

Pointer format (PFD) / [ + ] L [ + ] where: PFD is FD or name referring to one word binary field  
 [ + ] L [ + ] is length (max.63) and optional auto-increment or auto-decrement before or after  
 [ ] indicate optional field and are not included in definition

Address constant A' address where address may be FD, name or \*FSC or start position.

#### Negative Print positions

PP-3 Control level of the print line  
 PP-2 H or O indicating \*HEAD or \*OUT  
 PP-1 Line number of the print line in the print group  
 PPO Line feed control character

#### SORTING

Format \*SORT a,b,c etc.  
 The operands define the sort keys in high to low sequence. They may be entered as FDs, names or FSCs.  
 Default. If the operands are omitted, sorting will be by control fields defined in \*INL

#### DESCRIPTOR LOOKUP TABLES

Format \*TABLE name

The first detail following the \*TABLE directive must read KK...DDD... where K and D head the Key and Descriptor in the table entries which follow.

Lookup table entered via LOOKUP in \*DETAB, descriptor value obtained by READ

or, Format \*LOOKUP name keyname, descriptor name  
 name is RECORD, BREAK or PRINT  
 keyname is name or reference of key  
 descriptor name is name of storage allocated to descriptor  
 \*LOOKUP RECORD Must precede \*INLIST  
 Descriptor name must be a name which has not been defined in \*DICT  
 \*LOOKUP BREAK c.l.l. Must come after \*INLIST, keyname and descriptor name must be FSC  
 Descriptor name FSC must not have appeared in \*INL  
 \*LOOKUP PRINT Keyname must be referred to by print position  
 Descriptor is a work area field which must be moved to the print line in a \*DETAB PRINT.

The first detail following the \*LOOKUP directive must read KK...DDD... where K and D head the Key and Descriptor in the table entries which follow.

At the end of a table a descriptor must be provided to cater for unmatched keys.

#### ALTER FSC USAGE

Format \*ALT FSCT  
 follow directive with detail listing FSCs to be used as totalling fields.

#### PROGRAM CONTROL DIRECTIVES

Format \*GO operand terminates the parameters and starts file processing, operand is optional if specified it may be LO or FI  
 Format \*STOP operand terminates the parameters and deletes #TABN see \*GO for operand  
 Format \*SWITCH switches parameter input media from cards to paper tape or vice versa.  
 Format \*CORE store size allocates the store size specified to #TABN  
 Format \*MAX -n allows #TABN to increase or decrease its storage where n is maximum work area address in parameters  
 Format \*COPY name causes #TABN to use the parameters with the specified name on the catalogue file  
 Format \*CFILE filename, CSN, FGN specifies the filename of the catalogue file  
 Format \*DUMP pc programname where pc may be MT, CP or TP  
 programname program name is the name to be given to the dumped program  
 causes #TABN to dump with the parameters read so far

#### OPERATING INSTRUCTIONS

Entry Points 20 #TABN parameters on paper tape  
 21 #TABN parameters on punched cards  
 23 enter dumped #TABN containing complete parameter set  
 28 produce #TABN store dump

#### Program halts and deletes

Deleted ER End of run  
 Deleted ZZ End of run containing store dump  
 Halted LI Limit of core reached during parameter reading, re-run with more store  
 Halted CO Error associated with \*CORE directive  
 Halted NC More than 8 nested CALLS in \*DETAB  
 Halted SV Occurs when \*OPT G3DU and \*DUMP used  
 Halted DP Occurs when using \*OPT DP to produce dummy prints  
 Halted PE Parameter errors, only occurs if \*OPT PE specified  
 Halted SI Sort impossible, re-run with more store  
 Halted SD Sort cannot open a scratch disc file  
 Halted IC Insufficient core while sorting  
 Halted SC System control area already open applies to sort  
 Halted SS Insufficient scratch space for sorting  
 Halted ED Disc read/write error  
 Halted XX File requires extension, \*OPT HOX used  
 Halted CE More than 8 nested \*COPYs  
 Deleted NF \*COPY name not on catalogue file  
 Halted QQ Unsatisfied cue when using own coding  
 Halted SL Illegal sort size.

#### The ICL 1900 Series internal machine code

Symbol	Octal code	Symbol	Octal code	Symbol	Octal code	Symbol	Octal code
0	0	!	20	@	40	P	60
1	1	"	21	A	41	Q	61
2	2	#	22	B	42	R	62
3	3	\$	23	C	43	S	63
4	4	%	24	D	44	T	64
5	5	&	25	E	45	U	65
6	6	'	26	F	46	V	66
7	7	(	27	G	47	W	67
8	10	)	30	H	50	X	70
9	11	*	31	I	51	Y	71
:	12	+	32	J	52	Z	72
<	13	,	33	K	53	[	73
>	14	-	34	L	54	]	74
=	15	.	35	M	55	^	75
?	16	/	36	N	56	_	76
	17	/	37	O	57	←	77

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# FILETAB

File maintenance and report generating program

## TABN Guide Card

This guide lists the facilities available in TABN, the ICL 1900 version of FILETAB. Some installations may not have all these facilities implemented.

#### Notes and abbreviations:

- \* and # are interchangeable
- FD - Field definition in any of the permitted forms (e.g. start position/length)
- FSC - Field specifying character
- DP - Decision point
- pc - peripheral code
- S@L - S - start position in characters, (e.g. PP3, CC9, 6)  
 @ - type of field (/for characters, : for binary, B for bit)  
 L - length of field in characters or bit number for bit fields
- c.l.l. - control level list, which is list of control FSCs including L or F.
- ◇ - indicates space
- Only the first four characters of the directives are required (e.g. \*INL)
- Names may consist of up to 8 alphanumeric characters, must start with an alpha character and must not be reserved word
- Parameters may be punched on cards or paper tape, though for simplicity the guide card assumes parameters are on cards.

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## DIRECTIVES

\*A directive is introduced by \* in card column 1. (A list of directives followed by the required syntax is given on this card). Some directives have OPERANDS and some directives are followed by DETAILS.

## COMMENT

A comment may consist of \*  $\diamond$  in the first two card columns followed by the appropriate comment. Alternatively, comments may be added to directives or details by preceding the comments by [ .

## FIELD SPECIFYING CHARACTERS (FSCs)

Control fields	M	N	O	P	Q	R												
Totalling fields	0	1	2	3	4	5	6	7	8	9	S	T	U	V	W	X	Y	Z
Transfer fields	A	B	C	D	E	F	G	H	I	J	K	L	*	-	+	]	=	.
	:	;	?	"	@	£	%	&	#	(	)	<	>	←	↑			

These may be redefined — for details see \*ALT FSCT

## RESERVED WORDS

RECLEN	Record length field for *FILE
RECOUNT	Field containing count of records read from *FILE
COUNT	A field containing 1
SUBCOUNT	Number of sub-record in *FILE variable length record
DD,MM,YY	Current day, month, year respectively
WORD30	Word 30, the switch word
REMAINS	Contains remainder from last division
BINDATE	Current date in binary
SPADS	Table containing special addresses
OWNCODE	Pseudo-decision table, used when interfacing with user coded routines
X2	Copy of accumulator 2, used when interfacing with user coded routines

Each decision point is also a reserved word.

## ORDERING OF PARAMETERS

The following order is recommended:

\*OPT, \*MAX, \*ALT, \*FILE, \*IFILE, \*OFILE, \*DICT, \*LOOKUP RECORD, \*INL, \*TABLE, \*LOOKUP BREAK, \*TITLE, \*HEAD, \*OUT, \*LOOKUP PRINT, \*DETAB, \*SORT, \*GO.

The positioning of \*MAX, \*ALT, \*LOOKUP and \*GO is obligatory.

## OPTIONS

Format	*OPTION ab,cd
Values of ab,cd etc. are:	
DPn	Dummy print, n output blocks
DR	Divide rounded
DS	Print output blocks double spaced
DU	Divide unrounded
G3DU	George 3 *DUMP
GI	Group indicate, print control fields only when they change
HOX	Halt if sort files require extension
L	List type report required
NDSM	Suppress 'no data selected' message
NOIN	Suppress 'empty/missing *INL' message
NOTRACE	Switch off trace facility
NP	Do not print parameters
NSnn	Sign negative totals with characters nn (e.g. DB or CR)
OFFP	Off-line printer output
P	Print parameters
PDS	Print parameters double spaced
PE	Halt after reading parameters if parameter errors present
PSS	Print parameters single spaced
PST	Print symbol table
PSnn	Sign positive totals with characters nn
RPnc	Reset page numbering to 1 at break in control level c
SS	Print output blocks single spaced
T	Totals only report required
TRACE	Print names of decision tables and rules satisfied
USF	Use only named sort files
Z	Print as spaces any zero totalling fields
ZS	Print as spaces any leading zeroes in transfer fields after moves

## FILE DEFINITION

Format	*FILE	pc	Filename,RSN,FGN,NOB,BS,f,v,n
	*IFILE	n pc	Filename,RSN,FGN,NOB,BS,IBS1,IBS2
	*OFILE	n pc	Filename,RSN,FGN,RP,NOB,BS,ES

where: pc is peripheral code which may be ED or MT and for \*FILE may also be CR or TR

n is the file number in the range  $3 \leq n < 15$  (\*IFILE and \*OFILE only)

and the default settings of the other fields are as follows:

Default	MT	Entry	ED	Default
0	Reel sequence No.	RSN	Cartridge serial No.	0
0	File generation No.	FGN	File generation No.	- 1
1	Retention Period	RP	Retention Period	0
1	Number of Buffers	NOB	Number of Buffers	1
256				256
*OFI & *IFI)	Block size words	BS	Bucket size (words)	(*OFI & *IFI)
512				512
(*FIL)				Largest available
-		ES	Extension size (blocks)	0
-		IBS1	1st level index buffer size	0
-		IBS2	2nd level index buffer size	0

For variable length records only:

f = length of fixed portion in words starting at word 0  
v = length of variable portion in words  
n = maximum number of variable portions

## DICTIONARY

Format \*DICTIONARY

Detail Format

name = FD where FD = S@L

Each entry is terminated by a ,

## FSC DEFINITION

Format \*INLIST

Detail Format

FSC name for use with \*DICT  
FSC FD for use without \*DICT

Each entry is terminated by a ,

## REPORT DEFINITION

The three directives to define report layout are each followed by details showing in picture form the layout of text or data. Data layout is described using FSCs. Two details are required for each print line.

## TITLE

Format \*TITLE

## HEADINGS

Format \*HEAD c.l,l b,a,p  
c.l,l is list of control break FSCs including L or F  
b = lines thrown before print group  
a = lines thrown after print group  
p = maximum number of lines thrown between headings  
Default \*HEAD L CH1,2,60 (CH1 indicates throw to top of page)

## OUTPUT

Format \*OUT c.l,l b,a,p  
where c.l,l, b,a are as in \*HEAD  
p = maximum number of print groups per page

## EDITING CHARACTERS

Transfer and control fields

/ . £ \$ + -  $\diamond$

Totalling Fields

/ .  $\diamond$

/ .  $\diamond$  do not force significance while  $\diamond$  do.

Floating symbols £ \$ + - appearing once at start of an output field will float up to most significant character. + or - will only be printed if field is positive or negative respectively.

Cheque protect \* appearing once at the beginning of a totalling field will fill the output field with \* to the first significant character.

## DECISION TABLES

Format \*DETAB name c.l,l;  
c.l,l is list of control FSCs including L or F indicating level of control for entry to table (applies only to DP BREAK)

Decision Points DP

RECORD	Entered for every record
BREAK	Entered when specified control breaks occur
PRINT	Entered for every print line
ENDFILE	Entered at end of *FILE
START	Entered before *FILE is opened

Decision table stub format

Field @ Operand  
where @ for conditions one of >GT<LT = EQ GE LE NE  
for actions one of + - \* / ← MV

or,

Field @ for actions where @ is S or Z.

or

Field : N for conditions, one of the set of N values listed in the following details starting in column 1. Each value is terminated by the character following N.

Field and operand are referenced by:

name or FD at RECORD DP

\*FSC at BREAK DP

Print position at PRINT DP

Field may also be a pointer, see Pointer format

Operand may also be a literal.

Conditions and Actions

C First condition is introduced by C in column 1

A First action is introduced by A in column 1

Column 1 must not then be used except for the value of one in a set (see above).

Conditions and actions are to be punched on one detail.

If continuation detail is required punch one of operands in column 1 only one continuation detail is allowed.

## Condition and Action entries

Limited Entry	Y	Condition true
	N	Condition false
	- or .	Ignore condition
	X	Perform action
	- or .	Ignore action

Extended Entry

Indicated by ? in stub, values extended into entry field, @ or operand may be replaced by ?

Rules

Maximum of 24 rules allowed including implicit

## Condition Verbs

IF name Calls \*DETAB name; returns Y or N via EXIT  
LOOKUP name key Finds key in \*TABLE name returning Y if match N if no match;

key is FD or name if table entered at RECORD  
is \*FSC if table entered at BREAK DP  
is print position if table entered at PRINT DP

## Action Verbs

GOTO name	Goes to *DETAB name
CALL name	Calls *DETAB name; returns via EXIT
EXIT, EXIT T, EXIT F	Returns to "calling" *DETAB, see IF and CALL
IGNORE	Ignore record
READ n FD	Read/Write a record from/to *IFILE/*OFILE
WRITE n FD	with file number n to/from FD.
READ name desc.	Read record from *TABLE name into area defined by desc.

DISPLAY operand Type console message and continue  
HALT operand Type console message and halt  
DELETE operand Type console message and delete operand may be literal in quotes, name or FD

ELSE rule

The ELSE rule may be defined. If it is not defined any records not satisfying the specified rules will be ignored.

Literals

Non-numeric literals must be enclosed in ' '.  
Numeric literals need not be.