TPS

Interactive Operator

TPS

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1. INTRODUCTION

The Interactive Development System is designed to give users of ICL
1900 computers running under George 1+, 2 or 2+, or 2903/4 computers
running under ETS-2 or MTS, the online program development aids
usually associated with larger and more sophisticated computers and
operating systems. These facilities, further described below,
may be included along with applications transactions in a single TPS
program, or may be used as a separate free-standing utility program.
The major facilities provided by the package are:

- Editing data

- Manipulation of files

- Control of the running of jobs

- Remote printing from spool files.

A full description of the procedures required to include the Interactive
Development System along with user applications in a single TPS program
is given in Section 5 of this manual.

Details of console operating and the Standard TPS functions available
with free-standing Interactive Development System programs are given
in the Free-Standing TPS Programs manual.

The remote printing from spool files facility only is also available
as a TPS option (i.e. without the remaining IDS facilities). For
users of this option, only Sections 1, 6 and 7 of this manual are
relevant.

1.1   EDITING DATA

The editor combines comprehensive file addressing commands with the convenience of a screen editor. Four types of file structure are supported, namely:

> 'Simple' Subfiles   - i.e. the structure of COBOL source files
>
> 'Composite' Subfiles - i.e. the structure of source files for PLAN and RPG, as well as the "XMED" files used for operating system JCL
>
> Standard serial data files
>
> TPS 'edit files' (described below in Section 1.2)

Editing is achieved by giving the user access to a requested number of records by displaying them on the screen within a "window" of variable size. The ability to change the size of the window allows the user to display a larger number of lines when studying a file and editing it in context, but when making a defined change he can display only the line required, thus reducing the amount of data transmitted in and out, improving his own response time, and making the most economical use of a shared communications line.

The Editor operates by transcribing data from an input file, TPS 'edit file' or window to an output file. The window is used in conjunction with the commands 'Insert,' 'Delete' or 'Replace' to effect the required amendments to the file. Input file records are accessed by 'Position' or 'Transcribe' commands. Both these commands refer to an 'end-point', which can be either a record number or a character string with the record. Only these records that require amendment need be displayed, thus enabling the user to edit the file in a minimum number of screen displays. Editing commands may be used singly or in groups, and in either case may be repeated a specified number of times or to a defined end point.

Full details of the Editing Functions available are given in Section 2 of this manual.

1.2 MANIPULATING FILES

The Interactive Development System contains a set of commands which
enable a terminal user to perform the following functions:-

- Allocate, delete, extend or contract a file held on disc.

  These functions offer most of the facilities of the standard
  utility. XPJC, on a single screen display. A file may be
  allocated a specified block and cylinders. Alternatively, its
  location may be left to Executive.

- Copy the whole or a part of a file held on disc.

The TPS Edit Well,which is an extra TPS file structure introduced
with the Interactive Development System,provides the facilities of
a small file-store system. The terminal user can create an 'Edit
File and add data to it in any format. (Each Edit File can be
regarded as a subfile of the Edit Well). Typically, the terminal
user might set up operating system job control commands and user
data in an Edit File before submitting the job for execution. After
creating an edit file and inputting data to it, it may of course be
amended, using the Editor. A list of edit files currently within
the TPS Edit Well, and the contents of any specified edit file may
be displayed on request.

The commands available for File manipulation are fully described
in Section 3 of this manual.

1.3 CONTROLLING JOBS

The range of commands associated with the control of jobs is designed
so that the terminal user can exercise control over the submission of
his jobs and gain fast access to any output results.

The job commands are:-

-   Copy an edit file to the operating system spool file.
    This enables a job prepared as described above to be submitted
    for running.

-   Display a list of jobs or documents currently within the spool
    file. This allows the terminal user to check the status of his
    job, to see if it has been run.

-   Copy a spool file job or document to an edit file.
    This gives the terminal user the opportunity to see the results
    of the running of his job without waiting for a printed output.

It is important to note that although the facilities of the Interactive
Development System allow the terminal user to prepare jobs in the most
direct manner he is not with this set to facilities able to pre-empt
the control of the installation exercised by the central operator or
operating system. On the 2903, for instance, he may submit a job, and
even send a prompt to the central operator requesting it to be run,
but he may not actually initiate the run. This is of great significance
in relation to the small installation for which the Interactive
Development System is designed, where the injudicious running of a
long compilation might well have an undersirable impact on the running
or production jobs.

A full description of the commands associated with the control of jobs
is given in Section 4 of this manual.

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1.4 REMOTE PRINTING FROM SPOOL FILES

Users of 2903/4 systems, or 1900 users with George 1+, 2 or 2+ systems, frequently have the need to take the output of batch jobs and direct it to printers at remote locations. This is the straightforward bulk output activity which would normally be regarded as an RJE task. In practice, however, looking at it this way will often imply certain disadvantages. It may significantly increase the main store requirement at the CPU, especially if the loading of the RJE utility implies the need for Communications Manager in a system which does not otherwise need it. It may also imply either the need for a second 7502 or the prolonged interruption of interactive work while the output takes place, neither of which may be justifiable if the printed data itself is of secondary importance.

To overcome these problems TPS provides facilities for the output of data from the systems spool files through the online program itself. The original creation of the data by batch programs is not affected in any way; output documents are created just as they are for main-frame printing. Once a document is ready it may be transferred into the TPS print well on the input of a standard request from a terminal. While being transferred its contents are re-formatted for output to the remote printer. It is then stored as a "Stream" in the TPS print system, and all the facilities of that system for requesting its output to one or more printers, along with control functions (suspend, resume, etc.) are available.

The remote printing functions are described in Section 6 of this manual.

2.   THE EDITOR

2.1   Description

2.1.1   Outline

The Editor system comprises of two formats, the first (XEIN) being used to define the input/output files and display requirements.

The second (XEDT) is used to input the edit instructions, amend or delete the displayed lines or insert new ones.

Only those records that require amendment need be displayed, thus enabling the user to edit the file in a minimum number of screen displays.

2.1.2   The Window

The window is the device by which records are made available for editing; the number of records needed to fill the window are displayed at any one time. If a record is too long to be displayed on one line, a continuation character of a minus sign (-), is set as the last character of the first line, and the record continued on the next line.

Similarly when inputting a long record the last character of the first line must be set to a minus sign, and the record continued on the next line.

When using the window care must be taken in positioning the cursor at the end of the last line to be sent, to ensure that lines are not lost or inserted inadvertently.

2.1.3   Current line number

The current line number gives the position, relative to the start of the file, of the next input file record available for editing. It is also used as a method of addressing the input file in conjunction with the instructions 'Position' and 'Transcribe'.

2.2   XEIN

2.2.1 Description

XEIN is used to gain access to the editor system and will require file and screen details to be entered.

After validating the entered fields and successfully opening the input and output files, and the command file if specified, control is passed to the editing format XEDT. Once the XEDT screen has been displayed no other message type may be requested until edit has been ended.

If errors are found or the files cannot be opened the XEIN format will be returned with an appropriate error message displayed.

2.2.2 Entered Fields

1. Edit type

   This field is mandatory and specifies the type of file to be edited. Four types of file structure are catered for, namely:

   Simple file   - i.e. COBOL source file

   Composite file - i.e. Plan source file

                          RPG2 source file

                          XMED files

   Record file   - i.e. Normal serial data file

                          (N.B. maximum record length

                          31 words)

   Edit file   - i.e. TPS edit file

   field format X, where X is one of the following:

       S, C, R or E.

2. Input

   This field is mandatory and defines the disc file to be edited.

   field format   - filename (fgn)

   filename   = name of the input file

   fgn   = file generation number

   Note: The fgn field is optional and may be omitted.
         If it is omitted, the associated brackets should
         also be omitted and the highest generation
         number on line will be used.

·3. Output

This field is optional and defines the disc file
to accept the edited output.

field format - filename (fgn1 = fgn2)

file name   = name of the output file

>   Note: if the file name is omitted
>   the input file name is assumed.

fgn1   = generation number of the file to be

used.

>   Note: If fgn1 is omitted then fgn2 must
>   also be omitted together with
>   the associated brackets and equals
>   sign.
>   If filename has been specified then generation
>   zero will be used if fgn1 omitted.
>   If filename has not been specified the
>   default options are described below.

fgn2   = generation number to be given to the

output file.

>   Note: This field is not valid for TPS
>   Edit files. If fgn2 is omitted
>   the preceding equals sign should
>   also be omitted and the generation
>   number will remain unchanged.

Note 1. It is only valid to omit the whole of this field
        if a file generation number has not been
        specified for the input file. If no file
        generation number is specified for the input
        file the default action, if the whole of this
        field is omitted, will be as follows:-
        i) If the file type is S, C or R the highest
            generation number online, say 'n', will be
            opened for input, a file with the same name
            and generation number n-1 will be opened for
            output and renamed with generation number n+1.
        ii) If the file type is 'E' the highest generation
            number online, say 'n', will be opened for
            input and a new edit file with the same name
            and generation number n+1 will be created
            for output.

Note 2. If the file type is E it is not recommended
that an existing edit file is used for output.
This is because existing edit files that have
been closed once cannot be extended, or contracted.

Note 3. An error will occur if the effect of this field
is such that the input and output files have
the same name and generation number.

4.   Composite subfile ID

This field is only used when editing Composite
structured files i.e. the Edit type is C.

Field format   - Subfile/Segment

Subfile   = Name of the first subfile to be edited.

Segment   = Name of the first segement, contained
within the subfile, which is to be
edited. This field is optional and
may be omitted; if it is omitted the
preceding solidus should be omitted.
If omitted the first segment within the
subfile is edited.

Note: Several segments and subfiles may be edited within
a call to the editor; amendments must be input in
the order in which the subfiles/segments are present
in the input file. Unamended subfiles and segments
will be copied to the output file. This field may
be omitted; in this case the first segment of the
first subfile is amended.

5.   Alternative Window Size

Optional field, used to specify an alternative window
size for the first screen of data displayed.

Field format- nn
            nn gives the number of lines to be
            displayed in the window.

If the field is omitted the default window size is
seven lines less than the number of lines on the
screen.

6. COBOL Resequencing

This field indicates that COBOL lines are to be
resequenced before they are written to the output file.
The first line will be numbered 0001000 and subsequent
line numbers will be incremented by 100. This option
may only be specified for COBOL files.

Field format - Y or N

Y   = Resequence COBOL lines

N   = Do not resequence.

This field is optional and may be omitted. The default
value is N.

7. Command File Name

Force the editor to obey commands from a command file
rather than through the XEDT screen. The command file
must be an existing TPS Edit File. The commands
contained in the command file may not be window
instructions, but may be any other valid editor commands.
The maximum length within a command file is 40
characters. The commands will be obeyed in sequence,
if an invalid command is encountered an XEDT screen
will be displayed indicating the error and the point
the edit has reached. If the command file does not
contain an E command, control will be passed to an
XEDT screen when all commands have been obeyed.

Field format - file name (fgn)

File name   = name of the TPS Edit file containing
                   the commands to be obeyed.

fgn   = file generation number

Note: If fgn is omitted, the associated brackets should
      also be omitted and the highest generation on
      line will be used.

2.2.3 Examples

1. Edit a COBOL source called SOURCE-TP01, generation 1.
   Output to SOURCE-TP01, generation 0, changing the
   generation to 2. Resequencing is required. Generation
   1 is highest version SOURCE-TP01 online

               Edit type   [S]
               Input   [SOURCE-TOP01]
               Output   [   ]
        Composite Subfile ID   [   ]
        Alternative Window Size   [ ]
        COBOL line Resequencing ?   [Y]

2. Edit a Plan source called TPS-SOURCE, generation 1.
Output to TEST-SOURCE, generation 1 changing the
generation to 2.

The input is a composite file with the segment to be
edited called VALIDATE contained with a subfile
called TP01.

Change the window size to 10 lines

```
    Edit type            [C]
    Input                [TPS-SOURCE (1)]
    Output               [TEST-SOURCE(1=2)]
Composite Subfile ID'    [TP01/VALIDATE    ]
Alternative Window Size  [10]
```

3. Edit a TPS Edit file called TPSEDIT1 generation 6,
which is the highest generation of this file online.
Output to a TPS Edit file called TPSEDIT1 Generation
7 which is to be created.

The edit is to be controlled by the command file, which
is a TPS Edit file, called TPSCOMFILE Generation 10.

```
    Edit type            [E]
    Input                [TPSEDIT1        ]
    Output               [                ]
Composite Subfile ID     [                ]
Alternative Window Size  [ ]
COBOL Line Resequencing? [ ]
Command File Name        [TPSCOMFILE(10) ]
```

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2.3 XEDT

2.3.1 Description

Editing is achieved by entering Instructions in the instruction field. Several instructions may be entered, each separated by a comma, although multiple instructions that use the window are not recommended.

3 types of instruction exist, namely:

Instructions that use the window,
Instructions that address the input file, and
miscellaneous instructions.

2.3.2 Window instructions

1. **Delete**

Format	-	D
Function	-	Do not copy the lines currently displayed in the window to the output file.

2. **Insert**

Format	-	I
Function	-	Insert the lines currently displayed in the window onto the output file.

3. **Replace**

Format	-	R
Function	-	Replace the original contents of the window by the new contents.
Note:		The window size may need amending if a different number of lines are being replaced than originally displayed.

4. **Window**

Format	-	Wn
Function	-	Change current window size to n.

2.3.4 File addressing Instructions

1. Position

Format 1	–	Pn
Function	–	Position the input file n records from the current line number.
Format 2	–	P#n
Function	–	Position the input file to record number n.
Format 3	–	PC/string/
Function	–	Position the input file to a line containing 'String'.
Format 4	–	PS/string/
Function	–	Position the input file to a line starting with 'string'.
Format 5	–	PE
Function	–	Position to the end of the input file.

Note: The position command does not write records to the output file.

Using format 2 you may position to a point before the current line number.

2. Transcribe

Format 1	–	Tn
Function	–	Copy n records from the input file to the output file.
Format 2	–	T#n
Function	–	Copy records from the input file to the output file until record number n is read.
Format 3	–	TC/string/
Function	–	Copy records from the input file until a record containing 'string' is encountered.
Format 4	–	TS/string/
Function	–	Copy records from the input file to the output file until a record starting with 'string' is encountered.

Format 5 -   TE

Function -   Copy the remaining input file to the output file.

Note: When using this Instruction the preceding 'T' may be omitted, except for TE.

Attempted backward 'transcription' will result in an error.

3.   Replace 'string A' by 'string B'

Format   -   R/string A/string B/

Function -   Within the current record replace string A by string B and write the amended record to the output file.

Note: String A and string B may be of different lengths.

4.   Replace first occurrence of 'string A' by 'string B'

Format   -   RF/string A/String B/

Function -   Within the current record replace only the first occurrence of string A by string B and write the amended record to the output file.

Note: String A and string B may be of different lengths.

5.   Introduce Edit File as a Merge File

Format   -   Mfilename(n)

Function -   Switch the input file to the TPS Edit file filename with generation number n. If the generation number is omitted the associated brackets should also be omitted and the highest generation number available will be used. Records may then be transferred from the window to the output file using normal edit commands.

To return to the original input file the command M should be used with no parameter.

The TE or PE commands when a merge file is in use will transcribe or position to the end of the merge file.

The E command when a merge file is in use will transcribe to the end of the merge file and then to the end of the original input file and then end the edit.

When a merge file is in use a search for a string will search only within the merge file.

·2.3.5 File Addressing Instructions - Composite Files Only

The commands described in this section may be used when
editing a composite file in order to edit more than one
subfile/segment during one pass of the file. Subfiles/
segments may also be deleted, inserted or renamed if
required.

Subfiles/segments must be edited in the order in which
they appear in the input file. When any of the commands
numbered 1 to 6 below are input, the segment currently being
edited is copied to the end, before obeying the command.
If the specified subfile/segment is not found on the input
file, an error message is displayed and the current position
in the input file will remain at the end of the segment
last edited: the command next entered must then be one
of those described in this section.

1.   Delete a subfile

        Format   - DSF (subfilename)

        Function   -   this may be used to delete the
                            subfile currently being edited, or
                            to delete a subfile present later in
                            the input file. In the latter case
                            any subfiles/segments following the
                            last edited segment and preceding
                            the specified subfile in the input
                            are copied to the output file. The
                            specified subfile is not copied to the
                            output file, and a blank XEDT screen
                            with the message 'SUBFILE DELETED'
                            is displayed. The use of many of the
                            editing instructions at this point will
                            be flagged as "INCONSISTENT' until a
                            new subfile/segment is specified for
                            editing.

2.   Delete a segment

        Format   -   DSG (subfile/segmentname)

        Function   -   this may be used to delete the segment
                            currently being edited, or to delete a
                            segment present later in the input file.
                            In the latter case, any subfiles/segments
                            following the last edited segment and
                            preceding the specified segment in the
                            input are copied to the output file.
                            The specified segment is not copied to
                            the output file, and a blank XEDT screen
                            with the message 'SEGMENT DELETED' is

displayed. The use of many of the
editing instructions at this point
will be flagged as 'INCONSISTENT'
until a new subfile/segment is
specified for editing.

3.   Edit a subfile

   Format   -   ESF (subfilename)

   Function   -   Copy to the output file any subfiles/
                    segments following the last edited
                    segment and preceding the specified
                    subfile in the input file. Display
                    details from the first segment for
                    editing. (The segment may then be
                    edited using the standard commands).

4.   Edit a segment

   Format   -   ESG (subfilename/segmentname)

   Function   -   Copy to the output file any subfiles/
                    segments following the last edited
                    segment and preceding the specified
                    segment in the input file. Display
                    details from the segment for editing.
                    (The segment may then be edited
                    using the Standard commands).

5.   Insert a subfile

   Format   -   NSF (subfilename)
                or NSF (subfilename/segmentname)

   Function   -   Copy to the output file the remainder
                    of the subfile currently being edited.
                    Display a blank XEDT screen with the
                    message 'START OF NEW SEGMENT'. The
                    first segment of the new subfile is
                    then input, using the Insert (I) or
                    Merge (M) instructions (the merge
                    instruction allows the new segment to
                    be input into an edit file initially).
                    If no segment name is specified, a
                    name of spaces is used.
                    Note that if a PLAN segment is inserted
                    the first line of the segment must be a
                    #STEER statement. If this is ommitted,
                    any attempt to compile the segment is
                    likely to result in the compiler going
                    illegal.

6.   Insert a segment

    Format   -   NSG (subfilename/Segmentname)

    Function   -   This command allows the insertion
    of a new segment into the subfile
    currently being edited, or into a
    subfile present later in the input
    file. A segment inserted into the
    current subfile is inserted following
    the current segment. For a segment
    inserted into a subsequent subfile,
    any subfiles/segments following the
    last edited segment and preceding
    the specified subfile in the input
    are copied to the output file; the
    new segment is inserted at the start
    of the specified subfile. In either
    case a blank XEDT screen with the
    message 'START OF NEW SEGMENT' is
    displayed. The new segment is then
    input, using the Insert (I) or Merge
    (M) instructions (the merge instruction
    allows the new segment to be initially
    input into an Edit file).
    Note that if a PLAN segment is inserted
    the first line of the segment must be a
    #STEER statement. If this omitted,
    any attempt to compile the segment is
    likely to result in the compiler going
    illegal.

7.   Rename a subfile

    Format   -   RSF (subfilename)

    Function   -   give the subfile currently being
    edited the new name specified on
    output. The current pointers to the
    input and output files are not altered.

8.   Rename a segment

    Format   -   RSG (segmentname)

    Function   -   give the segment currently being
    edited the new name specified on
    output. The current pointers to the
    input and output files are not altered.

2.3.ō Miscellaneous Instructions

1. **End**

Format	-	E
Function	-	Copy the remaining input file to the output file and end the edit.

2. **Forget**

Format	-	F
Function	-	Forget the previous instructions and reinstate the files and window to their position prior to the instructions being carried out.

   Successive use of this command is not supported.

3. **Maximum Line Length**

Format	-	Ln
Function	-	Truncate output records to n characters. The maximum value and default value for n is 120 characters.

4. **Omnibus Character**

Format	-	On
Function	-	Specifies that the character n is to be treated as an omnibus character when it occurs within a string. This character, when used in strings which are to be compared to the text of the input file, is matchable with any character in the input file text.

   A parameterless O instruction will cause any previous omnibus character to be forgotten without substituting a new one. The omnibus character may not be a space or a comma.

   For example if '*' is specified as the omnibus character then the string /A**B/ would match any string with A as the first character and B as the fourth character.

5. Quit

    Format   -   Q

    Function   -   Abandon the edit

                           If a TPS Edit file is being edited
                           the output file will be erased

6. Repeat edit

    Format 1   -   (edit Instructions) *n

    Function   -   Repeat the edit instructions enclosed
                           within the brackets n times.

    Format 2   -   (edit Instructions) E

    Function   -   Repeat the edit instructions enclosed within
                           the brackets until the end of the input file.

2.3.7 'String' Instructions

The user may enclose the 'string' within any character other than
a space or comma.

The length of the 'string' is restricted to what can be contained
within the next instruction field.

2.3.8 Long records

The maximum record length that may be processed by the editor is
120 characters. Any record found to be greater than this maximum
will be truncated and a warning given.

2.3.9 Editing of serial data files

Note that the maximum length of records which may be edited
is 31 words. If longer records are encountered on the input
file these are truncated when displayed. Also data records which
are to include trailing spaces may not be successfully processed
by the editor, as this removes trailing spaces from all records
entered via the window (trailing spaces are not removed by
'transcribe' commands).

2.3.10 Editing PLAN Source files

For PLAN source files, the first record in each subfile contains
the steering information. This is in the form of a 21-word
record with '#STEER' as the first 6 characters following the
the word count, and steering information starting in the 16th
character after the word count. This record is displayed
as the first line of any subfile being edited; the user should
specify the appropriate steering information from column 16
onwards. For subfiles which are copied to the output without
editing, if the first record in the subfile is 21-words long,

beginning with '#STEER', the steering information is removed by spacefilling from the 16th character aften the word count to the end of the record. When inserting a new subfile, the user must ensure that the first line specifies the steering information, and begins #STEER (or #STE, which is converted to #STEER on the output record).

The editor does not check for the presence of steering information, as the single filetype 'Composite' also includes files which do not require steering details (e.g. 'XMED' files). Unpredictable results may occur if a file for which the steering line has been removed completely is submitted to a program expecting PLAN source file format input. Note that TPS source files conform to PLAN source format and require this steering line.

2.4 Warnings and Errors

Warning and error conditions may occur at any time during the running of an edit. Where possible the user is invited to correct the error and continue the run. Other errors can arise as a result of a system or file failure and may cause the edit to be abandoned.

2.4.1 Warnings

Message	Reason
1. End of input	The input file is at end.
2. Input records truncated	A record in excess of 120 characters has been truncated.

2.4.2 XEIN Errors

Message	Reason
1. Invalid data	An input field is in error. The cursor is positioned at the start of the offending field.
2. Insufficient data	A mandatory field has been omitted.
3. Inconsistent Data	An input filename and generation number have been specified, but the output file field has been omitted.
4. Input file fail	The input file cannot be opened because of:

A	Non-existent file
B	Not enough executive store
C	Integrity code failure
D	Transfer failure

Message	Reason
5. Output file fail	The output file cannot be opened because of:

A	Non-existent file
B	Not enough executive store
C	Integrity code failure
D	Transfer failure

Message	Reason
6. Wrong input file type	The input file is of a different type to that specified.
7. >1 input subfile	The input file is of composite file structure with more than one subfile and no subfile identity specified.

	Error	Reason
8.	Subfile not found	The specified subfile cannot be found
9.	No store for input	No suitable store cell exists within the program for input file buffering.
10.	No store for output	No suitable store cell exists within the program for output file buffering.
11.	User TCR too small	The user TCR within the current system is too small to support the editor.

2.4.3 XEDT Errors

	Error	Reason
1.	Backwards?	An attempt has been made to transcribe backwards through a file.
2.	'F' not allowed	An attempt to 'Forget' has been made in an invalid situation.
3.	Invalid data	An unrecognised instruction has been entered.
4.	Invalid number	An invalid numeric end-point has been entered
5.	Edit abandoned	The 'quit' instruction has been given.
6.	Output file not large enough	The output file is too small to hold the edited output.
7.	Message area too small	The specified window size is too large for the current system.
8.	Input file fail	The input file has failed.
9.	Output file fail	The Output file has failed.
10.	No store for O/P	The system does not have a suitable store cell for use in creating the output text for the window.
11.	Subfile not found	The specified subfile is not present in the input file.
12.	Segment not found	The specified segment is not present in the specified subfile on the input file.
13.	Inconsistent data	The specified instruction is not valid at this time (when editing a Composite file), or with this file type.

3. FILE HANDLING

3.1 Outline

The utilities that constitute the file handler consist of several
discrete routines, each performing an independent function

The routines and their specific functions are as follows:

ZFLC	Allocate, delete, extend or contract a file on disc.	
XIMS, XIEN	Create and input to a TPS Edit File.	
XILE	Display the contents of a TPS Edit File.	
XIFU	Function C	Copy a disc file
	Function E	Display status of TPS Edit Files
	Function R	Delete TPS Edit File

Access to a specific routine is gained by requesting its 4 character
format identifier.

3.2 Edit Well

The TPS Edit Well is an interactive operator internal file whose
subfile or Edit Files, as they are called, may be created, amended
or copied from and to, using File and job handling routines and
the editor.

Typically the user would create and input to an Edit File the required
job control commands and local data necessary to run a job. Also
create and input any global documents that may be required.

We will see in the next section how having created these files they
are made available to the operating system.

3.3 Local documents

Documents included within a job are considered to be LOCAL.

All the documents required by the job may be included, each one
contained within a document header and the declared terminator.

3.4 <u>Global document</u> (2903/4 Systems only)

A global document consists of one document enclosed within its document header and terminator.

An optional field following the document name defines the number of accesses that may be made to the document before it is erased. If this field is omitted a default of 1 access is assumed.

<u>Example</u>

Doc documentname	- 1 access only
Doc documentname,A10	- Erase the document after 10 access
Doc documentname,P	- Permanent file. Erase by operator action.

3.5 ZFLC

3.5.1 Outline

This routine provides 6 basic functions.

A   Allocates a file of specified size anywhere on a given cartridge.

C   Allocates a file of specified size to particular cylinders and blocks on a given cartridge.

D   Deletes a file.

E   Extends or contracts a file.

L   Lists details of a file

R   Renames a file

S   Sets End of File tag

Normal ICL file allocation conventions apply, namely:

File name	-	up to 12 alphanumeric characters, the first being alphabetic.
Fgn	-	generation number in the range 0 - 4095.
Retention Period	-	number of days in the range 0 - 4095.
Integrity code	-	1, 2 or 3.
Bucket size	-	1, 2, 4, or 8 blocks.

Cylinders and blocks are numbered from zero.

Start block must be a multiple of 8.

End block must be a multiple of 8 minus 1.

3.5.2 <u>Function A</u> Allocate a file of a given size anywhere on the specified cartridge.

<u>Entered fields</u>

<u>Mandatory</u>

1. Function   - A
2. File name - Name of the file to be allocated.
3. Fgn   - Generation number to be given to the file.
4. Csn   - Serial number of the cartridge the file is to be allocated on.
5. No. buckets - The number of buckets the file is to be given.

<u>Optional fields</u>

1. Bucket size   - Blocks per bucket. (1, 2, 4 or 8)
                        If omitted, 1 block buckets assumed.

2. Bucket headers   - Size of bucket headers in words.
                        If omitted, 2 word bucket headers assumed.

3. Integrity code   - Integrity code for the file.
                        If omitted, 1 assumed.

4. File retention   - Retention period to be given to the file. If omitted, zero assumed.

5. Data retention   - Retention period to be given to the data. If omitted, zero assumed.

   <u>Note</u>: This field should only be used when re-allocating a file over existing data that is to be protected.

6. File type   - Type of file to be allocated.

                          S - Serial
                          Q - Sequential
                          R - Random
                        If omitted, S assumed.

7. Record V/F   - Type of record.

                          F - Fixed length
                          V - Variable length
                        If omitted, V assumed.

8. Flaw action   - Action to be taken in the event of flaws.

                          P - Program action
                          E - Executive action
                        If omitted, E assumed.

9. Max. record length - Maximum length of record.
                        If omitted bucket length less bucket header length is assumed.

Telecomputing: Video Display Layout   EXAMPLE 1

ZFLC

Function Required [A]   A - Allocate Anywhere Specifying Size
                         C - Create Specifying Area   E - Extend/Contract
                         D - Delete
                         L - List file details
                         [0]   [CSN L100]
                         Start End Block
                         S - Set EOF tag
                         R - Rename file

Filename and FGNL,TRANSFILE   [10]

No. Buckets   Start End Cylinder
or EOF(S)

4,296

Bucket Header Code   Integrity Retention Period   File Type   Records   Flaw Action By
                     File Data   S/Q/R   V/F   P/E

Max Record Key   Key
Length   Length Displacement   LBN of   2nd level o/f

New Filename and FGNL.

Amplitude   Program   Transaction Code   Characters received   Keystrokes   Minimum   Maximum   Minimum   Average

Transaction name

Integrity

Characters transmitted

Sheet   Issue   Date

10.	Key length	-	Length of Key in characters. If omitted, zero assumed.
11.	Key displacement	-	Number of characters preceding the Key. If omitted, zero assumed.
12.	LBN of 2nd level O/F	-	The number of first 2nd level overflow bucket. If omitted, zero assumed.

3.5.3 Examples

1. Allocate a file called TRANSFILE, generation 0, on cartridge 100.
   File size is to be 296 1 block buckets. All other fields can be assumed.

2. Allocate a file called MASTERFILE, generation 1, on cartridge 123. File size is to be 740 4 block buckets with 2 word bucket headers.
   Set the integrity code to 3 and the file retention to 365. The records are held sequentially and are variable length, up to a maximum of 300 words. The Key starts in character 5 and is 8 characters long. Flaws are to be monitored by executive and record level overflow starts in bucket 666.

Telecomputing: Video Display Layout   EXAMPLE 2

ZFLCJ		
Function Required	LAJ	
		A - Allocate Anywhere Specifying Size
		C - Create Specifying Area
		D - Delete
		E - Extend/Contract
Filename and FGNLMASTERFILE		CSN L12 3 J
No. Buckets Start End Cylinder		Start End Block Bucket Size
L 74 0 J		
Bucket Integrity Retention Period File Type Records Flaw Action By		
Header Code File Data S/Q/R V/F P/E		
L 3 J	L 365 J	L Q J L J L J
Max Record Key Key LBN of		
Length Length Displacement 2nd level o/f		
L 300 J L 8 J L 4 J		L 66 6 J

3.5.4 <u>Function C</u>   Allocate a file of a given size to particular
cylinders and blocks of the specified cartridge.

<u>Entered fields</u>

<u>Mandatory</u>

1. Function   - C
2. File name   - Name of the file to be allocated.
3. Fgn   - Generation number to be given to
                          the file.
4. Csn   - Serial number of the cartridge on
                          which the file is to be allocated.
5. Start cylinder   - The cylinder on which the file starts.
6. End cylinder   - The cylinder on which the file ends.
7. Start block   - The block on which the file starts.
8. End block   - The block on which the file ends.

<u>Optional</u>

1. Bucket size   - Blocks per bucket (1, 2, 4 and 8)
                          If omitted, 1 assumed.
2. Bucket header   - Size of bucket headers in words.
                          If omitted, 2 word bucket headers
                          assumed.
3. Integrity code   - Integrity code for the file.
                          If omitted, 1 assumed.
4. File retention   - Retention period to be given to the
                          file. If omitted, zero assumed.
5. Data retention   - Retention period to be given to the
                          data. If omitted, zero assumed.

   Note: This field should only be used when re-allocating a
          file over existing data that is to be protected.

6. File type   - Type of file to be allocated.

                              S - Serial
                              Q - Sequential
                              R - Random

                          If omitted, S assumed.

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Telecomputing: Video Display Layout EXAMPLE 1

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ZFLCJ

Function Required LCJ

A - Allocate Anywhere Specifying Size
C - Create Specifying Area
D - Delete
E - Extend/Contract

Filename and FGNLS0RTFILE   J   L0   J   CSN L100   J

No. Buckets   Start End Cylinder   Start End Block   Bucket Size

L   J   L20   L21   J   L0   J   L295   J   L   J

Bucket Integrity   Retention Period   File Type   Records   Flaw Action By
Header   Code   File   Data   S/Q/R   V/F   P/E

L   J   L   J   L   J   L   J   L   J   L   J   L   J

Maxi Record Key   Key   LBN of
Length   Length   Length Displacement   2nd level   o/f

L   J   L   J   L   J   L   J   L   J

Transaction name	Program		Characters received	Minimum	Maximum	Absolute	Average	Sheet			
	Transaction code	Characters transmitted	Keystrokes					Issue	Date		

7. Record V/F   - Type of record

                                 F - Fixed length
                                 V - Variable

                       If omitted, V assumed.

8. Flaw action   - Action to be taken in the event of flaws.

                                 P - Program action
                                 E - Executive action

                       If omitted, E assumed.

9. Max. record length - Length of record.
                       If omitted, bucket length less bucket
                       header length is assumed.

10. Key length   - Length of Key in characters.
                       If omitted, zero assumed.

11. Key displacement   - Number of characters preceding the Key.
                       If omitted, zero assumed.

12. LBN of 2nd level   - The number of the first 2nd level
           overflow   overflow bucket.
                       If omitted, zero assumed.

3.5.5 Examples

1. Allocate a file called SORTFILE, generation 0 on cartridge 100. File size is 595 1 block buckets, using blocks 0 to 295 of cylinders 20 and 21.

2. Allocate a file called SALESLEDGER, generation 1, on cartridge 404. File size is 1110 8 block buckets using blocks 0 to 295 of cylinders 100 to 130. Set the integrity code to 2 and the file retention to 100. The records are held sequentially and are variable length up to a maximum of 620 words. The key starts in character 9 and is 10 characters long. 2nd level overflow starts in bucket 1036 and flaws are to be monitored by executive.

TPS

Telecomputing: Video Display Layout EXAMPLE 2

```
[ZFLC]

Function Required [LC]
                    A - Allocate Anywhere Specifying Size
                    C - Create Specifying Area
                    D - Delete
                    E - Extend/Contract

Filename and FGNLSALESLEDGER [ ]   [ ] CSN [404 ]
                                               Start End Block Bucket Size

No. Buckets  Start End Cylinder

[ ]  [ ] [100] [130]    [0 ] [295]         [8]

Bucket      Integrity  Retention Period  File Type Records  Flaw Action By
Header      Code       File Data         S/Q/R   V/F
[ ]         [2]        [100]             [0]     [ ]         [ ]
                                                 P/E
                                                 [ ]

Max Record  Key        Key               LBN of
Length      Length     Displacement      2nd level o/f
[620]       [10]       [8]               [1036]
```

Program

Transaction code

Characters transmitted

Keystrokes

Characters received

Minimum

Maximum

Absolute

Average

Sheet

Issue

Date

3.5.6 <u>Function D</u>   Delete a file

<u>Entered fields</u>

<u>Mandatory</u>

1. Function   - D
2. File name   - Name of file to be deleted.
3. Fgn   - Generation number of the file to
                     be deleted.
4. Csn   - Serial number of the cartridge holding
                     the file description.

3.5.7 <u>Example</u>

1. Delete the file PRINTFILE, generation 1, from
    cartridge 100.

Telecomputing: Video Display Layout

ZFLCJ

Function Required [D]

Filename and FGNLPRINTFILE

A =	Allocate Anywhere Specifying Size
C =	Create Specifying Area
D =	Delete
E =	Extend/Contract

No. Buckets — Start End Cylinder — Start End Block — Bucket Size

J CSN L100 J

Bucket Header Code — Integrity Retention File — Retention Period File Type Records Flaw Action By

Data S/Q/R V/F P/E

LBN of 2nd level o/f

Max Record Key Length

Key Length Displacement

Application

Program

Transaction name

Transaction code

Characters received

Characters transmitted

Keystrokes

Minimum

Maximum

Absolute

Average

Sheet

Issue

Date

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ZFLC⌐

Function Required ⌐E⌐

A — Allocate Anywhere Specifying Size
C — Create Specifying Area
D — Delete
E — Extend/Contract

Filename and FGNLSALESLEDGER ⌐1⌐ CSN ⌐300⌐

No. Buckets
⌐32

Bucket Start End Cylinder Start End Block Bucket Size

Bucket
Header Code

Integrity Retention Period File Type Records Flaw Action By
File Data S/Q/R V/F P/E

Max Record Key Key
Length Displacement

Record
Length

LBN of
2nd level o/f

Program	Minimum	Maximum	Absolute	Average	Sheet			
Transaction name	Characters received				Issue			
Transaction code	Keystrokes							
Computing	Characters transmitted				Date			

3.5.8 <u>Function E</u>   Extend or contract a file

    <u>Entered fields</u>

      <u>Mandatory</u>

        1. Function   - E

        2. File name   - Name of file to be extended/contracted.

        3. Fgn   - Generation number of file.

        4. Csn   - Serial number of cartridge holding
                                the file description.

        5. No. buckets   - Number of buckets the file is to
                                be extended by.
                                Positive number for extension.
                                Negative number for contraction.

3.5.9 <u>Examples</u>

      1. Extend the file SALESLEDGER, generation 1, on cartridge
          300, by 32 blocks.

      2. Contract the file SALESTATS, generation 10, on cartridge 404,
          by 296 blocks.

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```
ZFLCJ
Function Required  LEJ
  A - Allocate Anywhere Specifying Size
  C - Create Specifying Area
  D - Delete
  E - Extend/Contract
Filename and  FGNLSALESTATS  L10 J  CSN  L404 J
No. Buckets  L-296 J
  Start End Cylinder   Start End Block   Bucket Size
Bucket    Integrity   Retention Period   File Type   Records   Flaw Action By
Header Code   File   Data   S/Q/R   V/F   P/E
Max Record Key   Key   LBN of
Length   Length Displacement   2nd level o/f
```

	Characters received	Keystrokes	Characters transmitted	Minimum	Maximum	Absolute	Average	Sheet
Application								
Transaction name								Issue
Designed by								Date

Program   Transaction code

TPS

3.5.10   Function L   List file details

Entered fields

Mandatory

1.   Function   - L
2.   File name   - Name of file which is to be described
3.   Fgn   - Generation number of file
4.   Csn   - Serial number of cartridge holding the
                         file description.

Note: The number of file areas occupied by the file is
      reported on the screen after the End Block field. If
      the file consists of more than one file area only
      the details of the location of the first file area
      are displayed.

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3.5.11 Function R   Rename a file

Entered fields

Mandatory

1. Function   – R
2. File name   – Name of the file which is to be renamed
3. Fgn   – Generation number of file
4. Csn   – Serial number of cartridge holding the
                          file description.
5. New Filename   – The new file name and generation number
    and FGN   to be given to the file.

3.5.12 <u>Function S</u>   Set End of File Tag

  <u>Entered Fields</u>

  <u>Mandatory</u>

  1. Function   - S

  2. File name   - Name of the file which is to have
                      its end of file pointer reset

  3. Fgn   - Generation number of file

  4. CSN   - Serial number of the cartridge
                      holding the file description

  5. EOF   - Value to be given to the end of
                      file tag.
                      <u>NOTE</u>: this is the value used by
                      exec when a request is made to open
                      the file 'AT END'. An end of file
                      bucket is not written to the file,
                      nor is any check made that the end
                      of file tag value specified points
                      to an end of file bucket.

TPS

3.5.12 Errors

Two types of error can arise, the first being in response to fields entered in error, the second in the form of executive replies to a request.

Field Errors

Message		Reason
Field missing	-	A mandatory field has been omitted.
Invalid data	-	An invalid field has been input. The cursor is positioned at the start of the offending field.
Inconsistent data	-	Fields have been input that are not required for this function.
Unable to proceed at present	-	The limit on tne number of files executive can handle at any one time has been reached.

Executive Errors

Executive errors are displayed as codes preceded by the message 'Error reply - level 1 code #'.

The codes are the circumstances in which errors can occur are as follows:

Opening a file		Reason
4401	-	File not in system.
4402	-	Integrity code failure.
4403	-	Insufficient executive main store.
4405 ~~4404~~ 4406 Cartridge		Purge date not exceeded/~~Cartridge~~ not online.

Creating a file		
4410	-	System control area full.
4411	-	File already exists.
4413	-	Insufficient executive main store.
4416	-	Cartridge not online.

Extending/contracting a file		Reason
4420	-	System control area full.
4421	-	No space available
4423	-	Insufficient executive main store.
4426	-	Cartridge not online.
4428	-	Requested number of blocks are not available.

Extended into area		
4430	-	System control area full.
4431	-	Part or whole area is assigned.
4433	-	Insufficient executive main store.
4434	-	Invalid area.
4436	-	Cartridge not online.

Deleting a file		
4444	-	De-allocating retention period greater than data retention period.

Rename a file		
4450	-	System control area full.
4453	-	Insufficient executive main store
4457	-	The requested unit has its System file open for writing

3.6 Edit stream creation and input

3.6.1 Outline

Two routines are used to create and input to a TPS Edit File.

The first XIMS creates the TPS Edit File and makes it available
to the second XIEN which is used to input the required job and/or
data lines.

The first line of the input should be either a Job or Doc command.

Job implies the following lines are operating system commands with
optional local documents.

Doc implies a global document with the following lines being the
data contained within the document.

The Job or Doc commands may be omitted in the case where the
TPS Edit File is to be submitted for printing only, in which case
a dummy Job and Doc will be generated by the copying routine.

The maximum length of any line acceptable as input is 120 characters
and any line found to be greater than this maximum will be truncated.

If a line to be input is longer than the screen size allows, the
last ~~non-space~~ character of the first line must be set to a
continuation character of a minus sign (-) and continued on the
next line.

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3.6.2   <u>XIMS</u>

    Function   -   Create a TPS Edit File.

    <u>Entered fields</u>

      <u>Mandatory</u>

      Edit File name   - The name to be given to the Edit File.

      Generation number - The generation number to be given to the file.

3.6.3   <u>Example</u>

    Create a TPS Edit File called COMPILE▿TP01, generation 1.

TPS

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XIMSJ Enter Edit File Name LC0MPILE TP01 J and Generation Number

Application

Program

Transaction name

Transaction code

Designed by

Characters received
Keystrokes
Minimum
Maximum
Absolute
Average
Sheet

Characters transmitted
Issue

3.6.4 <u>XIEN</u>

Function   -   Input to a TPS Edit File

<u>Entered fields</u>

<u>Optional</u>

1.   End of data   -   enter * if this screen is the
last to be sent for this input.

2.   Data   -   Any format.

3.6.5 <u>Examples</u>

1.   Input a job to a TPS Edit File, for which this screen
is the last to be sent.

2.   Input to a TPS Edit File a global document, for which
this screen is the last to be sent.

I01 -3-23-0578

```
X I E N J
Current Edit File    X X X X X X X X X X X X X  Generation  N N N N  Enter '*' if End of Stream [*] J L
J O B   C O M P I L E T P 0 1 , T C P , A P
X E K B   T P 0 1 , S O U R C E  T P 0 1 , 1
* * *          * *
D O C   A M E N D S , T / / / /
0 0 0 4 0 0          M O V E  M F - C U S T N A M E  T O  L P - C U S T N A M E .
* * * *
/ / / /
```

Application	Program	Characters received	Minimum	Maximum	Absolute	Average	Sheet
Transaction name	Transaction code	Keystrokes					Issue
Activity		Characters transmitted					Date

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```
XIENJ                                                                          L*JL
Current Edit File    XXXXXXXXXXXXXXX Generation NNNN Enter'*''if End of Stream[*]L
D0C XPJWPARAM
XPJW1,2,DPO1(MASTERDUMP,1)
XPJW5(CUSTMASTER,-1)
***
////
```

Application	Program	Minimum	Maximum	Absolute	Average	Sheet
Transaction name	Transaction code	Characters received				Issue
Designed by		Keystrokes				
		Characters transmitted				Date

3.6.6 Errors

Message	Reason
Inconsistent data	- A screen has been sent containing no data or end of data indicator.
No suitable store cell	- No suitable store cell exists within the current system for output file buffering.
Field missing	- A mandatory field has been omitted.
Invalid data	- An invalid field has been entered. The cursor is positioned at the start of the offending field.
File already exists/ already open	- A file with the same name and generation is already in existence.

I01-3-26-0578

3.7   Edit File display

    3.7.1   Outline

        This routine will display the contents of a specified TPS
        Edit File.

    3.7.2   XILE

    Entered fields

        Mandatory

        1.   File name   -   The name of the file to be displayed.

        2.   Generation number -   The generation number of the file.

        Optional

        1.   Next line number   -   This field is updated by the routine
                                 for continuation screens, or may be
                                 changed by the user to an 'E' to end
                                 the display.

    3.7.3   Example

        1.   Display the contents of COMPILE▽TPO1, generation 1.

TPS

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I01-3-27-0578

```
XILEJ          DISPLAY THE CONTENTS OF AN EDIT FILE
ENTER EDIT FILE LCOMPILETP01 J GEN NO. L          J NEXT LINE NO. L
JOB COMPILETP01,TCP,AP
****
XEKB TPO1,SOURCE TPO1,1
****
000400
DOC AMENDS,T////     MOVE MF-CUSTNAME TO LP-CUSTNAME.
////
****
```

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Application

Program

Transaction name

Transaction code

Keystrokes

Characters received

Characters transmitted

Minimum

Maximum

Absolute

Average

Sheet

Issue

Date

Designed by

3.7.4   Errors

Message	Reason
File name invalid	- The file name is invalid
File name missing	- The file name has not been entered
Generation invalid	- The generation number is not numeric or in the range 0 - 4095.
Generation missing	- The generation number has not been entered.
Line number missing	- The line number is not numeric.
Specified record not on file	- The specified line number is beyond the end of the file.
File already open	- The file is currently being used.
No suitable store cell	- No suitable store cell exists within the current system for file buffering.
File does not exist	- A file of the specified name and generation number does not exist.

3.8 XIFU

   3.8.1 Outline

      The function XIFU provides several facilities of which
      five are of interest in this section:

      - display the contents of a TPS Edit Well (in conjunction
        with function XIGY)

      - copy a disc file to a specified file of the same type
        and bucket size.

      - delete a TPS Edit File

      - copy a print stream from a User or TPS Print Well to
        an Edit File

      - copy an Edit File

   3.8.2 XIFU

         Function E   Display the contents of a TPS Edit Well.

         Entered fields

            Mandatory

            1. Function required - E

            Optional

            1. Edit File name   - The Edit File name from which
                                    the list is to commence.

            2. Generation   - The generation number of the
                                    file.

            Note: Can be used for continuation screens or enquiring
                   on a specific file.

         Processing

         The list of edit files is displayed on format XIGU. If there
         are more than 36 edit files present, a continuation screen may
         be obtained by pressing 'send' following the display. (The
         presence of more than 36 edit files is indicated by the display
         of details in the unprotected fields on screen XIGU).

   3.8.3 Example

            1. Display the contents of the TPS Edit Well.

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```
XIFUL
TPS  INTERACTIVE  OPERATOR  STANDARD  FUNCTIONS

ENTER FUNCTION REQUIRED   LEJ
      C - copy file
      E - display status of edit file(s)
      G - display status of global document(s)
      I - display status of input job(s)
      O - display status of output job(s)
      R - delete an edit file
      P - copy print stream to edit file
      F - copy an edit file.
ENTER IDENTIFIER IF REQUIRED   L              J
      file name,generation,lbn
      or edit filename,generation
      or job name
      or document name
      or print stream name,lfn
ENTER IDENTIFIER IF REQUIRED   L              J
      or edit filename,generation,lbn
      or edit filename,generation
ENTER NUMBER OF BUCKETS FOR COPY   L      J
```

			Maximum	Maximum	Minimum	Absolute	Average		
Program	Transaction code	Characters received						Sheet	
		Keystrokes						Issue	
		Characters transmitted						Date	

```
XIGU]
          CURRENT STATUS OF EDIT STREAMS
  FUNCTION [ ]  NEXT EDIT FILE [              ]  GEN. NO [      ]

EDIT STREAM1 4095   09/02/79  EDIT STREAM2  4095  10/02/79
```

3.8.4 XIFU

Function C   Copy a file to a specified output file.

Entered fields

Mandatory

1.	Function required	- C
2.	File name 1	- The name of the file to be copied
3.	Generation 1	- The generation number of the file
4.	LBN 1	- Number of the bucket on the input file from which copying is to commence.
5.	File name 2	- The name of the output file
6.	Generation 2	- The generation number of the file.
7.	LBN 2	- Number of the first bucket on the output file at which copying is to commence.

Optional

Number of buckets   - 1. The number of buckets to be copied

                        or - 2. 'T' copy the file until the output file is full.

                        or - 3. Not present
                               Copy the whole of the input file.

Notes: 1. A report containing the start and end bucket for both Input and Output Files will be displayed after a successful copy.

2. The end of file tag of the output file is set to that of the input file after a successful copy. This may be reset if required, using function ZFLC (see Section 3.5.12).

3.8.5 Examples

1. Copy 740 buckets of CUSTMAST generation 1 to TESTCUST generation 10. The input and output start buckets are 1.

2. Copy the file SALESTATS generation 20 to REGIONSALES generation 5. Start copying from bucket 12 of the input file to bucket 1 of the output file and continue until the output file is full.

3. Copy all of the file WAGEMAST generation 10, to WAGETEST generation 1. Start copying from bucket 1 of the input file to bucket 6 of the output file.

XIFU]

TPS INTERACTIVE OPERATOR STANDARD FUNCTIONS

ENTER FUNCTION REQUIRED.   [C]

C - copy file

E - display status of edit file(s)

G - display status of global document(s)

I - display status of input job(s)

O - display status of output job(s)

R - delete an edit file

P - copy a print stream to edit file

F - copy an edit file

ENTER IDENTIFIER IF REQUIRED.   [CUSTMAST]

file name,generation,1 bn

or edit filename,generation,1 bn

or job name

or document name

or print stream name,1 fn

ENTER IDENTIFIER IF REQUIRED   [TESTCUST]

file name,generation,1 bn

or edit filename,generation,1 bn

ENTER NUMBER OF BUCKETS FOR COPY   1740]

TPS

Telecomputing: Video Display Layout EXAMPLE 2

Identity
Page

```
XIFUI

       TPS INTERACTIVE OPERATOR STANDARD FUNCTIONS.

ENTER FUNCTION REQUIRED      LCJ
    C - copy file
    E - display status of edit file(s)
    G - display status of global document(s)
    I - display status of input job(s)
    O - display status of output job(s)
    R - delete an edit file
    P - copy print stream to edit file
    F - copy an edit file

ENTER IDENTIFIER IF REQUIRED   LSALESTATS  J  L20  J  L12  J
    file name,generation,lbn
    or edit filename,generation
    or job name
    or document name
    or print stream name,lbn

ENTER IDENTIFIER IF REQUIRED   LREGIONSALES  J  L5  J  LT  J
    file name,generation,lbn
    or edit filename,generation

ENTER NUMBER OF BUCKETS FOR COPY  LT  J
```

						Sheet		
	Characters received	Keystrokes	Minimum	Maximum	Average	Issue		
	Characters transmitted					Date		

Program   Transaction code

TPS

```
XIFUl

ENTER FUNCTION REQUIRED:                    LCJ

    TPS INTERACTIVE OPERATOR STANDARD FUNCTIONS

    C - copy file
    E - display status of edit file(s)
    G - display status of global document(s)
    I - display status of input job(s)
    O - display status of output job(s)
    R - delete an edit file
    P - copy print stream to edit file
    F - copy an edit file

ENTER IDENTIFIER IF REQUIRED              LWAGEMAST  J
    file name,generation,1bn
    or edit filename,generation
    or job name
    or document name
    or print stream name,1fn
ENTER IDENTIFIER IF REQUIRED
    file name,generation,1bn             LWAGE TEST  J
    or edit filename,generation
ENTER NUMBER OF BUCKETS FOR COPY        L        J
```

Values shown: LWAGE MAST, LWAGE TEST, L10, L1, L6

3.8.6   <u>XIFU</u>

Function R   Delete a TPS Edit File.

<u>Entered fields</u>

<u>Mandatory</u>

1.   Function required   -   R

2.   File name   -   The name of the file to be removed.

3.   Generation   -   The generation number of the file.

3.8.7   <u>Example</u>

1.   Remove the TPS Edit File COMPILETP01, generation 1.

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XIFU]

ENTER FUNCTION REQUIRED   LRJ

TPS INTERACTIVE OPERATOR STANDARD FUNCTIONS

C - copy file
E - display status of edit file(s)
G - display status of global document(s)
I - display status of input job(s)
O - display status of output job(s)
R - delete an edit file
P - copy print stream to edit file
F - copy an edit file

ENTER IDENTIFIER IF REQUIRED   LCOMPILETPO1 J
    file name,generation,lbn
    or edit filename,generation
    or job name
    or document name
    or print stream name,lfn

ENTER IDENTIFIER IF REQUIRED
    file name,generation,lbn
    or edit filename,generation,lbn
    or edit filename,generation

ENTER NUMBER OF BUCKETS FOR COPY   L   J

3.8.8   XIFU

Function P   Copy a print stream from a User or TPS
               Print Well to TPS Edit File

Entered fields

Mandatory

1.   Function required   - P

2.   Print stream name   - the identifier of the
                                   print stream to be copied

3.   Logical File Number   - the logical file number
                                   of the User of TPS Print
                                   Well containing the print
                                   stream.

4.   Edit File Name   - the name of the Edit File
                                   into which the print stream
                                   is to be copied.

5.   Generation   - the generation number of
                                   the Edit File.

3.8.9   <u>XIFU</u>

Function F   Copy TPS Edit File

<u>Entered fields</u>

<u>Mandatory</u>

1.   Function required   - F

2.   File name 1   - the name of the Edit File
                              to be copied

3.   Generation 1   - the generation number of the
                              Edit File to be copied.

4.   File Name 2   - the name of the ouput Edit
                              File

5.   Generation 2   - the generation number of the
                              output Edit File

3.8.10 Errors

Message		Reason
Field missing	-	A mandatory field has been omitted.
Invalid data	-	An invalid field has been input. The cursor is positioned at the start of the offending field.
Insufficient data	-	A field necessary for this function has not been entered.
Inconsistent data.	-	Fields have been input that are not required for this function.
No free LFN	-	The limit has been reached on the number of files that can be handled at any one time.
No suitable store cell	-	No suitable store cell exists within the current system for file buffering.
File unavailable	-	The edit or spool file is currently unavailable.
File in wrong format	-	The input and output files are of a different type or bucket size.
File missing	-	The requested file does not exist.

4. JOB HANDLING

4.1.1 Outline

This section describes how, having created the necessary
files, a job and associated data is submitted to the
operating system for execution. It also describes how the
contents of the spooling files may be examined or returned
to a TPS Edit file if required.

The specific routines and their functions are as follows:

XICY   - Copy a TPS Edit File to the spool file as an
              input job, output job or, on 2903/4 systems.
              a global document.

XIFU   - Display a list of current input jobs, output
              jobs, or, on 2903/4 systems, global documents.

XISY   - Copy spool file job or global document to a
              TPS Print Well or TPS Edit File.

XIIP   - Display the contents of a job or document
              contained in the spool file.

4.1.2 2903/4 Systems

4.1.2.1 Spool file

The spool file is the file used by the operating system to
hold all the jobs and documents waiting to be or being acted
upon.

Three distinct types of system requirements are hold on the
spool file, namely:

Input jobs

Output jobs

Global documents

4.1.2.2 Input jobs

An input job can be considered to consist of the job control
statements and associated local documents.

Any request for input for which a local document was not
supplied will cause the spool file to be searched for a global
document of the requested name.

Failing this, the required document will be read on line.

When an input job is completed the job and associated
local documents are erased from the spool file.

4.1.2.3 Output jobs

Output jobs contain the output from a job, typically in
the form of print lines preceded by the identifying document
header. Card and paper tape punch documents will also be
included, if not produced online.

The output job will automatically be erased after being
printed or punched as the case may be.

4.1.2.4 Global document

A global document consists of input or output data from a
job enclosed within its document header and terminator and
will be erased by the system when the predefined number of
accesses has been reached.

4.1.3   George 2 systems

4.1.3.1 Input jobs

Input jobs on the George 2 operating system are held within
a number of files known as input wells. When TPS is attempting
to submit a job or a batch of jobs to George 2 the system
will be searched for an empty input well and the jobs copied
across. When the jobs have been successfully copied the input
well will be renamed such that it is available for use by a
George 2 Central Module. All jobs copied by a single iteration
of XICY will constitute a single batch and will go into one
input well.

4.1.3.2 Output Jobs

Output from jobs processed by the George 2 central module is
held within files known as output wells. These files are
then picked up by the George 2 output module(s) and output
to the relevant peripheral. When asked to display or copy
and output job TPS will search all available output wells
for the specified job.

4.1.4   George 2 + Systems

4.1.4.1 Input Jobs

Input jobs on the George 2+ operating system are held within a

number of files known as input wells which are allocated
dynamically. When TPS is submitting a job or a batch of
jobs to the operating system TPS will interrogate the High
Level Scheduler file to determine the next free input well
generation number. A single job will be copied into each
input well set up in this manner until all jobs have been
copied. Appropriate entries will be made in the HLS file.

4.1.4.2. Output jobs

Output jobs from the George 2+ system are handled by TPS
in the same way as output jobs from George 2 as described
in Section 4.1.3.2 above.

Note: On George 2 or George 2+ systems if input and output
      jobs are to be copied on the same XICY screen all
      input jobs must preced any output jobs. If this is
      not the case "INCONSISTENT DATA" will be reported.

4.2   ·XICY

4.2.1   Description

Function   Copy TPS Edit Files to 2903/4 Spoolfile or
            George 2 or George 2+ Input or Output Well.

Format   There are three versions of the XICY format:
            for 2903/4 Spoolfile, for George 2 and for
            George 2+. These are shown on the following
            page.

Entered Fields

   Optional

   1. H.L.S. in use? - George 2+ systems only
       Enter 'Y' if the High Level Scheduler is used
       in the system. Otherwise enter 'N' or leave
       the field blank.

   2. Inhibit Central Output? - George 2, George 2+
       Systems only. Enter 'Y' if output from the
       job being submitted is not to be printed by
       the output module. Leave field blank or
       enter 'N' if the output is to be printed by
       the output module.

   3. Console display - Operator's message: any format.
       The specified message is displayed on the
       operator's console on successfully completing
       the copy.

   Mandatory

   1. File name   - The name of the TPS Edit File to
                             be copied

   2. Generation Number - The generation number of the TPS
                           Edit File. -1 indicates the
                           highest generation of the file in
                           the Edit Well should be used.

   3. Request type   - Type of request

                             I - Input job
                             G - Global Document (2903/4
                                 Spoolfile only).
                             O - Output Job (George 2, George
                                 2+ only)

These three fields are repeated for each TPS Edit File
to be copied. The cursor should always be left immediately
after the last completed field.

TPS-impact

4.3.2 <u>XICY formats</u>

   1. 2903/4 Spoolfile

```
XICY]
            COPY EDIT FILES TO SPOOL FILE

Enter Console Display [                                    ]

     File Name        Gen No.   Request Type
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]

     Request Types :- I for Input Job
                      G for Global Document
```

   2. George 2

```
XICY]
            COPY EDIT FILES TO GEORGE 2 OFFLINE FILES

Inhibit Central Output?[ ]

Enter Console Display  [                                   ]

     File Name        Gen No.   Request Type
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]
     [             ] [       ]    [ ]

     Request Types :- I for Input Job
                      O for Output Job
```

3.   George 2+

```
XICY]
           COPY EDIT FILES TO GEORGE 2+ OFFLINE FILES

HLS in use?                    [ ]

Inhibit Central Output?[ ]

Enter Console Display  [                                              ]

     File name      Gen No.   Request Type
     [          ] [        ]     [ ]
     [          ] [        ]     [ ]
     [          ] [        ]     [ ]
     [          ] [        ]     [ ]
     [          ] [        ]     [ ]
     [          ] [        ]     [ ]
     [          ] [        ]     [ ]
     [          ] [        ]     [ ]
     [          ] [        ]     [ ]
     [          ] [        ]     [ ]
     [          ] [        ]     [ ]
     [          ] [        ]     [ ]

     Request Types :- I for Input Job
                      O for Output Job
```

4.   Example

Copy three edit files to the spoolfile and display a message
to the operator's console.

```
XICY]
           COPY EDIT FILES TO SPOOL FILE

ENTER CONSOLE DISPLAY [JOB TPO1-COMP NEEDS DISC 100 UP ]

     File Name      Gen No.   Request Type
     [COMPILETPO1 ] [3      ]  • [I]
     [COMPAMENDS  ] [10     ]    [G]
     [COMPSTEER   ] [1      ]    [G]
     [           ] [       ]     [ ]
     [           ] [       ]     [ ]
     [           ] [       ]     [ ]
     [           ] [       ]     [ ]
     [           ] [       ]     [ ]
     [           ] [       ]     [ ]
     [           ] [       ]     [ ]
     [           ] [       ]     [ ]
     [           ] [       ]     [ ]
     [           ] [       ]     [ ]
     [           ] [       ]     [ ]
     [           ] [       ]     [ ]

     Request Types :- I for Input Job
                      G for Global Document
```

TPS

4.2.3 Errors

Errors can occur as a result of fields entered invalidly,
or a file being unavailable or in error.

Where possible the error message is displayed alongside the
offending line.

Message	Reason
Field missing	- A mandatory field has been omitted.
Invalid data	- An invalid field has been input. The cursor is positioned at the start of the offending field
Spool file inaccessible	- The spool file is currently unavailable.
File does not exist	- An Edit File of the specified name and generation number does not exist.
Spool file full	- The limit on the number of entries that can be held on the spool file has been reached.
Invalid data within job/document	- The Edit File is of a different type to that specified, or the Doc or Job command is invalid.
Unable to proceed at present	- G2+ System only - TPS is currently unable to open HLS file. A subsequent input will probably be successful.
User TCR too small	- The user TCR is not large enough to contain all the input data.
Inconsistent Data	- G2 or G2+ Systems only. Input and Output jobs have been intermixed on one XICY screen.

4.3.1   <u>XIFU</u>

Function   Display a list of jobs or global documents
                currently within the spool file.

<u>Entered fields</u>

   <u>Mandatory</u>

      1. Function required   - Type of enquiry

                                       I - List of input jobs
                                       O - List of output jobs
                                       G - List of global documents.
                                           (2903/4 Systems only)

   <u>Optional</u>

      1. Job/document name   - The job or document name from
                                     which the list is to commence.

         Note: Can be used for continuation screens or
                enquiring on a specific file.

The output from a XIFU display request is returned on the XIGU
screen format.

4.3.2   <u>Examples</u>

      1. Display a list of input jobs currently within the spool
          file.

      2. Display a list of global documents currently within
          the spool file commencing with AMENDS.

I01-4-7-0578

XIFUJ

.PS INTERACTIVE OPERATOR STANDARD FUNCTIONS

ENTER FUNCTION REQUIRED [IJ]

C - copy file
E - display status of edit file(s)
G - display status of global document(s)
I - display status of input job(s)
O - display status of output job(s)
R - delete an edit file

ENTER IDENTIFIER IF REQUIRED
file name, generation, 1 bn
or edit filename, generation
or job name
or document name

ENTER IDENTIFIER IF REQUIRED
file name, generation, 1 bn

ENTER NUMBER OF BUCKETS FOR COPY

Application	Program	Transaction code	Characters received	Keystrokes	Characters received	Minimum	Maximum	Attribute	Average	Sheet
		Characters transmitted								

Transaction name

Issue   Date

Telecomputing: Video Display Layout   EXAMPLE 1

Identity
Page

Row 1: XIGUJ

Row 2: CURRENT STATUS OF INPUT JOBS   FILEDUMP

Row 3: COMP425   RUNTP01   DISCMAP

Row 4: SØRTMAST   PRINTINVØICE

Application

Transaction name

Designed by

Program

Transaction code

Characters received   Keystrokes   Characters transmitted

Minimum   Maximum   Absolute   Average

Sheet   Issue   Date

TPS

Telecomputing: Video Display Layout   EXAMPLE 2

XIFU1

TPS INTERACTIVE OPERATOR STANDARD FUNCTIONS

ENTER FUNCTION REQUIRED. LGJ

C - copy file
E - display status of edit file(s)
G - display status of global document(s)
I - display status of input job(s)
O - display status of output job(s)
R - delete an edit file

ENTER IDENTIFIER IF REQUIRED   LAMENDS
file name, generation, lbn
or edit filename, generation
or job name
or document name

ENTER IDENTIFIER IF REQUIRED   L
file name, generation, lbn

ENTER NUMBER OF BUCKETS FOR COPY   L

Transaction name

Transaction code

Program

Characters received

Keystrokes

Characters transmitted

Minimum

Maximum

Absolute

Average

Sheet

Issue

Date

Identity

Page

TPS

Telecomputing: Video Display Layout   EXAMPLE 2

Identity
Page

XIGUJ

CURRENT STATUS OF GLOBAL DOCUMENTS FROM AMENDS

AMENDS

STEERINGLINE   DUMP-PARAMS

Application

Transaction name

Designed by

Program   Transaction code

Characters received   Keystrokes

Characters transmitted

Minimum   Maximum   Absolute   Average

Sheet

Issue

Date

4.3.5   Errors

Message	Reason
Field missing	- A mandatory field has been omitted.
Invalid data	- An invalid field has been input. The cursor is positioned at the start of the offending field.
Insufficient data	- A field necessary for this function has not been entered.
Inconsistent data	- Fields have been input that are not required for this function.
No free LFN	- The limit has been reached on the number of files that can be handled at any one time.
No suitable store cell	- No suitable store cell exists within the current system for file buffering.
File unavailable	- The TPS Edit Well or spool file is currently unavailable.
File missing	- The requested Edit File does not exist.

4.4 XISY

4.4.1 Description

Function Copy a job or document from the Spoolfile or a George 2 or
          George 2+ Input or Output Well into a TPS Edit File

Format   There are two versions of the XISY format: one for 2903/4
          Spoolfile and one for George 2 and George 2+ systems. These
          are shown on the following page.

Entered fields

Mandatory

1. Document or job name   - The Spoolfile (or George 2/George 2+
                              Input/Output) document or job name.

2. Logical File No.   - The logical file number of the TPS
                              Edit Well as allocated at system
                              generation time.

3. Request type   - Type of entry to be copied.

                              G - Global document (2903/4 Spoolfile only)
                              I - Input job
                              O - Output job

Optional

1. File ID to be given   - The name of the Edit File that is to be
                              created to receive the input; if omitted
                              an Edit File is created with the document
                              or job name specified. The created file
                              is given a generation number of zero.

2. Number of line ups   - this field should always be left blank
                              when copying to a TPS Edit File.

3. Device type   - this field should always be left blank
                              when copying to a TPS Edit File

4. Inhibit Central Output?- George 2, George 2+ Systems only.
                              Enter 'Y' if output from the job being
                              copied to the Edit Well is not to be printed
                              by the output module. Enter 'N' if the output
                              is to be printed by the output module.
                              The output print status of the job remains
                              unaltered if this field is left blank.

TPS

4.4.2 XISY formats

1.   2903/4 Spoolfile

```
XISY]
                    COPY A JOB OR DOCUMENT TO A PRINT/EDIT WELL
Enter Document or Job Name          [            ]

Enter Stream ID.to be given         [              ]

Enter L/File No.of Print/Edit Well[    ]

Enter 'Y' or number of Line up's  [    ] (Only used if Copying to a Printwell)

Enter Device Type if Formatting   [     ](Only used if Copying to a Printwell)

Enter Request Type                  [ ]

          G for Global Document

          I for Input Job

          O for Output Job
```

2.   George 2, George 2+

```
XISY]
                    COPY A JOB TO A PRINT/EDIT WELL
Enter a Job Name                    [            ]

Enter Stream ID. to be given        [              ]

Enter L/File No.of Print/Edit Well[    ]

Enter 'Y' or number of Line up's  [    ] (Only used if Copying to a Printwell)

Enter Device Type if Formatting   [     ](Only used if Copying to a Printwell)

Inhibit Central Output?             [ ]

Enter Request Type                  [ ]

          I for Input Job

          O for Output Job
```

3. Example
    Copy the output job ERRORECS to an Edit File to be called
    REINPUTS. The TPS Edit Well is Logical File Number 3.

```
XISY]
                      COPY A JOB OR DOCUMENT TO A PRINT/EDIT WELL
Enter Document or Job Name           [ERRORECS    ]

Enter Stream ID.to be given          [REINPUTS    ]

Enter L/File No.of Print/Edit Well[3    ]

Enter 'Y' or number of Line up's  [    ]  (Only used if copying to a Printwell)

Enter Device Type if Formatting   [    ]  (Only used to copying to a Printwell)

Enter Request Type                [0]

           G for Global Document

           I for Input Job

           0 for Output Job
```

4.4.3 Errors

Message	Reason
Invalid data	- An invalid field has been input. The cursor is positioned at the start of the offending field.
Specified record not on file	- The specified job or document does not exist
Specified record already exists	- A file of the specified name generation zero already exists.
Unable to proceed at present	- The requested job or document is currently being created.

4.5   XIIP

4.5.1 Description

Function Display data from a job or document contained in the Spoolfile or a George 2 or George 2+ Input or Output Well.

Format   There are two versions of the XIIP format: one for 2903/4 Spoolfile and one for George 2 and George 2+ systems. These are shown on the following page.

Entered fields

Mandatory

1.   Document or job name - The Spoolfile (or George 2/George2+ Input/Output) document or job name.

2.   Request type   - Type of spool file entry.
                              G - Global Document
                                  (2903/4 Spoolfile only)
                              I - Input Job
                              O - Output job

Optional

1.   Inhibit Central Output? - George 2, George 2+ Systems only. Enter 'Y' if the output from the job to be displayed is not to be printed by the output module. Enter 'N' if the output is to be printed by output module. The output print status of the job remains unaltered if this field is left blank.

The first screenful of data from the job or document will then be displayed. To display the next page just press the 'SEND' key. The end of each document within a job will be indicated.

In order to skip to the next document XIDS should be entered in the top left-hand corner of the screen and transmitted.

On George 2 or George 2+ systems the input or output well containing the job will be closed when the last page of data has been displayed. In order to close the file early XIDE should be entered in the top left hand corner of the screen and transmitted.

TPS-impact

4.5.2 Formats

1.   2903/4 Spoolfile

```
XIIP]

      Enter Document or Job Name   [              ]

            Enter Request Type   [ ]

         G for Global Document

         I for Input Job

         O for Output Job
```

2.   George 2, George 2+

```
XIIP]

                  Enter Job Name   [              ]

      Inhibit Central Output?   [ ]

            Enter Request Type   [ ]

         I for Input Job

         O for Output Job
```

3.   Example
      Display the contents of the Output job named COBOLCOMP.

```
XIIP]

      Enter Document of Job Name   [ COBOLCOMP   ]

            Enter Request Type     [ O ]

         G for Global Document

         I for Input Job

         O for Output Job
```

4.5.3 <u>Errors</u>

<u>Message</u>	<u>Reason</u>
Invalid Message Length	- Not enough data has been input.
Invalid Request type	- The request type input was not G, I or O.
Record Not Found	- The specified job or document cannot be found
Print Incomplete on Printer	- The requested job or document is currently in use.

TPS

5. GENERATING A TPS SYSTEM INCLUDING THE INTERACTIVE DEVELOPMENT SYSTEM.

5.1 GENERATION PARAMETERS

The Generation Forms should be completed as described in the System Generation Manual. The following amendments are required to the standard generation parameters in order to include the Interactive Development System.

Form 1

To generate Interactive Development System application routines include one of the following parameters on macro £TCAY:

        IO   - IDS for 2903/4 Spool file
        IOG2 - IDS for George 2
        IOG2+ - IDS for George 2+.

This will generate each AR in a different overlay unit of the same overlay area, an overlaying strategy which produces a minimum size program. To greatly improve the performance of the editor it is recommended that the IDS ARs are defined "longhand" on Form 2 as described below and the parameter IO (or IOG2 or IOG2+) omitted from macro £TCAY.

To include the remote printing option of IDS include also the following parameters on macro £TCAY:

    PO - for print option functions ZPOD, ZPCF, ZPDA, ZRPW

    PR - standard print handling.

Form 2

1.   If the parameter PR is not included on macro £TCAY on Form 1 (for Advanced Terminal System), the application routine TPSPMOD16 must be defined using macro £TCAR. This routine, used to initialise the Edit Well during start-up, should be overlaid.

2.   For improved performance the IDS ARs may be defined using macros £TCAR, with the overlaying strategy defined in the table below. In this table 'a' is the overlay area parameter and 'b' is the base overlay unit number. The Application Routines should be chosen from the appropriate column according to the Operating System being used.

Area	Unit	Application Routine Name			Function
		2903/4 Spoolfile	George 2	George 2 +	
a	b	TPSIOCY1	TPSIOGCY1	TPSIGPCY1	Copy job/document from Spoolfile (or input/output wells) to the Edit Well.
a	b+1	TPSIOCY2	TPSIOGCY2	TPSIOGCY2	
a	b+1	TPSIOCY3	TPSIOGCY3	TPSIOGCY3	
a	b+1	TPSFRSLC	-	-	Facility request to access Spoolfile
a	b+1	TPSIOSPL1	TPSIOGL1	TPSIGPL1	Display contents of a job/document from Spoolfile (or input/output wells)
a	b+2	TPSIOSPL2	TPSIOGL2	TPSIOGL2	
a	b+2	TPSIOSPL3	TPSIOGL3	TPSIOGL3	
a	b+3	TPSZFLC	TPSZFLC	TPZFLC	Allocate, extend or deallocate a file
a	b+4	TPSIOXIMS	TPSIOXIMS	TPSIOXIMS	Create an edit file
a	b+5	TPSIOXIEN	TPSIOXIEN	TPSIOXIEN	
a	b+6	TPSIOXILE	TPSIOXILE	TPSIOXILE	List an edit file
a	b+7	TPSIOXICY	TPSIOGXICY	TPSIGPXICY	Copy a file from the Edit Well to the Spoolfile (or input/output wells)
a	b+8	TPSIOXIFU	TPSIOGXIFU	TPSIGPXIFU	Standard functions
a	b+9	TPSXIFUCPY	TPSXIFUCPY	TPSXIFUCPY	
0	0	TPSFRIOERD	TPSFRIOERD	TPSFRIOERD	Facility requests for manipulating the Edit Well.
0	0	TPSFRIOEWR	TPSFRIOEWR	TPSFRIOEWR	
a	b+10	TPSFRIOEOP	TPSFRIOEOP	TPSFRIOEOP	
a	b+11	TPSFRIOSRD	TPSFRIOGRD	TPSFRIOGRD	Facility requests for manipulating Spoolfile (or input/output wells)
a	b+12	TPSFRIOSWR	TPSFRIOGWR	TPSFRIGPWR	
a	b+13	TPSFRIOSOP	TPSFRIOGOP	TPSFRIOGOP	
a	b+14	TPSFRIOSCL	TPSIRIOGCL	TPSFRIOGCL	
a	b+15	TPSEDSTART	TPSEDSTART	TPSEDSTART	TPS Editor
a	b+16	TPSEDABORT	TPSEDABORT	TPSEDABORT	
a	b+17	TPSEDITW	TPSEDITW	TPSEDITW	
a	b+18	TPSEDIN	TPSEDIN	TPSEDIN	
a	b+18	TPSEDOUT	TPSEDOUT	TPSEDOUT	
a	b+17	TPSPREDIT	TPSPREDIT	TPSPREDIT	
a	b+19	TPSEDITOR	TPSEDITOR	TPSEDITOR	
a	b+20	TPSEDINIT	TPSEDINIT	TPSEDINIT	

Form 3

1. To generate the standard abort train including the aborting of IDS
    functions, include the following parameter to the £TCTY macro in
    Section 6:

    IO

    If for any reason the abort train is defined longhand using macro
    £TCTR (From 4), in order to include the IDS abort function
    TPSEDABORT should be specified in the train immediately following
    TPSJOURNAL.

2. Include one of the following parameters for the £TCTY macro in
    the last section:

    IO   - to generate AR trains for IDS functions using the
             2903/4 Spoolfile.
    IOG2   - to generate AR trains for IDS functions using
             George 2.
    IOG2+ - to generate AR trains for IDS functions using
             George 2+.

3. To incorporate the remote printing option of IDS, include the
    following parameter for the £TCTY macro in the last section:-

    PO   - to generate AR trains for print option functions
             ZPOD, ZPCF, ZPDA, ZRPW

Form 5

The size defined for the message area must be at least 550 words to allow
processing of all IDS functions.

Form 7

The size defined for the user TCR must be at least 132 words, as
certain IDS functions use the last 132 words of the User TCR.

Form 9

1. For use by IDS, a store cell of at least 512 words must be available.

2. The store cell chain defined for the Edit Well must contain at
    least two store cells. Where several threads may be editing edit
    files, two cells should be available per thread to avoid the
    possibility of a deadly embrace. This chain need not be dedicated
    to use by the Edit Well.

3. Two store cells are used as file buffers for each thread editing
    composite, simple or record files, and for each thread using the
    XIFU copy function. TPS will obtain the store required from any
    chain which contains cells of a sufficient size.

Form 10.1

1. In Section 1 (macro £TCIF) specify a list of Logical File Numbers
   of "spare" logical files to be used by the Editor and for the
   XIFU copy function. Allow 2 spare LFN's for every concurrent
   Edit or Copy. In George 2 or George 2+ systems one of the spare
   LFN's is also used when opening input or output wells (for functions
   XISY, XICY etc.)

2. In Section 2, (macro £TCIO must be completed with up to 6 parameters
   as follows:

   Logical File Number of the Spoolfile.

   > Required only for systems using 2903/4 Spoolfile. For George
   > 2 and George 2+ systems this parameter is not needed; a
   > comma should be entered.

   Logical File Number of the Edit Well.

   > Must be specified for all IDS Systems.

   Generation numbers for input wells.

   > For systems using the 2903/4 Spoolfile, these parameters are
   > not required. For George 2 and George 2+ systems these
   > parameters indicate the lowest and highest generation of the
   > input wells to be accessed by IDS. If omitted, input wells
   > with generation numbers 1 to 8 are used.

   Generation numbers for output wells.

   > For systems using the 2903/4 Spoolfile, these parameters are not
   > required. For George 2 and George 2+ systems these parameters
   > indicate the lowest and highest generation of the output wells
   > to be accessed by IDS. If omitted, generation numbers specified
   > for input wells are used.

Form 11

Define the Edit Well, the Spoolfile (for 2903/4 users) and the spare
LFN's (see Form 10.1 above) on macro £TCDA as type LBNF.

Form 12.0

1. To generate IDS facilities request codes, include one of the
   following parameters on macro £TCEF:

   IO   - IDS for 2903/4 Spoolfile

   IOG2 - IDS for George 2

   IOG2+ - IDS for George 2+

2. If the remote printing option of IDS is being used, include also
   the following parameter on macro £TCEF:

   PR

TPS

Form 12.1

If the remote printing option is to be used, include Sections 5 and 6 (macro £TCPR) with parameters as described in the System Generation Manual.

Form 12.3

If the parameter PR is already included on macro £TCOF, no additional parameters are required.

If the parameter PR is not specified, include one of the following parameters on macro £TCOF, to generate IDS software:

    IO   - IDS for 2903/4 Spoolfile

    IOG2 - IDS for George 2

    IOG2+ - IDS for George 2+

Form 20 (only required if formats to be held in store).

1. To generate formats in store for the IDS functions, include one of the following parameters on macro £TCFY (English formats) or £TCFX (French formats):

        IO   - IDS for 2903/4 Spoolfile

        IOG2 - IDS for George 2

        IOG2+ - IDS for George 2+

    Formats in store for individual IDS functions may be generated by omitting the parameter IO (or IOG2 or IOG2+) and instead including parameters as required from the following table:

Function	Parameter		
	Spoolfile	George 2	George 2+
Apply edit instructions	XEDT	XEDT	XEDT
Edit data	XEIN	XEIN	XEIN
Copy from Edit Well	XICY	XICYG2	XICYG2+
Display data from Spoolfile or Input/Output well	XIDP	XIDP	XIDP
Input data to edit file	XIEN	XIEN	XIEN
Standard functions	XIFU	XIFU	XIFU
File list	XIGU	XIGU	XIGU
Display from Spoolfile or Input/Output well	XIIP	XIIPG2	XIIPG2+

Function	Parameter		
Display data from edit file	XILE	XILE	XILE
Create an edit file	XIMS	XIMS	XIMS
Copy to Edit Well	XISY	XISYG2	XISYG2-
File allocation/deallocation	ZFLC	ZFLC	ZFLC

2. To generate formats in store for the remote printing options of
    IDS, include the following parameters on macro £TCFY (English
    formats) or macro £TCFX (French formats):

    PO - print option functions ZPOD, ZPCF, ZPDS, ZRPW

    PR - standard print functions XFPR, ZPQR.

Form 23A

1. To generate IDS standard message type table entries, include
    one of the following parameters on macro £TCMY:

    IO   - IDS for 2903/4 Spoolfile

    IOG2 - IDS for George 2

    IOG2+ - IDS for George 2+

    Where the user is changing some of the IDS format identifiers (see
    Section 5.3), message type table entries for individual functions may
    be generated by omitting the parameter IO (or IOG2 or IOG2+) and
    instead including parameters as required from the following list:

Function	Parameter
Apply edit instructions	XEDT
Edit data	XEIN
Copy from Edit Well	XICY
Display data from Spoolfile or Input/Output well	XIDP
Input data to edit file	XIEN
Standard functions	XIFU
File list	XIGU
Display from Spoolfile or Input/Output well	XIIP
Display data from edit file	XILE
Create an edit file	XIMS
Copy to Edit Well	XISY
File allocation/ deallocation	ZFLC

2.   To generate standard message type table entries for the remote
     printing option of IDS, include the following parameters on
     macro £TCMY:

         PO - print option functions ZPOD, ZPCF,ZPDA, ZRPW

         PR - standard print functions XFPR, ZPQR etc.,

Form F3 (Formats on disc)

1 To generate formats on disc for the IDS functions, include one of the
  following parameters on macro £TCFY (English formats) or £TCFX (French formats)

         IO   - IDS for 2903/4 Spoolfile

         IOG2 - IDS for George 2

         IOG2+ - IDS for George 2+

Formats on disc for individual IDS functions may be generated by omitting
the parameter IO (or IOG2 or IOG2+) and instead including parameters
as required from the following table:

Function	Parameter		
	Spoolfile	George 2	George 2+
Apply edit instructions	XEDT	XEDT	XEDT
Edit data	XEIN	XEIN	XEIN
Copy from Edit Well	XICY	XICYG2	XICYG2+
Display data from Spoolfile or Input/Output well	XIDP	XIDP	XIDP
Input data to edit file	XIEN	XEIN	XIEN
Standard functions	XIFU	XIFU	XIFU
File list	XIGU	XIGU	XIGU
Display from Spoolfile or Input/Output well	XIIP	XIIPG2	XIIPG2+
Display data from edit file	XILE	XILE	XILE
Create an edit file	XIMS	XIMS	XIMS
Copy to Edit Well	XISY	XISYG2	XISYG2+
File allocation/ deallocation	ZFLC	ZFLC	ZFLC

2.   To generate formats on disc for the remote printing option of IDS,
     include the following parameters on macro £TCFY (English formats)
     or £TCFX (French formats):

         PO - print option functions ZPOD, ZPCF, ZPDA, ZRPW

         PR - standard option functions XFPR, ZPQR.

<u>Form F5</u> (Formats on disc)

1.   To generate format table entries for the IDS functions, include
     one of the following parameters on macro £TCMY:

         IOF   - IDS for 2903/4 Spoolfile
         IOG2F   - IDS for George 2
         IOG2+F   - IDS for George 2+

     Format table entries for individual IDS functions may be generated
     by omitting the parameter IOF (or IOG2F or IOG2+F) and instead
     including parameters as required from the following list:

Function	Parameter
Apply edit instructions	XEDT
Edit data	XEIN
Copy from Edit Well	XICY
Display data from Spoolfile or Input/Output well	XIDP
Input data to edit file	XIEN
Standard functions	XIFU
File list	XIGU
Display from Spoolfile or Input/Output well	XIIP
Display data from edit file	XILE
Create an edit file	XIMS
Copy to Edit Well	XISY
File allocation/ deallocation	ZFLC

2.   To generate format table entries for the remote printing option of
     IDS, include the following parameters on macro £TCMY:

         POF - print option functions ZPOD, ZPCF, ZPDA, ZRPW

         PRF - standard print functions XFPR, ZPQR

5.2   TPSM PARAMETERS

TPSM parameters for a TPS program including IDS should be specified
as for a standard program - see System Generation manual, Part 2.

Among the file specifications must be included definitions of the
following files used by IDS:

> Edit Well
>
> Spoolfile (2903/4 Spoolfile version only)
>
> Spare LFN's for Editor/Copy function.

The TPSM parameters for these files are as described for standard
files but with the following specific parameters required.

1.   Edit Well

MAIN n nn   mn is the Logical File Number as defined
                     on macro £TCIO on Form 10.1.

TYPE OVERLAY

MODE (EDIT,START)

RETE (0,0,0,0,0,)

STOR n   The store chain specified should include at
                     least two store cells

ACCE (READ,WRITE,MYNEXT,SPECIFIC)

2.   Spoolfile (2903/4 Spoolfile version only)

MAIN n nn   nnn is the Logical File Number as defined on
                     macro £TCIO on Form 10.1.

TYPE INPUT

MODE (SPOOL,START)

RETE (0,0,0,0,0,0)

STOR n   One cell is used as a Spoolfile buffer for
                     each thread processing an IDS function which
                     accesses the Spoolfile.

ACCE (READ,WRITE,MYNEXT,SPECIFIC)

WORK (1,0,1,0)

FILE GEOSPOOLFILE

TPS

3.   "Spare" Logical Files

One specification is required for each of the spare Logical
File numbers defined on macro £TCIF, to be used by the Edit
and copy functions and when opening George 2 or George 2+
input/output wells.

MAIN nnn   nnn is a 'spare' Logical File Number as
                         defined on macro £TCIF on Form 10.1.

TYPE OUTPUT

MODE (LBNF)

RETE (0,0,0,0,0,0)

STOR n
                         The chain specified should contain store cells
                         of sufficient size to accommodate the largest
                         bucket size of files which may use the 'spare'
                         LFN, other than files being edited or copied
                         using XIFU. (e.g. George 2/George 2+ input/
                         output wells, Teleload library file if TPS-
                         teleload facility included).

ACCE (READ,WRITE,SPECIFIC,NEXT)

MONI FAIL

WORK (0,0,0,0)

EXTEND (n)   n indicates the number of buckets by which
                         an output file is to be automatically
                         extended when full.

FILE xxxxxxxxxxxx   xxxxxxxxxxxx is a dummy file name.

4.   Examples

Edit Well

```
TPSM0201  MAIN 3, TYPE OVER,   MODE(EDIT,START), RETE (0,0,0,0,0,0)
TPSM0202  STOR 7, ACCE(READ,WRIT,SPEC,MYNEXT),   WORK(1,0,1,0)
TPSM0203  FILE TPSEDITWELL
```

Spoolfile (2903/4 version only)

```
TPSM0201  MAIN 2, TYPE INPU,   MODE (SPOOL,STAR),  RETE(0,0,0,0,0,0)
TPSM0202  STOR 2, ACCE(READ,WRIT,SPEC,MYNEXT),  WORK(1,0,1,0)
TPSM0203  FILE GEOSPOOLFILE
```

Spare Logical File

```
TPSM0201  MAIN 4, TYPE OUTP,   MODE(LBNF), RETE(0,0,0,0,0,0)
TPSM0202  STOR 1, ACCE(READ,WRITE,SPEC,NEXT), MONI FAIL
TPSM0203  WORK(1,0,1,0),  EXTEND (80),  FILE ED
```

5.3   CHANGING FORMAT IDENTIFIERS

Most of the IDS functions are standard 'X' functions and as such are
available to all terminal users. Users may have a requirement to
restrict access to certain of the IDS functions;   this may be achieved
by changing the appropriate IDS format identifiers to identifiers
in the user range (i.e. beginning with letters A-W). Users may then
gain access to these new functions in the usual way.

The only restriction on changing of identifiers is that if identifier
XIDP is changed, the special identifiers XIDE and XIDS may not be
used.

To incorporate the identifier changes, the generation parameters
should be modified as described below.

5.3.1 Control routine amendments

Form 18 (only required if formats to be held in store)

Any formats for IDS functions with non-standard identifiers which
are to be held in store should be defined longhand using the macro
£TCFM. All details except the format identifier itself should be
identical to those on the corresponding standard IDS format.

Form 20 (only required if formats to be held in store)

Any formats for IDS functions with standard identifiers which are
to be held in store may be generated using the parameters described
in Section 5.1 above.

Form 23

Message type entries for IDS functions with non-standard identifiers
are defined longhand using macro £TCMT. All parameters except for the
identifier itself should be identical to those generated for the
corresponding standard IDS function.

Form 23A

Remove the parameter IO (or IOG2 or IOG2+) from macro £TCMY on Form 23A.
Message type table entries for IDS function with standard identifiers
are generated by including parameters for the individual functions
as described in Section 5.1 above.

Form 25/Form 26

An additional table is defined at the end of the generation parameters,
immediately before the parameter #END. This should have the following
format :

```
        #UPPER
        TAB                4Hxxxx,4Hyyyy
                           4Hxxxx,4Hyyyy
                           -1
        #LOWER             COMMON/TPSMTCONV/
        TPSMTCONV          /TAB
```

where xxxx is a standard IDS identifier
     yyyy is the replacement identifier.

These pairs of parameters should be repeated for each standard
identifier to be changed.

5.3.2 Format File

Where formats are held on disc it is recommended that the format
file is generated to include all standard versions of the IDS formats.
The online format file editing function ZFFL may then be used to
change the identifier of the standard format as follows:

1.   Use copy function to create new format with non-standard identifier.

2.   Delete standard version of format.

5.4   THE EDIT WELL

The Edit Well should be allocated as a serial file with three-word
bucket headers. It is recommended that the Edit Well is allocated
as a two-block bucket file for the most efficient use of the space
available.

If necessary, the Edit Well is automatically initialised by TPS
during start-up procedures. The first bucket of the file is checked;
if this is not in Edit Well format the bucket headers of all buckets
in the file are reset.

Buckets within the Edit Well are used for two purposes: as index
buckets and as data buckets. For each edit file an index record 16
words long is recorded in the index. The data records within an
edit file are as entered (with trailing spaces removed), with a
word count added to each record. Buckets for the index, for each
edit file, and "free" buckets are chained together, using the third
word of the bucket header to indicate the next bucket in a chain.

Users should ensure that the Edit Well allocated is of adequate
size to hold all required edit files: there is no facility for
extending the size of an edit file. If an additional file area
is allocated the extra buckets are not utilised by IDS as they are
not specified in its chain of "free" buckets. If it becomes necessary
to increase the size of the Edit Well, the following steps are necessary:

-   use IDS to copy all edit files which are to be kept from the
    Edit Well to the Spoolfile (or Input/Output wells)

-   allocate a larger Edit Well.

-   ensure that the first bucket of the new Edit Well is not in
    Edit Well format.

-   load the IDS program. Start-up routines will initialise the
    Edit Well.

-   copy edit files from Spoolfile (or Input/Output wells) into
    the new Edit Well.

6.   REMOTE PRINTING FROM SPOOL FILES

6.1   INTRODUCTION

The Remote Printing from spool files option provides facilities to allow printing of documents or jobs held in the 2903/4 Spoolfile (or George 2 or George 2+ input or output wells) at a remote printer attached to a TPS program. This is achieved using the following TPS functions:

XISY - to transfer a job or document from the Spoolfile (or George 2 or George 2+ Input or Output Well) into a TPS Print Well. If required, while being transferred the data is reformatted for output to the remote printer.

ZPOD - to request output of a job or document from the Print Well to a specified printer.

ZPAD - to amend an output request input via the ZPOD function.

ZPCF - to control the printing; this allows the user to suspend, resume or cancel a print output request, to alter the priority of an output request, or to delete a job or document from the Print Well.

ZRPW - to reset the Print Well to its initial state, deleting any jobs or documents currently held in the well.

The remainder of Section 6 describes in detail the use of each of these functions.

In addition to these functions which form the Remote Printing facility, several standard TPS functions are supplied to assist in the controlling of terminal printer devices. These functions (XFPR, ZPQR and "control" functions) are fully described in the TPS System Designers Manual (for users of the full TPS system) or the TPS Free-Standing Program Operating Manual.

TPS

6.2   TRANSFER OF SPOOL FILE DATA FOR REMOTE PRINTING : FUNCTION XISY

This function copies a job or document from the Spoolfile or a George 2
or George 2+ Input or Output Well into a TPS Print Well.

6.2.1 Format displayed in Response to XISY

On entry of XISY in the first four character positions of the screen,
the appropriate version of the format as shown below is displayed,
according to the operating environment.

The record of the "last restart" and "previous" screens is preserved.

1.   2903/4 Spoolfile

```
XISY]
                      COPY A JOB OR DOCUMENT TO A PRINT/EDIT WELL
Enter Document or Job Name            [              ]

Enter Stream ID.to be given           [              ]

Enter L/File No.of Print/Edit Well[    ]

Enter 'Y' or number of Line up's  [    ] (Only used if Copying to a Printwell)

Enter Device Type if Formatting   [     ](Only used if Copying to a Printwell)

Enter Request Type                [ ]

          G for Global Document

          I for Input Job

          O for Output Job
```

TPS

2.   George 2, George 2+

```
╭─────────────────────────────────────────────────────────────────────────────╮
│ XISY]                                                                      ·  │
│                    COPY A JOB TO A PRINT/EDIT WELL                             │
│ Enter a Job Name                        [              ]                       │
│                                                                               │
│ Enter Stream ID to be given             [              ]                       │
│                                                                               │
│ Enter L/File No.of Print/Edit Well[    ]                                       │
│                                                                               │
│ Enter 'Y' or number of Line up's  [    ] (Only used if Copying to a Printwell) │
│                                                                               │
│ Enter Device Type if Formatting   [      ](Only used if Copying to a Printwell)│
│                                                                               │
│ Inhibit Central Output?           [ ]                                          │
│                                                                               │
│ Enter Request Type                [ ]                                          │
│                                                                               │
│             I for Input Job                                                    │
│                                                                               │
│             O for Output Job                                                   │
│                                                                               │
```

6.2.2 Completion of the XISY Screen

On display of the XISY format, details are entered as follows:

Document or job name
: the name of the document or job to be copied from the Spoolfile or George 2/ George 2+ Input/Output Well.

Stream ID to be given
: the name of the Print Stream that is to be created to receive the input; if omitted a Print Stream is created with the document or job name specified.

Logical File Number
: the logical file number of the TPS Print Well into which the job or document is to be copied.

Number of line ups
: this field is completed if line-up records are to be created in the Print Stream.

    Blank   - no line-up records are to be created

    n (numeric) - the first n records in the job or document are to be line-up records in the Print Stream.

    Y   - records within the job or

> document which have been
> marked as line-up records
> by the operating system,
> are to be copied as line-up
> records in the Print Stream.

Device Type
: this field is completed if data is to be formatted and buffered when copying to the Print Well.

Blank - records from the job or document are transferred to the Print Well without formatting.

TERM - when copying into the Print Well, the data is formatted as appropriate for a 7502 terminal printer.

Inhibit Central Output?
: George 2, George 2+ systems only. This may be used to alter the output print status of the job being copied.

Blank - the output print status of the job remains unaltered.

Y - output from the job being copied to the Print Well is not to be printed by the output module.

N - output from the job being copied to the Print Well is to be printed by the output module.

Request type
: Type of Entry to be copied.

G - Global document (2903/4 Spoolfile only)

I - Input job

O - Ouptut job.

6.2.3 Example

Copy the output job ERRORECS to a Print Stream called ABERRORECS in TPS Print Well Logical File Number 2 for printing on a 7502 terminal printer. No line-ups are required.

```
XISY]
                    COPY A JOB OR DOCUMENT TO A PRINT/EDIT WELL
Enter Document or Job Name          [ERRORECS    ]

Enter Stream ID.to be given         [ABERRORECS  ]

Enter L/File No.of Print/Edit Well[27   ]

Enter 'Y' or number of Line up's  [    ]  (Only used if copying to a Printwell)

Enter Device Type if Formatting   [TERM]  (Only used to copying to a Printwell)

Enter Request Type                [O]

           G for Global Document

           I for Input Job

           O for Output Job
```

6.2.4 Action by the System on Receipt of the Completed XISY Screen.

6.2.4.1 Validation

The fields input are checked to ensure that they are valid. Where an
error is found, one of the following messages is displayed on the line
specified for TPS messages (usually line 1), and the cursor positioned
at the field in error:

1. FIELD MISSING
    A mandatory field has been completed.

2. INVALID DATA
    A field has been completed with an incorrect parameter.

3. SPECIFIED RECORD NOT ON FILE
    The specified job or document cannot be located within the spoolfile
    (or the range of George 2/George2+ Input/Output Wells specified to
    be used by TPS functions).

4. SPECIFIED STREAM ALREADY EXISTS
    The specified print stream already exists within the nominated
    Print Well.

5. UNABLE TO PROCEED AT PRESENT
    The requested job or document is currently being created.

6.2.4.2 Copying of data to the Print Well

Where all fields input are valid, the message 'CONFIRMED' is displayed
on the line specified for TPS messages (usually line 1) before the copy
commences. The terminal may then be used for other functions whilst
the copy is in progress.

The copying of data is governed by the device type parameter entered.
Where this field is left blank, records from the job or document are
transferred to the Print Well without formatting. Each record within
the job or document becomes a print item.

Where the device type 'TERM' is specified, the data copied is formatted
as appropriate for a 7502 terminal printer. In formatting the data,
characters within the job or document records are interpreted as follows:

    $ - converted to ↑T
    ] - converted to ↑U
    ↑ - converted to ↑V
    ← - converted to ↑W

In addition, printer control characters are converted to control characters
appropriate to the termiprinter.

Records from the job/document are grouped into print items; the maximum
size print item created is 128 characters. A print restart point is
created for each throw to Channel-1.

6.2.4.3 Response on completion of copy

On successful completion of the copy to the Print Well a message:

    xxxxxxxxxxxx COPY COMPLETED

(where xxxxxxxxxxxx is the job or document which has been copied)

is displayed on the line specified for TPS messages (usually line 1).
This message also activates the audible terminal alarm.

6.3   REQUEST OUTPUT OF PRINT DATA : FUNCTION ZPOD

This function is used to request output of a Print Stream to a
specified printer.

6.3.1 Format displayed in response to ZPOD

On entry of ZPOD in the first four character positions the system will
check for Master or System Status if this has been specified as a
requirement at system generation time. If the correct status is not
held, the password prompt is displayed for entry of the system password.
If the correct status is held, the format shown below is displayed.

The record of the 'last restart' and 'previous' screens is preserved.

```
ZPOD]
              TPS STANDARD PRINTER FUNCTIONS - REQUEST OUTPUT OF A PRINT STREAM


  Logical File Number                                      [   ]

  Stream Identifier                                        [                    ]

  Demand Identifier                                        [                    ]

  Priority (0-4095) (Default O)                            [     ]

  Destination Terminal Number                              [     ]

  Preamble/Postscript Indicator(Default Value O)           [ ]
    O=No 1=Yes 2=Confirmation 3=Yes+Confirmation

  If Destroy Required Enter Number of Restarts to Save     [ ]
    (Default - Do not Destroy)

  Print by section (Y,N or R) (Default Value N)            [ ]
                      (R=Release at Section End)
```

6.3.2 Completion of the ZPOD Screen

On display of the ZPOD screen, details are entered as follows:

Logical File Number   : the Logical file number of the TPS Print
                                Well which holds the stream to be output.

Stream identifier   : the name of the Print Stream that is to
                                be output (i.e. as used for the XISY copy
                                function).

Demand identifier : the name of the print demand to be created requesting output of the Print Stream.

Priority : this may be completed to control the sequence of output of demands to a single printer (the demand with highest priority is serviced first). If omitted, a priority of zero is assigned.

Destination terminal : the TPS identifier of the printer to which the stream is to be output.

Preamble/Postscript indicator : may be entered to cause printing of preamble or postscript, or confirmation of output.

Blank or 0 - no action

1 - report will be preceded and followed by a page containing the stream identifier for identification purposes.

2 - confirmation of completion of the print will be output to the terminal which input the ZPOD.

3 - combines the functions 1 and 2.

Destroy depth : may be entered if the stream is to be deleted from the Print Well as it is printed. Enter a value in the range 1 to 8 to indicate the number of 'restart points' (i.e. pages) to be retained for restart purposes. If omitted, the stream is not destroyed.

Print by section : leave this field blank.

6.3.3 Example

Output the Print Stream ABERRORECS held in Print Well Logical File Number 2 to printer number 8. No special demand identifier and priority are required. Preamble and postscript prints are required, and the completion of print is to be confirmed to the originating terminal. The stream is to be destroyed as it is printed, but retaining 4 pages for restart purposes.

```
 ZPOD]
           TPS STANDARD PRINTER FUNCTIONS -- REQUEST OUTPUT OF A PRINT STREAM


 Logical File Number                                    [2  ]

 Stream Identifier                                      [ABERRORECS  ]

 Demand Identifier                                      [            ]

 Priority (0-4095) (Default 0)                          [    ]

 Destination Terminal Number                            [8   ]

 Preamble/Postscript Indicator(Default Value 0)         [3]
   0=No 1=Yes 2=Confirmation 3=Yes+Confirmation

 If Destroy Required Enter Number of Restarts to Save   [4]
   (Default -- Do not Destroy)

 Print by Section (Y,N or R) (Default Value N)          [ ]
                       (R=Release at Section End)
```

6.3.4 Action of the System on Receipt of the Completed ZPOD Screen

6.3.4.1 Validation

The fields input are checked to ensure that they are valid. Where an
error is found, one of the following messages is displayed on the line
specified for TPS messages (usually line 1), and the cursor positioned
at the field in error:

1.   INSUFFICIENT DATA
     A mandatory field has not been completed.

2.   INVALID DATA
     A field has been completed with an incorrect parameter.

3.   LEVEL 1 ERROR #0001
     The specified stream is not present in the Print Well.

4.   LEVEL 1 ERROR #0002
     Invalid demand identifier.

5.   LEVEL 1 ERROR #0003
     The Print Well specified is unavailable at present.

6. LEVEL 1 ERROR #0004
   An output request with the specified demand identifier is
   already present in the print well.

7. LEVEL 1 ERROR #0005
   The specified stream is being destroyed, so further output
   requests cannot be accepted.

6.3.4.2 Processing the request for output

Where all fields input are valid, details of the request for output
are created as a 'print demand record' on the Print Well. The request
is then placed on a queue relating to the nominated printer, according
to the demand priority specified. If the printer is not in use, printing
commences immediately; otherwise printing will begin when the printer
becomes available. The "controlling" terminal, which receives any
messages relating to the output (e.g. Fix printer, Check line-ups etc)
is the terminal which input the ZPOD function.

Processing is completed by the display of the message 'CONFIRMED' on
the line specified for TPS messages (usually line 1).

6.4   AMEND OUTPUT REQUEST PARAMETERS : FUNCTION ZPDA

This function is used to amend the output request parameters (i.e.
'print demand') input using function ZPOD.

6.4.1 <u>Format displayed in response to ZPDA</u>

On entry of ZPDA in the first four character positions the system will
check for Master or System Status if this has been specified as a
requirement at system generation time. If the correct status is not
held, the password prompt is displayed for entry of the system password.
If the correct status is held, the format shown below is displayed.

The record of the 'last restart' and 'previous' screens is preserved.

```
ZPDA]
          TPS STANDARD PRINTER FUNCTIONS - AMEND A PRINT DEMAND RECORD


Logical File Number                                [   ]

Stream Identifier                                  [           ]

Demand Identifier                                  [           ]

New Destination Terminal Number (Printer)          [     ]

New Controlling Terminal Number                    [     ]
```

6.4.2 <u>Completion of the ZPDA Screen</u>

On display of the ZPDA screen, details are entered as follows:

Logical File Number   : the Logical File number of the TPS Print
                               Well holding the stream for which the
                               request parameters are to be output.

Stream identifier   : the name of the Print Stream for which the
                               output request parameters are to be amended.

Demand identifier   : the name of the print demand requesting
                               output of the stream which is to be amended.

New destination terminal   : the TPS identifier of the printer to which
            number   the stream is now to be output. If omitted,
                               the stream is output to the terminal last
                               specified using ZPOD or ZPDA functions.

New Controlling terminal   : the TPS identifier of the terminal which is
            number   to control the output (i.e. receive responses

relating to the output). If omitted, the
controlling terminal is the last specified
using the ZPDA function (or the terminal
which input the ZPOD function if no previous
ZPDA has been issued).

6.4.3 Example

Amend the output request relating to print stream ABERRORECS in Print
Well logical file number 2, so that the output is now directed to
printer number 10 and controlled by terminal 12.

```
ZPDA]
        TPS STANDARD PRINTER FUNCTIONS - AMEND A PRINT DEMAND RECORD


Logical File Number                              [2  ]

Stream Identifier                                [ABERRORECS  ]

Demand Identifier                                [          ]

New Destination Terminal Number (Printer)        [10  ]

New Controlling Terminal Number                  [12  ]
```

6.4.4 Action of the system on Receipt of the Completed ZPDA Screen

6.4.4.1 Validation

The fields input are checked to ensure that they are valid. Where an
error is found, one of the following messages is displayed on the line
specified for TPS messages (usually line 1), and the cursor positioned
at the field in error:

1.   INSUFFICIENT DATA
     A mandatory field has not been completed.

2.   INVALID DATA
     A field has been completed with an incorrect parameter.

3.   LEVEL 1 ERROR #0003
     Print Well unavailable at present.

4.   LEVEL 1 ERROR #0010
     No output request (i.e. demand record) with the specified
     identifier is present in the Print Well).

5.   LEVEL 1 ERROR #0016
     The new destination terminal specified is the same as the current
     one.

6.   LEVEL 1 ERROR #0017
      The new controlling terminal specified is the same as the current
      one.

7.   LEVEL 1 ERROR #0020
      The output request cannot be amended as output is currently in
      progress to the old destination terminal.

6.4.4.2 Amending the output request

Where all fields input are valid, the parameters for the output request
(i.e. the 'print demand record') are amended according to the data
input. The amended request is then scheduled for output to the nominated
printer, according to its demand priority.

Processing is completed by the display of the message 'CONFIRMED' on the
line specified for TPS messages (usually line 1).

6.5   CONTROL OF THE PRINT : FUNCTION ZPCF

This function is used to control the printing, and allows the user
to suspend, resume or cancel a print output request, to reset the
priority of an output request or to delete a stream from the print
well.

6.5.1 Format displayed in response to ZPCF

On entry of ZPCF in the first four character positions the system will
check for Master or System Status if this has been specified as a
requirement at system generation time. If the correct status is not
held, the password prompt is displayed for entry of the system password.
If the correct status is held, the format shown below is displayed.

The record of the 'last restart' and 'previous' screens is preserved.

```
ZPCF]
                    TPS STANDARD PRINTER FUNCTIONS
Function                                              [ ]

Logical File Number                                  [   ]

Stream Identifier                                    [                ]

Demand Identifier                                    [                ]

Priority (0-4095) (Default 0)                        [   ]

Restart Point (Default to Current Position)          [   ]

Line-up Records to be Repeated ? (Y or N) (Default N) [ ]

      Function types :-

      C Cancel a Print Demand
      D Delete a Print Stream
      P Reset the Priority of a Print Demand
      R Resume a Print Demand
      S Suspend a Print Demand
```

6.5.2 Completion of the ZPCF screen

On display of the ZPCF screen, details are entered as follows:

Function   : the function which is to be performed;
                                  this must be from the following list.

                                  C - cancel an output request ('print demand')

                                  D - delete a print stream

P - reset the priority of an output request

R - resume an output request

S - suspend an output request.

Logical File Number
: the logical file number of the TPS Print Well holding the stream for which the function is to be performed.

Stream identifier
: the name of the print stream for which the function is to be performed.

Demand identifier
: the name of the print demand requesting output of the stream, for which the function is to act. This parameter is not applicable for function 'D', and must be left blank for this function.

Priority
: this must be left blank for all functions except 'P'. For function 'P' this gives the new priority to be assigned to the output request. If omitted for function 'P', a priority of zero is given.

Restart point
: this must be left blank for all functions except 'R'. For function 'R' this defines the position within the stream at which printing is to restart. The contents of this field have the following significance:

Blank : restart the print at the current point (i.e. without reprinting any data)

Positive (unsigned) number : this indicates the number of restart points (i.e. pages) from the start of the stream at which printing is to recommence. The use of this is not recommended if the stream is being destroyed whilst printing, as in this case the required restarts point is calculated from the start of the partial stream remaining.

Negative (signed) number : this gives the number of restart points (i.e. pages) to be reprinted when the print output is restarted. If the stream is being destroyed whilst printing, the value specified should not be greater than the destroy depth specified on function ZPOD.

Line-up records to be repeated	: this must be left blank for all functions except 'R'. For function 'R' this specifies whether or not any line-up records present in the stream are to be reprinted before resuming printing of the data : specify 'Y' for line-ups, 'N' for no line-ups. If omitted for function 'R', line-up records are not printed.

6.5.3 Example

Resume the output request for Print Stream ABERRORECS held in Print Well logical file number 2. Two pages are to be reprinted when the print is restarted. No line-up procedure is needed.

```
ZPCF]
                    TPS STANDARD PRINTER FUNCTIONS
Function                                              [R]

Logical File Number                                  [2  ]

Stream Identifier                                    [ABERRORECS  ]

Demand Identifier                                    [           ]

Priority (0-4095) (Default 0)                        [    ]

Restart Point (Default to Current Position)          [-2  ]

Line-up Records to be Repeated ? (Y or N) (Default N)  [ ]

        Function types :-

        C Cancel a Print Demand
        D Delete a Print Stream
        P Reset the Priority of a Print Demand
        R Resume a Print Demand
        S Suspend a Print Demand
```

6.5.4 Action of the system on Receipt of the Completed ZPCF Screen

6.5.4.1 Validation

The fields input are checked to ensure that they are valid. Where an error is found, one of the following messages is displayed on the line specified for TPS messages (usually line 1), and the cursor positioned at the field in error:

1. INSUFFICIENT DATA
    A mandatory field has not been completed.

2. INVALID DATA
    A field has been completed with an incorrect parameter.

3. FILE UNAVAILABLE
    Print well unavailable at present

4. LEVEL 1 ERROR #0001
    No stream with the specified identifier is present in the print well.

5. LEVEL 1 ERROR #0003
    Print Well unavailable at present.

6. LEVEL 1 ERROR #0010
    No output request (i.e. demand record) with the specified identifier
    is present in the print well.

7. LEVEL 1 ERROR #0012
    Nominated restart point not present in the stream (Function 'R' only)

8. LEVEL 1 ERROR #0013
    The output request (i.e. demand) cannot be resumed as it is not
    currently suspended (Function 'R' only).

9. LEVEL 1 ERROR #0014
    The stream cannot be deleted as there are output requests outstanding
    for it. (Function 'D' only).

10. LEVEL 1 ERROR #0015
    The stream is already being deleted (Function 'D' only)

6.5.4.2 Cancelling an output request

Details of the specified output request (i.e. print demand record) are
removed from the Print Well. No printing of the stream will take place
unless another output request is made using function ZPOD.

Processing is completed by the display of the message 'CONFIRMED' on the
line specified for TPS messages (usually line 1).

6.5.4.3 Deleting a print stream

The nominated print stream is removed from the Print Well.

Processing is completed by the display of the message 'CONFIRMED' on the
line specified for TPS messages (usually line 1).

6.5.4.4 Resetting the priority of an output request

The priority of the specified output request (i.e. print demand record)
in the Print Well is amended. The amended request is then scheduled
for output according to the new priority.

Processing is completed by the display of the message 'CONFIRMED' on
the line specified for TPS messages (usually line 1).

6.5.4.5 Resuming an output request

The specified output request is scheduled for printing at the appropriate
printer according to its priority. When printing of the stream is
restarted, line-up records will be repeated if requested; the print will
start at the specified restart point with respect to the place reached
at the time the output was suspended.

Processing is completed by the display of the message 'CONFIRMED' on the
line specified for TPS messages (usually line 1).

6.5.4.6 Suspending an output request

The specified request is marked in the Print Well as suspended; if printing
of the output was in progress, this is terminated and the printer released
to service other output requests. The output request is not subsequently
scheduled for printing until a resume function is input for the request.

Processing is completed by the display of the message 'CONFIRMED' on the
line specified for TPS messages (usually line 1).

6.6   RESET THE PRINT WELL : FUNCTION ZRPW

This function is used to reset the Print Well to its initial state.

6.6.1 Format displayed in response to ZRPW

On entry of ZRPW in the first four character positions the system will
check for Master or System Status if this has been specified as a
requirement at system generation time. If the correct status is not
held, the password prompt is displayed for entry of the system password.
If the correct status is held, the format shown below is displayed.

The record of the 'last restart' and 'previous' screens is preserved.

```
ZRPW]
          TPS STANDARD PRINTER FUNCTIONS - RESET A PRINTWELL


Logical File Number                                    [   ]
```

6.6.2 Completion of the ZRPW Screen.

On display of the ZRPW screen, the logical file number of the TPS Print
Well to be reset is entered in the single field.

6.6.3 Example

Reset the TPS Print Well, logical file number 2.

```
ZRPW]
          TPS STANDARD PRINTER FUNCTIONS - RESET A PRINTWELL


Logical File Number                                    [2  ]
```

6.6.4 Action of the System on Receipt of the Completed ZRPW Screen

6.6.4.1 Validation

The field input is checked to ensure that it is valid. Where an error
is found, one of the following messages is displayed on the line

100

specified for TPS messages (usually line 1):

1. FIELD MISSING
    The logical file number has not been completed.

2. INVALID DATA
    The logical file number is not in correct format.

3. FILE UNAVAILABLE
    Print Well not available at present

4. LEVEL 1 ERROR #0003
    Print Well not available at present

6.6.4.2 Resetting the Print Well

The Print Well is reset to its initial empty status. All print streams
within the Print Well are destroyed by this function.

Processing is completed by the display of the message 'CONFIRMED' on the
line specified for TPS messages (usually line 1).

TPS

7. GENERATING A TPS SYSTEM INCLUDING THE REMOTE PRINTING OPTION

This section describes the generating of a TPS System including the remote printing option but omitting the remainder of IDS.

Refer to Section 5 of this manual if the remote printing option is to be included alongside IDS.

7.1 GENERATION PARAMETERS

The Generation Forms should be completed as described in the System Generation Manual. The following amendments are required to the standard generation parameters in order to include the Remote Printing option.

Form 1

To generate application routines for the Remote Printing option include parameters as required from the following list:

    PO   - for print option functions ZPOD, ZPCF, ZPDA,ZPRW
    PR   - for standard printer handling
    RP   - remote printing for 2903/4 Spoolfile
    RPG2   - remote printing for George 2
    RPG2+ - remote printing for George 2+.

Form 3

1. To generate the standard abort train including the aborting of Remote Printing functions, include the following parameter to the £TCTY macro in Section 6:

    RP

2. Include parameters as required from the following list for the £TCTY macro in the last section:

    PO   - to generate AR trains for print option functions ZPOD, ZPCF,ZPDA, ZRPW
    RP   - to generate AR trains for remote printing functions using
                                                2903/4 Spoolfile.
    RPG2   - to generate AR trains for remote printing functions using
                                                George 2
    RPG2+ - to generate AR trains for remote printing functions using
                                                George 2+.

Form 5

The size defined for the message area must be at least 550 words to allow processing of remote printing functions.

Form 7

The size defined for the user TCR must be a least 132 words, as certain
IDS function use the last 132 words of the user TCR.

Form 9

1. For use by the remote printing software, a store cell of at
   least 512 words must be available.

2. One store cell is used as a print well file buffer for each
   thread copying data into the print well (function XISY).

Form 10.1

1. Section 1 (macro £TCIF) is required only for George 2 or George 2+
   systems. Specify a list of Logical File Numbers of "spare" logical
   files to be used when opening input or output wells. Allow one
   spare LFN for every concurrent function using input or output
   wells.

2. In Section 2, macro £TCIO must be completed with up to 6 parameters
   as follows:

   Logical File Number of the Spoolfile

       Required only for systems using 2903/4 Spoolfile. For George
       2 and George 2+ systems this parameter is not needed; a
       comma should be entered.

   Logical File Number of the Edit Well.

       Not required for remote printing; enter a comma only.

   Generation numbers for the input wells.

       For systems using the 2903/4 Spoolfile, these parameters
       are not required. For George 2 and George 2+ systems these
       parameters indicate the lowest and highest generation of the
       input   wells to be accessed by the remote printing soft-
       ware. If omitted, input wells generation numbers 1 to 8 are
       used.

   Generation numbers for the output wells.

       For systems using the 2903/4 Spoolfile, these parameters are not
       required. For George 2 and George 2+ systems these parameters
       indicate the lowest and highest generation of the output wells
       to be accessed by remote printing software. If omitted, generation
       numbers specified for input wells are used.

Form 11

Define the Print Well, the Spoolfile (for 2903/4 users) and the spare LFN's
(for George 2 and George 2+ users; see Form 10.1 above) as type LBNF.

Form 12.0

To generate facility request codes for remote printing, include parameters
from the following list on macro £TCEF:

    PR   - printer handling

    RP   - remote printing for 2903/4 Spoolfile

    RPG2   - remote printing for George 2

    RPG2+ - remote printing for George 2+.

Form 12.1

Include Sections 5 and 6 (macro £TCPR) with parameters as described
in the System Generation Manual.

Form 12.3

Include the following parameter on macro £TCOF, to generate print
handling software:

    PR

Form 20 (only required if formats are to be held in store).

To generate formats in store for the remote printing functions, include
parameters as required from the following list on macro £TCFY (English
formats) or £TCFX (French formats):

    PO   - print option functions ZPOD, ZPCF, ZPDA, XPRW

    PR   - standard print functions XFPR, ZPQR

    RP   - remote print functions for 2903/4 Spoolfile

    RPG2   - remote print functions for George 2

    RPG2+ - remote print functions for George 2+

Form 23A

To generate remote printing message type entries, include on macro £TCMY
parameters as required from the following list:

    PO   - print option functions ZPOD, ZPCF, ZPDA, ZRPW

    PR   - standard print functions XFPR, ZPQR, etc.,

    RP   - remote print functions for 2903/5 Spoolfile

    RPG2   - remote print functions for George 2

    RPG2+ - remote print functions for George 2+

Form F3 (Formats on Disc)

To generate formats on disc for the remote printing functions, include
parameters as required from the following list on macro £TCFY (English
formats) or £TCFX (French formats):

    PO   - print option functions ZPOD, ZPCF, ZPDA, ZRPW

    PR   - standard print functions XFPR, ZPQR

    RP   - remote print functions for 2903/4 Spoolfile

    RPG2   - remote print functions for George 2

    RPG2+   - remote print functions for George 2+

Form F5 (Formats on Disc)

To generate format table entries for the remote printing functions,
include on macro £TCMY parameters as required from the following list:

    POF   - print option functions ZPOD, ZPCF, ZPDA, ZRPW

    PRF   - standard print functions XFPR, ZPQR

    RPF   - remote print functions for 2903/4 Spoolfile

    RPG2F   - remote print functions for George 2

    RPG2+F   - remote print functions for George 2+

TPS

7.2   TPSM PARAMETERS

TPSM parameters for a TPS program including the remote printing option
should be specified as for a standard program - see System Generation
manual, Part 2.

Among the file specifications must be included definitions of the
following files used by the remote printing software:

Print Well

Spoolfile (2903/4 Spoolfile version only)

Spare LFN's for Input/Output Wells (George 2, George 2+ versions
                                                         only)

The TPSM parameters for these files are as described for standard
files but with the following specific parameters required:

1. Print Well

MAIN nnn   nnn is the Logical File Number as defined on
                            macro £TCDA on Form 11.

TYPE OVERLAY

MODE (PRTS,START)

RETE (0,n,m,0,0,0)   This gives retention values n and m to the stream
                            index and demand index buckets respectively.

STOR n   The store chain specified should include at
                            least two store cells. For better performance
                            sufficient cells should be available to allow
                            stream and demand indexes to be held in store.
                            (Size of indexes: 16 words per stream,
                                              33 words per demand).

ACCE (READ,WRITE)

2. Spoolfile (2903/4 Spoolfile version only)

MAIN nnn   nnn is the Logical File Number as defined on
                            macro £TCIO on Form 10.1

TYPE INPUT

MODE (SPOOL,START)

RETE (0,0,0,0,0,0)

STOR n   One cell is used as a Spoolfile buffer for
                            each thread processing a remote printing
                            function which accesses the Spoolfile.

ACCE (READ,WRITE,MYNEXT,SPECIFIC)

WORK (1,0,1,0)

FILE GEOSPOOLFILE

3. "Spare" Logical Files (George 2, George 2+ versions only)

One specification is required for each of the spare Logical File numbers defined on macro £TCIF, to be used by the remote printing functions when opening George 2 or George 2+ input/output wells.

MAIN nnn   nnn is the 'spare' Logical File Number as defined on macro £TCIF on Form 10.1

TYPE (OUTPUT)

MODE (LBNF)

RETE (0,0,0,0,0,0)

STOR n   The chain specified should contain store cells of sufficient size to accommodate the largest bucket size of the files which may use the 'spare' LFN. (e.g. George 2/George 2+ input/output wells, Teleload library file if TPS-teleload facility included).

ACCE (READ,WRITE,SPECIFIC,NEXT)

MONI FAIL

WORK (0,0,0,0)

EXTEND (n)   n indicates the number of buckets by which an output file is to be automatically extended when full.

FILE xxxxxxxxxxxx   xxxxxxxxxxxx is a dummy file name.

4. Examples

Print Well

```
TPSM0201  MAIN 2,  TYPEOVER,  MODE(PRTS,STAR),  RETE(0,4,5,0,0,0)
TPSM0202  STOR 3,  ACCE(READ,WRITE),  WORK(1,0,1,0)
TPSM0203  FILE TPSPRINTWELL
```

Spoolfile (2903/4 version only).

```
TPSM0201  MAIN 3,  TYPE INPU,  MODE (SPOOL,STAR),  RETE(0,0,0,0,0,0)
TPSM0202  STOR 2, ACCE(READ,WRIT,SPEC,MYNEXT),  WORK(1,0,1,0)
TPSM0203  FILE GEOSPOOLFILE
```

Spare Logical File (George 2, George 2+ versions only)

```
TPSM0201  MAIN 4,  TYPE OUTP,  MODE(LBNF),  RETE(0,0,0,0,0,0)
TPSM0202  STOR 1,  ACCE(READ,WRITE,SPEC,NEXT), MONI FAIL
TPSM0203  WORK(1,0,1,0),  EXTEND (80),  FILE ED
```