TPS 90
COMPASS
Reference
Guide

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Manual Number: 0146

This first issue of the
TPS 90 COMPASS Reference Guide
incorporates the features and facilities
provided in Release 90.0 of
TPS 90/ICL and **TPS 90/IBM** software.

TABLE OF CONTENTS

THE KEYWORDS

0.1. PURPOSE OF THE MANUAL

The **TPS 90 COMPASS Reference Guide** contains a detailed description of the Application Definition procedures used in **TPS 90** COMPASS.

0.2. STRUCTURE OF THE MANUAL

Chapter 1 comprises general information about the Application Definition screen, summarising the main features of input and output, including 'help' and any status messages displayed by the system.

Chapter 2 contains a list of the various error messages the user may encounter in performing Application Definition procedures.

Chapter 3 contains information general to the list of keywords, their qualifiers and parameters. This concludes with a summary list of the available COMPASS Keyword. Qualifier combinations.

For further details of COMPASS, including the sign-on procedures and the various features of Application Definition, see the **TPS 90 COMPASS User Guide.**

0.3. ASSOCIATED MANUALS

There are five manuals associated with the **TPS 90 COMPASS Reference Guide**, as follows:

MANUAL: SHORT	LONG	CONTENT
CI	**TPS 90** COBOL Interface	This manual describes the interface and rules for writing **TPS 90** COBOL Application Routines.
CUG	**TPS 90** COMPASS User Guide	This manual describes the features and facilities of the **TPS 90** COMPASS Application Definition subsystem.
IBMOPS	**TPS 90** IBM Operating	This manual contains the information required to install, amend and run **TPS 90** in an IBM-DOS/-MVS environment.
ICLOPS	**TPS 90** ICL Operating	This manual contains the information required to install, amend and run **TPS 90** in an ICL-VME environment.
SBP	**TPS 90** System Building Procedures	For System Designers. This manual describes the purpose and function of each keyword/component within the **TPS 90** System Definition subsystem.

1. THE APPLICATION DEFINITION SCREEN

1.1 INTRODUCTION

The screen layout used by AD (see Figure 1-1) is substantially the same as that used by **TPS 90** System Definition (SD). By entering the appropriate keyword.qualifier on this screen, the user calls up the details of the relevant component within AD.

If this display is lost, it can be reinstated, in most cases, by simply pressing ENTER/SEND to enter the contents of the current screen. However, when the basic screen layout is not actually being displayed, i.e. in the definition of the following components:

FORMAT   INPUT PROCESSING   INPUT MAP   DISPLAY LAYOUT

the basic AD screen can be reinstated, without updating the file, by entering/sending *R from line 1, column 1.

```
(
a(            TPS Application Definition
(     Keyword.Qualifier [                         ]
(     Special Directive [                         ] Page [   ]
      ----------------------------------------------------------
(
(
(
(
(
(
(
b(
(
(
(
(
(
(
      ----------------------------------------------------------
c(
(
```
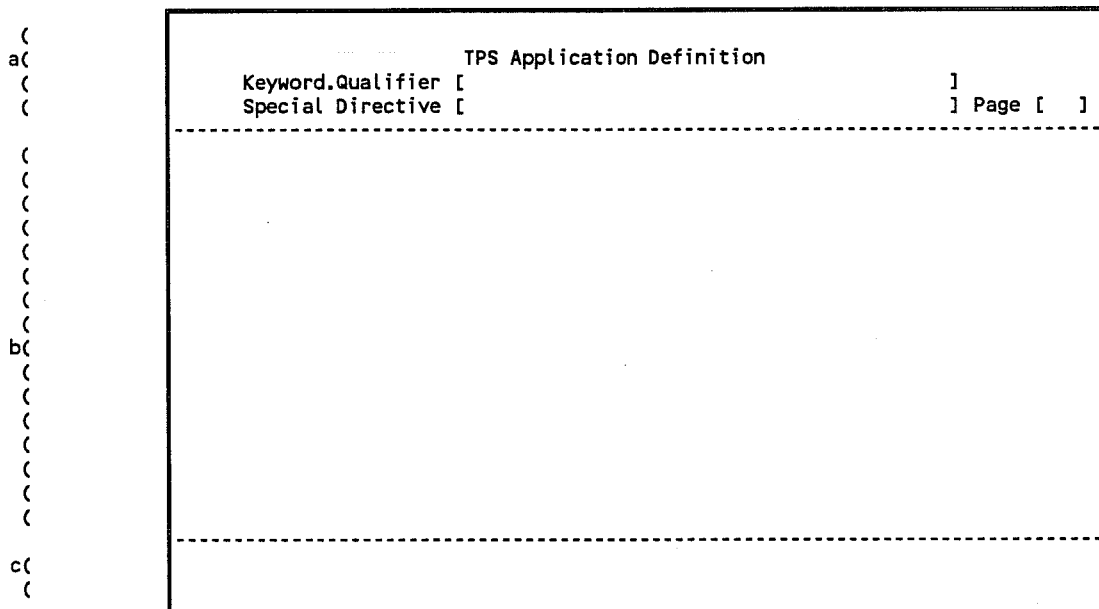
Figure 1-1: The basic Application Definition screen, comprising:
 a : Header Area, 4 lines at the top of the screen
 b : Definition Area, 16 lines in the middle of the screen
 c : Information Area, 2 lines at the bottom of the screen

1.2 HEADER AREA

The Header Area (see Figure 1-1) contains three fields used for the following data:

o Keyword.Qualifier

o Special Directive

o Page Number

The Header Area is also used by the system to display responses to data entries sent to the AD file. These messages appear at the top of the screen and either confirm data entries or reject them with error information. Repeat Broadcast messages are also displayed in the Header Area.

1.2.1. Keyword.Qualifier Field

A system consists of components, each one defining a particular part of that system. Each component is uniquely identified by a keyword (often with a qualifier). Some components are related to each other and arranged in a hierarchical structure.

The Keyword.Qualifier field is used to identify the component to be defined; entry is mandatory. A list of the valid keyword.qualifiers can be displayed, via the 'Help' facility, by entering '!' in the Keyword.Qualifier field. See Section 3.5 for a summary of the available keyword.qualifiers.

1.2.2. Special Directive Field

If the Special Directive field is returned blank, the system will display default or existing definition details for the component identified in the Keyword.Qualifier field. Otherwise, the Special Directive field is used to enter run-time directives to perform special operations, as follows:

o To specify an existing component on whose definition details those of a new component are to be based.

In the creation of a new component, the new definition details can be based on those of another that already exists. The entry in the Keyword.Qualifier field identifies the component to be created, while the Special Directive entry specifies the existing component on which the definition of the new component is to be based.

Note: The Special Directive entry need not mention the actual keyword (i.e. the entry need only be the qualifier preceded by a full stop).

Existing components can be redefined as Based-On (see keywords FORMAT and INPUT MAP).

o To delete existing definition details (D)

Enter 'D' in the Special Directive field to delete from the system currently being defined the component specified in the Keyword.Qualifier field. The deletion of components can only be performed when their definition details are being displayed, and provided that there is no reference to them from any other component(s). If a component is referenced, the system displays the Status Response REFERENCED in the Information Area (see Section 1.4.1), and that component cannot be deleted until such references have been removed.

Note: If large numbers of components are to be deleted, it is more usual to do this via the **TPS 90** batch program TP3L (see the **TPS 90 ICL/IBM Operating Manual**).

o To establish an External Reference (E)

Enter 'E' in the Special Directive field to establish an External Reference to the Component which is identified in the Keyword.Qualifier field and which resides in the System Definition File. An External Reference can be to any of the following types of component:

APPLICATION ROUTINE	(AR)	FORMAT	(FORM)
AR TRAIN	(ART)	LOGICAL FILE	(LF)
CALLING SEQUENCE	(CS)	USER SUBROUTINE	(USUB)
COMMON VALIDATION	(CVAL)		

The External Reference will be checked during the definition process, if a System Definition File was specified at Course Selection/*SIGNON, and the details of the External component will be protected, since it cannot be updated from AD. If no SD File was specified, then such references cannot be checked until the AD and SD Files are combined (see the **TPS 90 COMPASS User Guide**, Appendix E): at define-time, the legend % Details unavailable % will be displayed.

Note: A component automatically created as the result of being referenced in the creation of another component is, if it is AR, ART, CVAL, FORM, LF or USUB, assumed to be 'local'. In these cases, the referenced component is created but will require completion, and can then be made External, if required (see keyword FORMAT).

When the referenced component cannot be 'local' (i.e. in the case of CS), a reference is created to it as an External component, which is assumed to be complete (though, in fact, it may not be so).

o To display identities of existing components (K)

Enter 'K' in the Special Directive field to display a list of the existing components whose identities match the specification entered in the Keyword. Qualifier field. This specification will be in the form of a Keyword with optionally (see N.B: below) any or all of the Qualifiers appropriate to that Keyword. If a Keyword alone has been specified, then all the components defined with that Keyword will be listed. Entry of any Qualifier value with the Keyword will further specify the listing to those components defined with that Keyword and that value in that position in the Qualifier sequence.

EXAMPLES:

a)
```
                           TPS Application Definition
        Keyword.Qualifier  [FORM.ABC//ICL1                           ]
        Special Directive  [K .                                      ] Page [F1 ]
        ----------------------------------------------------------------------
```

This will give rise to a list of all the Variants of Format ABC for Device ICL STANDARD 1.

b)

```
                        TPS Application Definition
        Keyword.Qualifier  [FORM./9                          ]
        Special Directive  [K                                ] Page [F1 ]
        ----------------------------------------------------------------
```

This will give rise to a list of all Variant 9 Formats with any Message id and for any Device.

N.B: **In other circumstances, the omission of a Qualifier in the Keyword. Qualifier field would normally invoke a default value (e.g. for Formats, Variant 1, Device IBM1 or ICL1, etc.). With Special Directive 'K', however, the effect is to request the inclusion in the listing of all components whatever value they have for that particular Qualifier.**

The list to be output may comprise more components than can be displayed on one screen: press HOME and ENTER/SEND for the next page to be displayed with a continuation of the list of components until the Status Response LAST PAGE is displayed (see Section 1.4.1).

o To prompt for incomplete components (P)

Enter 'P' in the Special Directive field to cause the system to search downwards within the hierarchy of the component identified in the Keyword. Qualifier field and to display the first incomplete page of the first incomplete component it may find.

o To display Reference Information (R)

Enter 'R' in the Special Directive field to display a list of components whose definition details reference the component identified in the Keyword. Qualifier field. Some components may be referenced by more components than can be displayed on one screen: press HOME and ENTER/SEND for the next page to be displayed with a continuation of the list of referencing components until the Status Response LAST PAGE is displayed (see Section 1.4.1).

o To incorporate a standard **TPS 90** definition (S)

Enter 'S' in the Special Directive field to incorporate, into the system currently being defined, the standard **TPS 90** definition of the component specified in the Keyword.Qualifier field. A component so incorporated will become 'local' to the application (i.e. its details can be amended to suit).

Note: In practice, this feature is best used with most FORMAT components. If large numbers of **TPS 90** components are to be incorporated, it is more usual to employ a TP3L load pack (see the **TPS 90 ICL/IBM Operating Manual**).

1.2.3. Page Number Field

Some components have more parameters than can be displayed on one screen. Each completed screen is called a 'page' and is numbered 1-n in sequence, the page number appearing in the third Header field. Successive pages are, in most cases, presented automatically, but they can be specifically requested if the preceding page(s) of the component have been completed. When an incomplete component is accessed without a page number being specified, the first page requiring completion is returned.

The 'F' in the Page Number field refers to the Future system of which the definition details being displayed on the current screen will, on acceptance, form a part. This 'F' can be overwritten when requesting a particular page.

1.2.4. Cursor Handling in the Header Area

The general rule for the use of the cursor in the Header Area is that, if the cursor is left within the Header Area when ENTER/SEND is pressed, any fields beyond the final cursor are considered as unsent.

1.3. DEFINITION AREA

The Definition Area (see Figure 1-1) can contain any of the following types of information:

o Details of a component

o Reference information

o 'Help' information

o List of existing components (see Section 1.2.2, Special Directive 'K')

1.3.1. Details of a Component

Component details displayed can be of one of the following types:

o Existing details of the component identified in the Keyword.Qualifier field

o Primary (and in some cases secondary) default information, if the component being defined does not (yet) exist

o Details based on another component specified in the Special Directive field

o Standard details

Entry of some parameters is mandatory, which means that the definition of a component cannot be accepted into the AD File unless these parameters are completed.

Some parameters have initial default values. These are displayed when the component is first identified for definition, and can be overwritten with values specifically required for that component.

1.3.2. Reference Information

If the component whose details are currently being displayed is referenced in the definition details of any other component(s), then these referencing components can be listed in the Definition Area by entering 'R' in the Special Directive field (see Section 1.2.2).

1.3.3. 'Help' Information

'Help' is available for any field in the Definition Area of the Page by entering, in the first character of the field for which help is sought, a question mark (?) for brief information, or an exclamation mark (!) for detailed information.

Brief 'Help' information is displayed in the Information Area (at the bottom of the screen), with the cursor repositioned in the first character of the Keyword.Qualifier field. Detailed 'Help' information will overwrite the Definition Area of the screen.

On **TPS 90/IBM**, a Help PF Key is provided. If the Help PF Key is pressed once while the cursor is at any position in the field for which help is sought, brief 'Help' is displayed, as for '?'. A second press of the Help PF Key at this stage will reveal the detailed 'Help' for the same field.

When detailed 'Help' has been invoked, press HOME and ENTER/SEND to reinstate the original details displayed.

1.3.4. Cursor Handling in the Definition Area

On **TPS 90/ICL**, the system assumes that all fields after the cursor are 'not sent' and are remain unchanged. Thus, when SENDing a screen, the user must ensure that the cursor is positioned after the last amended field or at HOME.

On **TPS 90/IBM**, no matter where the cursor is in the Definition Area when ENTER is pressed, the whole screen is sent. Thus, when ENTERing a screen, the user must ensure that all the values entered on it are as required.

1.4. INFORMATION AREA

The Information Area (see Figure 1-1) is used by the system to display the following types of information:

   o Status Responses

   o additional error information

   o 'Help' messages (see Section 1.3.3)

1.4.1. Status Responses

Status Responses are displayed, as appropriate, in conjunction with the output of definition details. These responses can be as follows:

RESPONSE	EXPLANATION
EXTERNAL COMPONENT	The details displayed reside on the SD File.
FUTURE DEFINITION DETAILS	The details displayed have previously been entered and are those which will be used to incorporate this component into any future implementation of a system (unless they are further amended).
FUTURE DEFINITION KEYS	The data displayed in the Definition Area is a list of existing components whose identities match the specifying information supplied in the Keyword. Qualifier field.
FUTURE REFERENCES	The data displayed in the Definition Area is the list of components which reference the component named in the Keyword.Qualifier field.
INCOMPLETE COMPONENT	The details displayed require completion before they can be accepted for implementation.
LAST PAGE	The final page of details or references displayed in the Definition Area has been reached.
NO FUTURE DEFINITION	No definition of this component has yet been made, and so it is not available for implementation in a user's system). Details displayed will be defaults unless a standard definition or a nominated existing definition is being used as a basis for the current function.
REFERENCED	The component currently displayed is referenced by another.
	Note: A 'REFERENCED' component cannot be deleted until such references have been removed.
STANDARD COMPONENT	The details displayed are for a component supplied by Telecomputing. Care must be taken when amending Standard Components, since such components will revert to their standard form when a new release of the **TPS 90** software is installed.

1.4.2. Additional Error Information

Sometimes, information is displayed (preceded by a colon) in the bottom right of the Information Area as an additional connotation to an error message shown in the Header Area of the screen. Such additional error information is as follows:

MESSAGE,	EXPLANATION
:keyword.qualifier	· The component indicated is referenced by the subject component, causing the associated error response to be displayed in the Header Area.

2. ERROR MESSAGES

AD error messages relate to invalid input in the Header or Definition Areas. They are displayed, as appropriate, at the top of the Header Area.

2.1. HEADER AREA ERROR MESSAGES

If an error occurs from data entered in the Header Area, the cursor is left on the field in error and one of the following messages is displayed:

MESSAGE	EXPLANATION
'BASED ON' IS EXTERNAL	The component named in the Special Directive field is an external and cannot be used for based-on purposes.
'BASED ON' NOT APPLICABLE	The component named in the Keyword.Qualifier field already exists and cannot be based on the component named in the Special Directive field.
CANNOT CREATE COMPONENT	The component named in the Keyword.Qualifier field does not exist and can only be created as a result of first being referenced by another component.
CANNOT CREATE LOCAL COMPONENT	The component named in the Keyword.Qualifier field cannot be created on the AD File. To create this type of component, an External Reference will have to be established.
CANNOT LOCATE EXTERNAL COMPONENT	The component named in the Keyword.Qualifier field does not exist on the SD File.
COMPLETED	All components referenced by the keyword entered are complete (in response to Special Directive 'P').
DEFINITION HAS CHANGED	Another user is signed on to the same AD File and has changed the definition being updated here.
'D' NOT APPLICABLE	The component named in the Keyword.Qualifier field cannot be deleted, either because its details have not been displayed, or the component does not exist, or because it is referenced by another.
'E' NOT APPLICABLE	The component named in the Keyword.Qualifier field cannot be externally referenced. Either External is not supported for this keyword, or the component is already an External component.

MESSAGE	EXPLANATION
INVALID QUALIFIER	The qualifier entered is invalid for the associated keyword.
NO SUITABLE STORE CELL	The host **TPS 90** system does not contain large enough store cells to update the component named in the Keyword.Qualifier field.
'P' NOT APPLICABLE	The component named in the Keyword.Qualifier field does not exist.
'R' NOT APPLICABLE	The component named in the Keyword.Qualifier field either does not exist, or is not referenced by any other component in the system.
'S' NOT APPLICABLE	Either the component named in the Keyword.Qualifier field already exists, or there is no standard definition of that component.
UNKNOWN KEYWORD	The keyword entered is not known to AD.
IMAGE INCOMPATIBLE WITH TERMINAL	The required update, insertion or deletion cannot be carried out on this terminal because the screen image associated with the component name in the Keyword.Qualifier field or the Special Directive field was created on a different terminal and cannot be displayed on this one.

2.2 DEFINITION AREA ERROR MESSAGES

If an error occurs in data entered in the Definition Area, the cursor is left on the field in error and one of the following messages is displayed:

MESSAGE	EXPLANATION
DUPLICATE REFERENCE	The specified component has been referenced and can only be referenced once.
REFERENCE NOT ACCEPTABLE	An unacceptable reference has been made to a component.
UNABLE TO LOCATE COMPONENT	The referenced component does not exist and the system is unable to create the component.

The following messages are self-explanatory and refer to basic validation errors.

- o DECIMAL POINT MISSING
- o FIELD MISSING
- o INCONSISTENT DATA
- o INSUFFICIENT DATA
- o INVALID CHARACTER

- o INVALID CHECK DIGIT
- o INVALID DATA
- o OUT OF RANGE
- o TOO MANY DECIMAL PLACES
- o TOTAL INCORRECT

Note: Inconsistency between fields on the same Page causes the second field in error to be flagged.

3. COMPONENTS AND THEIR KEYWORDS

3.1 INTRODUCTION

In the following pages, descriptions of all Keywords available in AD are presented in alphabetic short form sequence. Each Keyword is described as follows:

o The KEYWORD, in long and short forms, heads the page.

o The QUALIFIERS are listed across the page in the format:

   qualifier/qualifier etc.

   Qualifiers are defined using the same notation as PARAMETERS (see below). The 'keyword.qualifier' can be described as the 'initial entry', i.e. what the user types in to identify the component to be defined/displayed.

o A short description of the USE of the Keyword follows.

o A description of the initial CREATION of the component is given, including a list of those components whose definition will cause its automatic creation. Unless otherwise stated, the component can be explicitly created, it can be held locally, and it cannot be Externally Referenced.

o A picture of the initial screen is given, with any standard value entries.

o The PARAMETERS on each page are then defined.

3.2. QUALIFIERS

logical name   Up to 12 characters, first alphabetic, the rest alphanumeric or hyphen (avoiding user names beginning with 'T', which might clash with names issued by Telecomputing). Appears as xxxxxxxxxxxx in screen pictures.

routine name   Up to 11 characters, first alphabetic, the rest alphanumeric (avoiding user names beginning with 'T', which might clash with names issued by Telecomputing). Appears as xxxxxxxxxxx in screen pictures.

               Note: For RANGE COBOL, and on **TPS 90**/IBM, maximum is 8 characters.

message id   3-12 alphabetic chars, first A-Z, the rest A-W (avoiding user ids beginning with 'X' to 'Z' (except 'XU' and 'ZU'), which might clash with ids issued by Telecomputing). Appears as iii in screen pictures.

               Note: Only the first 3 characters of message ids are retained as significant at run-time. These must be a unique combination for each message type.

               In Keyword MESSAGE PAIR, the message id can be input as &x (where x=A-Z or 0-9), or &xx (where xx=10-24) for control key x or control key xx respectively.

set or variant   Numeric, 1-99, default 1. Appears as ss for Set, vv for Variant in screen pictures.

device   Default is ICL1 or IBM1, as appropriate. Appears as dddd in screen pictures.

CENTRAL CONSOLE	(CONS)	- The console (valid on **TPS 90/IBM** only)
EXTERNAL PROCESS nn	(EPnn)	- Misc. external processes nn = 01-09
HCP OPTn	(PRTn)	- Hard Copy printer n = 1-4
IBM STANDARD 1	(IBM1)	- 3270 type video (valid on **TPS 90/IBM** only)
ICL STANDARD 1	(ICL1)	- 7181 type video, & 756I VTs linked to 7502 (may have badge reader), & DRS terminals (valid on **TPS 90/ICL** only)
LINEPRINTER OPTn	(LPOn)	- Lines printer n = 1-4 (valid on **TPS 90/ICL** only)
NON STD DEVICE n	(NSTn)	- Non-standard devices (Input & Output interpreters to be user-written) n = 1-9
PSEUDO	(PSEU)	- Pseudo-terminal
SYSTEM	(SYST)	- System terminal (should be terminal number 1)

rule number   Numeric, 1-4095. Appears as rrrr in screen pictures. Rule Numbers are allocated sequentially from 1 for each Validation Rule defined.

Applies only to Keyword VALIDATION RULE.

table number   Numeric, 1-99. Appears as tt in screen pictures.

1 = Control table
2 = Function table
3 = Action table
4 = Evaluation table

Applies only to Keyword TABLE.

Some of the above Qualifiers may also appear as parameters, usually in the form of a Cross Reference (see below).

3.3. PARAMETERS

In the Keyword descriptions which follow, the formal Parameter Name is given followed by its TYPE. An explanation of the parameter is then given.

Parameters are mandatory unless otherwise stated; any parameter field not returned (i.e. after the cursor when SEND is pressed) is regarded by the system as being unchanged.

Note: Some fields are pre-set with standard values. These are not default values in the strict sense: to return such a field blank, when entry is mandatory, will prompt the system to respond with the error message INSUFFICIENT DATA; if entry is optional, then blank will be accepted as a valid entry.

Parameter TYPES are as follows:

Cross Reference   a cross-reference to another component, using that other component's unique name (either its qualifier or its keyword.qualifier)

Note: Unless otherwise stated, referenced components will be automatically created, if they do not already exist.

PARAMETERS (cont'd)

* Cross Reference List   a list of Cross References as described above

    Selected Item   an item selected from a given list (<u>not</u> a range) of predefined options (format as in the given list)

* Selected List   a list of Selected Items as described above

    Nominated Item   an item whose value is devised by the user (i.e. not predefined in the product), e.g. Value on Page 2 of Keyword RECORD; or chosen from a given range

* Nominated List   a list of Nominated Items as described above

    Marker   a character used in screen format design to signify the position that its corresponding value is to occupy in the display

    Y/N or Y/blank   indicating whether or not a particular facility is to be included in the system being defined

* Lists can be 'Ordered', where the order of the entries is significant (e.g. ARs in Keyword AR TRAIN), or 'Positional', where the actual position is significant (e.g. the Error Messages on Page 4 of Keyword VALIDATION RULE). Unless so classified, the order and/or position of items in a list is without significance.

3.4. NOTE ON FILE IDENTITIES

The format of file identities is according to the regime, as follows:

ICL-VME   file-id   = full hierarchic name, up to 24 characters;
                                        or
                                simple file name, up to 24 alphanumeric characters (including an optional file generation number in brackets), of which the first character must be alphabetic;
                                        or
                                local name, up to 24 alphanumeric characters (with no file generation number), of which the first character must be an asterisk.

IBM-DOS   label   = DLBL name of the file, up to 7 alphanumeric characters, the first character alphabetic.

IBM-MVS   label   = DD name of the file, up to 8 alphanumeric characters, the first character alphabetic.
                   or

              file-id   = the VSAM file name, used in dynamic allocation.

3.5. SUMMARY OF KEYWORDS AND QUALIFIERS

Note: Default values appear in < > brackets. Y = Keyword is also available in SD.

KEYWORD		QUALIFIER	SD
AR	APPLICATION ROUTINE	routine name	Y
ART	AR TRAIN	logical name	Y
CS	CALLING SEQUENCE	logical name	Y
CTAB	COMMON TABLE	logical name	Y
CVAL	COMMON VALIDATION	logical name	Y
DISM	DISPLAY MAP	message id/set <1>/device <ICL1 or IBM1>	Y
DISP	DISPLAY LAYOUT	message id/set <1>/device <ICL1 or IBM1>	Y
DRSP	DEFAULT RESPONSES	logical name	
FORM	FORMAT	message id/variant <1>/device <ICL1 or IBM1>	Y
INP	INPUT PROCESSING	message id/set <1>/device <ICL1 or IBM1>	Y
INPM	INPUT MAP	message id/set <1>/device <ICL1 or IBM1>	Y
LF	LOGICAL FILE	logical name	Y
LFR	LF RESILIENCE	logical name	Y
LRG	LOGICAL RECORD GROUP	logical name	
MP	MESSAGE PAIR	message id	Y
MPV	MESSAGE PAIR VARIANT	message id/variant <1>	Y
REC	RECORD	logical name	
RSP	RESPONSES	message id	
STE	SUITE	logical name	
TAB	TABLE	message id/variant <1>/table number/ device <ICL1 or IBM1>	Y
TRAN	TRANSACTION	logical name	
USUB	USER SUBROUTINE	routine name	Y
VALR	VALIDATION RULE	message id/set <1>/rule number/ device <ICL1 or IBM1>	Y
VTAB	VALIDATION TABLE	logical name	Y

OVERLAY WITH A.R.: (Only relevant to **TPS**/ICL-DME)

    TYPE: Cross Reference to an AR component (Optional)

    Leave this field unchanged.

WEIGHTING:

    TYPE: Nominated Item

    Enter the weighting factor for Message Pairs using this AR. Range is 0-4095.

CALLING SEQUENCE:

    TYPE: Cross Reference to a CS component (Optional)

    If the AR here being defined uses a Calling Sequence, enter here the Qualifier (logical name) of
    the associated CS component. Otherwise, leave this field blank.

LANGUAGE:

    TYPE: Selected Item

    Specify the language in which the routine is written. Options are:

    COBOL   (C)
    RANGE COBOL (RC)

QUALIFIER: logical name

USE: To define an Application Routine Train.

CREATION: Presented automatically if referenced by MP and incomplete. Can be External.

```
                         TPS Application Definition
         Keyword.Qualifier [AR TRAIN.xxxxxxxxxxxx                  ]
         Special Directive [                                       ] Page [F1 ]
         -----------------------------------------------------------------------
         Table of Entries..............[                                       ]
                                       [                                       ]
                                       [                                       ]
                                       [                                       ]
                                       [                                       ]
                                       [                                       ]
                                       [                                       ]
                                       [                                       ]
                                       [                                       ]
                                       [                                       ]
                                       [                                       ]
                                       [                                       ]
                                       [                                       ]
                                       [                                       ]
                                       [                                       ]
         -----------------------------------------------------------------------
```

PARAMETERS:

    TABLE OF ENTRIES:

        TYPE: Ordered Cross Reference List of AR component(s)

        Enter the Qualifiers (routine names) of ARs in the order in which they are to be actioned in the AR Train being defined. Labels can be used to allow for branching in the Train. A label consists of up to 3 numeric characters followed by a colon. A branch to a label is identified by a colon followed by the label number.

        Example:

```
         Table of Entries..............[AR1                                    ]
                                       [:1                                     ]
                                       [AR2                                    ]
                                       [AR3                                    ]
                                       [1:AR4                                  ]
                                       [AR5                                    ]
                                       [                                       ]
```

Each label must be unique within the ART being defined. A branch to a label must refer to a label which appears on the same screen or has already been specified on an earlier or later Page of the same ART component.

An AR name can be inserted into an existing ART by entering it on the same line as an existing entry, using a comma as a separator.

Example: If AR3 had been omitted from the example above, it can be included as follows:

```
Table of Entries.............  [AR1
                               [:1
                               [AR2,AR3
                               [1:AR4
                               [AR5
                               [
                               [
```

KEYWORD: CALLING SEQUENCE (CS)

CS

QUALIFIER: logical name (External Reference)

USE: To define the mechanism by which **TPS 90** enters a COBOL AR in order to set up LINKAGE SECTION mapping correctly.

CREATION: Created automatically if referenced by AR and not already existing. Must be External.

PARAMETERS: Not applicable.

KEYWORD: COMMON TABLE (CTAB)

QUALIFIER: logical name

USE: To define a common table of actions to be taken by the system in response to nominated entries made in Conversation Control fields by users of the run-time system.

CREATION: Presented automatically if referenced by TAB and incomplete. Succeeding Pages are presented according to selection of Table Type, and are as for Keyword TABLE.

```
                    TPS Application Definition
Keyword.Qualifier  [COMMON TABLE.xxxxxxxxxxxx          ]
Special Directive [                                   ] Page [F1 ]

Description...[                                     ]

Type of Table.[           ]
```

PARAMETERS: (Page 1)

DESCRIPTION:

TYPE: Nominated Item (Optional)

For documentary purposes, enter a description, up to 40 characters long, of the Common Validation Table. Otherwise, leave this field blank.

TYPE OF TABLE:

TYPE: Selected Item

Enter one from the following list:

CONTROL (C)
FUNCTION (F)
ACTION (A)
EVALUATION (E)

KEYWORD: COMMON VALIDATION (CVAL)

QUALIFIER: logical name

USE: To define common validation rule details for use with the Logical Terminal Interface when defining a Validation Rule.

CREATION: Presented automatically if referenced by VALR and incomplete. Succeeding Pages are as for Keyword VALIDATION RULE, with the following exceptions:

   o   Page 1 of VALR carries the additional fields 'Logical Field Name' and 'Common Validation'; these parameters are not required for CVAL.

   o   Page 2 'Cross Field Check' is not appropriate to CVAL, so the field dependency parameters must not be entered.

```
                TPS Application Definition
 Keyword.Qualifier [COMMON VALIDATION.xxxxxxxxxxx        ]
 Special Directive [                                     ] Page [F1 ]
 ----------------------------------------------------------------------

 Validation Code...............[A]

 User Subroutine...............[                  ]

 Validation codes :

    A...No Validation              G...Integer
    B...Alphabetic                 H...Pure Numeric
    C...Alphanumeric               I...Full Numeric
    D...Alphabetic and Space       J...Sterling
    E...Alphanumeric and Space     K...Date
    F...Numeric

 ----------------------------------------------------------------------
```

KEYWORD: DISPLAY MAP (DISM)

QUALIFIER: message id/set/device (Cross Reference to a defined FORM component)

USE: To define details of subsections of text to be displayed.

CREATION: Presented automatically if referenced by FORM and incomplete. Cannot be explicitly created.

If Field Names have been defined for the DISPLAY MAP component, any outstanding field names in associated RECORD component(s) are displayed as a guide on subsequent lines of this page, and on successive Pages, as necessary.

Where a Display Map record extends over several screens, you can page through all available data by repeated use of HOME and ENTER/ SEND. When a screen is amended, however, on pressing ENTER/SEND the Page next displayed may be the same Page (e.g. if Picture defaulting has been invoked, or entries deleted), or a previous Page (if an entry has been repositioned to an earlier location in the Display Map record).

Note: If you do not want a field from the list presented to appear in the resulting display, leave blank the 'Output Picture' and 'Default' fields corresponding to the unwanted 'Field Name'. Such 'unwanted' fields will, however, not disappear from the DISPLAY MAP listing.

```
                 TPS Application Definition
Keyword.Qualifier DISPLAY MAP.iif/ss/dddd                    ] Page [F1 ]
Special Directive [                                          ] Page [F1 ]
.........................................................................

Field Name        Position   Output Picture             Default

[          ]      [      ]   [            ]             [   ]
[          ]      [      ]   [            ]             [   ]
[          ]      [      ]   [            ]             [   ]
[          ]      [      ]   [            ]             [   ]
[          ]      [      ]   [            ]             [   ]
[          ]      [      ]   [            ]             [   ]
[          ]      [      ]   [            ]             [   ]
[          ]      [      ]   [            ]             [   ]

.........................................................................
```

PARAMETERS: (Page 1)

FIELD NAME:

TYPE: Nominated Item (as in an associated REC component)

Field names from any associated REC component(s) will be displayed here as candidates for inclusion in the display; otherwise, the field is presented blank for entry. The Logical Name of the field can be changed, if required.

Note: For Data Handler to perform standard conversions from the Record to the Display, the Field Name entered here must be the same as the corresponding field name in an associated REC component.

POSITION:

TYPE: Nominated Item (Optional)

This parameter is used to re-sequence entries within the record without re- typing them. Enter the relative position required for the associated entry. Range is 1-200. Fields returned blank will be assigned the remaining numeric values in ascending sequence, starting from the lowest available value. On SENDing, the Display Map record will be re-displayed with the entries in the required sequence and all the 'Position' fields once more blank.

By entering a value greater than the total number of entries in the record, it is possible to open up gaps; this renders the status of the component INCOMPLETE. Such gaps are ephemeral and, if not explicitly filled in by the user, they are automatically closed up on next amending the component.

Note: It is convenient, though not essential, that the order of entries in the Display Map reflects the order in which they appear in the Display Layout. To this end, the 'Position' parameter provides a means of re- ordering the field names presented from RECORD components.

Field Names not given a 'Position' value here will be assigned the remaining numeric values in ascending sequence, starting from the lowest available.

OUTPUT PICTURE:

TYPE: Nominated Item

Enter the output picture as a character string, up to 24 characters, which describes the characteristics of the field to be displayed.

Note: Any field output as a Standard Message must have an 'Output Picture' of 9(4), to represent the word holding the Standard Message Number.

The significance of this parameter is modified according to the contents of the 'Default' field. If both these fields are left blank, the corresponding Field Name will not appear in the display.

The picture consists of elements which are of three main types, as follows:

o   String elements

o   Date elements

o   Numeric elements

String Elements: a string of 'X's each of which represents one character position. The definition can be abbreviated, e.g:

X(5) means the same as XXXXX

Date Elements: Any of the following four date pictures is valid:

DDMMYY   YYMMDD   MMYY   YYMM

A separator character can be nominated to appear between day/month and month/year portions of the date. This can be any character except zero (e.g. DD/MM/YY, YY.MM).

Numeric Elements: The following characters can be used:

9   : a decimal digit

Z   : a character from the set 0 to 9 and space (provides 'zero suppression' facility)

-   : a character from the set space and -

.   : the '.' character

V   : the decimal or binary point

The definition can be abbreviated, e.g:

9(6) means the same as 999999

The table below shows the combinations of fields that are valid (X) and invalid (blank) pictures.

| | Following Character | | | |
	9	Z	-	.	V
9	X	X X X			
Z	X X	X X			
Preceding Character -	X X	X X			
.		X	X	X	
V	X X	X X			

Note: 1. Only one occurrence of . and V can be included in the Picture.

2. There can be only one sign in the Picture, and it must be either the first or the last character specified.

DEFAULT:

TYPE: Selected Item (Optional)

Enter 'R' to default to the picture value specified in the associated RECORD component. Otherwise, leave this field blank.

If 'R' is entered, any data in the associated 'Output Picture' field will be ignored, and the data subsequently displayed by the system in that field will be the current default value, if available (i.e. the picture value currently specified for a synonymous field in an associated RECORD component). If such a value is not available, this field will accordingly be displayed blank.

The defaulting process is entirely dynamic: the default value is not held in the DISPLAY MAP, but is retrieved afresh from the associated RECORD component each time the display map screen is presented (and at implement-time). The RECORD components involved are those specified in the LOGICAL RECORD GROUP for the Transaction.

Note: The range of picture types available in the definition of RECORD components differs slightly from that used in the definition of DISPLAY MAP components. Certain transformations are therefore applied in deriving the defaulted 'Output Picture' value, as follows:

Numeric fields   : Actual decimal point ('.') inserted in the place of the implied decimal point ('V').

Overpunched leading sign converted to separate leading sign.

Binary fields   : CSR DAYS converted to DDMMYY.

CSR or bit field converted to a numeric field of the appropriate number of decimal characters.

KEYWORD: DISPLAY LAYOUT (DISP)

QUALIFIERS: message id/set/device

USE: To define the details of an output display for the Logical Terminal Interface. Can be used with the **TPS 90** COBOL interface request TPSCDISPLAY (**TPS 90/ICL**/TPSCDIS (**TPS 90/IBM**).

CREATION: Presented automatically after the definition of details for the associated DISM component. Page 1 defines marker characters for the layout; the screen subsequently presented consists of the relevant format into which the details of the text layout are to be entered. Cannot be explicitly created.

```
                TPS Application Definition
Keyword.Qualifier [DISPLAY LAYOUT.iii/ss/dddd            ]
Special Directive [                                      ] Page [F1 ]
------------------------------------------------------------------

Enter Substitute Characters For:
                          Saved for XPRE
    Standard messages.... [@]        [ ]

    Text for XRES........ [ ]        [ ]

    Text................. [*]        [ ]    (may be necessary if fields
    Text................. [ ]        [ ]        are adjoining)

    Zero length entry.... [ ]

    Final cursor......... [<]

------------------------------------------------------------------
```

PARAMETERS: (Page 1)

STANDARD MESSAGES:

TYPE: Marker (Optional)

Enter 1 or 2 unique marker characters which will be used on the display layout to identify the position(s) of standard message(s). The 2 different characters can be used, one to mark text for display only, the other to mark text to be saved for XPRE (optional). Each marker entered must be a unique character within the standard set; lower case characters will automatically be converted to upper case.

KEYWORD: DISPLAY LAYOUT (DISP) cont'd

TEXT FOR XRES:

TYPE: Marker (Optional)

The XRES facility provides for a single text field to be displayed with the XRES format. Enter a single unique marker character which will be used on the display layout to identify the text field to be saved either for XRES only, or for both XRES and XPRE.

TEXT:

TYPE: Marker (Optional)

Enter up to 4 unique marker characters which will be used on the display layout to identify the position(s) of text field(s). The 4 different characters are used to distinguish between text fields for display only and those to be saved for XPRE, and between adjoining text fields.

ZERO LENGTH ENTRY:

TYPE: Marker (Optional)

Where control characters (e.g. for 'start of unprotected flashing') are to be displayed with no associated text, enter a single unique marker character which will be used on the display layout to identify a zero-length entry.

FINAL CURSOR:

TYPE: Marker (Optional)

Enter a single unique marker character which will be used on the display layout to identify the final cursor position for display of output. If no position is specifically identified, the final cursor position will be set according to the last variable field specified, i.e:

either   following the last text field;

or   at the final cursor position associated with the last Standard Message, if this is the final element output;

or   at the final cursor position associated with the format, if no variable elements are included in the display.

COMPLETING THE DISPLAY LAYOUT DEFINITION SCREEN

If, on initial display of the requested screen, it is clear that an error has been made and the current insertion or amendment requested is to be abandoned, enter/send *R in the first two character positions of the cleared screen for a return to the basic AD screen with no updating of the AD File.

Where deletion has been requested, press ENTER/SEND to delete the display layout.

When creating a new Display Layout, enter on the displayed Format the positions of all Text and Standard Messages to be output. The order in which fields are marked on the screen must follow the order in which they are defined in the associated DISPLAY MAP component, or the data area layout within the COBOL AR requesting the output (via TPSCDISPLAY (**TPS 90/ICL**)/ TPSCDIS (**TPS 90/IBM**).

It may happen that the order of definition within the Display Map (or data area) does not reflect the desired order of appearance on the screen. In this case, fields should initially be marked in order until (but not including) one that is to appear in an earlier position than one already marked. At this point, on pressing ENTER/SEND, the same screen will be re-displayed with the fields just marked appearing as M characters (for Standard Messages) or strings of T characters (for Text fields); the next phase of marking can now be undertaken, starting at any position on the screen. This process can be repeated as often as necessary (in the worst case, once for each field).

Note: Amending, deleting or overwriting Ms and Ts in no way affects the definition of the field they represent: they are displayed for guidance only.

At the end of the last phase of marking fields, pressing ENTER/SEND will again cause the screen to be re-displayed, with all marked fields represented by Ms and Ts as appropriate. Pressing ENTER/SEND again will complete the definition of the DISPLAY LAYOUT component, and the basic AD screen will be returned.

Alternatively, the marking process can be terminated at any point in one of two ways, as follows:

o   marking the Final Cursor position, using the designated marker character: all marker characters positioned so far are accepted and incorporated into an amended definition

o   entering *R in the first two character positions of the cleared screen: none of any marker characters entered in the current phase is accepted, and the definition remains as it was at the end of the previous phase of marking.

   N.B: If there was no previous phase, any amendments to marker character definitions on Page 1 are discarded.

When amending an existing Display Layout, or when creating a new layout based on an existing one, after the displayed details as required; fields can be removed from the layout by replacing the displayed marker characters with spaces. If the layout was originally defined over several screens to achieve the required ordering of fields, it will be re-displayed in a similar manner, i.e. each time ENTER/SEND is pressed, the next group of fields is shown by marker characters, while all fields already seen appear as Ms and Ts as appropriate.

N.B: At this point, only the marker characters can be effectively amended: any changes to the Ms and Ts are ignored.

The facility to define fields over several screens allows data to be re-ordered in the display without alteration to application code. It may be more convenient to re- order the Display Map also, to avoid a multi-screen Display Layout.

Marker details are to be entered as follows:

Standard Messages   : Enter a single character only, to indicate the position of the first character of the standard message.

Text fields   : Enter marker characters to represent the position and length of text fields, as follows:

either   enter the selected marker character as many times consecutively as the field is characters long. Two different marker characters can be used to differentiate between adjoining text fields. A field may wrap round from one line to the next.

or   enter the information in the form * (n), where:
          * = the selected marker character
          n = the number of character positions the marked field is to occupy
              (range is 1-2047)

or   if a Picture has been defined in the associated Display Map, enter the selected marker character in the first in the first character position of the field only: the required length will be derived from the Map (see below).

Text for XRES   : A single text field can be nominated for use with the XRES function. The rules for marking this field are just as for other Text fields, except that the specially designated marker character is used.

Zero length entry   : Enter a single character only, at the screen position following that at which the associated control sequence is to take effect. Such an entry has no corresponding entry in the Display Map or COBOL data area.

Final Cursor   : Enter a single marker character. No further screens of this layout will be displayed once this marker is met.

Any Text field or Standard Message can be nominated to be saved for use with the XPRE function by means of an alternative marker character. The purpose of the XPRE function is to redisplay the previous screen transmitted to the entering/sending terminal. The use of the XPRE feature with the Logical Terminal Interface is described in the **TPS 90 Extended COBOL Techniques Manual.**

As mentioned above, if a 'Picture' has been specified in the associated DISPLAY MAP component, the system can derive the appropriate display length of a Text field from it. To invoke this defaulting, enter a single marker character only, to indicate the start position of the field: on entering/sending the screen, the length so derived will be immediately visible when the field is re-displayed as a number of T characters.

N.B: This length is not stored in the definition of the Display Layout, but is derived afresh each time the component details are displayed (and at implement-time). In this way, changes to the Display Map have immediate and automatic effect on the Display Layout.

If no corresponding entry exists in the Display Map (at define-time or at implement- time), the single marker character will be treated as the explicit specification of a field of one character length. The user is not warned of this, but it will become evident from the re-display of the field as a single T character.

If a Text field is marked with more than one character, defaulting is not invoked, so that, even if a corresponding Display Map 'Picture' is defined, the length this implies will be overridden by a length marked on the layout.

QUALIFIER: logical name (Component Cross Reference to a REC component)

USE: To define the responses to be be made as a result of Data Handler actions on the associated REC component, except when superseded by specific responses (defined using Keyword RESPONSES) specified for particular transactions.

CREATION: Pages 1 and 2 must be specifically requested. Page 1 presents responses to an initial read of data. Page 2 presents responses to an attempt to carry out the stipulated action (delete, write back, etc.).

```
             TPS Application Definition
  Keyword.Qualifier  DEFAULT RESPONSES.xxxxxxxxxxx              ]
  Special Directive [                                           ] Page [F1 ]
  ----------------------------------------------------------------------------
  These are the Default Error Responses.  If you wish to alter
  them, please enter the appropriate text.

  RECORD NOT FOUND
  [                                                                         ]
  RECORD ALREADY EXISTS
  [                                                                         ]
  END OF DATA REACHED
  [                                                                         ]
  DATA ALREADY AMENDED
  [                                                                         ]
  RECORD NOT FOUND AT THIS ATTEMPT
  [                                                                         ]
  ----------------------------------------------------------------------------
```

PARAMETERS: (Page 1)

DEFAULT ERROR RESPONSES:

TYPE: Nominated Item(s) (Optional)

Enter, by position, text (up to 78 characters) of equivalent meaning to reword each of any responses required. Otherwise, leave the field(s) blank.

Note: If the message entered here is longer than the area designated on the associated FORM component screen, the response is truncated to fit.

```
              TPS Application Definition
Keyword.Qualifier [DEFAULT RESPONSES.xxxxxxxxxxx        ]
Special Directive [                              ] Page [F2 ]
...........................................................

These are the Default Confirmation Responses.  If you wish to alter
them, please enter the appropriate text.


RECORD ALREADY DELETED
[                                                         ]
RECORD NOT CHANGED
[                                                         ]
RECORD AMENDED
[                                                         ]
RECORD INSERTED
[                                                         ]
RECORD DELETED
[                                                         ]
...........................................................
```

PARAMETERS: (Page 2)

DEFAULT CONFIRMATION RESPONSES:

As for 'Default Error Responses'.

KEYWORD: FORMAT (FORM)

QUALIFIER: message id/variant/device

USE: To define the contents and layout of a Screen Format.

CREATION: Presented automatically if referenced by MPV and incomplete.

Page 1 displays the current marker characters used in defining formats, with the option to request Page 2 to change them.

Page 3 defines lower level parameters used mainly for optimising performance or for supporting particular facilities associated with certain device types. Pages 2 and 3 not presented automatically.

When the last Page required has been completed, the system presents a blank screen for the creation of the format itself.

```
               TPS Application Definition
Keyword.Qualifier [FORMAT.ffi/vv/dddd           ]
Special Directive [                              ] Page [F1 ]
------------------------------------------------------------

You are invited to define the Format Image; to mark the positions of
Unprotected Fields use [, for Protected Fields use ].

To mark the position of the Messages to be displayed use the notation
x(n), where x is the Substitute Character denoting the type of message,
and n is the length of the message.

The Substitute Character for Help is *, Error is *, and Confirmation is *.

The Conversation Control Fields should be marked with the following
characters; Control use C, Function use F, Action use A, and the
Data Fields use 1, 2, 3, 4.

Amend Sub. Chars?............[N]

------------------------------------------------------------
```

PARAMETERS: (Page 1)

AMEND SUBSTITUTE CHARACTERS?:

TYPE: Y/N

Enter 'Y' if marker characters are to be amended. Otherwise, enter 'N'.

```
                   TPS Application Definition
     Keyword.Qualifier [FORMAT.iii/vv/dddd                        ]
     Special Directive [                                   ] Page [F2 ]
     ------------------------------------------------------------------
     Substitute Characters:
       Final Cursor.............[ ] or Line...[  ] and Column...[   ]
       New Line.................[ ]
                             Steady  Flashing
       Unprotected Fields.......[C]    [ ]
       Protected Fields.........[C]    [ ]           Control Mode..[  ]
       With Validation..........[ ]    [ ]
       Help Message.............[*]
       Error Message............[*]
     For Conversation Control:
       Confirmation Message.....[*]
       Control..................[C]    Function...[F]  Action.......[A]
       Data Fields..............[1,2,3,4
       Space Compression?.......[Y]
       Compressible Space.......[ ]   Non-compressible Space........[ ]
       Screen Option............[ALTERNATE   ]
     ------------------------------------------------------------------
```

Notes: Control characters for 'start of unprotected' or 'start of protected' fields cannot be typed into a
       video, so marker characters must be used when completing the format definition screen. If a
       marker character is entered, it must be unique, not zero or 'new line'.

PARAMETERS: (Page 2)

FINAL CURSOR or LINE:/COLUMN:

TYPE: Marker (Optional)

The final cursor position is identified on the following screen by specifying here either a unique
marker character(not zero or new line'), or the required line and column coordinates (ranges
vary with the characteristics of the device on which this component is created/updated and
(in **TPS 90**/IBM) the Screen Option selected on this page).

If all three fields are left blank, the cursor is positioned at the start of the first unprotected field
after the message id (or at line 1, column 1 if there is no unprotected field present).

NEW LINE:

TYPE: Marker (Optional)

When defining a new format, the 'new line' character can be used, but when that format is
subsequently redisplayed for amendment, it will not be obvious that this was done. Therefore, a
unique marker character, not zero, can be specified to represent 'new line' when defining the
format.

Note: 'New line' has the effect of space-filling the line from the current cursor position on, and
       repositioning the cursor at column 1 of the following line.

KEYWORD: FORMAT (FORM) cont'd

UNPROTECTED FIELDS - STEADY:

TYPE: Marker (Optional)

Enter the character to represent 'start of unprotected steady' in the format being defined.
Otherwise, leave this field blank.

UNPROTECTED FIELDS - FLASHING:

TYPE: Marker (Optional)

Enter the character to represent 'start of unprotected flashing' in the format being defined.
Otherwise, leave this field blank.

PROTECTED FIELDS - STEADY:

TYPE: Marker (Optional)

Enter the character to represent 'start of protected steady' in the format being defined.
Otherwise, leave this field blank.

PROTECTED FIELDS - FLASHING:

TYPE: Marker (Optional)

Enter the character to represent 'start of protected flashing' in the format being defined.
Otherwise, leave this field blank.

WITH VALIDATION - STEADY: (only relevant to **TPS 90**/ICL)

TYPE: Marker (Optional)

For terminals supporting local screen validation, enter the marker character to represent 'start of
unprotected steady with validation' in the format being defined. Otherwise, leave this field blank.

Note: In the definition of the format, the marker character must be followed by a character
          specifying the validation required.

WITH VALIDATION - FLASHING: (only relevant to **TPS 90**/ICL)

TYPE: Marker (Optional)

For terminals supporting local screen validation, enter the marker character to represent 'start of
unprotected flashing with validation' in the format being defined. Otherwise, leave this field
blank.

Note: In the definition of the format, the marker character must be followed by a character
          specifying the validation required.

CRG-1189

KEYWORD: FORMAT (FORM) cont'd

CONTROL MODE: (only relevant to **TPS 90/ICL**)

TYPE: Nominated Item

For terminals supporting local screen validation, this is invoked by a control sequence specifying the mode of operation. Enter this here in the form SMnn (where nn is the decimal equivalent of the binary mode character required). The 'mode character' is described in the manual appropriate to the particular terminal.

HELP MESSAGE:

TYPE: Marker (Optional)

Enter the character to represent the start position of 'Help' messages in the format being defined. Otherwise, leave this field blank.

ERROR MESSAGE:

TYPE: Marker (Optional)

Enter the character to represent the start position of Error messages in the format being defined. Otherwise, leave this field blank.

CONFIRMATION MESSAGE:

TYPE: Marker (Optional)

Enter the character to represent the start position of Confirmation messages in the format being defined. Otherwise, leave this field blank.

CONTROL:

TYPE: Marker (Optional)

Enter the character which will be used to nominate a Control Field in the format being defined. Otherwise, leave this field blank.

FUNCTION:

TYPE: Marker (Optional)

Enter the character which will be used to nominate a Function Field in the format being defined. Otherwise, leave this field blank.

ACTION:

TYPE: Marker (Optional)

Enter the character which will be used to nominate an Action Field in the format being defined. Otherwise, leave this field blank.

KEYWORD: FORMAT (FORM) cont'd

DATA FIELDS:

TYPE: Marker(s) (Optional)

Enter up to 12 individual characters, separated by comma, which will be used to nominate Data Fields for use as part of a key. Otherwise, leave the field blank.

SPACE COMPRESSION?:

TYPE: Y/N

Enter 'Y' to direct the program to replace strings of space characters by cursor positioning control codes. Otherwise, enter 'N'. If 'Y' is entered here, spaces will be compressed or left uncompressed according to the values of the following two parameters.

COMPRESSIBLE SPACE:/NON-COMPRESSIBLE SPACE:

TYPE: Marker (Optional)

If space compression is not required, leave both fields blank. Otherwise, specify a unique character, not zero or 'new line', into one of these fields to represent the type of space.

If a 'Compressible Space' marker is specified, any space characters in the format definition will not be compressed. If a 'Non-compressible Space' marker is specified, the space characters will be compressed.

Note: It is not valid to specify marker characters for both compressible and non-compressible spaces.

SCREEN OPTION: (only relevant to **TPS 90**/IBM)

TYPE: Selected Item .

Specify which presentation space is to be used to display this format. The screen will be switched to the appropriate screen size provided that clear screen has been requested on page 3.

Options are:

ALTERNATE (A)   The alternate presentation space will be used (or the PRIMARY if the screen does not support ALTERNATE).

PRIMARY   (P)   The primary presentation space will be used.

KEYWORD: FORMAT (FORM) cont'd

COMPLETING THE FORMAT DEFINITION SCREEN

If on display of the requested screen it is apparent that an error has been made and the current insertion/amendment/deletion request is to be abandoned, entering/sending *R in the first two character positions of the cleared screen to return to the basic AD screen without updating the AD File.

Where deletion has been requested, press ENTER/SEND to delete the format.

When defining a new format, complete the details on the blank screen, using marker characters as required, and enter/send.

Note: The message id is taken as the first 3 characters of the format, and is usually the same as the FORMAT qualifier (although it need not be, e.g. for a simple menu system). For display purposes, the message id can be up to 12 characters long.

     It is not valid to use the 'new line' character itself if a marker character for 'new line' is specified.

When amending a format, or creating a new format from an existing one, make changes to the displayed format as required. On **TPS 90**/IBM, pressing ENTER will encompass either HOME to cursor position, or HOME to last non-space character, whichever is the longer. On **TPS 90**/ICL, pressing SEND will input data as far as the cursor only.   Pressing ENTER/SEND when the cursor is at HOME will input the whole screen.

When using the facility to specify unprotected fields with screen validation (not currently available on **TPS 90**/IBM), the substitute control character must be followed by an alphabetic character identifying the type of validation required. The character is determined by adding Octal 40 to the decimal validation code as defined in the appropriate ICL manual. When the format is displayed (using the correct control characters, not substitutes), this code character does not appear and the first character of the unprotected field is a space.

Where no validation is required (i.e. validation code zero), the validation character must be specified as a space.

REVISING THE FORMAT SCREEN BY REMOVING FIELDS

If a field is removed from the format, modifications must be made to the associated INPM component before the INPUT PROCESSING screen is resubmitted.

Fields to be deleted must be repositioned in INPM to be the lattermost entries. In this way, fields removed from the format will be deleted automatically from the INPM component without discrepancy when input processing is completed.

KEYWORD: FORMAT (FORM) cont'd

REDEFINITION OF ALREADY EXISTING FORMAT TO BE BASED ON ANOTHER

Normally, if you wish to use the 'Based-On' feature of Application Definition to base the definition of a component on one that already exists, there must be 'NO FUTURE DEFINITION' for the on-screen details. An already existing FORMAT component, however (i.e. one for which there are 'FUTURE DEFINITION DETAILS'), can still be redefined as based on another, provided that the FORMAT being defined is an 'INCOMPLETE COMPONENT'.

Redefinition of an already existing FORMAT component based on another can be achieved in two ways, depending on the status of the existing component to be redefined, as follows:

o   FORMAT component to be redefined is incomplete

As part of the automatic prompting features of Application Definition, FORMAT components are automatically created (incomplete) and prompted for completion at the appropriate juncture. At such a time, Page 1 of the component will be displayed, with the annotations 'FUTURE DEFINITION DETAILS' and 'INCOMPLETE COMPONENT'.

To complete its redefinition as 'based on' another existing FORMAT component, simply enter the latter's Keyword.Qualifier in the Special Directive Field and press ENTER/SEND. The details of the component specified in the Special Directive Field are now presented as those for the component being redefined, and can be entered or tailored as required to form the new definition.

o   FORMAT component to be redefined is already complete

Call up the already existing FORMAT component and ENTER/SEND Page 1; this will result in the display of the Format image. To render the component incomplete, blank this out and ENTER/SEND it in. Then call up this FORMAT component and follow the normal 'based-on' procedures to complete its redefinition.

For details of the 'based-on' feature of Application Definition, see Section 1.2.2.

```
                     TPS Application Definition
        Keyword.Qualifier [FORMAT.iii/vv/dddd                    ]
        Special Directive [                               ] Page [F3 ]
        ------------------------------------------------------------

        Clear Screen Reqd?.........[Y]
        Format in Store?...........[N]
        No. of Syncs Required After:
            Line...............[ ]   Column..[ ]   Both...[ ]

        Logical Terminal Interface
            Display Set Reqd?......[Y]
            Non-Auto Val. Sets.....[        ]

        ------------------------------------------------------------
```

PARAMETERS: (Page 3)

CLEAR SCREEN REQUIRED?:

TYPE: Y/N

Enter 'Y' to cause control characters to be inserted, at the start of the format being defined, to clear the screen. Otherwise, enter 'N'.

FORMAT IN STORE?:

TYPE: Y/N

Enter 'Y' if the format is held in store (i.e. not on disc). Otherwise, enter 'N'.

SYNCHRONISATION CODES: (Three parameters only relevant to **TPS/ICL-DME**)

TYPE: Nominated Item(s) (Optional)

Leave these fields unchanged.

DISPLAY SET REQUIRED?:

TYPE: Y/N

Enter 'Y' if a display is required. Otherwise, enter 'N'. If 'Y' is entered here, the system will prompt for definition of the associated DISM component later in the definition process.

NON-AUTOMATIC VALIDATION SETS:

TYPE: Nominated Item (Optional)

If non-automatic validation sets are to be used with the Format/Variant being defined, enter a Set number (nn) or range of Set numbers (nn-mm). Range is 1-99. Otherwise, leave this field blank.

KEYWORD: INPUT PROCESSING (INP)

QUALIFIER: message id/set/device (Cross Reference to a defined FORM component)

USE: To define the handling of the input data for presentation to the standard Data Handler or user-written AR.

CREATION: Presented automatically if referenced by FORM and incomplete. Cannot be explicitly created.

```
                 TPS Application Definition
Keyword.Qualifier [INPUT PROCESSING.iii/ss/ddd      ]  ] Page [F1 ]
Special Directive [                                    ]
-------------------------------------------------------------------

Remove Separators?..........[Y]

Pad not sent fields?........[Y]

Error Handling - Enter 1 for the first or A for all fields in error

       Flash Error Fields.......[ ]
       Display Error Codes......[ ]




-------------------------------------------------------------------
```

PARAMETERS:

REMOVE SEPARATORS?:

TYPE: Y/N

Enter 'Y' (the usual selection) to cause all field separators to be removed when reformatting the input message, so that Data Handler or the AR receives only the contents of the unprotected fields.

If 'Y' is entered here, the separators are removed without reference to the field separator indicator for each Validation Rule. Where not all field separators are to be removed during reformatting, enter 'N' here; the removal of field separators will then be according to the indicators for individual Validation Rules.

KEYWORD: INPUT PROCESSING (INP) cont'd

PAD NOT SENT FIELDS?: (only relevant to **TPS 90/ICL**)

TYPE: Y/N

Enter 'Y' if the nominated padding character is to be applied to fields 'not sent'. Otherwise, enter 'N'.

When reformatting the input message, two options are available for handling fields 'not sent' (i.e. after the cursor when SEND was pressed):

o fields can be omitted from the reformatted message and a character count word adjusted to show that a short message has been set up

o fields can be set in the reformatted message with each character set to the 'padding character' nominated for the field's Validation Rule

If the latter option is required, enter 'Y' here. Otherwise, enter 'N'.

FLASH ERROR FIELDS:

TYPE: Nominated Item (Optional)

Enter '1' for the first field, or 'A' for all fields in error to be set flashing. If a field is then corrected and re-sent, it is set steady on any subsequent error display. If all fields in error are to remain steady, leave this field blank.

There are three options for reporting validation errors via the Logical Terminal Interface. These are as follows:

o set fields in error 'flashing'

o display an error message relating to the first field in error

o display an error code below fields in error

Any combination of these options can be selected.

DISPLAY ERROR CODES:

TYPE: Selected Item (Optional)

Enter '1' for the first, or 'A' for all fields in error to have an error code displayed below the relevant field(s). Otherwise, leave this field blank.

If a value is entered here, a single character code is displayed immediately below the first character of the first or of all the input field(s) in error. If a field in error is then corrected and reset, the error code is removed on any subsequent error display.

The error codes and their significance are as follows:

X - Invalid character   R - Out of range
C - Invalid check-digit   M - Field missing
D - Decimal point missing   I - Inconsistent data
P - Too many decimal places   S - Insufficient data
T - Total incorrect   U - User code

KEYWORD: INPUT MAP (INPM)

QUALIFIER: message id/set/device

USE: To define the Positions and Validation Rules for Logical Fields. Additional validation can also be associated with selected Logical Fields.

CREATION: Presented automatically, if incomplete, after the definition of the associated INP component. Cannot be explicitly created.

```
                          TPS Application Definition
   Keyword.Qualifier  [INPUT MAP.ifi/ss/dddd                ]
   Special Directive [                                      ]  Page [F1 ]
   ---------------------------------------------------------------------
   Field Name    Position Val.Code  Prompts                      Rule
   [____]        [_] [_] [_]        [_] [_] [_] [_] [_] [_]       [_] [_]
   [____]        [_] [_] [_]        [_] [_] [_] [_] [_] [_]       [_] [_]
   [____]        [_] [_] [_]        [_] [_] [_] [_] [_] [_]       [_] [_]
   [____]        [_] [_] [_]        [_] [_] [_] [_] [_] [_]       [_] [_]
   [____]        [_] [_] [_]        [_] [_] [_] [_] [_] [_]       [_] [_]
   [____]        [_] [_] [_]        [_] [_] [_] [_] [_] [_]       [_] [_]
   [____]        [_] [_] [_]        [_] [_] [_] [_] [_] [_]       [_] [_]
   ---------------------------------------------------------------------
```

PARAMETERS:

FIELD NAME:

TYPE: Logical Name

Enter the logical name of the field. Where appropriate, all relevant field names from associated REC components are presented on successive Pages as candidates for inclusion. If any field is not required, simply leave blank its 'Position', 'Validation Code' and 'Prompts' entries.

Later in the definition process, the system will prompt for definition of the VALR component associated with each of the Field Names included (see Keyword VALIDATION RULE).

POSITION:

TYPE: Nominated Item

Enter either a marker character in the range A-O, or the relative position of the field within the message (range 1-250).

If a marker character is specified, the system will, on completion of this screen, display the format applicable to the Validation Set and the field(s) to be covered by each Validation Rule can be marked accordingly. With this method, a single Validation Rule can be applied to more than one field.

If a number is entered, the format is not displayed and a single Validation Rule can apply to one field only.

Note: Marker characters and numbers cannot be mixed in the map. If markers have been used, this method cannot be changed, but it is permitted to change from numbers to marker characters.

VALIDATION CODE:

TYPE: Selected Item

The basic type of validation to be applied to the Logical Field is identified by an alphabetic Validation Code. This can be one of the following:

A - No Validation
B - Alphabetic, characters A to Z only allowed
C - Alpha-numeric, characters A to Z, 0 to 9 only allowed
D - Alphabetic with space character allowed
E - Alpha-numeric with space character allowed
F - Numeric, characters 0 to 9 only allowed
G - Integer, 0 to 9 with leading or trailing spaces
H - Pure numeric, 0 to 9 with mandatory decimal point and leading or trailing spaces
I - Full numeric, 0 to 9 with optional decimal point, optional leading + or -, and leading or trailing spaces
J - Sterling, 0 to 9 with mandatory decimal point, up to three digits following decimal point (third digit must = 0 or 5), optional leading + or -, and leading or trailing spaces
K - Date, dd/mm/yy or dd/mmyy or ddmm/yy or ddmmyy

Where the Validation Code is changed, (e.g. from a character type code (A to E) to a numeric type code (F to J)), the details on the appropriate Page 3 of the associated VALR component are automatically replaced by the parameters and standard values for the new code type.

A complete VALIDATION RULE can be set up by completing the above parameters. If additional validation is required, then use the 'Prompts' parameter.

KEYWORD: INPUT MAP (INPM) cont'd

PROMPTS:

TYPE: Selected List (Optional)

Enter one or more items, applicable to the Validation Code, from the table below, using a comma as a separator: the appropriate Page of the associated VALR component will thus be displayed for completion later in the definition process

CHECK DIGIT	(CD)	RANGE CHECK	(RNG)
COMMON VALIDATION	(CVAL)	REFORMATTING	(REF)
CROSS FIELD CHECK	(CFC)	TOTALLING	(TOT)
DECIMAL PLACES	(DECP)	USER SUBROUTINE	(USUB)
MANDATORY	(MAND)	VALIDATION TABLE	(VTAB)
MESSAGES	(MSGS)		

Or enter 'ALL' to display all four pages of the associated VALR component.

REDEFINITION OF ALREADY EXISTING INPUT MAP TO BE BASED ON ANOTHER

Normally, if you wish to use the 'Based-On' feature of Application Definition to base the definition of a component on one that already exists, there must be 'NO FUTURE DEFINITION' for the on-screen details. An already existing INPUT MAP component, however (i.e. one for which there are 'FUTURE DEFINITION DETAILS'), can still be redefined as based on another, provided that the INPUT MAP being defined is an "INCOMPLETE COMPONENT", as follows:

As part of the automatic prompting features of Application Definition, INPUT MAP components are automatically created (incomplete) and prompted for completion at the appropriate juncture. At such a time, Page 1 of the component will be displayed, with the annotations 'FUTURE DEFINITION DETAILS' and 'INCOMPLETE COMPONENT'.

To complete its redefinition as 'based on' another existing INPUT MAP component, simply enter the latter's Keyword.Qualifier in the Special Directive Field and press ENTER/SEND. The details of the component specified in the Special Directive Field are now presented as those for the component being redefined, and can be entered or tailored as required to form the new definition.

For details of the 'based-on' feature of Application Definition, (see Section 1.2.2).

KEYWORD: LOGICAL FILE (LF)

QUALIFIER: logical name (Cross Reference to a LFR component)

USE: To define Logical File details.

CREATION: Presented automatically if referenced by MPV or REC and not incomplete. Can be External.

```
                     TPS Application Definition
         Keyword.Qualifier [LOGICAL FILE.xxxxxxxxxx                    ]
         Special Directive [                                        ] Page [F1 ]
         -------------------------------------------------------------------
         Classification......... DATA
         Structure..............[         ]
         Open Mode..............[         ]
         Original File Id.......[              ]

         Access Modes...........[         ]
                                [         ]

         -------------------------------------------------------------------
```

PARAMETERS:

STRUCTURE:

TYPE: Selected Item

Specify the structure of the Logical File. Options are:

DIRECT SERIAL	(DSER)	A Direct Serial file (**TPS 90**/ICL only)
INDEXED	(INDX)	A Sequential file with index
RANDOM	(RAND)	A Random file (**TPS 90**/ICL only)
RELATIVE	(REL)	A COBOL Relative file (**TPS 90**/ICL only) or a Relative Record file (**TPS 90**/IBM only)
SERIAL	(SERI)	A Serial file

KEYWORD: LOGICAL FILE (LF) cont'd

OPEN MODE:

TYPE: Selected Item

Specify the mode in which the Logical File is to be opened.   Options are:

INPUT   (I)   Open in read only mode
OUTPUT   (O)   Open at start for creation of a new file
UPDATE   (U)   Open for updating/write at end

ORIGINAL FILE ID:

TYPE: Nominated Item

Enter the file identity in the format appropriate to the regime (see Section 3.4).

ACCESS MODES:

TYPE: Selected List

List the permissible modes of file access for the Logical File. Options are:

RECORD   (REC)   The file is accessed at record level.

                                On **TPS 90/ICL**, no word count is presented or held on file.

                                On **TPS 90/IBM**, the record presented at the AR interface has
                                a byte count in the 1st word, but no count is held in the record
                                on file.

TRANSITION   (TREC)   The file is accessed at record level. On all regimes, the record
RECORD   presented at the AR interface and held on file has a word
                                count in the 1st word.

TRAINING   (TR)   The file will be protected against write accesses or deletions
                                originating from terminals in Training Mode.

KEYWORD: LF RESILIENCE (LFR)

QUALIFIER: logical name

USE: To define Resilience for an already defined Logical File.

CREATION: Presented automatically after the definition of the associated LF component, if incomplete. Cannot be explicitly created.

```
                    TPS Application Definition
     Keyword.Qualifier  [LF RESILIENCE.xxxxxxxxxxxx         ]
     Special Directive  [                                   ]  Page [F1 ]
     --------------------------------------------------------------------
     Classification...... DATA

     Ident. Field Displ...[     ]
```

PARAMETERS:

IDENTIFYING FIELD DISPLACEMENT:

TYPE: Nominated Item

A Serial File must contain a field in each record that is used to distinguish those records which relate to the current run from any residue from a previous run.

For Serial files, specify the displacement of this identifying field. Range is -1021 to +1018 (words).

The displacement of the identifying field within the record is specified in the format +n or -n according to whether it is calculated from the start or from the end of the record; in either case, it points to the start of the field.

Note: The length of this field is assumed to be 2 words.

A displacement of -n must correspond to a field length of <(n+1).

LOGICAL RECORD GROUP (LRG)

QUALIFIER: logical name

USE: To specify a list of REC components to be used in conjunction with the associated Transaction.

CREATION: Presented automatically if referenced by MP and incomplete.

```
                    TPS Application Definition
    Keyword.Qualifier [LOGICAL RECORD GROUP.xxxxxxxxxxx        ]
    Special Directive [                                        ] Page [F1 ]

    Description........[                                        ]

    Type of Record         Record Name      Actions Permitted   Mandatory?
    [_____]            [_____]      [_____]         [_]
    [_____]            [_____]      [_____]         [_]
    [_____]            [_____]      [_____]         [_]
    [_____]            [_____]      [_____]         [_]
    [_____]            [_____]      [_____]         [_]
    [_____]            [_____]      [_____]         [_]
```

PARAMETERS:

DESCRIPTION:

TYPE: Nominated Item (Optional)

For documentary purposes, enter a description, up to 40 characters long, of the Logical Record Group. Otherwise, leave this field blank.

The following four parameters form a Compound Parameter, each occurrence of which is presented as a line of the display. Each line specifies the details of a Record.

TYPE OF RECORD:

TYPE: Selected Item

Enter the type of record, according to whether the Transaction is of QUIK or DATA CAPTURE type, as indicated:

	QUIK		DATA CAPTURE	
Record	MAIN	(M)	HEADER	(H)
Types:	ASSOCIATE	(A)	ITEM	(I)
	REFERENCE	(REF)	HEADER REFERENCE	(HREF)
			ITEM REFERENCE	(IREF)

If the Logical Record Group is for use in conjunction with a QUIK Transaction, MAIN Records should be defined first. If more than one MAIN Record is defined (indicating a hierarchy), the key to the first must be carried down to the second, and so on, thus giving a one-to-many representation; see the following example:

Record	File	Key
1st MAIN	Customer	<customer number>
2nd MAIN	Customer Order	<customer number> + <order number>
3rd MAIN	Customer Order Item	<customer number> + <order number> + <Item> or <order number> + <Item>

A DATA CAPTURE Logical Record Group must have a HEADER Record (defined first), with either a HEADER REFERENCE or an ITEM REFERENCE Record, these being Reference Records accessed from the Header or Item screen within the Transaction.

If an ITEM Record is specified, each item entered will be written to a separate Item Record. If no ITEM Record is specified, then a COBOL Variable type Record is to be constructed, with the Header part fixed and the Item part occurring the number of times specified by an Item Count referred to in the associated RECORD component, and held in the Context Area (see Appendix C to the **TPS 90 COMPASS User Guide**).

RECORD NAME:

TYPE: Cross Reference to a REC component

Enter the Qualifier (logical name) of the RECORD component associated with the Record of the
specified type. The system will automatically prompt for the definition of a component for each of
the Records named here. Leave blank if a 'Type of Record' has not been entered.

ACTIONS PERMITTED:

TYPE: Selected Item

Enter the actions permitted on the associated Record; these are available according to Record
type, as indicated:

Record Type	Actions Permitted
MAIN	( ) READ-ONLY (R), UPDATE (U), UPDATE-INSERT (I),
ASSOCIATE	( ) UPDATE-INSERT-DELETE (D)
REFERENCE	( ) READ-ONLY (R), UPDATE (U)
HEADER	( ) UPDATE-INSERT (I)
ITEM	( )
HEADER REFERENCE	( ) READ-ONLY (R)
ITEM REFERENCE	( )

MANDATORY?:

TYPE: Y/N

Enter 'Y' if the presence of the associated Record is mandatory (i.e. an error condition will result if
the Record is not found). Otherwise, enter 'N'.

For Record types H, HREF, I and IREF, 'Y' must be entered here.

KEYWORD: MESSAGE PAIR (MP)

QUALIFIER: message id (can be input as &x (x=A-Z or 0-9), or &xx (xx=10-24), for Control Key x or Control Key xx respectively)

USE: To define the main processing requirements of each Message Pair and to list any variants of the Format used.

CREATION: Presented automatically if referenced by TRAN and incomplete. Page 2 must be specifically requested.

```
                TPS Application Definition
Keyword.Qualifier  [MESSAGE PAIR.iii          ] Page [F1 ]
Special Directive [                            ]
-------------------------------------------------------------
Auto Validation?.............[Y]
May Be Changed?..............[ ]
Log On Input?................[ ]
Start Screen?................[ ]
Restart Screen?..............[ ]
Straight Through?............[N]
May Be Input?................[Y]
Allowed After ZWAR?..........[N]
Clean After Restart?.........[Y]
Suppress Input Conv?.........[Y]
Override No Change?..........[N]
Suppress DI Alloc'n?.........[N]
AR Train Label...............[              ]
Weighting....................[0    ]
```

PARAMETERS: (Page 1)

AUTO VALIDATION?:

TYPE: Y/N

Enter 'Y' if input from the 'expected message' for this Message Pair is to be validated and reformatted automatically by **TPS 90** before passing control to user code. Otherwise, enter 'N'. If 'Y' is entered here, Validation parameters must be set up in the associated INP component.

MAY BE CHANGED?:

TYPE: Y/N

If 'Y' is entered here, then, when the format is displayed, the terminal user will be permitted to enter some other message id as a request for a different format to be displayed. If 'N' is entered here, a request to display another format when this one has been displayed will be rejected as a sequence error.

KEYWORD: MESSAGE PAIR (MP)   cont'd

LOG ON INPUT?:

    TYPE: Y/N

Enter 'Y' if the message is to be 'message' logged on input to the system. Otherwise, enter 'N'.

START SCREEN?:

    TYPE: Y/N

Enter 'Y' if a format of this type is the start of a logical sequence and can be displayed in
response to a request (in the form of the appropriate three- character message id) from a
terminal. Otherwise, enter 'N'. If 'N' is entered here, such requests will be rejected as sequence
errors.

RESTART SCREEN?:

    TYPE: Y/N

Enter 'Y' if the identifier of this message is to be stored by the system when the message is
output to the terminal. Otherwise, enter 'N'. If 'Y' is entered here, the latest message id stored
will be used to display a format in response to the terminal function XRES.

STRAIGHT THROUGH?:

    TYPE: Y/N

Enter 'Y' if, on receipt of this message id, and in circumstances which would normally lead to the
display of a format (i.e. the identifier is not the 'expected message'), a format is not to be
displayed but the input message is to be passed 'straight through' to user processing.
Otherwise, enter 'N'.

MAY BE INPUT?:

    TYPE: Y/N

Enter 'N' if the format for this message is used for output only and contains no input field.
Otherwise, enter 'Y'. If 'N' is entered here, then, should the user inadvertently return the output
screen by pressing SEND, the system will be able to detect the error and will not attempt to find a
routine to process the 'input'.

ALLOWED AFTER ZWAR?:

    TYPE: Y/N

Enter 'Y' if a user is permitted to continue to input messages of this type after the system has
been put into 'closing' state by the terminal function ZWAR. Otherwise, enter 'N'.

KEYWORD: MESSAGE PAIR (MP)   cont'd

CLEAN AFTER RESTART?:

TYPE: Y/N

Enter 'Y' if any message of this type which is in the system at the time of a system failure is to be cleaned as part of the restart procedure. Otherwise, enter 'N'. If 'Y' is entered here, then updates of Data files accessed by messages of this type will be logged in both 'before' and 'after' states of the record.

SUPPRESS INPUT CONVERSION?:

TYPE: Y/N

Enter 'N' to enable the automatic conversion of lower case to upper case for this message type. Otherwise, enter 'Y'. This must be 'Y' if automatic validation is specified.

OVERRIDE NO CHANGE?:

TYPE: Y/N

For message ids beginning with X, Y or Z, enter 'Y' if the message can be input during a 'no change' sequence. Otherwise, enter 'N'.

SUPPRESS DI ALLOCATION?:

TYPE: Y/N

Enter 'Y' to suppress the allocation of 'dynamic on input' store for this message. Otherwise, enter 'N'.

AR TRAIN LABEL:

TYPE: Cross Reference to an ART component

Enter the Qualifier (routine name) of the ART component associated with the AR Train which will process this message. The referenced ART can already exist or it can be defined later in the definition process (see Keyword AR TRAIN).

Note: An AR Train name is not required if 'May Be Input?' is 'N'.

WEIGHTING:

TYPE: Nominated Item (Optional)

Specify the weighting factor to be added to the Control Block on input of a message of this type. This contributes to priority scheduling. Range is 0 - 4095. Otherwise, leave this field blank.

```
            TPS Application Definition
Keyword.Qualifier [MESSAGE PAIR.iii                            ]
Special Directive [                              ] Page [F2 ]
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

Standard Data Capture

  Logical Record Group......[                 ]
  Evaluation Reqd?.........[ ]

  Format Variants..........[                             ]
                           [                             ]
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

PARAMETERS: (Page 2 for DATA CAPTURE Transactions)

LOGICAL RECORD GROUP:

TYPE: Cross Reference to a LRG component

Enter the Qualifier (logical name) of the LRG component associated with this Message Pair. This will normally have been entered on the relevant Page 2 of the associated TRAN component.

EVALUATION REQUIRED?:

TYPE: Y/N

Enter 'Y' if a Logical Record Group has been entered, and data held in the Message Pair here being defined is to be used by Data Handler in an evaluation on input or for output. Otherwise, enter 'N'.

If 'Y' is entered here, the system will automatically prompt for definition of an associated TAB component after the definition of the Format/Variant for this Message Pair.

FORMAT VARIANTS:

TYPE: Nominated List (Optional)

Enter individual numbers (nn) or ranges of numbers (nn-mm), using a comma as separator, of the Variants to be associated with this Message Pair. Range is 1-99. Otherwise, leave this field blank.

```
                    TPS Application Definition
   Keyword.Qualifier  [MESSAGE PAIR.iii          ] Page [F2 ]
   Special Directive  [                          ]
   ----------------------------------------------------------

   Conv. Control Reqd?............[ ]

   If Standard Data Handler Reqd?
       Logical Record Group.....[           ]
       Evaluation Table Reqd?...[ ]
       'Journal' Records........[           ]

   If TOP-ONE Prolog Interface Reqd?
       Transaction Type.........[         ]
       KB Name..................[                ]
       Start Consultation?......[ ] if Y, Access Mode....[        ]

   Format Variants................[          ]
                                  [          ]
   ----------------------------------------------------------
```

PARAMETERS: (Page 2 for FREE FORMAT, PRODUCTION RULES, PROLOG & QUIK Transactions)

CONVERSATION CONTROL REQUIRED?:

TYPE: Y/N

Enter 'Y' if Conversation Control is required for this message. Otherwise, enter 'N'.

The following 3 parameters can be entered if the Message Pair here being defined is   associated with a QUIK Transaction. Displayed values will have been supplied from data already defined in the relevant TRANSACTION component.

LOGICAL RECORD GROUP:

TYPE: Cross Reference to a LRG component

Enter the Qualifier (logical name) of the LRG component associated with this Message Pair.

EVALUATION TABLE REQUIRED?:

TYPE: Y/N (Optional)

Enter 'Y' if a Logical Record Group has been entered, and data held in the Message Pair here being defined is to be used by Data Handler in an evaluation on input or for output. Otherwise, enter 'N'.

If 'Y' is entered here, the system will automatically prompt for definition of an associated TAB component after the definition of the Format/Variant for this Message Pair.

'JOURNAL' RECORDS:

TYPE: Cross Reference List of REC components (Optional)

If a Logical Record Group has been supplied, enter here the Qualifier (logical name) of the RECORD component for each of up to 2 'Journal' Records associated with this Message Pair. The 'Journal' File to which these Records are to be written should be a Serial file.

The following 4 parameters can be entered if the Message Pair here being defined is   associated with a PRODUCTION RULES or PROLOG Transaction. Displayed values will have been supplied from data already defined in the relevant TRANSACTION component.

TRANSACTION TYPE:

TYPE: Selected Item

Enter the type of Transaction with which the Message Pair here being defined is associated, as follows:

PRODUCTION RULES   (PRIM)
PROLOG   (P)

KNOWLEDGE BASE NAME:

TYPE: Nominated Item (Optional)

If 'Transaction Type' is PRODUCTION RULES or PROLOG (i.e. this Message Pair is to use the standard Prolog Interface), enter here the name of the Knowledge Base to be accessed. Otherwise, leave the field blank.

START CONSULTATION?:

TYPE: Y/N (Optional)

Enter 'Y' here if the standard Prolog Interface is to start a Consultation on receipt of this message, or 'N' if it is to continue a Consultation. If the standard Prolog Interface is not in use, leave this field blank.

ACCESS MODE:

TYPE: Selected Item

If 'Start Consultation?' is 'Y', enter here one of the following modes of access to the Knowledge Base. Otherwise, leave this field blank.

EXCLUSIVE	(E)	: read/update, single user	}	
LOCAL	(L)	: read only	} See **TOP-ONE PACE User**
SHAREABLE	(S)	: read/update, multi-user	} **Manual**

The following parameter can be entered for whatever kind of Transaction is being defined.

FORMAT VARIANTS:

TYPE: Nominated List (Optional)

Enter individual numbers (nn) or ranges of numbers (nn-mm), separated by comma, of the
Variants to be associated with this Message Pair. Range is 1- 99. Otherwise, leave this field
blank.

```
             TPS Application Definition
Keyword.Qualifier  [MESSAGE PAIR.iii                      ]
Special Directive  [                               ] Page [F2 ]
----------------------------------------------------------------

Standard HELP or MENU

Format Variants...........[                            ]
                          [                            ]

----------------------------------------------------------------
```

PARAMETERS: (Page 2 for HELP & MENU Transactions)

FORMAT VARIANTS:

TYPE: Nominated List (Optional)

Enter individual numbers (nn) or ranges of numbers (nn-mm), separated by comma, of the
Variants to be associated with this Message Pair. Range is 1- 99. Otherwise, leave this field
blank.

KEYWORD: MESSAGE PAIR VARIANT (MPV)

QUALIFIER: message id/variant (Cross Reference to a defined MP component)

USE: To list the different devices for Prompt and Check purposes, ensuring that they are
               brought into the target system, and to link each Message Pair to its associated
               Format(s).

CREATION: Created automatically if referenced by CTAB or MP and not already defined.

```
          TPS Application Definition
Keyword.Qualifier  [MESSAGE PAIR VARIANT.iii/vv            ]
Special Directive  [                            ] Page [F1 ]
          --------------------------------------------------
          Devices..........  [mmm STANDARD ]
                             [             ] [             ]
                             [             ] [             ]
                             [             ] [             ]
                             [             ] [             ]
                             [             ] [             ]
                             [             ] [             ]
                             [             ] [             ]
                             [             ]
          --------------------------------------------------
```

mmm = ICL or IBM, as appropriate.

PARAMETERS:

DEVICES:

TYPE: Selected List

Specify the devices to be supported by this Message Pair (see Section 3.2).

KEYWORD: RECORD (REC)

QUALIFIER: logical name

USE: To define details of the source and internal layout of a record.

CREATION: Presented automatically if referenced by LRG or MP and incomplete. Pages 2 and
             following are also presented automatically until the definition is complete.

```
                          TPS Application Definition
    Keyword.Qualifier  [RECORD.xxxxxxxxxxxx                        ]
    Special Directive  [                                           ] Page [F1 ]
    -------------------------------------------------

    Description.......[                                         ]

    Logical File Name.[                    ]

    IDMS Record Name..[           ]
    IDMS Key Type.....[           ]
    IDMS Key Name.....[           ]

    User Subroutine...[           ]

    -------------------------------------------------
```

PARAMETERS: (Page 1)

DESCRIPTION:

TYPE: Nominated Item (Optional)

For documentary purposes, enter a description, up to 40 characters long, of the Record.
Otherwise, leave this field blank.

LOGICAL FILE NAME:

TYPE: Cross Reference to a LF component

Enter the Qualifier (logical name) of the LF component associated with the file containing the
record here being defined. Leave blank if 'IDMS Record Name' is entered.

IDMS RECORD NAME:

TYPE: Nominated Item

Enter the name (up to 16 alphanumeric characters, first character alphabetic) of the IDMS
record. Leave blank if 'Logical File Name' is entered.

IDMS KEY TYPE:

TYPE: Selected Item

Enter one of the following types of IDMS record key:

CALC   (C)
PAGE DIRECT   (P)
RECORD ORDER   (R)

Leave blank if 'IDMS Record Name' is not entered.

IDMS KEY NAME:

TYPE: Nominated Item

Enter the name (up to 16 alphanumeric characters, first character alphabetic) of the key of this
IDMS record. Leave blank if 'IDMS Record Name' is not entered.

USER SUBROUTINE:

TYPE: Cross Reference to a USUB component (Optional)

Enter the Qualifier (routine name) of the USUB component associated with the Routine which is
to return the key of the Record. Entry is optional if a 'Logical File Name' is supplied; otherwise,
leave this field blank.

Note: If this field is left blank, key handling will be provided as defined in the 'Picture' field on
       Page 2.

```
         TPS Application Definition
Keyword.Qualifier [RECORD.xxxxxxxxxxxx              ]            ]
Special Directive [                                 ] Page [F2 ]

Field Name/Type/Picture/Value
  [_][_][_][_][_][_][_][_][_][_]   [_][_][_][_][_][_][_][_][_][_][_]
  [_][_][_][_][_][_][_][_][_][_]
```

Each line in the display comprises four items, each separated by '/'. The normal procedure for amending by insertion is supported, i.e. insert a comma followed by the new entry.

PARAMETERS: (Page 2)

FIELD NAME:

TYPE: logical name (as in the associated DISM component)

Enter the logical name of the field.

FIELD TYPE:

TYPE: Selected Item (Optional)

Enter the type of the field, or leave this field blank. Options are:

INITIAL   (I)   : the field is to hold the associated 'Value' entry as its initial
                            value, and the field is not part of the Key

KEY   (K)   : the field is part of the Key

TEMPORARY   (T)   : the field is not to be held on the real record, but its value (e.g.
                            the result of a calculation defined in an Evaluation Table) is to
                            be available for display

                        **N.B: 'T' fields must be two words binary, and must be
                                defined at the end of the record.**

If the entry is left blank, the field will be treated as a normal data field. If left blank, the first and
third entries must be separated by '//'.

PICTURE:

TYPE: Nominated Item

Enter the Picture in the form of a character string which describes the characteristics of the field.
Fields are of four main types, as follows:

String: A string of Xs, each representing one character position. The definition can be
         abbreviated (e.g. X(5) means the same as XXXXX).

         **N.B: If the associated 'Value' entry is a constant (enclosed in quotes), then the
         maximum 'Picture' is X(16); If it is SPACES or ZEROES, then the maximum is
         X(4095).**

Date: Any of the following four date pictures is valid:

         DDMMYY   YYMMDD   MMYY   YYMM

Numeric: The following characters can be used:

         9   : a decimal digit

         S   : a character from the set space and -

         V   : the implied decimal point

         For Numeric fields, the following points should be noted:

         o   S, if specified, must be the first character of the Picture.

         o   A single occurrence of V can be included. Otherwise, the Picture consists of 9s
              and can be abbreviated (e.g. 9(5) means the same as 99999).

         o   A sign can be held in either of the following two ways:

         -    as a separate character, preceding those in the field: the Picture character
              string must be followed by a space and the legend 'DISPLAY-3'. The sign
              character is + or space for positive values, - for negative values.

         -    as an additional character, by coding (overpunching) the leftmost digit: if a field
              is negative, the numbers 1-9 in the leftmost position appear as J-R respectively,
              and a leading zero appears as -.

Binary: Binary Fields fall into the following three groups:

         o   word fields

              Word fields can be one or two words in length. The Picture consists of a
              character string composed of the characters '9', 'S', 'V' (and left and right
              parenthesis pairs if required) as described above for numeric fields, followed by a
              space and the legend 'CSR' (Computational Synchronised Right, as in COBOL
              usage).

```
                    TPS Application Definition
Keyword.Qualifier  [RECORD.xxxxxxxxxxx                ]
Special Directive  [                        ] Page [F2 ]

Field Name/Type/Picture/Value
```

Each line in the display comprises four items, each separated by '/'. The normal procedure for amending by insertion is supported, i.e. insert a comma followed by the new entry.

PARAMETERS: (Page 2)

FIELD NAME:

TYPE: logical name (as in the associated DISM component)

Enter the logical name of the field.

FIELD TYPE:

TYPE: Selected Item (Optional)

Enter the type of the field, or leave this field blank. Options are:

INITIAL   (I)   : the field is to hold the associated 'Value' entry as its initial
                          value, and the field is not part of the Key

KEY   (K)   : the field is part of the Key

TEMPORARY   (T)   : the field is not to be held on the real record, but its value (e.g.
                          the result of a calculation defined in an Evaluation Table) is to
                          be available for display

               **N.B: 'T' fields must be two words binary, and must be
                       defined at the end of the record.**

If the entry is left blank, the field will be treated as a normal data field. If left blank, the first and third entries must be separated by '//'.

[handwritten annotations at top:] "ddmmyy" → working date; "ddmmyy" → specified date; "pppppp" → empty (holds -1 on file)

   o   binary date fields

A binary date field is a single word binary field which holds a date as the number of days since 1900. This is specified as for a standard binary word field (e.g. 9(6) CSR), followed by a space and the legend 'DAYS'.

   o   bit fields

A bit field is defined using characters '1' (to represent a binary digit) and 'S' (to indicate that the field has a signed numeric value. If 'S' is specified, it must be the first character of the Picture; it occupies a single bit position. The Picture can be abbreviated (e.g. 1(5) means the same as 11111).

VALUE:

TYPE: Nominated Item

Enter a constant value which is to be included within the field, and enclose in quotes, e.g. "12AB". Otherwise, leave this field blank.

Entry of this field is according to 'Field Type' entry, as follows:

'Field Type'	'Value'	Comments
INITIAL	mandatory	will be applied if the Record is inserted, and will be stored internally as defined in 'Picture'
KEY	optional	if entered, specifies Record Type to be used
TEMPORARY	forbidden	
blank	optional	permitted if used with Special Name 'Value' (see below)

'Special Name' Values can be used, in conjunction with QUIK or any standard Data Handler transactions, to incorporate standard elements of data into the new RECORD. The elements concerned are accessible to user routines, and are as follows:

Held in last 14 words of User TCR	Held in Context Area			
LTIBATCHACC1 (BX1)	CURRENT ACTION	(CA)	DATE	(D)
LTIBATCHACC2 (BX2)	ITEM COUNT	(IC)	SPACES	(S)
LTIBATCHACC3 (BX3)	MESSAGE SERI NUMBER	(MSN)	TIME	(T)
LTIBATCHACC4 (BX4)	TERMINAL NUMBER	(LTN)	ZEROES	(Z)
LTIBATCHACC5 (BX5)	USER NUMBER	(UN)		
LTIBATCHACC6 (BX6)	VALIDATION ERRORS	(VE)		
LTIBATCHACC7 (BX7)				

For details of the Context Area, see the **TPS 90 COMPASS User Guide**, Appendix C.

N.B: **If an 'Identifying Field Length' is not specified in the associated LF RESILIENCE component, do not use Special Names MSN or LTN.**

In DATA CAPTURE Transactions constructing a COBOL Variable record, the presence of an ITEM COUNT field is mandatory.

QUALIFIERS: message id/variant (Cross Reference to a MP component)

USE: To define the text of responses made to the terminal when the Data Handler
                encounters particular circumstances (e.g. record not on file, end of data etc.). These
                responses can be made specific to the associated Message Pair. The default values
                for this component are taken from the DRSP component associated with the Record.

CREATION: Pages 1 and 2 must each be specifically requested.

```
                          TPS Application Definition
              Keyword.Qualifier [RESPONSES.iii/vv                    ]
              Special Directive [                                     ] Page [F1 ]
        ------------------------------------------------------------------------
              These are the Default Error Responses.  If you wish to alter
              them, please enter the appropriate text.

        RECORD NOT FOUND
        [                                                                       ]
        RECORD ALREADY EXISTS
        [                                                                       ]
        END OF DATA REACHED
        [                                                                       ]
        DATA ALREADY AMENDED
        [                                                                       ]
        RECORD NOT FOUND AT THIS ATTEMPT
        [                                                                       ]


        ------------------------------------------------------------------------

```

PARAMETERS: (Page 1)

ERROR RESPONSES:

   TYPE: Nominated Item(s) (Optional)

   Enter, by position, text (up to 78 characters) of equivalent meaning to reword each of any
   responses required. Otherwise, leave the field(s) blank.

   Note: If the message entered here is longer than the area designated on the associated FORM
         component screen, the response is truncated to fit.

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│                        TPS Application Definition                     │
│               Keyword.Qualifier [RESPONSES.iii/vv              ]       │
│               Special Directive [                             ] Page [F2 ] │
│       --------------------------------------------------------------  │
│                                                                       │
│           These are the Default Confirmation Responses.  If you wish to alter │
│           them, please enter the appropriate text.                    │
│                                                                       │
│        RECORD ALREADY DELETED                                         │
│       [                                                             ] │
│        RECORD NOT CHANGED                                             │
│       [                                                             ] │
│        RECORD AMENDED                                                 │
│       [                                                             ] │
│        RECORD INSERTED                                               │
│       [                                                             ] │
│        RECORD DELETED                                                 │
│       [                                                             ] │
│                                                                       │
│                                                                       │
│       --------------------------------------------------------------  │
│                                                                       │
│                                                                       │
└─────────────────────────────────────────────────────────────────────┘
```

PARAMETERS: (Page 2)

CONFIRMATION RESPONSES:

As for 'Error Responses'.

QUALIFIER: logical name

USE: To define the high level entry via Course Selection into an application at Runtime. SUITE is a node for combining a list of specified TRAN components (to be developed for subsequent prompt and check purposes) with components on the SD File.

CREATION: Must be specifically requested. Page 2 (to complete the list of TRAN components constituting the SUITE) is presented automatically on completion of Page 1.

```
                       TPS Application Definition
         Keyword.Qualifier [SUITE.xxxxxxxxxxxx                    ]
         Special Directive [                                      ] Page [F1 ]
         -----------------------------------------------------------------------

         Description.......[                                  ]

         Transactions......[              ]
                           [              ]
                           [              ]
                           [              ]
                           [              ]
                           [              ]
                           [              ]
                           [              ]
                           [              ]
                           [              ]
                           [              ]
                           [              ]
         -----------------------------------------------------------------------
```

PARAMETERS: (Page 1)

DESCRIPTION:

    TYPE: Nominated Item (Optional)

    For documentary purposes, enter a description, up to 40 characters long, of the Suite. Otherwise, leave this field blank.

TRANSACTIONS:

    TYPE: Cross Reference List of TRAN components

    Enter the Qualifier (logical name) of each of the TRAN components to be included in the SUITE here being defined.

```
                         TPS Application Definition
            Keyword.Qualifier [SUITE.xxxxxxxxxxxx                    ]
            Special Directive [                                      ] Page [F2 ]
            -------------------------------------------------------------------

            Transactions......[                ]
                              [                ]
                              [                ]
                              [                ]
                              [                ]
                              [                ]
                              [                ]
                              [                ]
                              [                ]
                              [                ]
                              [                ]
                              [                ]
                              [                ]
            -------------------------------------------------------------------


```

PARAMETERS: (Page 2)

TRANSACTIONS:

TYPE: Cross Reference List of TRAN components

As for Page 1.

QUALIFIER: message id/variant/table number/device

USE: To define the actions to be taken by the system in response to nominated entries made in Conversation Control fields by users of the run-time system.

CREATION: Presented automatically, if incomplete, if referenced by any FORM component for which Conversation Control fields are specified (see Keyword FORMAT).

A particular version of Page 2 is displayed for the type of Table indicated on Page 1. If the table number qualifier is 1, then the table is a Control Table; if 2, a Function Table; if 3, an Action Table; if 4, an Evaluation Table.

Note: For QUIK Transactions, an ACTION Table (table number 3) is created automatically from parameters in the associated TRAN component.

An EVALUATION Table (table number 4) is presented automatically after definition of the Format/Variant, if Evaluation is specified in the associated MP component.

```
                         TPS Application Definition
        Keyword.Qualifier [TABLE.iii/vv/tt/dddd              ]
        Special Directive [                                  ] Page [F1 ]
       ---------------------------------------------------------------------
         Description.......[                                ]

         Type of Table.....[                  ]

         If Information is to be taken from a Common Table?

           Enter Name......[               ]




       ---------------------------------------------------------------------
```

PARAMETERS: (Page 1)

DESCRIPTION:

TYPE: Nominated Item (Optional)

For documentary purposes, enter a description, up to 40 characters long, of the Table. Otherwise, leave this field blank.

TYPE OF TABLE:

TYPE: Selected Item

If information is to be taken from a Common Table, leave this field blank. Otherwise, enter the type of table. Options are:

CONTROL   (C)
FUNCTION   (F)
ACTION   (A)
EVALUATION   (E)

COMMON TABLE NAME:

TYPE: Cross Reference to a CTAB component (Optional)

Enter the Qualifier (logical name) of an associated CTAB component, if required. Otherwise, leave this field blank.

If a Common Table name is entered, Page 1 of Keyword COMMON TABLE will be presented automatically if the component does not already exist.

```
                            TPS Application Definition
           Keyword.Qualifier [TABLE.iii/vv/1/dddd                    ]
           Special Directive [                                       ] Page [F2 ]
           ---------------------------------------------------------------------
                                 Control Table
           Type of Entry        Identifying Value      Action Taken   Qualifier
           [            ] [                  ]   [          ] [                 ]
           [            ] [                  ]   [          ] [                 ]
           [            ] [                  ]   [          ] [                 ]
           [            ] [                  ]   [          ] [                 ]
           [            ] [                  ]   [          ] [                 ]
           [            ] [                  ]   [          ] [                 ]
           [            ] [                  ]   [          ] [                 ]
           [            ] [                  ]   [          ] [                 ]
           [            ] [                  ]   [          ] [                 ]
           [            ] [                  ]   [          ] [                 ]
           [            ] [                  ]   [          ] [                 ]
           [            ] [                  ]   [          ] [                 ]
           [            ] [                  ]   [          ] [                 ]
           ---------------------------------------------------------------------
```

Entry of each line on the screen is optional and comprises four items which together define an entry in the table.

PARAMETERS: (Page 2) for a CONTROL TABLE

TYPE OF ENTRY:

TYPE: Selected Item

Enter the long or short form of the type of entry. Options are:

ABANDON	(A)	HELP	(H)	RESET DATA	(RD)
CONFIRM	(C)	HOW	(HOW)	RETRACE	(R)
DENY	(D)	KNOWN	(K)	SIGNOFF	(X)
ELSE	(E)	LAST ITEM SCREEN	(L)	SKIP NEXT	(SN)
EXPLAIN	(EXP)	PAGE BACKWARD	(B)	TRACE	(T)
FORCE ERRORS	(FE)	PAGE FORWARD	(F)	WHY	(W)
		PREVIOUS	(P)		

or enter any from the range U1-U9 if preferred, to describe the type of Control Table entry.

The literal value of this entry is not taken as significant if 'Action Taken' is DISPLAY or PROCESS. If 'Action Taken' is NULL, however, five types of entry retain a significance within COMPASS, as follows:

'Type of Entry'		SIGNIFICANCE
ABANDON	(A)	If entered on a message routed to the Standard Prolog Interface, the current Consultation will be abandoned, and the last 'intro' screen will be redisplayed.
CONFIRM	(C)	If entered on a message routed to the standard Prolog Interface, the current Consultation will be continued. The normal use of this is following a BREAKIN.
		If not entered on a message routed to the QUIK Data Handler, then update is inhibited; if entered, update is un-inhibited.
DENY	(D)	If entered, update is inhibited.
RETRACE	(R)	If entered, the last non-HELP or non-MENU initial format of a Transaction is returned, e.g. to return from a common HELP Transaction to the Transaction from which HELP was requested.
SIGNOFF	(X)	If entered, control is returned to Course Selection provided System Navigation is enabled.

In a user-programmed Transaction, the Control Field can be used for other entries, if required. In this case, enter 'ELSE' or 'E' such that, when the entry is not for Control Field purposes, it will nonetheless pass Control Field validation and then be validated according to the other acceptable use of the field.

N.B: ELSE or E, if entered, must be the last in the Table and must have an associated 'Identifying Value'.

IDENTIFYING VALUE:

TYPE: Nominated Item

Enter the 'user entry' for the run-time system i.e. what the user will type into the Control Field to signify choice of the associated options.

Note: For Menu and Help Transactions, a space can be specified, associated with an ELSE (E) 'Type of Entry' option designed to react to it.

ACTION TAKEN:

TYPE: Selected Item

Enter the long or short form of the action to be taken on receiving entry of the associated 'Identifying Value'. Options are:

DISPLAY	(D)	display the screen identified by the Format/Variant specified in the associated 'Qualifier' field.
NULL	(N)	set the CURRENT-CONTROL field in the Context Area, and leave for later action by user logic, if required. — *pass message thru LTI into AR.*
PROCESS	(P)	call the AR Train implied in the Message Pair specified in the associated 'Qualifier' field. — *bypass LTI. s/b used for special processing only.*

QUALIFIER:

TYPE: Selected Item (Cross Reference)

Enter according to 'Action Taken', as follows:

'Action Taken'	'Qualifier'
DISPLAY	the Format/Variant of the screen to be displayed: iii/vv
NULL	leave blank
PROCESS	the displacement (n) in the AR Train used to process the input message of the specified id: iii/n

```
+-------------------------------------------------------------------------+
|                      TPS Application Definition                         |
|       Keyword.Qualifier [TABLE.iii/vv/2/dddd                  ]         |
|       Special Directive [                                     ] Page [F2 ] |
| ----------------------------------------------------------------------- |
|                           Function Table                                |
|        Identifying Value   Initial Format   Data Re-ordering            |
|        [               ]     [   ]          [                  ]        |
|        [               ]     [   ]          [                  ]        |
|        [               ]     [   ]          [                  ]        |
|        [               ]     [   ]          [                  ]        |
|        [               ]     [   ]          [                  ]        |
|        [               ]     [   ]          [                  ]        |
|        [               ]     [   ]          [                  ]        |
|        [               ]     [   ]          [                  ]        |
|        [               ]     [   ]          [                  ]        |
|        [               ]     [   ]          [                  ]        |
|        [               ]     [   ]          [                  ]        |
|        [               ]     [   ]          [                  ]        |
| ----------------------------------------------------------------------- |
|                                                                         |
|                                                                         |
+-------------------------------------------------------------------------+
```

PARAMETERS: (Page 2) for a FUNCTION TABLE

IDENTIFYING VALUE:

TYPE: Nominated Item

Enter the 'user entry' for the run-time system, i.e. what the user will type into the Function Field to signify choice of the associated options.

INITIAL FORMAT:

TYPE: Cross Reference to a FORM component

Enter the Qualifier (message id) of the FORM component to be used as the start point of the Transaction to which the user is switching.

DATA RE-ORDERING:

TYPE: Ordered Nominated List

These parameter fields define the order in which the fields constituting the current key of the current Transaction are to be presented as the key to the new Transaction.

Values 1-12 correspond to the twelve Data Field marker characters specified for the Message Pair in the associated FORM component. A zero marks any field not presented to the new Transaction.

Example: [0,3,2,1   ]

```
         | Current Transaction | New Transaction
      ---+---------------------+-------------------------
       0 | the first key field | not present
         |                     |
       3 | the second key field| third in new key
         |                     |
       2 | the third key field | second in new key
         |                     |
       1 | the fourth key field| first in new key
      ---+---------------------+-------------------------
```

```
+--------------------------------------------------------------------+
|                     TPS Application Definition                     |
|       Keyword.Qualifier [TABLE.iii/vv/3/dddd            ]          |
|       Special Directive [                               ] Page [F2 ]|
|  ----------------------------------------------------------------  |
|                          Action Table                             |
|       Type of Entry    Identifying Value      Format    Variant   |
|       [          ] [                ]      [     ]    [ ]         |
|       [          ] [                ]      [     ]    [ ]         |
|       [          ] [                ]      [     ]    [ ]         |
|       [          ] [                ]      [     ]    [ ]         |
|       [          ] [                ]      [     ]    [ ]         |
|       [          ] [                ]      [     ]    [ ]         |
|       [          ] [                ]      [     ]    [ ]         |
|       [          ] [                ]      [     ]    [ ]         |
|       [          ] [                ]      [     ]    [ ]         |
|       [          ] [                ]      [     ]    [ ]         |
|       [          ] [                ]      [     ]    [ ]         |
|       [          ] [                ]      [     ]    [ ]         |
|       [          ] [                ]      [     ]  . [ ]         |
|  ----------------------------------------------------------------  |
|                                                                    |
+--------------------------------------------------------------------+
```

PARAMETERS: (Page 2) for an ACTION TABLE

TYPE OF ENTRY:

TYPE: Selected Item

Enter the long or short form of the type of entry. Options are:

QUERY   (Q)   UPDATE   (U)   INSERT   (I)   KILL   (K)
USER ACTION (UA) - signifies processing by user routines

IDENTIFYING VALUE:

TYPE: Nominated Item

Enter the 'user entry' for the run-time system, i.e. what the user will type into the Action Field to signify choice of the associated options.

FORMAT/VARIANT:

TYPE: Cross Reference to a FORM component

Enter the Qualifier (message id and variant) of the FORM component for the screen to be used with the associated option.

```
                          TPS Application Definition
           Keyword.Qualifier [TABLE.iii/vv/4/dddd                    ]
           Special Directive [                                       ] Page [F2 ]
           -----------------------------------------------------------------------
                                 Evaluation Table
              [                                                      ]
              [                                                      ]
              [                                                      ]
              [                                                      ]
              [                                                      ]
              [                                                      ]
              [                                                      ]
              [                                                      ]
              [                                                      ]
              [                                                      ]
              [                                                      ]
              [                                                      ]
              [                                                      ]
           -----------------------------------------------------------------------
```

PARAMETERS: (Page 2) for an EVALUATION TABLE

· Calculation Lines:

TYPE: Nominated List

Enter, on each of up to 12 lines, the required calculation expressions, in the following format:

result = (name) operand (name) operand (name) ...
          (value)   (value)   (value)

Calculations are executed simply, left to right, and must not exceed one line unless intermediary 'result's are defined on consecutive lines. 'operand name' and/or 'operand value' can, within this constraint, be repeated as required.

Note: Operands can be +, -, * or /. Spaces must be kept between each of the elements of the calculation(s).

'result = name' or 'result = value' are also valid calculation lines.

QUALIFIER: logical name

USE: To define a TRANSACTION, specifying its name for Course Selection, type mode of entry and the LRG, MP and/or REC components which constitute it.

CREATION: Presented automatically if referenced by STE or TRAN and incomplete. The version of Page 2 displayed is according to the type of Transaction indicated on Page 1.

```
                          TPS Application Definition
            Keyword.Qualifier [TRANSACTION.xxxxxxxxxxxx              ]
            Special Directive [                                      ] Page [F1 ]
            ------------------------------------------------------------------

            Description.......[                                      ]

            Transaction Type..[FREE FORMAT       ]

            Initial Format....[    ]

            Direct Entry
                  Name........[              ]
                  Separator....[,]




            ------------------------------------------------------------------

```

PARAMETERS: (Page 1)

DESCRIPTION:

TYPE: Nominated Item (Optional)

For documentary purposes, enter a description, up to 40 characters long, of the Transaction. Otherwise, leave this field blank.

TRANSACTION TYPE:

TYPE: Selected Item

Enter the type of Transaction. Options are:

DATA CAPTURE (D) HELP (H) PRODUCTION RULES (PRIM)
FREE FORMAT (F) MENU (M) PROLOG (P)
                          QUIK (Q)

Note: FREE FORMAT designates a transaction not of DATA CAPTURE, HELP, MENU, PRODUCTION RULES, PROLOG or QUIK type.

INITIAL FORMAT:

TYPE: Cross Reference to a MP component

Enter the Qualifier (message id) of the MP component associated with the Message Pair to be used as the entry point to the user Transaction. (Variant 1 will be assumed.)

DIRECT ENTRY NAME:

TYPE: Nominated Item (Optional)

Specify the name, up to 12 characters, to be entered to request display of the associated 'Initial Format'.

This 'Entry Name' need not be the same as the Qualifier (logical name) of the TRAN component, but is intended to be a name which is significant to the user, e.g. CUSTOMER, INVOICES etc. At run-time, data can be input along with the Entry Name (using the associated separator), thus removing the need to request the initial Screen Format for the input of data.

Note: At the time of using the Direct Entry method, the Entry Name must be preceded by a full stop.

If this parameter is returned blank, Direct Entry will not be supported with this Transaction.

SEPARATOR:

TYPE: Nominated Item (Optional)

Enter a character to be used as a separator for Direct Entry of data along with the associated Entry Name. Otherwise, leave this field blank.

```
+-------------------------------------------------------------------+
|                    TPS Application Definition                     |
|        Keyword.Qualifier [TRANSACTION.xxxxxxxxxxxx        ]        |
|        Special Directive [                               ] Page [F2 ]|
|        ---------------------------------------------------------- |
|                                                                   |
|        Enter the name of the Logical Record Group to be accessed  |
|                                                                   |
|             by the Transaction.......[            ]               |
|                                                                   |
|        Item Message Id.............[    ]                         |
|                                                                   |
|        Item Message Variant........[ ]                            |
|                                                                   |
|        Slotfile Name...............[            ]                 |
|                                                                   |
|                                                                   |
|                                                                   |
|                                                                   |
|        ---------------------------------------------------------- |
|                                                                   |
+-------------------------------------------------------------------+
```

PARAMETERS: (Page 2 for DATA CAPTURE Transactions)

LOGICAL RECORD GROUP NAME:

    TYPE: Cross Reference to a LRG component

    Enter the Qualifier (logical name) of the LRG component associated with the Message Pairs in this Transaction.

ITEM MESSAGE ID:/VARIANT:

    TYPE: Cross Reference to a MP component

    Enter the Qualifier (message id) of the MP component associated with the Item Message Pair in this DATA CAPTURE Transaction. A Variant number must also be supplied to link to the relevant user screen.

SLOTFILE NAME:

    TYPE: Cross Reference to a LF component

    Enter the Qualifier (logical name) of the LF component associated with the 'slot' file to hold multiple Item Records. If constructing a COBOL Variable record, leave this field blank.

```
+-------------------------------------------------------------------+
|                    TPS Application Definition                     |
|          Keyword.Qualifier [TRANSACTION.xxxxxxxxxxxx         ]     |
|          Special Directive [                             ] Page [F2 ]  |
| ----------------------------------------------------------------- |
|                                                                   |
|          Transaction Type......... xxxxxxxxxxxxxxxxxxxx           |
|                                                                   |
|          Message Identifiers......[    ]                          |
|                                   [    ]                          |
|                                   [    ]                          |
|                                   [    ]                          |
|                                   [    ]                          |
|                                   [    ]                          |
|                                   [    ]                          |
|                                   [    ]                          |
|                                   [    ]                          |
|                                   [    ]                          |
|                                   [    ]                          |
|                                   [    ]                          |
|                                                                   |
| ----------------------------------------------------------------- |
|                                                                   |
+-------------------------------------------------------------------+
```

PARAMETERS: (Page 2 for FREE FORMAT, HELP & MENU Transactions)

MESSAGE IDENTIFIERS:

TYPE: Cross Reference List of MP component(s)

Enter the Qualifier (message id) of the MP component associated with each of up to 12 Message Pairs incorporated in the Transaction here being defined.

Note: If the 'Initial Format' specified on Page 1 of this Transaction is the only Message Pair associated with it, then that message id must be entered on this Page also: a blank Page 2 of this kind is not permitted (insufficient data).

```
┌─────────────────────────────────────────────────────────────────────┐
│                      TPS Application Definition                       │
│        Keyword.Qualifier [TRANSACTION.xxxxxxxxxxxx          ]          │
│        Special Directive [                                  ] Page [F2 ]│
│        ---------------------------------------------------------------│
│           Transaction Type......... xxxxxxxxxxxxxxxxxxxx               │
│           KB Name.................[                                  ] │
│           QUIK Transactions.......[            ][         ][         ] │
│                                  [            ][         ][         ]  │
│           Message Identifiers.....[     ]                             │
│                                  [     ]                             │
│                                  [     ]                             │
│                                  [     ]                             │
│                                  [     ]                             │
│                                  [     ]                             │
│                                  [     ]                             │
│                                  [     ]                             │
│                                  [     ]                             │
│                                  [     ]                             │
│                                  [     ]                             │
│        ---------------------------------------------------------------│
│                                                                       │
└─────────────────────────────────────────────────────────────────────┘
```

PARAMETERS: (Page 2 for PRODUCTION RULES & PROLOG Transactions)

KNOWLEDGE BASE NAME:

TYPE: Nominated Item

Enter the name of the Knowledge Base that the Message Pairs listed below will access.

QUIK TRANSACTIONS:

TYPE: Component Cross Reference List of QUIK TRAN components

Enter the Qualifier (logical name) of the TRAN component associated with   each of up to 6 QUIK Transactions to be used in the running of the PRODUCTION RULES or PROLOG Transaction here being defined.

MESSAGE IDENTIFIERS:

TYPE: Cross Reference List of MP component(s)

Enter the Qualifier (message id) of the MP component associated with each of up to 12 Message Pairs incorporated in the Transaction here being defined.

Note: If the 'Initial Format' specified on Page 1 of this Transaction is the only Message Pair
        ' associated with it, then that message id must be entered on this Page also: a blank Page 2
        of this kind is not permitted (insufficient data).

```
                        TPS Application Definition
          Keyword.Qualifier [TRANSACTION.xxxxxxxxxxxx          ]
          Special Directive [                                  ] Page [F2 ]
        ----------------------------------------------------------------------
          Enter the name of the Logical Record Group to be accessed
               by the Transaction........[              ]

          Do you require the data to be checked for
               conflicting amendments?....[ ]

          Enter the name of any 'journal' Record
               to be written.............[              ][           ]

          Actions supported by this Transaction:
               Type              User Entry      Message Id    Varian
               [         ]       [        ]       [   ]         [ ]
               [         ]       [        ]       [   ]         [ ]
               [         ]       [        ]       [   ]         [ ]
               [         ]       [        ]       [   ]         [ ]
               [         ]       [        ]       [   ]         [ ]
        ----------------------------------------------------------------------
```

PARAMETERS: (Page 2 for QUIK Transactions)

LOGICAL RECORD GROUP NAME:

TYPE: Cross Reference to a LRG component

Enter the Qualifier (logical name) of the LRG component associated with the Message Pairs in this Transaction.

DATA CHECKED FOR CONFLICT?:

TYPE: Y/N (Optional)

Enter 'Y' to 'secure' the Transaction so that two simultaneous users do not apply updates such that one cancels the other. Otherwise, leave the field blank or enter 'N'.

'JOURNAL' RECORDS:

TYPE: Cross Reference to REC Component(s)

Enter the Qualifier (logical name) of the REC component associated with each of up to two defined Records used by Data Handler for 'journalising' the messages in this Transaction.

The Records specified will be written to a Serial file, and can contain data from any of the Records in the Logical Record Group, fixed constants or Special Names (see Keyword RECORD).

Otherwise, leave one or both fields blank.

The following four parameters form a Compound Parameter, each occurrence of which is presented as a line of the display. Each line specifies the details of an 'Action Supported'.

ACTION TYPE:

TYPE: Selected Item

Enter, on each of up to 5 lines, one of the following list of action types:

QUERY   (Q)   UPDATE   (U)   INSERT   (I)   KILL   (K)
USER ACTION (UA) - signifies processing by user routines

USER ENTRY:

TYPE: Nominated Item

Enter a value up to 8 characters which the Terminal User will input to select the associated 'Action' at run-time.

This 'User Entry' need not be the same as the 'Action' specified, but is intended to be a value significant to the user. The 'User Entry' is inserted in the Action Field at run-time and can also be used with Direct Entry.

MESSAGE ID:/VARIANT:

TYPE: Cross Reference to a MPV component

Enter the Qualifier (message id) of the MP component associated with the Message Pair corresponding to the specified 'Action'. A Variant number must also be supplied to link to the relevant user screen.

QUALIFIER: routine name

USE: To define a user-written subroutine for validation or check-digit purposes, to be used
                in conjunction with the validation facilities of the Logical Terminal Interface, or as a
                key-manipulation routine to be used in conjunction with Conversation Control.

CREATION: Presented automatically if referenced by CVAL, REC or VALR and incomplete.

```
                         TPS Application Definition
       Keyword.Qualifier [USER SUBROUTINE.xxxxxxxxxx           ]
       Special Directive [                                     ] Page [F1 ]
       ------------------------------------------------------------------
          Description.......[                              ]




```

PARAMETERS:

  DESCRIPTION:

    TYPE: Nominated Item (Optional)

    For documentary purposes, enter a description, up to 40 characters long, of the User Subroutine.
    Otherwise, leave this field blank.

QUALIFIER: message id/set/rule number/device

USE: To define validation rule details for use with the Logical Terminal Interface.

CREATION: Presented automatically if referenced by INPM or VALR and incomplete, or if 'Prompts' are requested from INPM. Cannot be explicitly created.

```
                       TPS Application Definition
          Keyword.Qualifier [VALIDATION RULE.iii/ss/rrrr/dddd        ]
          Special Directive [                                        ] Page [F1 ]
          --------------------------------------------------------------------
             Logical Field Name.............[xxxxxxxxxxxx]

             Common Validation..............[             ]
             Validation Code................[ ]
             User Subroutine................[             ]

             Validation Codes :

                 A...No Validation            G...Integer
                 B...Alphabetic               H...Pure Numeric
                 C...Alphanumeric             I...Full Numeric
                 D...Alphabetic and Spaces    J...Sterling
                 E...Alphanumeric and Spaces  K...Date
                 F...Numeric

          --------------------------------------------------------------------
```

PARAMETERS: (Page 1)

    LOGICAL FIELD NAME:

        TYPE: Nominated Item (as in an INPM component)

    The name entered must be unique within the Validation Parameter Set. If amended, the new name will be 'mapped backwards' into the 'Field Name' in the associated INPM component.

    COMMON VALIDATION:

        TYPE: Cross Reference to a CVAL component (Optional)

    If common validation is required, enter here the Qualifier (logical name) of the associated CVAL component. Otherwise, leave this field blank.

    If Common Validation is indicated here, Pages 2, 3 and 4 of VALR will not be presented.

VALIDATION CODE:

TYPE: Selected Item

Identify, by an alphabetic Validation Code, the basic type of validation to be applied to the Logical Field. Options are:

A   - No Validation
B   - Alphabetic, characters A to Z only allowed
C   - Alpha-numeric, characters A to Z, 0 to 9 only allowed
D   - Alphabetic with space character allowed
E   - Alpha-numeric with space character allowed
F   - Numeric, characters 0 to 9 only allowed
G   - Integer, 0 to 9 with leading or trailing spaces
H   - Pure numeric, 0 to 9 with mandatory decimal point and leading or trailing spaces
I   - Full numeric, 0 to 9 with optional decimal point, optional leading + or -, and leading or trailing spaces
J   - Sterling, 0 to 9 with mandatory decimal point, up to three digits following decimal point (third digit must = 0 or 5), optional leading + or -, and leading or trailing spaces
K   - Date, dd/mm/yy or dd/mmyy or ddmm/yy or ddmmyy

Where the Validation Code is changed, (e.g. from a character type code (A to E) to a numeric type code (F to J)), the details on the appropriate Page 3 of the associated VALR component are automatically replaced by the parameters and standard values for the new code type.

USER SUBROUTINE:

TYPE: Cross Reference to a USUB component (Optional)

If a user-written subroutine is to be used with this Validation Rule, and if Common Validation is not specified, then enter here the Qualifier (routine name) of the associated USUB component for the routine: Page 3 of VALR will then not be presented. Otherwise, leave this field blank.

Note: If a user-written subroutine is to be used with this Validation Rule, and Common Validation is specified, then the Qualifier (routine name) of the associated USUB component must be entered on the CVAL screen, not on this VALR screen.

The actions of the Logical Terminal Interface validation software are performed in the following sequence:

1. basic validation according to type

2. mandatory field and field dependency checking

3. reformatting of the field

4. additional validation, consisting of standard range-checking, totalling and check-digit validation, or as performed by a user-written routine. (If the latter option is required, the routine entered here is used.)

To define a user-written subroutine, see Keyword USER SUBROUTINE.

```
                        TPS Application Definition
             Keyword.Qualifier [VALIDATION RULE.iii/ss/rrrr/dddd          ]
             Special Directive [                                   ] Page [F1 ]
             ---------------------------------------------------------------------

                Logical Field Name............ xxxxxxxxxxxx

                Enter 'Y' if Field Mandatory...[ ]      Must be sent...[ ]

                Cross Field Check:
             Enter Dependent Field Name..[          ]
                   Validation Required if Dependent Field Present [ ]
                                                          Absent  [ ]
                   0-No Check. 1-Must be Absent. 2-Must be Entered.

                Reformatting:
                   Convert to Upper Case..[Y]    Left/Right Justify.....[ ]
                   Remove Field Separator.[ ]    Padding Character......[ ]
                   Output Field Size......[    ]

             ---------------------------------------------------------------------
```

PARAMETERS: (Page 2)

FIELD MANDATORY:

TYPE: Y/blank

Where entry of a Logical Field is defined as mandatory, an error is reported if the field is either not sent or space-filled. For a mandatory field, enter 'Y' here. Otherwise, leave this field blank.

MUST BE SENT: (Only relevant to **TPS 90/ICL**)

TYPE: Y/blank

For a field which must be sent, enter 'Y' here. Otherwise, leave this field blank.

Specifying the last field on a screen as 'must be sent' ensures that the operator always inputs the whole screen (usually by positioning the cursor at 'Home' before pressing SEND), thus avoiding the loss of any data through incorrect positioning of the cursor.

DEPENDENT FIELD NAME:

TYPE: Nominated Item (Optional)

Often, the validity of entering one field can depend on the input of another. For example, with pairs of 'Product' and 'Quantity' fields, a Quantity could only validly be entered if an associated Product is present; consequently, 'Quantity' is dependent on 'Product' for cross-field checking purposes.

Where a dependency exists, enter here the Logical Field Name of the field on whose presence or absence the validity of input of the subject field depends.

Where Logical Fields involved in cross-field checks consist of more than one input field, the input fields are matched in pairs for dependency checks.

Example: Logical Field B, comprising 4 input fields, is dependent on Logical Field A, comprising 2 input fields.

Input field 1 of B is dependent on input field 1 of A
Input field 2 of B is dependent on input field 2 of A
Input field 3 of B is dependent on input field 1 of A
Input field 4 of B is dependent on input field 1 of A

N.B: Dependencies must always be related to fields that appear 'earlier' in the message/format.

DEPENDENT FIELD PRESENT:/ABSENT:

TYPE: Selected Item

If 'Dependent Field Name' is blank, leave these fields blank. Otherwise, enter a value to indicate the validation that is required when the dependent field is respectively entered or omitted. Options are:

0   - no check
1   - field must be absent
2   - field must be entered

CONVERT TO UPPER CASE:

TYPE: Y/blank

Enter 'Y' for conversion to upper case. Otherwise, leave this field blank.

LEFT/RIGHT JUSTIFY:

TYPE: Selected Item (Optional)

The Logical Terminal Interface reformatting procedures perform justification according to the Validation Code entered on Page 1.

For a field with Validation Code in the range A to E, enter 'L' for left- or 'R' for right-justification; the field is padded with trailing or leading spaces as appropriate. Otherwise, leave this field blank.

For numeric fields (Validation Codes F to J), valid fields are always right-justified and padded with leading zeroes. In addition, for codes H to J, the decimal point is removed, a leading sign character is inserted and trailing zeroes added as appropriate (thus reformatting the field to COBOL DISPLAY-3 standards).

Date fields (Validation Code K) are not justified.

REMOVE FIELD SEPARATOR:

TYPE: Y/blank

If 'Y' was specified in the 'Remove Separators?' parameter to the associated INP component, then all field separators will be removed regardless of the value specified here for the individual Validation Rule.

If the 'Remove Separators?' parameter to the associated INP component has the value 'N', the removal of field separators is according to the value entered here. In these circumstances, enter 'Y' for the field separator (preceding the field) to be removed; if this field is left blank, the separator will be present in the reformatted message.

PADDING CHARACTER: (Only relevant to **TPS 90/ICL**)

TYPE: Nominated Item (Optional)

Where a complete field is 'not sent' (i.e. is after the cursor when SEND is pressed), the field in the reformatted message is filled with the specified padding character if the padding indicator has been set in the associated INP component. The default padding character is a space; alternative values are used if there is a requirement to differentiate between a field which is 'not sent' and one which is 'sent but space-filled'.

Note: If a field is partially sent, it is always padded with spaces to the full input length before validation.

OUTPUT FIELD SIZE:

TYPE: Nominated Item

Specify the length (as a number of characters) of the field as it is to appear in the reformatted message. Range is 1-9999.

For character fields converted to upper case (Validation Codes A to E), the output field size is usually the length of the input field.

For numeric fields (Validation codes F to J), the reformatting procedures must be considered in calculating the correct output length (see the **TPS 90 Extended COBOL Techniques Manual**).

Note: If this field is left blank, the size of the field is taken from the extent of the relevant area delimited on the associated format.

If this Validation Rule applies to more than one field, and no Output Field Size is specified here, then the output size for all of them will be that defined/delimited for the first field. If the sizes are various, then the various Output Field Size(s) must be individually defined.

```
┌─────────────────────────────────────────────────────────────────────┐
│                        TPS Application Definition                     │
│       Keyword.Qualifier [VALIDATION RULE.iii/ss/rrrr/dddd      ]       │
│       Special Directive [                                      ] Page [F3 ] │
│       ----------------------------------------------------------------│
│                                                                       │
│         Logical Field Name............. xxxxxxxxxxxx                   │
│                                                                       │
│         Range Check:                                                  │
│            Enter Data..[                                        ]      │
│                                                                       │
│         or                                                            │
│                                                                       │
│         Validation Table Name.........[           ]                   │
│                                                                       │
│                                                                       │
│                                                                       │
│                                                                       │
│                                                                       │
│       ----------------------------------------------------------------│
│                                                                       │
│                                                                       │
└─────────────────────────────────────────────────────────────────────┘
```

PARAMETERS: (Page 3 for Codes A to E)

RANGE CHECK DATA:

TYPE: Nominated List (Optional)

For character type fields (Validation Codes A to E), a set of individual range-check values can be specified for each character in the field. Where the number of ranges defined is less than the number of characters in the field, the last range specified is applied to all remaining characters.

Each range is specified by parameters enclosed in parentheses. Ranges are separated by comma, and indicate the values which can validly be entered. Entries can be: a character pair, indicating a range of permitted characters; SP, indicating a space, or NC, indicating that no check is required.

Example: For a 7-character field with the first 2 alpha-numeric, the 3rd alphabetic, hyphen or space, the 4th any value, the rest numeric, The required table check data is: (09,AZ)(09,AZ)(AZ,--,SP)(NC)(09)

VALIDATION TABLE NAME:

TYPE: Cross Reference to a VTAB component (Optional)

Enter the Qualifier (logical name) of the VTAB component associated with the Validation Table against whose contents the input fields are to be validated. Otherwise, leave this field blank.

```
┌─────────────────────────────────────────────────────────────────┐
│                                                                   │
│                     TPS Application Definition                    │
│        Keyword.Qualifier [VALIDATION RULE.iii/ss/rrrr/dddd     ]  │
│        Special Directive [                        ] Page [F3 ]    │
│        ---------------------------------------------------------  │
│                                                                   │
│           Logical Field Name............ xxxxxxxxxxxx             │
│                                                                   │
│           Range Check:                                            │
│              Enter Minimum Value........[            ]            │
│              Enter Maximum Value........[            ]            │
│                                                                   │
│           Totalling:    Enter Accumulator (1 - 7) for :-  Screen    Batch │
│                 Add Field into Accumulator...................[ ].......[ ] │
│                 Compare Field and Clear Accumulator.........[ ].......[ ] │
│                 Set Field into Accumulator...................[ ].......[ ] │
│                 Subtract Field from Accumulator.............[ ].......[ ] │
│                                                                   │
│           Check Data:                                             │
│              Enter Modulus.[ ]  and Weights.[            ]        │
│              User Subroutine................[          ]         │
│        ---------------------------------------------------------  │
│                                                                   │
│                                                                   │
└─────────────────────────────────────────────────────────────────┘
```

PARAMETERS: (Page 3 for Codes F and G)

RANGE CHECK MINIMUM VALUE:

   TYPE: Nominated Item (Optional)

   If no minimum range-check is to be done, leave this field blank. Otherwise, enter an integer to
   specify the minimum acceptable value. The value entered must be consistent with the length of
   the input field; the maximum length allowed for range-check values is 12 digits.

RANGE CHECK MAXIMUM VALUE:

   TYPE: Nominated Item (Optional)

   If no maximum range check is to be done, leave this field blank. Otherwise, enter an integer to
   specify the maximum acceptable value. The value entered must be greater than any minimum
   value specified and must be consistent with the length of the input field; the maximum length
   allowed for range check values is 12 digits.

ADD FIELD INTO ACCUMULATOR:

TYPE: Nominated Item (Optional)

To add an input value into the contents of a batch or screen accumulator, enter the appropriate accumulator number in the relevant column. Range in each case is 1-7. Otherwise, leave these fields blank.

The accumulators maintained for batch and screen totalling are held in the last 28 words of the User TCR Area.

Up to 7 separate accumulators can be maintained for screen totalling; these are set to zero before validating each input.

Up to 7 separate accumulators can be maintained for batch totalling; these are cleared by **TPS 90** only when the System File is reset, or if specified in the 'Compare Field and Clear Accumulator' field. It is therefore essential that systems using the Batch Totalling facility are designed to ensure either that batch totals are initialised at the start of each totalling transaction, or that, having commenced such a transaction, the operator has to continue to the message which clears the batch total (usually achieved by defining the appropriate message types as 'no change').

Note: For each accumulator the total is held as a double-length binary word.

All fields held concurrently in a single accumulator, for totalling or for comparison with fields of Type F or G, must be integers.

COMPARE FIELD AND CLEAR ACCUMULATOR:

TYPE: Nominated Item (Optional)

To compare an input value with the contents of a batch or screen accumulator, the accumulator subsequently to be cleared, enter the appropriate accumulator number in the relevant column. Range in each case is 1-7. Otherwise, leave these fields blank.

SET FIELD INTO ACCUMULATOR:

TYPE: Nominated Item (Optional)

To establish an input value as the contents of a batch or screen accumulator, enter the appropriate accumulator number in the relevant column. Range in each case is 1-7. Otherwise, leave these fields blank.

SUBTRACT FIELD FROM ACCUMULATOR:

TYPE: Nominated Item (Optional)

To subtract an input value from the content of a batch or screen accumulator, enter the appropriate accumulator number in the relevant column. Range in each case is 1-7. Otherwise, leave these fields blank.

CHECK DATA - MODULUS & WEIGHTS:

TYPE: Nominated Item (Optional)

Where standard check-digit validation is required, enter the appropriate modulus and weights. The modulus is specified as an integer in the range 2- 11. The weightings to be applied to the characters of the field are specified as single-digit integers, separated by commas. As illustrated below, the first weighting applies to the most significant digit of the field.

The standard check-digit validation is available for numeric fields with numeric check-digits which occur as the last character in the field. Where appropriate, the input field is right-justified with leading zeroes inserted before the check-digit validation is applied.

The standard check-digit validation operates as follows:

Given a field of output length n (i.e. characters $x_1, x_2 .... x_n$), a modulus (m) is specified with one or more weighting constants (say, $w_1 .... w_p$, where p is less than n).

If   : $A = w_1 x_1 + ... + w_p x_p + w_1 x_{p+1} + ... + w_y x_{n-1}$

> (i.e. weights are repeated until all the digits of the output field, except the check-digit, have been exhausted)

and if : B = A divided by m, remainder C,

then   : the calculated check-digit is zero if C equals zero, or otherwise is (m-C). This calculated value is compared with the last character of the value input.

Note: The check-digit is always reported as invalid if the calculated check-digit value is not in the range 0-9.

USER SUBROUTINE:

TYPE: Cross Reference to a USUB component (Optional)

For integer fields, non-standard check-digit procedures can be performed by a user-written check-digit subroutine. If required, enter here the Qualifier (routine name) of the USUB component associated with the routine.

If this field is entered, the 'Modulus' and 'Weights' fields must both be left blank. If those fields are entered, or if no check-digit validation is required, then leave this field blank

To define a check-digit subroutine, see Keyword USER SUBROUTINE.

Note: Check-digit validation for fields with a basic validation code other than F or G can be incorporated only by means of a user-written subroutine for all additional validation.

```
+---------------------------------------------------------------------+
|                        TPS Application Definition                   |
|        Keyword.Qualifier [VALIDATION RULE.iii/ss/rrrr/dddd      ]    |
|        Special Directive [                              ] Page [F3 ] |
|        ---------------------------------------------------------     |
|                                                                     |
|        Logical Field Name............. xxxxxxxxxxxx                  |
|                                                                     |
|        Number of Decimal Places.......[ ]                           |
|                                                                     |
|        Range Check:                                                 |
|            Enter Minimum Value........[          ]                   |
|            Enter Maximum Value........[          ]                   |
|                                                                     |
|        Totalling:    Enter Accumulator (1 - 7) for :-  Screen  Batch |
|              Add Field into Accumulator...................[ ].......[ ] |
|              Compare Field and Clear Accumulator..........[ ].......[ ] |
|              Set Field into Accumulator...................[ ].......[ ] |
|              Subtract Field from Accumulator..............[ ].......[ ] |
|                                                                     |
|        ---------------------------------------------------------     |
|                                                                     |
+---------------------------------------------------------------------+
```

PARAMETERS: (Page 3 for Codes H to J)

NUMBER OF DECIMAL PLACES:

TYPE: Nominated Item (Optional)

For Validation Codes H to J, valid fields are always right-justified, any input decimal point removed, and leading and trailing zeroes inserted where necessary. Trailing zeroes are inserted so that the number of decimal places present in the reformatted field is that specified by this parameter. On input, the number of digits entered following the decimal point must not be more than the number specified here.

For non-integer values, for codes H and I enter a number in the range 1-12; for code J (sterling) enter a number in the range 2-3.

For an integer value, leave this field blank: zero is not a valid entry.

For all other parameters on this Page, compare those for codes F to G above, noting that the range-check values for codes H to J are not for integers, but must include as many decimal places as the 'Number of Decimal Places' specified on this Page.

```
                        TPS Application Definition
          Keyword.Qualifier [VALIDATION RULE.iii/ss/rrrr/dddd        ]
          Special Directive [                              ] Page [F3 ]
          ----------------------------------------------------------------

          Logical Field Name................ xxxxxxxxxxxx

          Range Check:
              Earliest Date...............[        ]
              Latest Date.................[        ]

                Enter DDMMYY         for a Specific date
                or E+nnnn or E-nnnn  where E = Exec Date and
                                     nnnn = Relative No. of Days




          ----------------------------------------------------------------
```

PARAMETERS: (Page 3 for Code K)

RANGE CHECK - EARLIEST DATE:

TYPE: Nominated Item (Optional)

Enter the earliest acceptable date, either as ddmmyy or as a value dependent on the date obtained from Today (as known by the system). Dates relative to Today are entered in the format E-nnnn or E+nnnn where nnnn gives the number of days before (-) or after (+) Today which is the earliest acceptable date.

If no minimum range-check is to be performed, leave this field blank.

RANGE CHECK - LATEST DATE:

TYPE: Nominated Item (Optional)

Enter the latest acceptable date in the same way as for the Earliest Date.

If no maximum range-check is to be performed, leave this field blank.

```
                      TPS Application Definition
        Keyword.Qualifier [VALIDATION RULE.iii/ss/rrrr/dddd        ]
        Special Directive [                                        ] Page [F4 ]
        -----------------------------------------------------------------------

          Logical Field Name............ xxxxxxxxxxxx

          Enter the text you wish to be displayed as the LTI Help message:
    [                                                                      ]

          To Amend the Standard LTI Error Messages, enter your versions, by position:
    1.[                                                                    ]
    2.[                                                                    ]
    3.[                                                                    ]
    4.[                                                                    ]
    5.[                                                                    ]
    6.[                                                                    ]
    7.[                                                                    ]
    8.[                                                                    ]
    9.[                                                                    ]
        -----------------------------------------------------------------------
```

PARAMETERS: (Page 4)

HELP MESSAGE:

TYPE: Nominated Item (Optional)

Enter the text of a 'Help' message or leave blank. Text entered here will be displayed when LTI detects '?' in the field associated with the rule.

ERROR MESSAGES:

TYPE: Positional Nominated List (Optional)

To amend standard LTI Error Messages, replace any/all of the list below with user's text (in the appropriate line). To keep the standard, leave blank.

1 - INVALID CHARACTER   4 - TOO MANY DECIMAL PLACES   7 - FIELD MISSING
2 - INVALID CHECK-DIGIT   5 - TOTAL INCORRECT   8 - INCONSISTENT DATA
3 - DECIMAL POINT MISSING   6 - OUT OF RANGE   9 - INSUFFICIENT DATA

QUALIFIER: logical name

USE: To define details of a table against whose contents input fields are to be validated.

CREATION: Presented automatically if referenced by CVAL or VALR and incomplete. Pages 2 and following are presented automatically as required, allowing up to 72 entries.

```
                        TPS Application Definition
          Keyword.Qualifier [VALIDATION TABLE.xxxxxxxxxxxx          ]
          Special Directive [                                       ] Page [F1 ]
          ----------------------------------------------------------------------
                    User Entry                  Privacy      Conversion

               [                       ]        [ ]        [            ]
               [                       ]        [ ]        [            ]
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               [                       ]        [ ]        [            ]
               [                       ]        [ ]        [            ]
               [                       ]        [ ]        [            ]
          ----------------------------------------------------------------------
```

PARAMETERS:

USER ENTRY:

TYPE: Nominated List

Specify on each line, as required, a user entry up to 32 characters long, to be used for screen entry validation, and optionally to be converted to a value specified in the associated 'Conversion' field.

PRIVACY:

TYPE: Nominated Item (Optional)

Specify, for each 'User Entry' entered, a 2-character code to signify a Level 2 Authority Control check (as defined using Keyword AUTHORITY CONTROL in SD). The system will use this code to verify the entitlement of individual users to employ the associated 'User Entry' by ensuring that their access rights include a Transaction Group corresponding to that value in the Table.

If no such check is required for the 'User Entry', leave the associated field blank.

CONVERSION:

TYPE: Nominated Item (Optional)

Enter, for each 'User Entry' specified, the value, up to 12 characters long, to be put into the Message Area to represent the associated 'User Entry'.

If no converted value is required for the 'User Entry', leave the associated field blank.

CONVERSION:

TYPE: Nominated Item (Optional)

Enter, for each 'User Entry' specified, the value, up to 12 characters long, to be put into the Message Area to represent the associated 'User Entry'.

If no converted value is required for the 'User Entry', leave the associated field blank.