Primary Option menu and enter the
screen name, the system displays the **TABLES/AS** Process Options menu. See
Figure 2-51.

```
------------------------ TABLES/AS PROCESS OPTIONS MENU ----------------------
SELECT OPTION ===>

 1 ALLOW FUNCTIONS       - ALLOW ADD, CHANGE AND/OR DELETE
 2 CROSS TABLE VALIDATION   - DEFINE VALIDATION PROCESSING
 3 DATABASE ACCESS       - SPECIFY VSAM FILE OR IMS SSA INFORMATION

ENTER/VERIFY THE FOLLOWING:

    MAP NUMBER  ===>        (SELECT FROM BELOW)
    SCREEN NAME ===>


================================================================================
 MAP---MAP NAME----  ----MAPPED FROM----  --------------TABLE NAME-----------




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

Figure 2-51

The options are:

1 - ALLOW FUNCTIONS
2 - CROSS TABLE VALIDATION
3 - DATABASE ACCESS

The lower half of the screen displays up to 5 maps for the screen. The MAP column contains the identifying map number. The TABLE column identifies the specific TABLE the map processes against. The MAPPED FROM column identifies the source table. Also, if the last character of MAPPED FROM is a 'P' then this map is a processing map with Allow Functions defined.

You enter the option number and map number. Press ENTER and the system displays the appropriate screen.

PF KEYS

PF3Return to the **TABLES/AS** Primary Option menu
PF4Return to the **TABLES/AS** Primary Option menu
PF12   Return to the **TABLES/AS** Primary Option menu

Select Option ===> 1 - Allow Functions

When you select Option 1 on the **TABLES/AS** Process Options menu, the system
displays the **TABLES/AS** Process Options - Function screen. See Figure 2-52.

```
---------------------- TABLES/AS PROCESS OPTIONS - FUNCTIONS ------------------
SCREEN: wkr4201                                                      MAP: map01


ENTER 'X' TO ALLOW: Add => X   Change => X   Delete => X  Inquire => x


Function Code Field Name  ===>        Message Field Name   ===>   MSG
Map Name to Protect Fields ===>       Retain Screen Fields ===>   Y   (Y)
Maximum # Rows to Select  ===>  150      Fld # to Place Cursor ===>    000
Search on row values     ===>    (Y)
Key Stroke to Process     ===>  00    Forward Key Stroke   ===>
Key Stroke to Back Page  ===>  07    Confirm Delete Key   ===>
Initial Retrieval        ===> (R/U)   Update Memory Table  ===>      (U)
Editor Module Name       ===>         Static SQL Module Nme ===>
1st Map of Connected Table ===>       (Y) Roll Back Required   ===>       (Y)
DB2 Logging Required      ===> N   (Y)


Next Map            ===>      (To process or transfer data to)
Next Screen to Switch to  ===>      (Name of screen to display next)
Next Function to Switch   ===>      (R/U/A - To set on the next screen)
Next Key Stroke to Switch ===>      (Processed on the next screen)


ABOVE INDICATES THE CURRENT DEFINITIONS
PF 1=HELP          2=        3=END          4=RETURN          5=          6=
PF 7=              8=        9=              10=              11=         12=CANCEL
```

Figure 2-52

MARK ALLOWED FUNCTIONS WITH X
Enter an X next to each potential use of the map.
•Add records to a table.
•Change values in a table.
•Delete records in a table.
•Inquire about one or more records in a table.

FUNCTION CODE FIELD NAME
The field name defined on your screen that is used at entry to identify the function being performed for that table on your screen.

If the allow function is either Add or Inquiry only, then the function code field is not required, and it is not used during screen processing.

A single function code field can be used for multiple tables or repeating groups on the screen or a function code can be established for each table or as part of the repeating group. With multiple function codes, a single screen could perform multiple functions with the various tables or rows in repeating groups, independent of each other.

MESSAGE FIELD NAME
The name of the field on the screen where processing messages are to be shown. Processing messages may be status messages or error messages.

MAP NAME TO PROTECT FIELDS
One or more fields on the screen may be protected by creating a map containing those fields. Specify the name of the map created to protect the fields.

RETAIN SCREEN FIELDS
If fields for this table are to be retained on the screen in add mode.

MAXIMUM # ROWS TO SELECT
Specify the limits used to satisfy a single search within the **TABLES/AS** Screen Processor environment.

For DB2, the limit determines how many FETCH calls are to be issued to DB2.

For VSAM/IMS, the limit determines how many records are to be searched to satisfy a retrieval.

FLD # TO PLACE CURSOR
Relative field number on the screen to be used for initial cursor positioning when there is no function code field specified for the given screen. Used only when there is no function code field name given or it is an inquiry only map on the given screen.

SEARCH ON ROW VALUES
Enter **Y** to allow retrieval of data from values entered at the row level.

KEY STROKE TO PROCESS
The PF key number that is entered to indicate that screen processing should take place for this table. 00 indicates the ENTER key. The other choices are 01-11, and 13-23.

PF keys 12 and 24 are reserved for use by the screen processor transaction whenever it is invoked using option 9 from the Primary Option menu or its own installation transaction code. If a screen is being set up to be executed directly by your own transaction code; i.e., not option 9; then, all the PF keys are available for your selection including keys required to exit out of your screen to CICS/IMS.

FORWARD KEYSTROKE
Enter the PF key to be used to forward page of records retrieved.

KEYSTROKE TO BACK PAGE
If back paging of records retrieved is desired, enter the PF key number to be used. The default is 07.

CONFIRM DELETE KEY
If you require a confirmation prior to deleting each row, enter the PF key to be used for confirmation.

INITIAL RETRIEVAL
Enter R or U if records should be retrieved before displaying this screen the first time. A **U** will retrieve for update and an **R** will retrieve for inquiry only.

UPDATE MEMORY TABLE
This Option is only effective when **TABLES/MM**, Memory Manager, is installed. A U will cause both the disk storage and memory storage of the table to be updated. If the table is not pre-loaded, only the disk copy will be updated.

EDITOR PROGRAM NAME
The name of a user-written program that is used to perform editing beyond the scope of **TABLES/AS**. See **TABLES/AS** Technical Guide.

STATIC SQL MODULE NAME
Name of a program which will be used to execute static SQL calls. In CICS, this must be a name defined in PPT with language = COBOL. The static SQL module is created in batch using a JCL procedure supplied with the product.
(See Technical Guide, JCLSQL01 in Batch Utilities.)

1ST MAP OF CONNECTED TABLE
Enter a **Y** or **N** to indicate whether the current map is the 1st map in a chain of connected maps to be processed together. See Appendix G also.

A code of **Y** provides capability to update multiple tables in one key stroke. The following should be considered:

• Requires same function code field, key stroke, and allow functions for each connected table.

•Connection is established using next map.

•Rollback option may be selected to back out partial changes

•A maximum of 14 tables may be connected

ROLL BACK REQUIRED

Enter a **Y** or **N** to indicate whether a roll back is required whenever a database error occurs. A code of **Y** indicates that all database updates are to be backed out when a failure occurs under the following conditions:

•A multi-row screen contains a single table and a failure occurs after updating the 1st row successfully.

•A single or multi-row screen contains more than one table and a failure occurs after updating the first table successfully.

DB2 LOGGING REQUIRED

If this option is selected, changes made to the table are logged and an audit trail can be printed in batch.

NEXT MAP

If Next Screen to Switch to has been specified, enter the map name to transfer data to the next screen. To transfer data from one screen to another, both screens must have been mapped to the same table using the same map name.

To process a second table with a single key stroke, enter the map name of the table, file or segment to be processed next. Both tables are then processed using a single key if you have specified the same function code field, key stroke and allow functions for the second table. The last connected table should have no value in this field.

To process a second table independently of another, identify a different keystroke for processing this second table than was specified for the first table. The tables are then processed based on the keystroke entered, i.e., perhaps the enter key (00) processes table 1 and PFK06 processes table 2.

NEXT SCREEN TO SWITCH TO

If it is desired that another screen be displayed after this screen, enter the name of the next screen to be displayed.

NEXT FUNCTION TO SWITCH

A function to be performed internally before the next screen is displayed. For example, function R specifies that the next table is to be accessed and the data from it is to be displayed on the next screen.

NEXT KEY STROKE TO SWITCH

When specified, this must be the key stroke for processing the desired table as defined in the next screen being switched to. This entry defines what table is to be processed during a screen switch.

When Next Screen to Switch To is specified, the transfer to this next screen occurs automatically when:

   1)the last row retrieved for Inquiry has been displayed;

   2)the last row retrieved for Update has been processed;

   3)after the last row from the screen has been added to this table when the screen is only being used to add records.

PF KEYS

PF3Process functions entered and return to the **TABLES/AS** Process Options menu

PF4Process functions entered and return to the **TABLES/AS** Primary Option menu

PF12Cancel functions entered and return to the **TABLES/AS** Process Options menu

Switching Possibilities Defined in Allow Functions

Result Desired	Next Map	Next Screen	Next Function	Next Keystroke
Process a different table on the same screen - Connected Tables	Y			
Display the "Next Screen"		Y		
Display the "Next Screen" populating fields contained in "Next Map"	Y	Y		
Display the "Next Screen" after performing the "Next Function" for the table in the "Next Screen" processed with "Next Keystroke"		Y	Y	Y
Display the "Next Screen" after performing the "Next Function" qualified by the data in "Next Map" for the table in the "Next Screen" processed with the "Next Keystroke."	Y	Y	Y	Y

NOTE

Any other combination of entries in these fields can cause unpredictable results. The switching defined in the Allow Functions screen occurs automatically when the last record has been processed for this table. Examples: retrieve 50 records - after 50th record displayed, switch occurs. Add 2 records via multi-row screen - after 2nd record added, switch occurs.

SCREEN SWITCHING WITHIN SCREEN PROCESSOR

```
┌─────────────────────────────┐
│ TABLES/AS                   │
│ Screen within the           │
│ Screen Processor            │
│ (Screen 1)                  │
│                             │
│                             │
│                             │
└─────────────────────────────┘

┌─────────────────────────────┐
│ TABLES/AS                   │
│ Screen within the           │
│ Screen Processor            │
│ (Screen X)                  │
│                             │
│                             │
│                             │
└─────────────────────────────┘
```
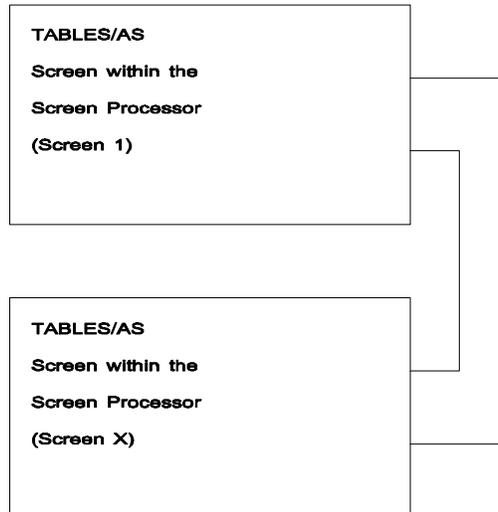
Screen switching is invoked under the following conditions:

•After table processing is complete; defined via Processing Options/Allow Functions

•Via a PF key; defined via Utilities/Switching

•Based on an option code; defined via Utilities/Switching

•Based on the presence of data; defined via Utilities/Switching

SWITCHING AFTER TABLE PROCESSING
This condition is defined in Processing Options/Allow Functions. When defining the table processing, there is the option of entering the next screen name to transfer to. The transfer (switch) takes place after processing is complete for the table being processed. Following is a chart indicating when processing is considered complete for each function.

FUNCTION PROCESSING IS COMPLETE WHEN:
R, I, B All retrieved records have been displayed and the user presses the specified key again.

UAll retrieved records have been displayed, changes have been made (add, change, delete) and the user presses the specified key again.

AAll records have been added. If the records are first retrieved with a Function U, the processing rules for U apply.

CSee the processing rules for Function U.

DSee the processing rules for Function U.

TABLES/AS - SCREEN GENERATION

TRANSFERRING DATA

Transferring data from one screen to the next can be defined using record mapping process. Any table map on the source screen can be passed to the target screen. In order to do this, the table map being passed must be defined on both the source screen and the target screen. Only the data which is common to the maps on both screens is passed. For example, if SCREEN1 has a map named CUSTREC containing customer number, name, and address; and SCREEN2 has a map named CUSTREC containing customer number, then only the customer number is passed to SCREEN2 from SCREEN1. If SCREEN2 switches to SCREEN1 passing the same map, then the same holds true. Only the customer number is passed.

If the data being passed is part of a repeating group, the repeating group is passed to the target screen, up to the number of entries that the target screen can hold.

To pass data when switching from the source screen to the target screen enter the map name in NEXT MAP in the Allow Functions screen. If a map name is not specified, then no data is passed when the switch occurs.

Select Option ===> 2 - Cross Table Validation

This option is used to define the inter-table validation that is to take place when updating a specific table. The validation is specified on the **TABLES/AS** Process Options - cross table validation screen. See Figure 2-53.

```
--------------- TABLES/AS PROCESS OPTIONS - CROSS TABLE VALIDATION -----------
SCREEN:                                                                Process Map Name:

Enter/Verify the following:

   VALIDATION          ENTER 'X' FOR FUNCTIONS   TYPE OF VALIDATION
   MAP NAME              ADD  CHG  DEL    (P=Presence, A=Absence)
   --------            -   -    -    -
 =>                                    =>  =>  =>        =>
 =>                                    =>  =>  =>        =>
 =>                                    =>  =>  =>        =>
 =>                                    =>  =>  =>        =>
 =>                                    =>  =>  =>        =>
 =>                                    =>  =>  =>        =>



 Notes:  Enter the VALIDATION MAP NAMES.  Then specify for which functions
         to check and the validations to perform.



ENTER ABOVE ALL MAPS TO BE VALIDATED
PF 1=HELP            2=       3=END    4=RETURN         5=              6=
PF 7=               8=    9=    10=              11=             12=CANCEL
```

Figure 2-53

Cross Table Validation could be used to insure that before adding or changing a row in Table A, some value(s) exist in Table B. You would have created a map for processing Table A and you would have created a map for validation using Table B. The SCREEN and PROCESS MAP NAME are brought forward from the prior selection screen. You would enter the Table B validation map name, put X's for ADD, CHG, and/or DEL and a P or A for type of validation.

VALIDATION MAP NAME
Enter the name of the map identifying the table to validate against.

FUNCTIONS
Indicate which function(s) requires the validation process by placing an **X** below Add, Change, and/or Delete.

TYPES OF VALIDATION
P for presence, causes the system to validate that the mapped field(s) is present before updating can be completed. For example, we want to perform a presence check on the department table whenever an attempt is made to add or change an employee record, assuring that the department number does exist in the department table.

A for absence, causes the system to validate that the mapped field(s) is absent before updating can be complete.

Sometimes a presence check is necessary for one function and an absence check for another function. For example, a salesperson's number needs to be **present** on the salesperson's file when adding or changing the commission record. And a salesperson's number needs to be **absent** on the commissions file when deleting a salesperson's record.

Sometimes it is necessary to check that a value was effective for a given date. By validating against a table defined with effectivity control, cross table effectivity validation can be performed.

The screen shown in Figure 2-54 demonstrates how this is entered.

```
---------------- TABLES/AS PROCESS OPTIONS - CROSS TABLE VALIDATION -------------
SCREEN:                                                PROCESS MAP NAME: TABLEA

Enter/Verify the following:

    VALIDATION        ENTER 'X' FOR FUNCTIONS   TYPE OF VALIDATION
    MAP NAME           ADD  CHG  DEL    (P=Presence, A=Absence)
    --------          -   -   -     -
 =>  TABLEB                          => X => X =>      => P
 =>                       =>  =>  =>         =>
 =>                           => => =>       =>
 =>                           => => =>       =>
 =>                           => => =>       =>
 =>                           => => =>       =>


  Notes:  Enter the VALIDATION MAP NAMES.  Then specify for which functions
        to check and the validations to perform.



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

Figure 2-54

EFFECTIVITY VALIDATION

During Add, Change, Delete from a DB2 table, effectivity validation on other tables is performed based on cross tables processing options. The following must be considered:

1. Columns to be validated on must be mapped including the Break-in date. Mapping of a Break-out date is optional.

2. The tables to be validated on must be under effectivity control; table to be processed need not be under effectivity control.

3. If dates for the effectivity range are not supplied through the table being processed, the current date is used for the required Break-in effective date and the effectivity checking on the Break-out date, if defined, is ignored.

4. The validation is performed for the presence or absence

PF KEYS

PF3 Save changes and return to the **TABLES/AS** Processing Options menu

PF4 Save changes and return to the **TABLES/AS** Primary Option menu

PF12 Cancel changes and return to the **TABLES/AS** Process Options menu

ENTER   Accept changes and return to the previous screen

Select Option ===> 3 - Database Access

When you select Option 3 on the **TABLES/AS** Process Options menu, the system displays either the **TABLES/AS** Process Options - VSAM File Access screen, or the **TABLES/AS** Process Options - IMS Access screen. The VSAM File Access screen is shown in Figure 2-55. All of this data is automatically displayed once JCL401MC has been run for this file. The data should be checked for correctness the first time.

```
------------------ TABLES/AS PROCESS OPTIONS - DATABASE ACCESS ----------------
SCREEN:                                                              VSAM DDNAME:

Enter/Verify the VSAM File Information:

   RECORD LENGTH   ===>
   KEY FIELD START  ===>
   KEY FIELD LENGTH ===>
















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

Figure 2-55

SCREEN
The screen name is automatically provided from the name entered on the Define Options for Screen Processor menu.

VSAM DDNAME
The file name is automatically provided for the name entered on the Define Options Screen Processor menu.

RECORD LENGTH
Enter the length of the VSAM file record in a four-digit format. The maximum acceptable value is 4000.
Record length fields must be mapped and established in one of the following methods:

Variable length files are treated as fixed length files with the record size equal to the maximum record size. An editor program can be used to set the length value based on the data entered on the screen.

A field length can be defined on the screen for the operator to enter the record length (not practical).

If the record really is not variable but only defined that way, a non-display field can be established on the screen. By using the initial values function, the value can be set to the actual length always written.

KEY FIELD START
The starting position of the key or sequence field in a table is a four-digit format. The field start position must be greater than zero.

KEY FIELD LENGTH
The length of the key or sequence field in bytes in a table is in a three-digit format.

> **NOTE**
>
> Once a VSAM field is defined to **TABLES/AS**, it is not defined again for use on other screens. **TABLES/AS** stores the information and returns it if that file is used for mapping on some other screen. JCL401MC job can be run to derive this information instead of entering it by hand.

PF KEYS

PF3 Save changes and return to the **TABLES/AS** Process Options menu
PF4 Save changes and return to the **TABLES/AS** Primary Option menu
PF12 Cancel changes and return to the **TABLES/AS** Process Options menu

The Database Access screen for IMS access is shown in Figure 2-56. This screen is used to specify information necessary for **TABLES/AS** to create the segment search arguments to access the segment to which the map pertains.

```
------------------ TABLES/AS PROCESS OPTIONS - DATABASE ACCESS -----------------
SCREEN:                                  SEGMENT NAME:
                                DBD NAME:
Enter/Verify IMS SEGMENT SEARCH ARGUMENT Information:

 SEGMENT LENGTH           ===>              KEY FIELD NAME  ===>
 KEY FIELD START  ===>              KEY FIELD LENGTH ===>
 DBD OCCURRENCE NUMBER IN THE PSB           ===>
 SECONDARY INDEX ACCESS (Y or N)     ===>      SHARED INDEX ===>    (Y or N)

Enter/Verify NEXT HIGHER LEVEL SSA'S:

  LEVEL  SEGMENT-NAME  LENGTH  KEY-NAME  KEY-START  KEY-LENGTH
  -1
  -2
  -3
  -4
  -5
  -6
  -7
  -8

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

Figure 2-56

Each level in the database from the root to the target segment must have been mapped to identify the screen field which corresponds to the key/sequence field of that segment.

The segment information on the upper portion of this screen corresponds to the segment to which this map pertains. The lower portion of the screen pertains to those segments at higher levels (parents) within the data access path.

Most of the information necessary for this screen is obtained by executing JCL401MG (Extract Segment Information from DBD Source). Refer to the **TABLES/AS** Technical Guide. If this is done, only the DBD Occurrence Number, Secondary Index, and Shared Index need to be specified.

SCREEN
The screen name is automatically provided from the name entered on the Define Options for Screen Processor menu.

SEGMENT NAME
The name is automatically provided from the name entered on the Define Options for Screen Processor menu.

DBD NAME
The name is automatically provided based on the prior mapping definition.

SEGMENT LENGTH
•Enter the length of the segment as defined in the DBD. Enter four digits. The maximum acceptable value is 4000.

•Segment length fields must be mapped and established in one of the following methods:

·Variable length segments are treated as fixed length segments with the segment size equal to the maximum record size. An editor program can be used to set the length value based on the data entered on the screen.

·A field can be defined on the screen for the operator to enter the record length. (Not practical.)

·If the segment really is not variable but only defined that way, a non-display field can be established on the screen. By using the initial values function, the value can be set to the actual length always written.

KEY FIELD NAME
The name of the key or sequence field as defined in the DBD. This is either the primary key or XDFLD (secondary index) name.

KEY FIELD START

The starting position of the key or sequence field in the table. Enter four digits.

KEY FIELD LENGTH
The length of the key or sequence field in bytes in the table. Enter three digits.

DBD OCCURRENCE # IN THE PSB
The PCB within the PSB which is established to access this DBD in the desired manner. If there are four PCBs for this DBD in the PSB, specify which one to use. For example, if the second occurrence of this DBD name in the PSB is the proper PCB for accessing this database in the manner desired, enter a value of 002.

Note, this is the occurrence number relative only to this DBD name. It is not the occurrence number within all of the PCBs in the PSB.

SECONDARY INDEX ACCESS (Y/N)
If the accessing of this database with this PCB is by a secondary index, enter Y. If it is not, enter an N.

IS IT A SHARED INDEX?
Enter a Y if the secondary index contains more than one field type.

NEXT HIGHER LEVEL SSAs

SEGMENT-NAME
The name of the next higher level segment in the hierarchy (the parent of the segment just defined).

LENGTH
The length of the segment as defined in the DBD. It must be in a four-digit format. The maximum value allowed is 4000.

KEY-NAME
The name of the key or sequence field as defined in the DBD.

KEY-START
The starting position of the key or sequence field in this segment as defined in the DBD. It must be in a four-digit format.

KEY-LENGTH
The length in bytes of the key or sequence field as defined in the DBD. It must be in a three-digit format.

If the map pertains to a root (top level) segment, no data is entered in the lower portion. If the map pertains to a segment three levels into the database, enter the data for the target segment in the upper portion. Then enter the data for the level just above the targ⸻⸻he line numbered -1. Finally, enter the data for the root segment in th⸻⸻-2.

LEVEL 1

ROOT

NOT IN PATH

PARENT

NOT IN PATH

LEVEL 2

TARGET

LEVEL 3
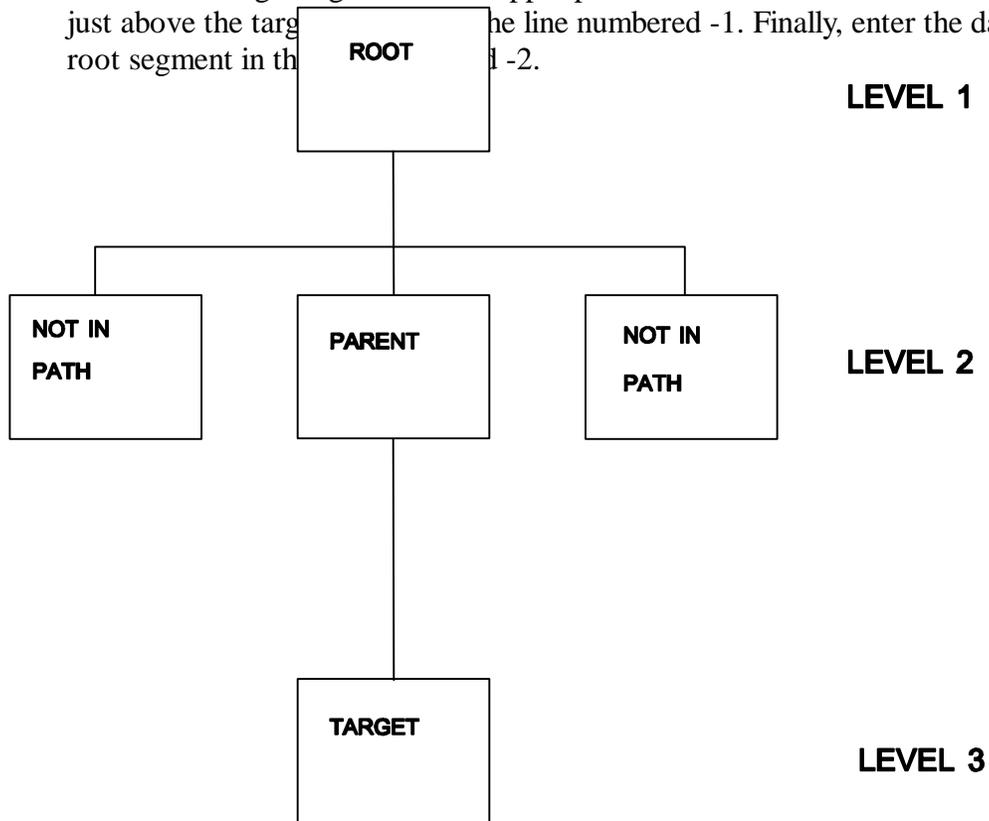
Three maps must have been created to be able to specify the SSA requirements for this example.

•A map for the root to relate to the key field.

•A map for the parent to relate to the sequence field.

•A map for the target to relate all of the fields relative to this segment.

    NOTE⸻⸻⸻⸻⸻⸻⸻⸻⸻⸻

Once an SSA is defined to **TABLES/AS**, it does not have to be defined again for use on other screens. **TABLES/AS** stores this information and returns it if that segment is used for mapping on some other screen. Once JCL401MG is run, check the results.

PF KEYS

PF3	Save changes and return to the **TABLES/AS** Process Options menu
PF4	Save changes and return to the **TABLES/AS** Primary Option menu
PF12	Cancel changes and return to the **TABLES/AS** Process Options menu

EXAMPLES OF SSA CODING

```
        ┌─────────────────────────────┐
        │     SECONDARY INDEX         │
        │                             │
        │                          │  │
        └──────────────────────────┼──┘
                                   │
  ┌──────────────┐                 │
  │    ROOT      │─────────────────┘         LEVEL  0
  │              │
  └──────────────┘


  ┌──────────────┐
  │    SEG1      │                           LEVEL  1
  │              │
  └──────────────┘


  ┌──────────────┐
  │    SEG2      │                           LEVEL  2
  │              │
  └──────────────┘
```
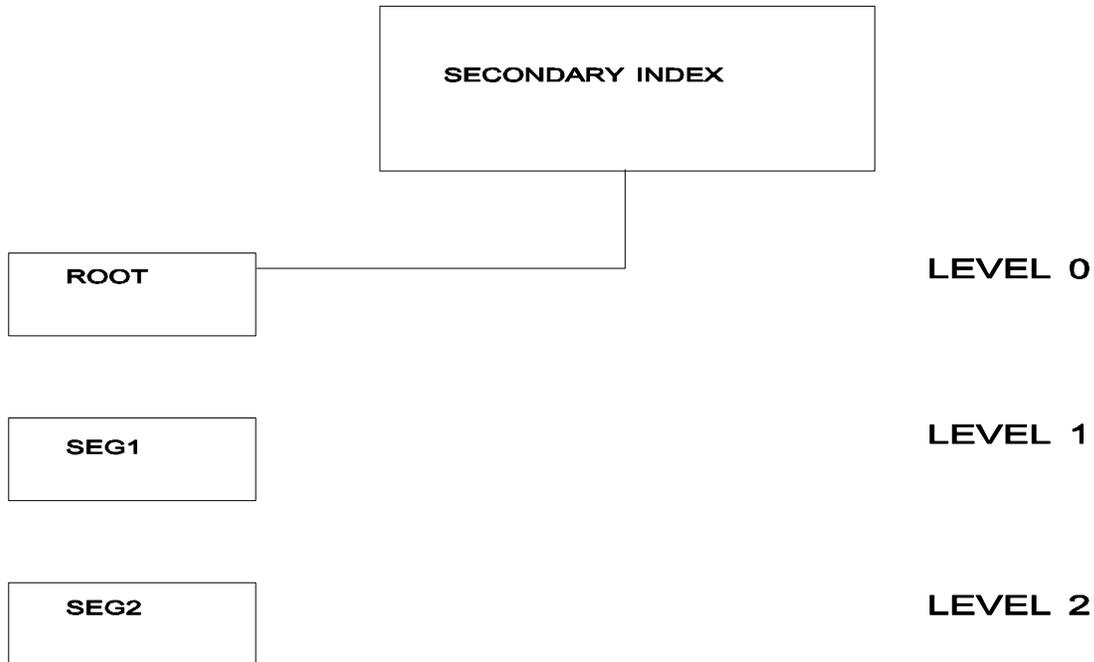
1.Access the root segment

2.Access a segment in Level 1. (SEG1)

3.Access a segment in Level 2. (SEG2)

1.To access the root segment

   A.   Via the primary key

       •Map the root

    •   The map ~~must~~ contain the key field

•Define record processing for the root

   SSA DEFINITION
   •Segment length = root length
   •Key field name = primary key for root
   •Key field start = starting position of key field in root
   •Key field length = length of key field
   •Secondary index access = N
   •Next higher level SSAs = None

B.   Via a Secondary Index (XDFLD)
 •Map the XDFLD
      •Map the root
      •Define record processing for the root

   SSA DEFINITION
 •Segment length = root length
      •Key field name = XDFLD name
      •Key field start = starting position of XDFLD in copy code
      •Key field length = length of XDFLD
      •Secondary index access = Y
      •Next higher level SSAs = none

2.To access a segment in Level 1 (SEG1)

   A.   Via the primary key
        •Map the root
        •The map <u>must</u> contain the key field
        •Map SEG1
        •Define record processing for SEG1 map.

        SSA DEFINITION
        •Segment length = SEG1 length
        •Key field name = either the sequence field name for SEG1 or any   field
          name defined in the DBD for SEG1. (If there is no field name defined in
          the DBD, then the segment cannot be accessed.)
        •Key field start = starting position of the field specified above
        •Secondary index access = N

   Define next higher level SSAs.

Level	Segment Name	Length	Key Name	Key Start	Key Length
-1	Root name	Root length	Primary Key field	Primary Key starting position	Primary Key length

B.   Via a Secondary Index (XDFLD)
•Map the XDFLD
       •Map SEG1
 •Define record processing for SEG1 map

 SSA DEFINITION
 •Segment length = SEG1 length
       •Key field name = either the sequence field name for SEG1 or any field
         name defined in the DBD for SEG1. (If there is no field name defined in
         the DBD, then the segment cannot be accessed.)
 •Key field start = starting position of the field specified above
 •Secondary index access = Y

 Define next higher level SSAs.

Level	Segment Name	Length	Key Name	Key Start	Key Length
-1	Root name	Root length	XDFLD name	Start position of XDFLD	Length of XDFLD

3. To access a segment in Level 2 (SEG2)

   A.Via the primary key
    •Map the root
    •The map must contain the key field
        •Map SEG1
        •This map must contain the key field that is defined on Level 1
        •Map SEG2
        •This map must contain the key field that is defined on Level 2
        •Define record processing for SEG2 map

        SSA DEFINITION
        •Segment length = SEG2 length
        •Key field name = either the sequence field name for SEG2 or any field
          name defined in the DBD for SEG2. (If there is no field name defined in
          the DBD, then the segment cannot be accessed.)
        •Key field start = starting position of the field specified above
    •Secondary index access = N

    Define next higher level SSAs

Level	Segment Name	Length	Key Name	Key Start	Key Length
-1	SEG1 name	SEG1 length	Seg Fld name	Starting position of Seg Fld	Length of Seg Fld
-2	Root name	Root	XDFLD	Starting	Length of

length	name	position of Primary Key	Primary Key

B.   Via a secondary Index (XDFLD)
   •Map the XDFLD
   •Map SEG1
   •This map must contain the key field that is defined on level 1
   •Map SEG2
   •This map must contain the key field that is defined on level 2
   •Define record processing for SEG2 map

   SSA DEFINITION
 •Segment length = SEG2 length
   •Key field name = either the sequence field name for SEG2 or any field
     name defined in the DBD for SEG2. (If there is no field name defined in
     the DBD, then the segment cannot be accessed.)
   •Key field start = starting position of the field specified above
•Secondary index access = Y

Define next higher level SSAs

Level	Segment Name	Length	Key Name	Key Start	Key Length
-1	SEG1 name	SEG1 length	Seg Fld name	Starting position of Seg Fld	Length of Seg Fld
-2	Root name	Root length	XDFLD name	Starting position of XDFLD	Length of XDFLD

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V

View