TPS PROGRAMMING MANUAL

PART 3
PLAN APPLICATION ROUTINES

Telecomputing Limited Oxford

PART 3 - THE PROGRAMMING INTERFACE BETWEEN PLAN APPLICATION ROUTINES AND TPS

1. DESCRIPTION OF THE INTERFACE

1.1 ACCESS TO THE CONTROL BLOCK

The function of the Control Block as the interfacing mechanism directing each of the Application Routines to the "worksheet" that it is required to process is explained in Section 1.1 of Part 1 of this manual. When the Application Routine is written in PLAN the user programmer will normally use the link addresses in the Control Block to point to the start of the various constituent areas of the "worksheet". (An alternative procedure is described in section 1.2 below). Certain other fields in the Control Block contain data which the programmer will also wish to access. They are the following:

The Reply Word.
The Terminal Number.
The Message Serial Number.

In less usual cases (e.g. in implementing the Facilities Management feature as described in section 3.16. of Part 1) access may also be required to other elements of the Control Block.

The method laid down for making such access to the various fields within the Control Block is as follows:

On entry to any Application Routine the address of the Control Block relating to the current worksheet is found in Accumulator 2. The user may overwrite this accumulator at any time but must first save the address of the Control Block.

Individual fields within the Control Block may then be accessed using this address as a modifier. This may be done directly using word numbers, or by means of symbolic names defined for each field. These names together with the layout of the Control Block, are listed in Appendix A to this Manual.

Two points should be borne in mind by the programmer:

Firstly, these symbolic names are not addresses, but are displacements in the Control Block. The format of the operand of an instruction accessing the reply word is therefore CBREPLY (2) where X2 contains the Control Block address and this operand in fact has the value 25(2)

Secondly, these names require to be evaluated at compilation. This is done by source lines (#DEFINE) generated by the macro £TSET which must therefore always be present in a routine using any such names. (Other functions of this macro are described in section 1.2. below)

1.2. ENTRY AND RE-ENTRY INTO THE APPLICATION ROUTINE.

1.2.1. Progressing through the logic of a Routine.

Application Routines may be "entered" to commence the execution of their logic or"re-entered" to continue that logic after an intermediate return to TPS for the performance of some function such as a File Transfer. The Application Routine is called as a subroutine by TPS, and is therefore technically always entered at its first instruction. This however is not apparent to the user programmer because,by the combined action of the £TCAL macro which passes control back to TPS, and the £TSET macro,on re-entry control returns to the instruction following the £TCAL, and the user logic therefore resumes at the point where it left off on each re-entry. For this reason as well as for the purpose of giving values to various symbolic names (as described in Section 1.1. above) the first instruction in an Application Routine is normally the £TSET macro.

1.2.2. Reply information from TPS

On entry or re-entry to an Application Routine immediately following either a File Manager or a Print Handler function,reply information relating to the success or failure of the requested procedure will be returned by TPS by setting values in the Reply Word. This word is one of the fields within the Control Block, and is normally accessed by using the symbolic name CBREPLY as described in Section 1.1. (It may also be accessed as described in 1.2.3. below). Its possible values and their significance are described in Section 3.1. of Part 1 of this manual for File Manager Replies, and in Section 3.11. of Part 1 of this manual for Print Handler Replies.

1.2.3. Finding the"Worksheet"

The normal method of gaining access to the areas that constitute the worksheet is by use of symbolic names as described in Section 1.1. Note that an operand in the form NAME (2) is effectively the address of a word containing the address of the area concerned. This level of indirection should not be overlooked. The relevant names are the following:

CBMSGADD - for access to the Message Area.
CBTCRADD1 - for access to the System portion of the Terminal Control Record.
CBTCRADD2 - for access to the User portion of the Terminal Control Record.
TPSLINKn - for access to the "nth" Additional Store area.

The use of these names demands the use of the macro £TSET at the start of the Application Routine. The Application Routine may also find data in accumulators either on re-entry or on first entry if the routine is not the first in the train. This is a useful mechanism for carrying data between routines, and this also requires the use of the macro £TSET which restores the accumulators (except X2) to the values left in them by the user's code.

Continued.....

1.2.3.Continued.

If access is required to any Common Areas (including the scratchpad area TPSSCRATCH) this is achieved by the normal PLAN mechanism (the # COMMON statement)

As an alternative to the above method for locating the various working areas the PLAN user may use the mechanism of the Calling Sequence to receive the parameters required. The procedure, which is similar to that employed in the COBOL compilation system, is to commence each Application Routine by a series of instructions consisting of an OBEY (OBEY 0(1)) followed by a Store (STO 3 N(M)) repeated for each parameter incrementing the operand of the OBEY by 1 each time. If this approach is chosen this series of procedures must precede £TSET, which must still be present before any of the main logic of the routine.

1.3. EXIT TO TPS.

The following two sections describe the range of macros by use of which the Application Routine requests TPS to perform functions on its behalf. Most of these functions fall into the categories described in section 2.4 of Part 1 of this manual as activities which should be carried out by the controlling routines within TPS. These routines are found at a higher level in the program hierarchy than the Application Routines themselves. Accordingly the macros normally occur in pairs; a Functional macro which sets parameters, and an "EXIT"macro (£TCAL or £TNXT) which actually returns control to TPS to carry out the required function. These latter two macros store the current values of accumulators (except X2) for subseqqent restoration by £TSET on re-entry or entry to the next Application Routine, and in the case of £TCAL provision is made in conjunction with £TSET to return to the instruction following the £TCAL on re-entry. Where the requested function is to be followed by the termination of processing of the current message, the EXIT macro to be used is £TEND.

1.4. SUMMARY OF MACROS.

Section 2 . contains reference sheets on each of the Macros, arranged in alphabetical order for ease of location. The following list, in logical groupings shows the mnemonic significance of the subroutine names. Comparison with Part 2 . will show that the names of the interface subroutine used in COBOL Application Routines have identical mnemonics with prefix TPSC.

Group 1 Accessing Files
Use of the facilities provided by this group of macros is described in section 3.1. of Part 1 of this manual.

£TOPF	Open a file (globally)
£TOFC	Open a file (conditionally)
£TCLF	Close a file (globally)
£TCFC	Close a file (conditionally)
£TRR	Read a specific Record
£TRRN	Read the Next Record relating to this terminal
£TRRS	Read the Next Record in sequence
£TWR	Write a specific record (not already present on file)
£TWRU	Write a specific record (Updating an existing record)
£TWRN	Write the next record relating to this terminal
£TWRS	Write the next record in Sequence
£TWRB	Write the next record in sequence (buffered)
£TDR	Delete a record
£TRB	Read a specific Bucket
£TRBN	Read the Next Bucket relating to this terminal
£TRBS	Read the Next Bucket in Series
£TWB	Write a specific Bucket
£TWBN	Write the Next Bucket relating to this terminal
£TWBS	Write the Next Bucket in Series
£TRBM	Read "Multiple Buckets"
£TWBM	Write "Multiple Buckets"
£TSL	Set a file lock
£TFL	Free a file lock

Continued .....

Group 2 Accessing Terminals
Use of the facilities provided by this group of macros is described in section 3.2. of Part 1 of this manual.

A The "High level" output interface

£TEOS	Establish Output String
£TRM	Reset Message
£TFMT	Output a standard Format
£TMSG	Output a standard Message
£TMSI	Output a standard Message and include for XPRE
£TTXT	Output text
£TTXI	Output text and include for XPRE
£TES	Edit and Send
£TESB	Edit and Send Broadcast
£TESL	Edit and Send to list of terminals
£TBCS	Start display of a repeated broadcast
£TBCE	End display of a repeated broadcast

B The "Low level" output interface

£TSD	Send direct
£TBCF	Include the "repeated Broadcast" Field in low level output.
£TCO	Confirm Output

C The "Phase 1" output system

£TOUT	Output a standard format
£TBDC	Broadcast an output
£TLST	Output to a List of terminals

D Manipulating Terminal Status

£TOPT	Open a terminal
£TCLT	Close a terminal
£TSA	Set Access Status
£TRA	Reset Access Status
£TRTC	Read a terminal control record
£TWTC	Write a terminal control record

Group 3 Output to Printers
Use of the facilities provided by this group of Macros is described in section 3 of Part 1 of this manual

£TEPS	Establish a Print Stream
£TAPI	Add a Print Item to a Stream
£TPOD	Request Output of a Print Stream
£TPCD	Cancel a Print Demand
£TPDS	Delete a Print Stream
£TSPO	Suspend the Output of a Print Stream
£TRPO	Resume the Output of a Print Stream
£TRPR	Reset Priority of a Print Demand

Continued.....

Group 4 Manipulating store
Use of the facilities provided by this group of macros is described in section 3.9 of Part 1 of this manual

£TGS	Get a cell of store
£TFS	Free a cell of store

Group 5 Control of Processing
Use of the facilities provided by the various macros in this group is described in the appropriate subsections of section 3 of Part 1 of this manual, as cross-referred to from the specification sheet for each macro in section 1.6. below

£TINP	Return to input handler (from an input interpreter)
£TNXT	Go to next AR
£TNRT	Go to new AR train
£TEND	End of processing
£TABT	Abort a transaction
£TWT	Wait
£TDGN	Put an entry in a diagnostic buffer
£TSET	Reset on entry to an Application Routine
£TCAL	Enter TPS to perform a requested function, then return
£TWJE	Write a Journal Entry

1.5. NOTES ON COMMON PARAMETERS

Some of the parameters to the Macros which occur most frequently are described here and cross-referred to in the reference sections which follow. Parameters may be either values or addresses. In the former case they may be expressed as literals or may alternatively be set up as values in nominated accumulators. Both alternatives are not always available; the appropriate details occur with each definition. Where a literal is used it may be of variable length and, when numeric, leading zeroes are not required. In certain cases where the valid literal values conflict with accumulator numbers the option to use an accumulator is expressed by setting the first of a pair of parameters to X and the next to the required number.

1.5.1. The File Identity Parameter.

A system for identifying files in Application Routines written in PLAN is described in Part 1, section 3.1. The method establishes a series of logically significant names which are given numeric values by the £TSET macro at the head of the routine. The parameter stated to any subsequent file accessing macro is the symbolic name (i.e., not the name of any physical file as declared at the Executive interface). It is an alphabetic expression of up to 11 characters. The user may alternatively prefer to use the logical File Number itself (to which the symbolic name is evaluated if used). In this case the value is set into an accumulator (either 5, 6 or 7) and the number of the accumulator is specified as the parameter to the macro.

1.5.2. The Stream Identifier and Demand Identifier Parameter.

These parameters are alphabetic expressions of up to twelve characters in length. They are given in the form of addresses (in the format N(M) or symbolic name) of areas containing the required identifiers. The areas commence on word boundaries. Section 3.11 of Part 1 of this manual describes standards for these identifiers.

1.5.3. Cursor Positioning Parameters.

These parameters normally occur in pairs, identifying the line number and character position within the line. Either or both may, however, be omitted (signified by a comma) if it is known that the cursor is in the correct position in that co-ordinate. The valid ranges of values are 1 - 30 and 1 - 80 respectively.

An alternative method of presenting these parameters is in the form x,n, where the first is the literal X and n is the number of the lower of a pair of adjacent accumulators (neither of which may be X2) containing the line and column numbers respectively in binary form.

Note that both lines and columns are counted from 1.

2. INTERFACE MACROS: REFERENCE SHEETS

£TABT - Abort the current transaction

FORMAT £TABT

PARAMETERS None

FUNCTIONS

The Macro sets parameters in the Control Block that cause TPS to terminate the processing of the current transaction. Its use within user logic should be considered exceptional.

£TABT itself generates an exit to TPS and need not be followed by £TEND

REFERENCE

Part 1 section 3.6.

£TAPI - Add a Print Item to a stream

FORMAT £TAPI A, B, C, D, E

PARAMETERS

A File Name of the Print Well. The 'logical' file name, see section 1.5.1.

B Stream identifier. see section 1.5.2.

C Address of an area containing the text of the item. In the format N (M) or a symbolic name. M must not be 2 .

D Number of an accumulator (other than 2) containing the length of the text in characters. Range 1-4000.

E Number of an accumulator (other than 2) containing the Record Type parameter which may have the following values:

0 - Normal
1 - Restart Point
2 - Section End
3 - Section End and Restart Point
4 - End of Stream

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will write the print item from the user's area to the print well identified by parameter A. The item is added to the specified stream which must have been established by a transaction from the same terminal as that adding the item.

Note that setting parameter E to 4 implies section end and restart point.

REFERENCE

Part 1, Section 3.11.

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£TBCE

£TBCE - End the Display of a "Repeated Broadcast"

FORMAT £TBCE A

PARAMETERS

A The number (either 1 or 2) of a user specified "Repeat Broadcast" as defined in Form 12.1 of the Control Routine Generation

FUNCTIONS

The Macro calls a subroutine which unsets an indicator governing the appearance of the stipulated message in the "Repeated Messages" area of the screen. After the issue of this call the system will cease adding the specified message to subsequent output to all terminals.

No exit to TPS is required for this function; if processing is to continue in the same Application Routine the macro £TCAL is not required.

REFERENCE

Part 1 Section 3.2.

£TBCF - Add the "Repeated Broadcast" field to a "Low Level" output.

FORMAT £TBCF A, B

PARAMETERS

A The number of an accumulator (other than 2) containing the number of characters already set up in the output message.

B The terminal identifier. If this parameter is omitted the software will assume that the output is destined for the terminal which sent the input currently being processed. (The parameter is required at this point in order to check the status of the terminal e.g., that it is not "excluded" from broadcasts).

FUNCTIONS

This macro is used to incorporate the "Repeated Message" area in an output prepared using the "low level" interface (£TSD) It may be incorporated at any time during the construction of the output string. The accumulator specified as Parameter A defines the number of characters already established in the output string, and will be updated by this subroutine to include the added characters.

No exit to TPS is required for this function; if processing is to continue in the same Application Routine the macro £TCAL is not required.

REFERENCE

Part 1 Section 3.2.

£TBCS

£TBCS - Start the Display of a "Repeated Broadcast"

FORMAT £TBCS A

PARAMETER

A The number (either 1 or 2) of a user specified "Repeat Broadcast" as defined in Form 12.1 of the Control Routine Generator.

FUNCTIONS

The macro calls a subroutine which sets an indicator which causes the stipulated message to be added into the "Repeated Messages" area of the screen on every subsequent transmission to any terminal not defined as "excluded from Broadcasts".

No exit to TPS is required for this function; if processing is to continue in the same Application Routine the macro £TCAL is not required.

REFERENCE

Part 1, Section 3.2.

£TBDC - Output a Standard Screen Format to all Currently Operating Terminals

(Note: This macro is part of the Phase 1 interface, and is not usable in a series commencing with £TEOS)

FORMAT £TBDC A,B,C,D,E

PARAMETERS

A Clear Screen Indicator. CS to clear the screen otherwise omitted.

B Screen Identifier. Four alpha characters, or a single numeric parameter identifying an accumulator (other than 2) which contains the four alpha character screen identifier. If no format is to be used this parameter may be omitted.

C, D Co-ordinates defining the Final Cursor Position, see Section 1.5.3.

E Address of an area large enough to hold the parameters set up by the series of output macros of which this is the first (i.e. 2N - 1 words, where N is the number of Macros in the series). In the format N (M) or symbolic name. The area must begin at a word address. The value of M may not be 2.

FUNCTIONS

The Macro sets parameters in the Control Block and in the area nominated in parameter E so that TPS will retrieve the required screen format and set it up in the Message Area associated with the Control Block for output to all currently operating terminals. If no format is to be used, the major output parameters are set, ready for a "message" or "text" to be added by the appropriate subsequent Macros.

Note that this macro is not always immediately followed by £TCAL.

REFERENCE

Part 1, Section 3.2.

£TCAL - Enter TPS to perform a function and return

FORMAT £TCAL A

PARAMETERS

A L or Blank; if L no other transaction will pass through this Application Routine until the current one has returned.

FUNCTIONS

The Macro calls a subroutine which carries out the following actions:

1. Store the user's accumulators (except 2) in the Control Block.

2. Set the Application Routine Parameter in the Control Block to indicate that return is to be made to this Routine. Set Inhibit indicator if A = L.

3. Store as Re-entry Parameter in the Control Block the address of the instruction following the Macro.

4. Retrieve the stored Link to TPS.

When the Subroutine EXITs , an instruction generated "in line" in the Application Routine EXITs to TPS.

REFERENCE

Part 3, Section 1.3

£TCFC - Close a File (Conditionally).

FORMAT £TCFC A

PARAMETERS

A File name - the 'logical' file name, see Section 1.5.1.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that the file named will be closed if the total number of Close File Conditional calls equals the number of Open File Conditional calls for this file. If the number is less the file remains open; the count is incremented by one.

REFERENCE

Part 1, Section 3.1.

£TCLF - Close a File

FORMAT £TCLF A

PARAMETERS

A File Name - the 'logical' file name, see Section 1.5.1.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that the file named will be closed. Where relevant, standard closing procedures compatible with Housekeeping requirements will be performed.

REFERENCE

Part 1, Section 3.1.

£TCLT - Close a Terminal

FORMAT £TCLT A

PARAMETERS

A The system's internal number of the Terminal to be opened.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block which cause TPS to set the status of the Terminal to "closed". In most environments this merely applies a software trap within TPS causing input data to be rejected, but in a 7903 or Communications Manager environment it issues the necessary "supervisories" to close the terminal in the external software. In a George 3 environment it issues the necessary "Detach" command via the GDR link if specified.

REFERENCE

Part 1, Section 3.2.

£TCO - Confirm Output

£TDGN - Obtain an "entry" in the Diagnostic Buffer

FORMAT £TDGN A,B,C

PARAMETERS

A A two character alphabetic identifier to be set in the first word of the entry, to enable the contents of the Buffer to be understood.

B Length of data (in words) to be set in the buffer by the user, in the range 0 - 511.

C An accumulator to receive a pointer to the "entry" provided. If this field is omitted, accumulator 1 will be assumed. Accumulator 2 may not be used.

FUNCTIONS

The Macro calls a subroutine which maintains the Diagnostic buffer. The Subroutine checks that the required number of words is available or resets to the beginning of the buffer, and then returns control to the Calling routine with the pointer set in the nominated accumulator. It is then the responsibility of the user to insert his data into these indicated locations.

No Exit to TPS is required for this function; if processing is to continue in the same Application Routine the macro £TCAL is not required.

REFERENCE

Part 4, Section 2.15

£TDR - Delete a Record

FORMAT £TDR A,B,C

PARAMETERS

A File Name - the 'Logical' File name, see Section 1.5.1.

B Address of the Key to the record to be deleted. In the format N(M) or symbolic name. M may not be 2. This parameter may be omitted if the record to be deleted is the last one read serially (by a particular terminal - i.e. by £TRRN) from a serial file.

C If the LBN is known, this parameter is the number of an accumulator containing it, otherwise it is omitted. X2 may not be used.

FUNCTIONS

The Macro calls a subroutine which sets up parameters in the control block so that TPS will delete the specified record from the file currently opened under the given name. If the LBN is not stated, the record will be located by the method appropriate to the file as defined by the file spec. (e.g. by Index Search). A record may be deleted from a file which is being processed serially or sequentially by using this Macro without specifying a key. In this case the last record read, by a transaction originating from the same terminal as that which sent the transaction raising the current request, will be deleted.

REFERENCE

Part 1, Section 3.1.

£TEND - Enter TPS and terminate the processing of the current Transaction.

FORMAT £TEND (No parameters)

PARAMETERS

NONE

FUNCTIONS

The Macro calls a Subroutine which carries out the following actions:

1. Set the Application Routine Parameter in the Control Block to indicate that this Application Routine is finished with and that the Control Block is also finished with.

2. Retrieve the stored Link to TPS. When the subroutine EXITs, an instruction generated "in line" in the Application Routine EXITs to TPS.

REFERENCE

Part 3, Section 1.3

£TEOS - Establish Output String

FORMAT £TEOS A,B,C

PARAMETERS

A The 'clear screen' indicator. Either CS to clear the screen, or omitted.

B The address of an area large enough to hold the parameters which will be generated by the series of subroutine calls of which this is the first (i.e. 2N words where N is the number of subroutine calls in the series). This area must be within one of the areas associated with the Control Block, and must start on a word boundary. If the parameters are to be held in the "XPRE" area in the Terminal Control Record this parameter is omitted . Parameter C must also be omitted in this case. Where present, this parameter is in the format N(M) or symbolic name.

C If an area is to be provided for the storing of Text prior to output, then this parameter must be the address of an area large enough to hold the total amount of text that will be output by all the £TXT or £TXI calls present in the series of output macros of which this is the first. The area must be within one of the areas associated with the Control Block and must start on a word boundary. If the text is to be left where it is then this parameter is omitted. If the text output by all £TXT or £TXI calls in the series is to be stored in the "XPRE" area in the Terminal Control Record, both this parameter and parameter B are omitted.

FUNCTIONS

The macro calls a subroutine which sets parameters in the Terminal Control Record to indicate the methods to be employed with subsequent output macros (e.g. whether text is to be left where it is or moved somewhere to enable user areas to be freed immediately). If XPRE is in use and the Clear Screen parameter is set all the currently stored XPRE data will be discarded and reset. (This is only done in store. The Terminal Control Record if on disc will not be updated until the output message is ready for transmission).

The saving of data for XPRE does not make it obligatory to omit parameters B and C; data may be handled by either of the other two methods and only incorporated into the TCR at output time. This may give better usage of TCR space as items not to be saved will not have to be accommodated.

No exit to TPS is required for this function; if processing is to continue in the same Application Routine the macro £TCAL is not required.

(CONT.)

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£TEOS

(CONT.)

REFERENCE

Part 1, Section 3.11

£TEPS - Establish a Print Stream

FORMAT £TEPS A,B,C

PARAMETERS

A File Name of the Print Well. The 'logical' file name, see Section 1.5.1.

B Stream Identifier. See Section 1.5.2.

C Number of Line-up items in the range 1-99. If none are required this parameter may be omitted.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will create a Stream Record in the Stream Index of the print well identified by parameter A. Line-up records may be specified as the first 'n' items to be inserted in the stream. This parameter will be acted on when the stream is printed.

REFERENCE

Part 1, Section 3.11.

£TES - Edit and Send

FORMAT £TES A,B,C

PARAMETERS

A,B Co-ordinates defining the final Cursor Position. See Section 1.5.3.

C Terminal Identifier (The system number).
If this parameter is omitted the output will be directed to the terminal which originated the current transaction (1 - 4095).

FUNCTIONS

The subroutine sets parameters in the Control Block and parameter area set up by a preceding £TEOS to enable TPS to edit the output message to match the physical characteristics of the terminal receiving the final output message. This subroutine must only be used in conjunction with £TEOS.

REFERENCE

Part 1, Section 3.2.

£TESB - Edit and Broadcast to all Currently Operating Terminals

FORMAT £TESB A,B

PARAMETERS

A, B Co-ordinates defining the Final Cursor Position. See Section 1.5.3.

FUNCTIONS

This macro sets parameters in the Control Block, Terminal Control Record and parameter area set up by a preceding £TEOS to enable TPS to edit the output message to match the physical characteristics of the terminals receiving the final output message. This macro must therefore only be used in conjunction with £TEOS.

REFERENCE

Part 1, Section 3.2.

£TESL - Edit and Send to the Terminals nominated in a given list.

FORMAT £TESL A,B,C

PARAMETERS

A,B Co-ordinates defining the Final Cursor Position. See Section 1.5.3.

C Address of the list of terminals. (The list consists of one word per terminal containing the terminal identifier as a binary number, with one word set negative as a terminator). In the format N(M) or a symbolic name. M may not be 2.

FUNCTIONS

This macro sets parameters in the Control Block, Terminal Control Record and parameter area set up by a preceding £TEOS to enable TPS to edit the output message to match the physical characteristics of the terminals receiving the final output message. This macro must therefore only be used in conjunction with £TEOS.

REFERENCE

Part 1, Section 3.2.

£TFL - Free a data Lock (File or Bucket)

FORMAT £TFL A,B

PARAMETERS

A File Name - the local file name. See Section 1.5.1.

B Number of an accumulator, other than 2, containing the LBN of the Bucket to be freed.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will release a lock set on the nominated LBN. Only locks set by the current message can be freed. This macro is not used for the routine freeing of a data lock, which normally takes place on release of the Control Block. This is an important element of the system's security.

If parameter B is omitted the request will be interpreted as freeing a file lock.

REFERENCE

Part 1, Section 3.1.

£TFMT - Output a standard screen format

FORMAT £TFMT A

PARAMETERS

A Format Identifier. Three or four alpha characters, or a single numeric parameter identifying an accumulator (other than 2) which contains the three or four character format identifier. If the accumulator option is used and only three characters specified, they must be left justified.

FUNCTIONS

This macro stores the format identifier in the Terminal Control Record so that TPS will retrieve the required screen format and set it up in the Message Area associated with the Control Block for output to the nominated terminal.

REFERENCE

Part 1, Section 3.2.

£TFS - Release a cell, or cells of Store

FORMAT £TFS A

PARAMETERS

A Identifier of the link word in the Control Block which contains the address of the cell of store to be released. This identifier is in the format TPSLINKn where n is the number of the link word. (1 indicates the first of any Additional Store Area links, not word 1 of the Control Block; n is not restricted to 1 digit).

This parameter may be repeated as many times as is wished.

FUNCTIONS

The macro sets paramters in the Control Block so that TPS will release the store cell or cells nominated,and return them to their chains.

REFERENCE

Part 1, Section 3.9.

£TGS - Get a cell or cells of Store

FORMAT £TGS $A_1,B_1,\ldots\ldots\ldots\ldots\ldots\ldots A_n,B_n$

PARAMETERS

A Identifier of the link word in the Control Block into which the address of the cell is to be put. This identifier is in the format TPSLINKn, where n is the number of the link word (1 indicates the first of any Additional Store Area links, not Word 1 of the Control Block; n is not restricted to 1 digit).

B Identifier of the chain of store cells from which one is to be obtained. This identifier is in the format TPSCHAINn, where n is the number of the chain. (n is not restricted to one digit).

These parameters occur in pairs, of which there may be any number.

FUNCTIONS

The Macro sets parameters in the Control Block so that TPS will allocate the required cell or cells of store, placing their addresses in the chosen link words.

REFERENCE

Part 1, Section 3.9.

£TINP - Return to Input Handler

FORMAT £TINP A,B

PARAMETERS

A Entry Point (0 or 1). Zero will normally be the only value used.

B The number of an accumulator other than 2 containing the number of characters to be discarded from the front of the input data. This parameter is optional and may be omitted if not required.

Note: This macro is an "exit" macro, and does not require to be followed by £TNXT etc.

FUNCTIONS

This macro is designed for use in writing input interpreters. It sets parameters which cause TPS to return the Control Block for processing by Input Handler, re-entering at a point governed log parameter A which should be set to zero to cause the full logic of Input Handler to be obeyed. Parameter B enables the user to define the length of a preamble to be removed by the software before re-commencing the Input procedures. The text of the input is realigned to discard the preamble.

REFERENCE

Part 1, Section 3.15.

£TLST - Output a Standard Screen Format to the Terminals nominated in a given list.

Note: This Macro is part of the Phase 1 interface and is not usable in a series commencing with £TEOS.

FORMAT £TLST A,B,C,D,E,F

PARAMTERS

A Clear Screen Indicator. CS to clear the screen, otherwise omitted.

B Screen Identifier. Four alpha characters, or a single numeric parameter identifying an accumulator (other than 2) which contains the four alpha character screen identifier. If no format is to be used this parameter may be omitted.

C, D Co-ordinates defining the Final Cursor Position. See Section 1.5.3.

E Address of an area large enough to hold the parameters set up by the series of output macros of which this is the first (i.e. 2N - 1 words, where N is the number of Macros in the series). In the format N(M) or symbolic name. M may not be 2.

F Address of the list of terminals. (The list is one word per terminal, containing terminal identifier, with one word set negative as a terminator). In the format N(M) or a symbolic name. M may not be 2.

FUNCTIONS

The Macro sets parameters in the Control Block and in the area nominated in parameter E so that TPS will retrieve the required screen format and set it up in the Message Area associated with the Control Block for output to the terminals nominated in the list. If no format is to be used, the major output parameters are set, ready for a "message" or for "text" to be added by the appropriate subsequent Macros.

REFERENCE

Part 1, Section 3.2

£TMSG - Add a Standard Message to a Screen

FORMAT £TMSG A,B,C,D

PARAMETERS

A,B Screen Co-ordinates at which the message is to appear. See Section 1.5.3.

C Message Identifier (numeric in the range 1 - 4095). Alternatively C may be set to X, in which case D will be relevant.

D If C is not set to X, D is not present. If present it is a single character numeric parameter identifying an accumulator other than 2 containing the message identifier as a binary value (range 1 - 4095)

FUNCTIONS

The macro calls a subroutine which sets parameters in the parameter area set up by a preceding £TEOS macro so that TPS will retrieve the given message and add it to the character string being built up for output in the message area associated with the Control Block. This Macro must therefore, only be used in conjunction with £TEOS unless the Phase 1 interface is used, in which case it may occur within a series commencing with £TOUT, £TBDC, or £TLST.

REFERENCE

Part 1, Section 3.2.

£TMSI - Add a Standard Message to a Screen and Include for XPRE

FORMAT £TMSI A,B,C,D

PARAMETERS

A,B Screen co-ordinates at which the message is to appear. See section 1.5.3.

C Message Identifier (numeric in the range 1 - 4095). Alternatively C may be set to X, in which case D will be relevant.

D If C is not set to X, D is not present; if present it is a single character numeric parameter identifying an accumulator other than 2 containing the message identifier as a binary value (range 1 - 4095)

FUNCTIONS

The macro calls a subroutine which sets parameters in the parameter area set up by a preceding £TEOS macro so that TPS will retrieve the given message and add it to the character string being built up for output in the message area associated with the Control Block. This macro must therefore only be used in conjunction with the above macro.

REFERENCE

Part 1, Section 3.2.

£TNRT - Change to a New Application Routine Train

FORMAT £TNRT A,B,C

PARAMETERS

A A three or four alpha character Message Identifier or the number of an accumulator (other than 2) which contains the message identifier, left justified.

B A numeric parameter defining the displacement in the new A.R. Train.Alternatively X, in which case parameter C is relevant. The parameter is optional, and may be omitted if not required.

C If B is not set to X, C is not present, if present it is the number of an accumulator other than 2 containing the displacement in the new train.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block that cause TPS to route the transaction to the stated location in the A.R. train associated with the identifier in parameter A. This Identifier need not be a genuine message type, but must be defined at generation time in Form 23, linked to a train defined in Form 4.

£TNRT generates an exit from the current A.R. and is not followed by a £TNXT.

REFERENCE

Part 1, Section 3.3.

£TNXT - Enter TPS to pass control to the next Application Routine

FORMAT £TNXT A,B

PARAMETERS

A The "step" factor along the Application Routine Train. If the parameter is omitted, a value of 1 will be assumed. Alternatively A may be set to X, in which case B will be relevant.

B If A is not set to X B is not present. If present it is a single character numeric parameter identifying an accumulator other than 2 containing the stepping factor as a binary value.

FUNCTIONS

The Macro calls a subroutine which carries out the following functions:

1 Store the user's accumulators (except 2) in the Control Block.

2 Set the Application Routine Parameter in the Control Block to indicate that control is to be passed as governed by parameter A. (When entry is made to TPS, the parameter will be applied to the Application Routine Train, and the new Application Routine identified).
The current Application Routine will be marked as "finished with."

3 Clear the Re-entry parameter in the Control Block to zero.

4 Retrieve the stored link to TPS. When the subroutine EXITs, an instruction generated "in line" in the Application Routine EXITs to TPS.

REFERENCE

Part 1, Section 3.3.

£TOFC

£TOFC - Open a File (conditionally)

FORMAT £TOFC A

PARAMETERS

A File Name - the 'Logical' file name. See Section 1.5.1.

FUNCTIONS

The Macro calls a subroutine which sets parameters so that the file named will be opened if currently closed. If the file is already open no action is taken and no error is reported as opposed to the action of £TOPF which would report an error. A record is made of the number of calls to this Macro for each file, and this value is used to control the action of the Conditional Close function which will not close the file unless there have been as many Close requests as Open requests.

REFERENCE

Part 1, Section 3.1.

£TOPF - Open a File

FORMAT £TOPF A

PARAMETERS

A File Name - the 'logical' file name - see section 1.5.1.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that the file named will be opened in accordance with the parameters set up in the file specification.

REFERENCE

Part 1, Section 3.1.

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£TOPT

£TOPT - Open a Terminal

FORMAT £TOPT A

PARAMETERS

A The number of an accumulator (other than 2) containing the system's internal number of the terminal to be opened.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block which cause TPS to set the status of the terminal to "Open". In most environments this merely removes a software trap within TPS thus allowing data from the terminal to be received into the system, but in a 7903 or Communications Manager environment it issues the necessary 'supervisories" to open the terminal in the external software. In a George 3 environment it also issues the necessary Attach command via the GDR link.

REFERENCE

Part 1, Section 3.2.

£TOUT - Output a Standard Screen Format

(Note: This macro is part of the Phase 1 interface, and is not usable in a series commencing with £TEOS)

FORMAT £TOUT A,B,C,D,E,F

PARAMETERS

A Clear Screen indicator. CS to clear the screen, otherwise omitted.

B Screen Identifier. Four alpha characters, or a single numeric parameter identifying an accumulator (other than 2) which contains the four alpha character screen identifier. If no format is to be used this parameter may be omitted.

C,D Co-ordinates defining the Final Cursor Position. See Section 1.5.3.

E Address of an area large enough to hold the parameters generated by the series of output macros of which this is the first (i.e. 2N - 1 where N is the number of macros in the series). In the format N(M) or symbolic name. M may not be 2.

F Terminal Identifier (the system number). If this parameter is omitted the output will be directed to the terminal which originated the current transaction. (1 - 4095).

FUNCTIONS

The macro sets parameters in the Control Block and in the area nominated in Parameter E so that TPS will retrieve the required screen format and set it up in the Message Area associated with the Control Block for output to the nominated terminal. If no format is to be used , the major output parameters are set ready for a "message" or for "text" to be added by the appropriate subsequent Macros.

REFERENCE

Part 1, Section 3.2.

£TPCD - Cancel a Print Demand

FORMAT £TPCD A,B,C

PARAMETERS

A File Name of the Print Well. The 'logical' file name. See Section 1.5.1.

B Stream Identifier. See Section 1.5.2.

C Demand Identifier. See Section 1.5.2.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will delete the demand record from the demand index if the demand was not current. If the demand was current the end-of-stream procedure is triggered. Only one cancel request can be issued in processing each message pair.

REFERENCE

Part 1, Section 3.11.

£TPDS - Delete a Print Stream

FORMAT £TPDS A,B

PARAMETERS

A File Name of the Print Well. The 'logical' file name. See Section 1.5.1.

B The Stream Identifier. See Section 1.5.2.

FUNCTIONS

The macro sets parameters in the Control Block so that TPS will check that there are no demands outstanding for this stream, and note that the stream is to be destroyed. If the check fails an error reply is returned. Subsequentely, when the Control Block is released (in response to a £TEND) TPS will delete the stream from the Print Well. Only one £TPDS may be issued during the processing of any one message pair.

REFERENCE

Part 1, Section 3.11.

£TPOD - Request Output of a Print Stream

FORMAT £TPOD A,B,C,D,E,F,G,H

PARAMETERS

A File Name of the Print Well. The "Logical" file name. See Section 1.5.1.

B The Stream Identifier. See Section 1.5.2.

C The Demand Identifier. See Section 1.5.2.

D The number of an accumulator (other than 2) containing the priority of the demand in the range 0 - 4095.

E The number of an accumulator (other than 2) containing the terminal identifier of the printer to which the stream is to be sent.

F The number of an accumulator (other than 2) containing an indicator defining Header and Trailer requirements, with one of the following values:
0 - no action.
1 - Stream and Demand identifier preamble and postscript required.
2 - confirmation at the demanding terminal of completion required in addition to 1.

G The number of an accumulator (other than 2) containing the Destroy/Save Depth parameter with one of the following values:
0 : each bucket in the stream is released when its data has been output.
1-8 : the stream is destroyed on output, but the specified number of restart points is retained.
negative : the stream is not destroyed.

H The number of an accumulator (other than 2) containing the output control parameter, with the following values:
0 - no control.
1 - print only when section end is inserted into the stream.
2 - release printer at section end.

FUNCTIONS

The macro calls a subroutine which sets parameters in the Control Block so that TPS will create a Print Demand Record in the Print Demand Index.

Contd.

The request will be rejected with an error response if a previous demand for the output of the stream has specified that it is to be destroyed.

Subsequently, when the Control Block is released (in response to £TEND) TPS will enter the Print Schedule to see if the demand is to be actioned.

REFERENCE

Part 1, Section 3.11.

£TRA - Reset Access Status

FORMAT £TRA A

PARAMETERS

A The number of an accumulator containing the terminal identifier of the terminal to be affected. This parameter is optional; if it is omitted the terminal inputting the current transaction will be affected.

FUNCTIONS

The macro calls a subroutine which sets the parameters in the Control Block so that TPS will set the Access Status of the nominated terminal back to that generated as its "start of run" state - i.e. cancelling any dynamically acquired access rights.

REFERENCE

Part 1, Section 3.2

£TRB - Read a Specific Bucket

FORMAT £TRB A,B,C,D,E

PARAMETERS

A File Name - the 'logical' file name, not the Executive File name - see section 1.5.1.

B Address of the Area to receive the data, in the format N(M) or symbolic name. M may not be 2.

C Lock Parameter. L if a lock is required, otherwise omitted.

D Accumulator other than 2 containing the length of data to be transferred (in words). If omitted the whole bucket is transferred.

E Accumulator other than 2 containing the required LBN

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will read the Bucket with the specified LBN from the file currently open under the given name and transfer the data directly into the user's area. The specific number of words of data is transferred.

REFERENCE

Part 1, Section 3.1.

£TRBM - Read "Multiple Buckets"

FORMAT £TRBM A,B,C,D,E

PARAMETERS

A File Name - the 'logical' file name, not the Executive File Name, see section 1.5.1.

B Address of the Area to receive the data, in the format N(M) or symbolic name. M may not be 2.

C Lock Parameter. L if a lock is required, otherwise omitted.

D Accumulator other than 2 containing the length of data to be transferred (in words).

E Accumulator other than 2 containing the required LBN.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will read from the start of the Bucket with the specified LBN from the file currently open under the given name and transfer the data directly into the user's area. The specific number of words of data is transferred in a single transfer without regard to the end of bucket.

REFERENCE

Part 1, Section 3.1.

£TRBN - Read this terminal's Next Bucket

FORMAT £TRBN A,B,C,D

PARAMETERS

A File name - the 'logical' file name, see section 1.5.1, not the Executive File name; up to 11 characters, alphabetic.

B Address of the area to receive the data, in the format N(M) or symbolic name. M may not be 2.

C Lock Parameter. L if a lock is required, otherwise omitted.

D Accumulator other than 2 containing the length of data to be transferred (in words). If omitted, the whole bucket is transferred.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will read the next bucket from the file currently open under the given name. The "next" bucket is identified as that following the last one read serially in connection with a message from the terminal making the current request. The data is transferred directly to the user's area.

REFERENCE

Part 1, Section 3.1.

£TRBS - Read the next Bucket Serially

FORMAT £TRBS A,B,C,D

PARAMETERS

A File name - the 'logical' file name, see section 1.5.1.

B Address of the area to receive the data, in the format N(M) or symbolic name. M may not be 2.

C Lock Parameter. L if a lock is required, otherwise omitted.

D Accumulator other than 2 containing the length of data to be transferred (in words). If omitted, the whole bucket is transferred.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will read the next bucket from the file currently open under the given name. The "next" bucket is identified as that following the last one read serially. The data is transferred directly to the user's area.

REFERENCE

Part 1, Section 3.1.

£TRM - Reset the Message

FORMAT £TRM A

PARAMETER

A Format identifier. A three or four character identifier, or the number of an accumulator (other than 2) containing the identifier, left justified. The parameter is optional, and may be omitted if not required. If inserted it is stored as / the "Expected Message".

FUNCTIONS

This macro is provided for use in conjunction with the "XPRE" facility when the screen is logically reset without actually being cleared by the transmission of the "Clear Screen" command from the program. It clears the current contents of the XPRE area in the TCR, and adds back the format as though already displayed (i.e. without including it in the current transmission).

REFERENCE

Part 1, Section 3.2.

£TRPO - Resume the Output of a Print Stream

FORMAT £TRPO A,B,C,D,E,F

PARAMETERS

A File Name of the Print Well. The "logical" file name, see Section 1.5.1.

B The Stream Identifier. See Section 1.5.2.

C The Demand Identifier. See Section 1.5.2.

D The number of an accumulator (other than 2) containing the priority of the demand in the range 0 - 4095.

E The number of an accumulator (other than 2) containing the Restart Parameter with the following significance:
0 - continue from current position.
-n - go back n restart points. (n may be 1-8)
m - commence printing m restart points from the start of the stream (m may be 1 - 4095; a value of 1 = start of stream).

F The number of an accumulator (other than 2) containing the Line-up parameter with the following significance:
0 - no action
1 - repeat line-up procedure using the line-up records from the start of the stream, if present.

FUNCTIONS

The macro calls a subroutine which sets parameters in the Control Block so that TPS will update the status, priority, and line-up requirements of the demand in the demand record (the demand having been previously suspended by a £TSPO call). Subsequently, when the Control Block is released (in response to £TEND) TPS will enter the Print Scheduler to see if the demand is to be actioned. When the output is resumed, it is begun in accordance with the settings of parameters E and F.

REFERENCE

Part 1, Section 3.11.

£TRPR - Reset the Priority of a Print Demand

FORMAT TRPR A,B,C,D

PARAMETERS

A File Name of the Print Well. The "logical" file name, see section 1.5.1.

B The Stream Identifier, see section 1.5.2.

C The Demand Identifier, see section 1.5.2.

D The number of an accumulator (other than 2) containing the new priority of the demand, in the range 0 - 4095.

FUNCTIONS

The macro calls a subroutine which sets parameters in the Control Block so that TPS will change the priority of the demand in the demand record to that specified.

REFERENCE

Part 1, Section 3.11.

£TRR - Read a Specific Record

FORMAT TRR A,B,C,D,E

PARAMETERS

A File Name - the 'logical' file name, see section 1.5.1.

B Address of the area to receive the data in the format N(M) or symbolic name. M may not be 2

C Lock parameter. L if a lock is required otherwise omitted.

D If LBN is known this parameter is the number of Accumulator containing it. Otherwise omitted. Accumulator 2 may not be used.

E Address of the Key of the record to be read. In the format N(M) or symbolic name. M may not be 2.

FUNCTIONS

The Macro calls a subroutine which sets up parameters in the Control Block so that TPS will read the specified record from the file currently opened under the given name. If the LBN is not stated, the record will be located by the method applicable to the file as defined in the File Spec. (e.g. by index search). If a lock is requested, it will be applied to the bucket read. The transfer will be made into a buffer supplied by the File Manager, and the record will be moved into the user's Area.

REFERENCE

Part 1, Section 3.1.

£TRRN - Read this terminal's Next Record

FORMAT £TRRN A,B,C

PARAMETERS

A File Name - the 'logical' file name, see section 1.5.1.

B Address of the area to receive the data, in the format N(M) or symbolic name. M may not be 2.

C Lock Parameter. L if a lock is required, otherwise omitted.

FUNCTIONS

The Macro calls a subroutine which sets up parameters in the Control Block so that TPS will read the next record in sequence from the file currently open under the given name and place it in the stated area. The "next" record will be identified by the method appropriate to the structure of the file as defined in the File Spec, and will be the next data record in logical sequence following the last one read in connection with a message from the terminal making the current request. If the file has no logical sequence, the next record in physical location will be brought. If a lock is requested it will be applied to the bucket read. The transfer will be made into a buffer supplied by the File Manager, and the record moved to the user's area.

REFERENCE

Part 1, Section 3.1.

£TRRS - Read the next Record in Sequence

FORMAT £TRRS A,B,C

PARAMETERS

A File Name - the 'logical' file name, see section 1.5.1.

B Address of the area to receive the data, in the format N(M) or symbolic name. M may not be 2.

C Lock parameter. L if a lock is required, otherwise omitted.

FUNCTIONS

The Macro calls a subroutine which sets up parameters in the Control Block so that TPS will read the next record in sequence from the file currently open under the given name and place it in the stated area. The "next" record will be identified by the file as defined in the File Spec, and will be the next data record in logical sequence. If the file has no logical sequence, the next record in physical location will be brought. If a lock is requested it will be applied to the bucket read. The transfer will be made into a buffer supplied by the File Manager, and the record moved to the user's area.

REFERENCE

Part 1, Section 3.1.

£TRTC - Read a Terminal Control Record

FORMAT TRTC

PARAMETERS

None

FUNCTIONS

The macro calls a subroutine which sets parameters in the Control Block so that TPS will read the Terminal Control Record into the TCR area. The record retrieved will be that for the terminal whose number is currently held within the Control Block. It will overwrite the contents of the TCR. To read another terminal's TCR it will therefore be necessary to enter that terminal's number in the Control Block, and if the current contents of the TCR are to be preserved they must first be written away using £TWTC.

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£TSA

To be issued.

£TSD - Send output to a terminal Direct from the Message Area.

FORMAT £TSD A, B, C, D

PARAMETERS

A Format Identifier to be stored as the "expected message". Three or four alpha characters, or the number of an accumulator (other than 2) containing the identifier left justified. This parameter is optional and may be omitted if not required.

B The "Save" parameter. It has one of the following values:

1 - save the data for "XPRE" clearing the current contents of the XPRE area.

2 - save the data for "XPRE" adding into the current data saved.

3 - do not save for "XPRE"

C The number of an accumulator (other than 2) containing the length in characters of the output data, in the range 1-2047.

D The number of an accumulator (other than 2) containing the identifier of the terminal to receive the data. This parameter is optional; if it is omitted the data is sent to the terminal which originated the current input message.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will transmit the contents of the message area, without alteration, to the nominated terminal. The text to be transmitted, which must be in its correct form, including all control characters, will be found starting from the second word of the message area; the character count given in parameter C will be set by the subroutine into the first word of the area and used to limit the output. According to the setting of parameter B the data may be stored in the TCR for use in response to the XPRE function.

REFERENCE

Part 1, Section 3.2.

£TSET

£TSET - Reset on entry to Application Routine.

FORMAT £TSET A, B

PARAMETERS

A If the symbolic name TPSLINKn is used in the AR, A must be the highest value of n used.

B If the symbolic name TPSCHAINm is used in the AR, B must be the highest value of m used.

Note: These parameters are used to produce the required evaluations by # DEFINE. The symbolic names are typically used in accessing the store areas linked to the Control Block or in obtaining cells of store through the Dynamic Store system. Each may be omitted if not required.

FUNCTIONS

The Macro incorporates statements to evaluate the symbolic names used by TPS and by the user programmer.

It also calls a subroutine which carries out the following actions:

1. Store the value of the link accumulator for EXIT purposes.

2. Restore the user's accumulator values held within the Control Block (with the exception of X2 which contains the address of the Control Block.)

3. Retrieve the re-entry point stored in the Control Block, and continue processing at that point within the Application Routine.

REFERENCE

£TSL - Set a file lock.

FORMAT £TSL A

PARAMETERS

A File Name - the 'logical' file name. See Section 1.5.1.

FUNCTIONS

The Macro calls a subroutine which sets up parameters in the Control Block so that TPS will set a lock on the nominated file.

REFERENCE

Part 1. Section 3.1.

£TSPO - Suspend the Output of a Print Stream.

FORMAT £TSPO A, B, C

PARAMETERS

A File Name of the Print Well. The 'logical' file name, see Section 1.5.1.

B The Stream Identifier - see Section 1.5.2.

C The Demand Identifier - see Section 1.5.2.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will mark the specified Demand "suspended" if it is not current. If the Demand is current TPS will (when the present processing ends with £TEND) terminate the printing according to the following rules:

Printing by Section - continue until section end.

Destroying the stream but saving a number of restart points - continue until next restart point.

Otherwise, no further output to the printer. The demand is then marked "suspended"

REFERENCE

Part 1, Section 3. 11.

£TTXI - Add user variable Text to a screen and include for XPRE

FORMAT £TTXI A, B, C, D

PARAMETERS

A, B Screen co-ordinates at which the message is to appear. See section 1.5.3.

C Address of the text in store, in the format N(M) or symbolic name, or a single numeric character identifying an accumulator other than 2 which contains the address of the text. In this case the address may be a character address. If the form N(M) is used, M must not be 2.

D Number of an accumulator other than 2, containing the length in characters of the text.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the parameter area set up by a preceding £TEOS macro, so that TPS will add the given text to a character string being built up for output in the Message Area associated with the Control Block. This macro must therefore only be used in conjunction with the above macro. The immediate action taken with regard to the text is governed by the parameters set to £TEOS; it may be left where it is or moved to interim storage, or moved directly to the XPRE area in the TCR.

REFERENCE

Part 1 Section 3.2.

£TTXT

£TTXT - Add user variable Text to a screen.

FORMAT £TTXT A, B, C, D

PARAMETERS

A,B Screen co-ordinates at which the message is to appear. See Section 1.5.3.

C Address of the text in store, in the format N(M) or symbolic name, or a single numeric character identifying an accumulator other than 2 which contains the address of the text. In this case the address may be a character address. When used in conjunction with £TOUT, £TBDC or £TLST, if this parameter is omitted the software will assume that the text constitutes the whole of the output message and that it is already correctly positioned within the Message Area. In this case A and B must also be omitted. If the form N(M) is used, M must not be 2.

D Number of an accumulator other than 2, containing the length in characters of the text.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the parameter area set up by a preceeding £TEOS macro, so that TPS will add the given text to a character string being built up for output in the Message Area associated with the Control Block. The immediate action taken with regard to the text is governed by the parameters set to £TEOS; it may be left where it is or moved to interim storage, or moved directly to the XPRE area of the TCR.

The macro may also be used as part of the phase 1 interface, in which case it is used in conjunction with £TOUT, £TBDC, or £TLST.

REFERENCE

Part 1, Section 3.2.

£TWB - Write a Specific Bucket

FORMAT £TWB A,B,C,D,E

PARAMETERS

A File name - the 'logical' file name, see section 1.5.1.

B Address of the start of the data, in the format N(M) or symbolic name. M may not be 2.

C Lock parameter. L if a lock is required, otherwise omitted.

D Accumulator other than 2 containing the length of data to be transferred (in words). If omitted, the whole bucket is transferred.

E Accumulator other than 2 containing the required LBN.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block, so that TPS will write data from the user's area to the bucket specified in the file currently open under the given name.

REFERENCE

Part 1 Section 3.1.

£TWBM - Write "Multiple Buckets"

FORMAT £TWBM A,B,C,D,E

PARAMETERS

A File name - the 'logical' file name, see section 1.5.1.

B Address of the start of the data, in the format N(M) or symbolic name. M may not be 2.

C Lock parameter. L if a lock is required, otherwise omitted.

D Accumulator other than 2 containing the length of data to be transferred (in words). If omitted, the whole bucket is transferred.

E Accumulator other than 2 containing the required LBN.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block, so that TPS will write data from the user's area starting at the bucket specified in the file currently open under the given name. The specified number of words of data is transferred in a single transfer without regard to the end of bucket.

REFERENCE

Part 1 Section 3.1.

£TWBN - Write this terminal's Next Bucket

FORMAT TWBN A,B,C

PARAMETERS

A File Name - the 'logical' file name see section 1.5.1.

B Address of the start of the data in the format N(M) or symbolic name. M may not be 2.

C Lock parameter. L if a lock is required, otherwise omitted.

D Accumulator other than 2 containing the length of data to be transferred (in words). If omitted, the whole bucket is transferred.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will write data from the user's area to the next bucket in the file currently open under the given name. The "next" bucket is identified as that following the last one written serially in connection with a message from the terminal making the current request. The specified number of words of data is transferred directly from the user's area.

REFERENCE

Part 1, Section 3.1.

£TWBS

£TWBS - Write the next Bucket in Series

FORMAT £TWBS A,B,C,D

PARAMETERS

A File Name - the 'logical'file name see section 1.5.1.

B Address of the start of the data in the format N(M) or symbolic name. M may not be 2.

C Lock parameter. L if a lock is required, otherwise omitted.

D Accumulator other than 2 containing the length of data to be transferred (in words). If omitted, the whole bucket is transferred.

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will write data from the user's area to the next bucket in the file currently open under the given name. The "next" bucket is identified as that following the last one written serially. The specified number of words of data is transferred directly from the user's area.

REFERENCE

Part 1 Section 3.1.

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£TWJE

£TWR

£TWR - Write a Specific Record which is not already present on the file.

FORMAT £TWR A,B,C,D

PARAMETERS

A File Name - the 'logical'file name, see section 1.5.1.

B Address of the data to be transferred, in the form N(M) or symbolic name. M may not be 2.

C Lock Parameter; L if a lock is required otherwise omitted.

D If the LBN is known, this Parameter is the number of the Accumulator containing it. May be omitted if not required. Accumulator 2 may not be used.

FUNCTIONS

The Macro calls a subroutine which sets up parameters in the Control Block so that TPS will write the specified record to the file currently open under the given name. If the LBN is not stated it will be calculated by the method appropriate to the file as defined in the file spec., (e.g. by index search). The bucket will be read into a buffer supplied by the File Manager and the record moved into it from the user's Area. If a Lock is requested it is applied to the bucket read.

REFERENCE

Part 1, section 3.1.

£TWRB - Write Record Buffered.

FORMAT £TWRB A, B

PARAMETERS

A File Name - the 'logical' file name, see section 1.5.1.

B Address of the data to be transferred, in the format N(M) or symbolic name. M may not be 2.

FUNCTIONS

The Macro calls a subroutine which sets up parameters in the Control Block so that TPS will insert the record in the current buffer for this file or, when there is inadequate space, write the buffer to disc and then insert the record at the start of the buffer, having updated its LBN pointer.

REFERENCE

Part 1, Section 3.1.

£TWRN

£TWRN - Write this terminal's Next Record

FORMAT £TWRN A,B,C

PARAMETERS

A File Name - the 'logical' file name. See section 1.5.1.

B Address of the data to be transferred, in the format N(M) or symbolic name.M may not be 2.

C Lock Parameter. L if a lock is required, otherwise omitted.

FUNCTIONS

The Macro calls a subroutine which sets up parameters in the Control Block so that TPS will write the given record as the next in sequence to the file currently open under the given name. "Next" is here defined as the next in logical sequence following the last written in connection with a message from the terminal making the current request. If the file has no logical sequence, the record will be written as the next in physical location. The appropriate bucket will be read into a buffer supplied by the File Manager, and the record moved into it from the user's Area.

REFERENCE

Part 1 Section 3.1.

£TWRS - Write the next Record in Sequence.

FORMAT £TWRS A,B,C

PARAMETERS

A File Name - the 'logical'file name. See section 1.5.1.

B Address of the data to be transferred in the format N(M) or symbolic name. M may not be 2.

C Lock Parameter. L if a lock is required, otherwise omitted.

FUNCTIONS

The Macro calls a subroutine which sets up parameters in the Control Block so that TPS will write the specified record to the file currently open under the given name. The record will be written as the next in logical sequence, according to the method defined in the File Spec. If the file has no logical structure, the record will be written to the next available physical location. The appropriate bucket will be read into a buffer provided by the File Manager, and the record moved into it from the user's Area.

REFERENCE

Part 1 Section 3.1.

£TWRU

£TWRU - Write a Specific Record, Updating one which is already present

FORMAT £TWRU A,B,C,D

PARAMETERS

A File Name - the 'logical' file name. See section 1.5.1.

B Address of the data to be transferred, in the form N(M) or symbolic name. M may not be 2.

C Lock Parameter; L if a lock is required, otherwise omitted.

D If the LBN is known, this Parameter is the number of the Accumulator containing it. May be omitted if not required. Accumulator 2 may not be used.

FUNCTIONS

The Macro calls a subroutine which sets up parameters in the Control Block so that TPS will write the specified record to the file currently open under the given name. If the LBN is not stated it will be calculated by the method appropriate to the file as defined in the file spec., (e.g. by index search). The bucket will be read into a buffer supplied by the File Manager and the record moved into it from the user's Area.

REFERENCE

Part 1, Section 3.1.

£TWT - Hold a transaction to wait for later processing.

FORMAT £TWT

PARAMETERS

None

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block that cause TPS to place the current transaction on the "WAIT" queue. The Control Block will not be released for further scheduling until another transaction has terminated.

£TWT generates an Exit in the same way as £TCAL, and control will eventually return to the instruction following the £TWT itself.

REFERENCE

Part 1, Section 3.7.

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£TWTC

£TWTC - Write a Terminal Control Record

FORMAT £TWTC

PARAMETERS

None

FUNCTIONS

The Macro calls a subroutine which sets parameters in the Control Block so that TPS will write away the contents of the TCR area as the TCR for the terminal whose number is currently held in the Control Block.