TPS PROGRAMMING MANUAL

APPENDICES

Telecomputing Limited Oxford

CONTENTS

APPENDICES

APPENDIX A : LAYOUT OF STORE AREAS

A.1. CONTROL BLOCK

Word	Content	
0	Queue Link	
1	Home Queue Link	
2	CB Weighting	
3	User Accumulator 0	
4	User Accumulator 1	
5	User Accumulator 3	
6	User Accumulator 4	
7	User Accumulator 5	
8	User Accumulator 6	
9	User Accumulator 7	
10	System Terminal Number	(Calling sequence:CBTERMNO)
11	Message Serial Number	(Calling sequence:CBMSSRLNO)
12		
13	Current A.R. Number	
14	A.R. Sequencing Parameter	
15	Re-entry address (PLAN) or A.R. Re-entry parameter (COBOL)	
16	Request Word (see A.2)	(Calling sequence:CBARREENTRY)
17		
18		(Calling sequence:CBFMLBN)
19	Request Parameters (see A.2)	
20		
21		
22		
23	TPS	
24	TPS	
25	Reply Word	(Calling sequence:CBREPLY)
26	TPS	
27	Current displacement from start of A.R. train	
28	Address of current A.R. train	
29	TPS	

A.2 PRA-0180

Word	Content
30	~~TPS~~ Record position (Calling sequence : CBFMRECPTR)
31	TPS
32	TPS
33	TPS
34	TPS
35	Address of Message Area
36	Address of System TCR
37	Address of User TCR (0 if no User TCR)
38 onwards	Address of Additional Store Areas

A.2 CONTROL BLOCK : REQUEST CODES AND PARAMETERS

When making a request to TPS, the interface macro or subroutine sets the request code in word 16 of the Control Block, and the appropriate parameters in words 17 to 22.

The following lists give details of all request codes generated by TPS, including some which are internal requests not available as part of the standard user interface. Such requests are marked by an asterisk.

The request codes as listed in Section A.1. may be modified by TPS, setting additive bits as follows:

	BIT	MEANING IF SET
	0	Facility request
File Manager Requests (Char 0 = 1)	6	Recovery request
	7	End of recovery
	8	Request originated from a TPS A.R.
Output requests (Char 0 = 2)	6	This output is supervisory (7903). or CM) Message already fragmented (IVC)
	10	Request confirmation of output (CM).
	11	Turnround required at end of message (CM - teletypes and termiprinters only)

Bit 6 also means (CM only) - Detail instead of Clear, Party Line instead of Open.

The fourth column of the tables in Section A.1. indicates the manual in which a description of use of the request may be found.

PR	Programming Manual
DS	Directory System Manual
TOT	TPS-TOTAL Interface Manual
IPLC	IPLC Interface Manual

A.2.1 REQUEST CODES

A.2.1.1 Miscellaneous Request codes

Char.	Octal	Request	Manual
*0001	00000001	FAR	
0010	00000100	GS	PR
0020	00000200	FS	PR
0030	00000300	WT	PR
0040	00000400	ABT	PR
0050	00000500	NRT	PR
0060	00000600	RTC	PR
0070	00000700	WTC	PR
0080	00001000	RBM	PR
0090	00001100	WBM	PR
*00:0	00001200	EXS	
*00;0	00001300	PLS	
*00<0	00001400	PLD	
00?0	00001700	WJE	PR
00v0	00002000	INP	PR
00v1	00002001	RA	PR
00v2	00002002	SA	PR
00!0	00002100	LMTS	

A.2.1.2 File Manager Request codes

Char.	Octal	Request	Manual
1001	01000001	RB	PR
1002	01000002	RBN	PR
1004	01000004	RBS	PR
1009	01000011	RR	PR
100:	01000012	RRN	PR
100<	01000014	RRS	PR
1011	01000101	WB	PR
1012	01000102	WBN	PR
1014	01000104	WBS	PR
1019	01000111	WR	PR
101:	01000112	WRN	PR
101<	01000114	WRS	PR
1021	01000251	DR	PR
1039	01000311	WRU	PR
104:	01000412	RRP	PR
1061	01000601	FL,SL	PR
1070	01000700	OPF,OFC	PR
1080	01000100	CLF,CFC	PR
109<	01001114	WRB	PR
10:<	01001214	WRF	PR
10$0	01007400	IPL	IPLC
*10T0	01007600	IDMS	
10←0	01007700	TDB	TOT

A.2.1.3 Directory System Request Codes

Char.	Octal	Request	Manual
1101	01010001	DRLI /DBRLI	DS
1111	01010101	DWI /DBWI	DS
1121	01010201	DDI /DBDI	DS
1131	01010301	DWIU /DBWIU	DS
1151	01010501	DBINIT	DS
1171	01010701	DBOPD	DS
1181	01011001	DBCLD	DS
1209	01020011	DRR /DBRR	DS
120:	01020012	DRRN /DBRRS	DS
1219	01020111	DWR /DBWR	DS
121<	01020114	DWRS /DBWRS	DS
1229	01020211	DDR /DBDR	DS
1239	01020311	DWRU /DBWRU	DS
1279	01020711	DBOPT	DS
1289	01021011	DBCLT	DS

A.2.1.4 Further Miscellaneous Request Codes

Char.	Octal	Request	Manual
1300	01030000	FSR	
*130<	01030014	RWR	
1310	01030100	FLA	RA
*131<	01030114	WWR	

A.2.1.5 Request codes for output to standard terminal types

Char.	Octal	Request	Manual
2000	02000000	OUT ES (7181)	PR
2001	02000001	ES (7502)	PR
2002	02000002	ES (DDE)	PR
2003	02000003	ES (DSC1)	PR
2004	02000004	ES (TERM)	PR
2005	02000005	ES (PRT1)	PR
2006	02000006	ES (CONS)	PR
2007	02000007	ES (1020)	PR
2008	02000010	ES (2020)	PR
2009	02000011	ES (DSC2)	PR
200:	02000012	ES (DSC3)	PR
200;	02000013	ES (DSC4)	PR
200<	02000014	ES (PRT2)	PR
200=	02000015	ES (PRT3)	PR
200>	02000016	ES (PRT4)	PR
*200?	02000017	ES (IPLI)	
*200	02000020	ES (IPLE)	
*200!	02000021	ES (PSEU)	
*200"	02000022	ES (7501)	
2010	02000100	LST	PR
2020	02000200	BDC	PR
2030	02000300	SD	PR
2040	02000400	ESL ES (to different terminal)	PR
2050	02000500	ESB	PR
2060	02000600	XRF	PR
2070	02000700	OPT, POT	PR
2080	02001000	CLT, DET	PR
2090	02001100	XPB	PR
20:0	02001200	XRM	PR
20;0	02001300	DISP	PR
20<0	02001400	IPL	IPLC

A.2.1.6 Request codes associated with Print Handling

Char.	Octal	Request	Manual
3000	03000000	EPS	PR
3001	03000001	API	PR
3002	03000002	POD	PR
3003	03000003	SPO	PR
3004	03000004	RPO	PR
3005	03000005	RPR	PR
3006	03000006	PCD	PR
3007	03000007	PDS	PR
3008	03000010	PAD	PR
*3009	03000011	PEN	
300:	03000012	RPW	PR
300;	03000013	TPW	PR
*300<	03000014	POM	
*300=	03000015	RP	
*300>	03000016	RPN	
*300?	03000017	WP	
*300	03000020	WPN	
*300!	03000021	OPP	
*300"	03000022	CLP	
*300#	03000023	DP	

A.2.1.7 Request Codes associated with Interactive Development System

Char.	Octal	Request	Manual
*400>	04000016	RSN	
*400v	04000020	WSN	
*400!	04000021	OPS	
*400"	04000022	CLS	
*400#	04000023	DS	
*40;0	04001300	SLC	

A.2.1.8 Request Codes for output to non-standard devices

Char.	Octal	Request	Manual
8000	10000000	ES (NST1)	PR
8001	10000001	ES (NST2)	PR
8002	10000002	ES (NST3)	PR
8003	10000003	ES (NST4)	PR
8004	10000004	ES (NST5)	PR
8005	10000005	ES (NST6)	PR
8006	10000006	ES (NST7)	PR
8007	10000007	ES (NST8)	PR
8008	10000010	ES (NST9)	PR

A.2.2 REQUEST PARAMETERS

STANDARD TPS

Request	Word 17	Word 18	Word 19	Word 20	Word 21	Word 22
ABT						
API	File No.	Stream add		Text add	Text length	Item Type
BCE						
BCF	Term No.					
BCS						
BDC	-	See Note 1	See Note 2			
CAL						
CFC	File No.	1				
CLF	File No.	0				
CLP	File No.	I/O indicator				
CLS	File No.	I/O indicator				
CLT	Term No.					
DGN						
DP	File No.				Stream ID address	
DR	File No.	LBN	Key Address			
DS	File No.		Job/Documt. indicator		Job/Documt. address	
END						
ENF	L.E.Code					
EOS						
EPS	File No.	Stream add			No. L/ups	
ES	#400/Term No					
ESB						
ESL	Term. list add					
EXS	File No.				Cell address	

STANDARD TPS

Request	Word 17	Word 18	Word 19	Word 20	Word 21	Word 22
FAR	A.R. No.					
FL	File No	LBN			0	
FLA	File No	Function	File details address	Unit No.		
FMT						
FS						
FSR	File No	Code	URN			
GS						
INP	IPH re-entry param	Preamble length				
LST	Term list add	See Note 1	See Note 2			
MSG						
MSI						
NRT NXT			Format ID			
OFC	File No	1				
OPF	File No	0				
OPP	File No.	I/O Indicator		Stream id address		
OPS	File No.	I/O Indicator	Job/Doc indicator	Job/Doc address		Device type
OPT	Term. No.					
OUT	Term. No.	See Note 1	See Note 2			
PAD	File No.	Stream add	Demand add	Dest.Term.	Cont.Term	
PCD	File No.	Stream add	Demand add			

STANDARD TPS

Request	Word 17	Word 18	Word 19	Word 20	Word 21	Word 22
PDS	File No.	Stream add.				
PEN	PR.Status param					
PLD	File No.	Stream add	Demand add			
PLS	File No.	Stream add				
POD	File No	Stream add	Demand add	Term.No.	Indicators/ Priority	Destroy/Save depth
POM		Msg. Code				
RA	Term No					
RB	File No.	LBN		Data add.	Indicators	length
RBM	File No.	LBN		Data add.	Indicators	length
RBN	File No.			Data add.	Indicators	length
RBS	File No.			Data add.	Indicators	length
RM						
RP	File No.	LBN		Data add.	Indicators	
RPN	File No.			Data add.	Indicators	
RPO	File No.	Stream add.	Demand add	Repeat L/U ind.	Priority	Restart point
RPR	File No.	Stream add	Demand add		Priority	
RPW	File No.					
RR	File No.	LBN	Key Add.	Data add.	Indicators	
RRN	File No.			Data add.	Indicators	
RRP	File No.			Data add.		
RRS	File No.			Data add.		
RSN	File No.			Data add.	Indicators	
RTC						

STANDARD TPS

Request	Word 17	Word 18	Word 19	Word 20	Word 21	Word 22
RWR	Accumulator					
SA	User No	P/W Add.	Indicator			
SD	Term. No	# 200/ length	Format ID			
SET						
SL	File No.				Indicators	
SLC	Function	Key add.	Record add.			
SPO	File No.	Stream add.	Demand add.			
TDB	Parameter area add.	Element List add.	Data add.			
TPW	File No.					
TXI						
TXT						
WB	File No.	LBN		Data add.	Indicators	length
WBM	File No.	LBN		Data add	Indicators	length
WBN	File No.			Data add	Indicators	length
WBS	File No.			Data add	Indicators	length
WJE	J.Request ID	J.Req. type	Text add.	Text length	Area add.	Area length
WP	File No.	LBN		Data add	Indicators	
WPN	File No.			Data add	Indicators	
WR	File No.	LBN		Data add	Indicators	
WRB	File No.			Data add	Indicators	
WRF	File No.			Data add	Indicators	
WRN	File No.			Data add	Indicators	
WRS	File No.			Data add	Indicators	

STANDARD TPS

Request	Word 17	Word 18	Word 19	Word 20	Word 21	Word 22
WRU	File No.	LBN		Data add	Indicators	
WSN	File No.	Device Qualifier		Data add.	Indicators	
WT						
WTC						
WWR	Data add					
XPB	No. chars/ line	(In use if old style O/P macros)	No. lines/ screen			
XRF			Format ID			
XRM	St. Msg. No.					
XTC						

NOTE 1. Bit 0 set if CS specified
Bit 1 set if message already in message area
Bits 2 - 23 = length of message if bit 1 set; otherwise Parameter Block address

NOTE 2 Bits 0 - 11 First 2 characters of format identifier
Bits 12 - 18 Final cursor position - column coordinate
Bits 19 - 23 Final cursor position - line coordinate

DIRECTORY SYSTEM

Request	Word 17	Word 18	Word 19	Word 20	Word 21	Word 22
DBCLD	File No.					
DBCLT	File No.	Target file no.				
DBDI	File No.		Item position	Directory item		
DBDR	File No.	Target file no.	Record pointers	Record area		
DBINIT				Reply word		
DBOPD			Reply area			
DBOPT	Directory file no.			Open details		
DBRLI	File No.		Number and displacement parameter	Matching details		Reply area
DBRR	File No.	Target file no	Record pointers	Record area		
DBRRS	File No.	Target file no	Record pointers	Record area		
DBWI	File No.			Directory item		
DBWIU	File No.		Item position	Directory item		
DBWIU	File No.		Item position	Directory item		
DBWR	File No.	Target file no.	Record pointers	Record area		
DBWRS	File No.	Target file no.	Record pointers	Record area	Indicators	
DBWRU	File No.	Target file no.	Record pointers	Record area	Indicators	

DIRECTORY SYSTEM

Request	Word 17	Word 18	Word 19	Word 20	Word 21	Word 22
DDI	File No.		Item position	Directory item	Indicators	
DDR	File No.	Target file no.	Record pointers	Record area	Indicators	
DRLI	File No.		Number and displacement parameter	Matching details	Indicators	Reply area
DRR	File No.	Target file no.	Record pointers	Record area	Indicators	
DRRN	File No.	Target file no.	Record pointers	Record area	Indicators	
DWI	File No.			Directory item	Indicators	
DWIU	File No.		Item position	Directory item	Indicators	
DWR	File No.	Target file no.	Record pointers	Record area	Indicators	
DWRS	File No.	Target file no.	Record pointers	Record area	Indicators	
DWRU	File No.	Target file no.	Record pointers	Record area	Indicators	

A.3 Output Parameter Block

When allocating parameter block, allow 2 words for each field (i.e. piece of text or standard message) to be output + one which is a pointer to the next free word within the parameter block. The layout is as follows:

Word 0 : contains the address of the next available word in the area

Word 1 : Bit 0 — If set for XPRE
Bits 1 - 11 — Length of data in characters (0 if standard message)
Bits 12 - 17 — Cursor column coordinate (binary)
Bits 18 - 23 — Cursor line coordinate (binary)

Word 2 : Address of data or standard message number.

Words 1 and 2 are repeated for each field to be output to the screen.

APPENDIX B : TPS FILE LAYOUTS

B.1 Log Files

Records written to log files are either logging records for input messages, or data logging records; the data logging records are usually written in pairs with a "before" logging record followed by an "after" logging record.

Each logging record consists of the following elements:-

1. Word count
   The length of the record including log information.

2. Data
   For a message logged on input, this consists of the message as it appears after input interpretation, preceded by a word containing the count of the number of characters within the input message.

   For data logging, this area contains the data record being logged, but without word count. For logging of a directory item this area contains the full item (i.e. key plus user data). This area may not be present in a "before" logging record, depending on the function:

   Insert functions (WR, DWI, DWR, DWRS):
   'Before' record: no data area
   'After' record: data record/item as inserted

   Update functions (WRU, DWIU, DWRU):
   'Before' record: data record/item before updating
   'After' record: data record/item after updating

   Delete functions (DR, DDI, DDR):
   'Before' record: no data area
   'After' record: data record/item before deleting.

3. Log trailer
   Six-word trailer with format as follows:

FSN [illegible] record contains

12/TPS0/[illegible]/[illegible]/[illegible]/LFN/Trailer

Word	Symbolic Name Wd/bit(s)	Bit(s)	Contents
0	LOGMSSRLNO	0	Set if record 'marked'
		1 - 23	Days since 1900 (binary) } Message
1	LOGTRANSNO		HHMMOOO } serial no.
2	LOGFILENO	0 - 11	Logical file number
	LOGTERMNO	12 - 23	Terminal number
3	LOGTYPE	0 - 5	Log trailer type
			A - log after
			B - log before
			F - FDR Stat Record (FSR)
			I - logged on Input
			P - Password Entry
		6	if set and type "I" record indicates this message is to be cleaned after restart
		10	Directory system Main File
		11	Directory File
		12 - 23	Request code (last 12 bits)
4	LOGLBN		LBN
5	LOGRECPTR		Record position

Macro call for symbolic names £TDER LOG.

B.2 PRINT FILE

B.2.1 FORMAT OF PRINT FILE

A TPS Print File is a standard Housekeeping Serial File with three word bucket headers. The data within the file is held in the form of standard Housekeeping records. There are three types of record which may be present in a TPS Print File: Stream Headers, Demand Headers and Print Data Records. Several records may be present in a single bucket, depending on record and bucket size, but only one type of record may be held in any one bucket.

Buckets in the file are therefore grouped into four sections, as follows:

1. Stream Header Index (SHI)
   This section contains a header record for the free cell chain and one Stream Header record for every stream currently in the File.

2. Print Demand Index (PDI)
   The PDI contains one record for every Print Demand currently in progress or waiting to be output.

3. Print Data Records (PDR)
   For every item of print currently in a Print File there is one PDR record.

4. Free Cells
   Any buckets that are not currently being used will be on the Free Cell queue.

B.2.2 FORMAT OF BUCKETS

Print files are allocated as serial files with three word bucket headers. Housekeeping uses only the first two words of a three-word bucket header for serial files (i.e. third word zero). Within the TPS print system this third word has special significance in chaining together buckets of print data for the same print 'stream'. A chain of available ('free') buckets is also maintained.

Print well bucket headers therefore have the following format:

Word	Symbolic Name	Contents
0	PRBHD	Standard (Housekeeping)
1	PRBHSPACE	Standard (Housekeeping)
2	PRBHFWDPNTR	Forward Pointer 0 = the next bucket in this chain is the next physical bucket in the file +ve = absolute LBN of next bucket in this chain -ve = end of chain. In this case bits 1 - 23 will contain the LBN of of the free queue when this bucket was removed from the free queue (only relevant for Warm Restart).

Note that the meaning assigned to the value zero in the third word of the bucket header allows creation of a single stream Print Well by a program using standard COBOL Housekeeping.

B.2.3 PRINT FILES - FREE CELL STREAM HEADER RECORD

The first record on the file is the Free Cell Stream Header Record.

Word	Symbolic Name Wd/Bit(s)	Bit(s)	Contents
0	PRFCWCNT		Word Count
1 - 3	PRFCSTRMID		Stream Identifier 12 characters
4	PRFCCHAINTO		Chained 'To' LBN (0 if freeing cells) -97 if not chained to LBN
5	PRFCPREVLBN		Previous first Free LBN
6	PRFCNEXTLBN		Next (Current) Free LBN
7	PRFCLASTLBN		Last LBN to be freed. (0 if removing from Free Queue)
8	PRFCFREECNT		Count of number of Free Cells
9 - 13	PRFCSPARE		Used by TPSEXS
14-15			Spare

B.2.4 PRINT FILE - STREAM HEADER RECORD

For every stream of print data currently present on a Print File, there will be one Stream Header Record (+1 record for the Free Cell Stream).

These records contain the necessary information to identify, locate and give the current status of a stream.

Word	Symbolic Name Wd/Bit(s)	Bit(s)	Contents	Set/Updated by
0	PRSHWCNT		Word count	Set by £TEPS
1-3	PRSHSTRMID		Stream Identifier (12 chars)	Set by £TEPS
4	PRSHSECTINP		Number of sections input (Generation number if an edit stream)	Cleared by £TEPS Incremented by Module 4 at end of section Reset by Warm Restart
5	PRSHCREATRM		Creating Terminal Number	£TEPS
6	PRSHDEMATOT		Number of Demands outstanding for this stream (total includes any currently being printed)	Cleared by £TEPS Incremented by £TPOD Reduced by £TPCD (Cancel Demand) Module 5 if end of Demand. Reset by Warm Restart
	PRSHOPEN		(Creating terminal if edit stream)	
7	PRSHLINEINP		Number of lines input	Cleared by £TEPS Incremented by Module 4 at end of section Reset by Warm Restart
8	PRSHSTRTLBN		Start LBN of Print Data	Set by £TEPS Updated by Module 5 when destroying
9	PRSHLINEUPS		Number of line up records	Set by £TEPS; cleared by Module 5 if destroying file

Word	Symbolic Name Wd/Bit(s)	Bit(s)	Contents	Set/Updated by
10	PRSHDESTROY		Destroy/Save Depth	Cleared by £TEPS
		0	Stream to be destroyed indicator	Set by £TPOD if required Reset by Warm Restart
	PRSHAVEDEP	1-23	Number of restarts to be saved If zero and bit 0 set, destroy as file is printed. If zero and bit 0 clear, do not destroy anything.	Set by £TPOD if required Reset by Warm Restart
11	PRSHSTATUS		Status Indicator	
		0	Stream being created	Set by £TEPS Cleared by Module 4 £TAPI when end of stream specified. Reset by Warm Restart
		1	Spool file Stream	Set by the standard AR that copies streams from the Spool File to a TPS Print File
		2	Edit stream	
	PRSHDEMAPRT	12-23	Number of demands currently being printed	Updated by Scheduler Reduced by Module 5, Module 10. Reset by Warm Restart.
12-13	PRSHSPARE		Spare Date Created if edit stream	
14-15	PRSHMSN		Message Serial Number	Set by £TEPS

B.2.5 PRINT FILE - PRINT DEMAND RECORD

Word	Symbolic Name	Wd/Bit(s)	Contents	Set/Cleared by
0	PRPDWCNT		Word Count	£TPOD
1-3	PRPDSTRMID		Stream Identifier 12 chars	£TPOD
4-6	PRPDDEMAID		Demand Identifier 12 chars	£TPOD
7	PRPDDEMATRM		Demanding Terminal Number	£TPOD
8	PRPDOUTPTRM		Destination Terminal	£TPOD
9	PRPDHDSTAT		Header and Trailer Status	
	PRPREPOST	0	Stream ID preamble and postscript required	£TPOD
	PRPREPOSTCF	1	Confirmation of demanding terminal required	£TPOD
	PRCURDEMAND	2	Current Demand for this Printer	Set by Module 8 (scheduler) Cleared by Module 5
	PRLINEUPS	3	Line up records to be printed at resume	£TRPO
	PRDSUSPEND	4	Demand Suspended	Set by Module 5, £TSPO Cleared by £TRPO
	PRPRTSECT	5	Print by Section	£TPOD ~~£TRPO~~
	PRPRTREL	6	Release at Section End	£TPOD
	PRPDSECFREE	7	Demand has been released at section end	Set by Module 5 Cleared by Scheduler
	PRDRESUME	8	Demand has been resumed	~~£TRPO~~ Set by £TRPO
		9	Output interpretation required	TPSCPFORMAT (Set by) ~~£TPOD~~
		11	This demand to be scheduled (overriding priority)	Set by Module 7 Cleared by Module 8
	PRPRIORITYM	12-23	Priority of this demand	£TPOD £TRPR £TRPO

Word	Symbolic Name Wd/Bit(s)	Bit(s)	Contents	Set/Cleared by
10	PRPDSTART		Starting Point 0 = Start at current position +ve = Start at restart 'n' (1 - 4095) -ve = Start at restart '-n' where n is in range 1-8).	£TRPO
11	PRPDRECCUR		Current Record position for printing	£TPOD £TSPO Reset by £TRPO M 7 at repeat L/U M 5 when released
12	PRPDLBNCUR		Current LBN for printing	£TPOD £TSPO Reset by £TRPO M 7 at repeat L/U M 5 when released
13			Destroy/Save Depth	£TPOD
	PRPDDESTROY	0	Stream to be destroyed	May be adjusted by subsequent £TPOD's and also by M 5 if the demand is the only one out-standing and a destroy is outstanding. Reset by Warm Restart
	PRPDSAVEDEP	1-23	Number of restarts to be saved If zero and bit 0 set destroy as file is printed. If zero and bit 0 clear do not destroy anything	
14-21	PRPDRESTART		Restart Points One word per restart Max. 8	Cleared by £TPOD
	0-6		Record Position } Repeated 8 times	Updated by Mod. 5 on receipt of printer OK and TCR parameter saying last line output was a restart. Reset by £TRPO Reset by Warm Restart.
	7-23		LBN }	
			(Word 14 is the oldest restart point)	

Word	Symbolic Name Wd/Bit(s)	Bit(s)	Contents	Set/Cleared by
22	PRPDSECTPRT		Number of Sections printed so far	Cleared by £TPOD Updated by Mod.5 at end of section. Reset by £TRPO Reset by Warm Restart
23-30	PRPDSECTS		Number of Sections at each Restart	Cleared by £TPOD Updated by Mod 5 at restart points. Reset by £TRPO Reset by Warm Restart
31-32	PRPDMSN		Message Serial no.	£TPOD

Macro call for symbolic names: £TDER PR

B.2.6 PRINT FILE - PRINT DATA RECORD

Every time a user issues a £TAPI macro (Accept a Print Item) a Print Data Record is created and written to the specified stream and file.

Word	Symbolic Name Wd/Bit(s)	Bit(s)	Contents	Set/Cleared by
0	PRPWCNT		Word Count	£TAPI
1-n	PRPDDATA		Print data where 'n' is the length of user data	User parameter to £TAPI

TRAILER INFORMATION

Word	Symbolic Name Wd/Bit(s)	Bit(s)	Contents	Set/Cleared by
0	PRPDMSSRLNO	0	Reserved	M4 (£TAPI)
		1 - 23	Days since 1900 (Message serial no.)	
1			HHMMNNN (Message serial no.)	
2	PRPDFILENO	0 - 11	Logical File Number	
	PRPDTERMNO	12 - 23	Creating Terminal No.	
3	PRPDTYPE	0 - 5	L/S Trailer type	
	PRPDSTATUS	6	Restart point	
		7	End of stream	
		8	End of section	
		9 - 11	Spare	
	PRPDREQUEST	12 - 23	Request code	
4	PRPDSPARE		Spare (LBN)	
5	PRPDCHARCNT		Length of Print Data in characters.	

APPENDIX C : EXAMPLE TO SHOW THE USE OF TPSCVALID

INPUT SCREEN

ABCD]

```
            ENTER CUSTOMER NUMBER [243190]
            ENTER ORDER NUMBER    [▽A01378     ]
            ENTER COST            [29.31  ]
            LAST ENQUIRY Y OR N   [Y]
```

A.R. CODING

```
DATA DIVISION

WORKING-STORAGE SECTION.
01  PARAM-A.
*               FIVE FIELDS TO BE VALIDATED (INCLUDING FORMAT ID)
    03    FIELD-CT        PIC 9(6) COMP SYNC RIGHT VALUE 5.
*
*               "FILLING" CHARACTER "*", FIELD SEPARATORS LEFT IN AREA C
    03    FILLER-1        PIC X(4)                    VALUE "*100".
*
*               NO ACTUAL VALIDATION ON SCREEN ID, FIELD IS MANDATORY.
*               SCREEN ID IS 4 CHARACTERS LONG.
    03    SCREEN-ID       PIC X(8)                    VALUE "01000004"
*
*               CUSTOMER NUMBER MUST BE ALL NUMERIC AND IS MANDATORY.
*               CUSTOMER NUMBER IS 6 CHARACTERS LONG.
    03    CUST-NO         PIC X(8)                    VALUE "61000006"
*
*               ORDER NUMBER IS ALPHANUMERIC WITH SPACES ALLOWED, THE
*               FIELD IS MANDATORY AND SHOULD BE LEFT-JUSTIFIED ON
*               OUTPUT IT IS 12 CHARACTERS IN LENGTH.
    03    ORDER-NO        PIC X(8)                    VALUE "51100012"
*
*               COST IS NUMERIC WITH 3 CHARACTERS AFTER THE DECIMAL
*               POINT, IT IS AN OPTIONAL FIELD AND ITS OUTPUT LENGTH
*               IS 7 CHARACTERS.
    03    COST-TOT        PIC X(8)                    VALUE "=0300007"
*
*               YES OR NO FIELD IS ALPHABETIC, SPACES ARE NOT ALLOWED,
*               THE FIELD IS MANDATORY AND 1 CHARACTER LONG.
    03    YOR-N           PIC X(8)                    VALUE "21000001"
*
01  PARAM-B.
               ONE REPLY CHARACTER FOR EACH FIELD TO BE VALIDATED
    03    ERROR-REP       PIC 9 OCCURS 5.
```

```
LINKAGE SECTION.
01  MESSAGE-CT  PIC (6) COMP SYNC RIGHT.
01  MESSAGE-AREA.
```

			Values of fields on return from TPSCVALID
03	M-ID	PIC X(4).	(ABCD)
03	M-CUST	PIC 9(6).	(243190)
03	M-ORD	PIC X(12).	(A01378vvvvvv)
03	COST	PIC 9(7).	(0029310)
03	M-YN	PIC C.	(Y)

```
PROCEDURE DIVISION.

VALID PARA.

    ENTER TPS TPSCVALID USING PARAM-A
                              PARAM-B
                              MESSAGE-AREA

    IF PARAM-B = ZEROS
            GO TO VALID-MESSAGE.
            PERFORM ERROR-SCREEN
            EXIT PROGRAM.
```

EXAMPLES

1. If the operator 'sent' the screen as shown above, the message area before entering TPSCVALID would contain the following:-

   ABCD↑4243190↑4VA01378VVVVV↑429.31VVV↑4Y

   Parameter B would contain 5 zeroes on exit from TPSCVALID.

2. If the second word of parameter A was given the Value "*100", parameter C would be defined as follows:-

```
01  MESSAGE-AREA
```

			Values of fiels on return from TPSCVALID
03	M-ID	PIC X(4).	(ABCD)
03	FILLER	PIC XX.	(↑4)
03	M-CUST	PIC 9(6).	(243190)
03	FILLER	PIC XX.	(↑4)
03	M-ORD	PIC X(12).	(A01378VVVVVV)
03	FILLER	PIC XX.	(↑4)
03	M-COST	PIC 9(7).	(0029310)
03	FILLER	PIC XX.	(↑4)
03	M-YN	PIC X.	(Y)

3. If the same message was entered but the final field was input as "Z", parameter B would appear as "00001", and parameter C as ABCD243190A01378VVVVVV00292102 on exit from TPSCVALID.

4. If only the screen identifier was entered parameter B would appear as "07717", and parameter C as ABCD**********
on exit from TPSCVALID.