

**SNOBOL4 Source and Cross-Reference  
Listings for Version 3.7**

**R. E. Griswold**

**Bell Telephone Laboratories, Incorporated  
Holmdel, New Jersey**

**July 15, 1971**

**S4D26a**



This document contains source and cross-reference listings for Version 3.7 of SNOBOL4. Version 3.7 is obtained by altering Version 3.0 (see S4D17). The line numbers given in columns 77-80 in the following listing are the same as those in Version 3.0. Changed and added lines have no numbers.

Version 3.7 incorporates corrections and minor improvements to Version 3.0. There are no changes in language features. The IBM 360 macro definitions and subroutines are unchanged.





SOURCE LISTING

TITLE 'Table of Contents'

00000001  
00000002  
00000003

E32 (DECEMBER 18, 1969)  
UPDATED TO VERSION 3.7, JULY 10, 1971

V3.7  
V3.7

1.	Linkage and Equivalences . . . . .	.252	00000005
	Linkage . . . . .	.253	00000006
	Machine Dependent Parameters . . . . .	.254	00000007
	Constants . . . . .	.258	00000008
	Equivalences . . . . .	.288	00000009
	Data Type Codes . . . . .	.317	00000010
2.	Program Initialization . . . . .	.330	00000011
3.	Compilation and Interpreter Invocation . . . . .	.376	00000012
4.	Support Procedures . . . . .	.426	00000013
	AUGATL. . . . .	.430	00000014
	CODSKP. . . . .	.454	00000015
	DTREP . . . . .	.473	00000016
	FINDEX. . . . .	.524	00000017
5.	Storage Allocation and Regeneration Procedures . . . . .	.548	00000018
	BLOCK . . . . .	.552	00000019
	GENVAR. . . . .	.577	00000020
	GNVARI. . . . .	.631	00000021
	CONVAR. . . . .	.641	00000022
	GNVARS. . . . .	.669	00000023
	GC. . . . .	.681	00000024
	GCM . . . . .	.811	00000025
	SPLIT . . . . .	.841	00000026
6.	Compilation Procedures . . . . .	.857	00000027
	BINOP . . . . .	.861	00000028
	CMPLE. . . . .	.883	00000029
	ELEMNT. . . . .	1136	00000030
	EXPR. . . . .	1265	00000031
	FORWRD. . . . .	1342	00000032
	NEWCRD. . . . .	1369	00000033
	TREPUB. . . . .	1441	00000034
	UNOP. . . . .	1481	00000035
7.	Interpreter Executive and Control Procedures . . . . .	1495	00000036
	BASE. . . . .	1499	00000037
	GOTG. . . . .	1508	00000038
	GOTL. . . . .	1519	00000039
	GOTO. . . . .	1553	00000040
	INIT. . . . .	1562	00000041
	INTERP. . . . .	1582	00000042
	INVOKE. . . . .	1600	00000043
8.	Argument Evaluation Procedures . . . . .	1610	00000044
	ARGVAL. . . . .	1614	00000045
	EXPVAL. . . . .	1633	00000046
	EXPEVL. . . . .	1681	00000047
	EVAL. . . . .	1685	00000048
	INTVAL. . . . .	1704	00000049
	PATVAL. . . . .	1728	00000050
	VARVAL. . . . .	1762	00000051
	XYARGS. . . . .	1784	00000052
9.	Arithmetic Operations, Predicates and Functions. . . . .	1812	00000053
	ADD . . . . .	1813	00000054
	DIV . . . . .	1817	00000055
	EXP . . . . .	1821	00000056
	MPY . . . . .	1825	00000057
	SUB . . . . .	1829	00000058
	EQ. . . . .	1833	00000059
	GE. . . . .	1837	00000060
	GT. . . . .	1841	00000061
	LE. . . . .	1845	00000062
	LT. . . . .	1849	00000063
	NE. . . . .	1853	00000064
	REMDR . . . . .	1857	00000065
	INTGER. . . . .	1966	00000066
	MNS . . . . .	1978	00000067
	PLS . . . . .	1997	00000068
10.	Pattern-Valued Functions and Operations . . . . .	2008	00000069
	ANY . . . . .	2009	00000070
	BREAK . . . . .	2013	00000071
	NOTANY. . . . .	2018	00000072
	SPAN. . . . .	2022	00000073
	LEN . . . . .	2036	00000074
	POS . . . . .	2040	00000075

SOURCE LISTING

*	RPOS. . . . .	2044	00000078
*	RTAB. . . . .	2048	00000079
*	TAB . . . . .	2052	00000080
*	ARBNO . . . . .	2070	00000081
*	ATOP (Cursor Position). . . . .	2097	00000082
*	NAM (Value Assignment). . . . .	2111	00000083
*	OR. . . . .	2161	00000084
*	11. Pattern Matching Procedures. . . . .	2205	00000085
*	SCAN. . . . .	2209	00000086
*	SJSR (Scan and Replace) . . . . .	2255	00000087
*	SCNR (Basic Scanner). . . . .	2404	00000088
*	ANYC. . . . .	2509	00000089
*	BRKC. . . . .	2543	00000090
*	NNYC. . . . .	2557	00000091
*	SPNC. . . . .	2571	00000092
*	LNTH. . . . .	2598	00000093
*	POSI. . . . .	2654	00000094
*	RPSI. . . . .	2658	00000095
*	RTB . . . . .	2662	00000096
*	TB. . . . .	2666	00000097
*	ARBN (ARBNO). . . . .	2674	00000098
*	FARB (ARB Backup) . . . . .	2710	00000099
*	ATP (Cursor Position) . . . . .	2733	00000100
*	BAL . . . . .	2766	00000101
*	STAR (Unevaluated Expression) . . . . .	2812	00000102
*	FNCE. . . . .	2883	00000103
*	NME (Value Assignment). . . . .	2900	00000104
*	ENMI (Immediate Value Assignment) . . . . .	2962	00000105
*	SUCE (SUCCEED). . . . .	3016	00000106
*	12. Defined Functions. . . . .	3035	00000107
*	DEFINE. . . . .	3039	00000108
*	DEFNC (Invoke Defined Function). . . . .	3106	00000109
*	13. External Functions . . . . .	3266	00000110
*	LOAD. . . . .	3270	00000111
*	UNLOAD. . . . .	3345	00000112
*	LNKFNC (Link to External Function). . . . .	3357	00000113
*	14. Arrays, Tables, and Defined Data Objects . . . . .	3430	00000114
*	ARRAY . . . . .	3434	00000115
*	ASSOC (TABLE) . . . . .	3504	00000116
*	DATDEF (DATA) . . . . .	3534	00000117
*	PROTO . . . . .	3594	00000118
*	ITEM (Array and Table References) . . . . .	3604	00000119
*	DEFDAT (Create Data Object) . . . . .	3686	00000120
*	FIELD . . . . .	3735	00000121
*	15. Input and Output . . . . .	3752	00000122
*	READ (INPUT). . . . .	3756	00000123
*	PRINT (OUTPUT). . . . .	3789	00000124
*	BKSPCE. . . . .	3821	00000125
*	ENFILE. . . . .	3825	00000126
*	REWIND. . . . .	3829	00000127
*	DETACH. . . . .	3850	00000128
*	PUTIN . . . . .	3866	00000129
*	PUTOUT. . . . .	3890	00000130
*	16. Tracing Procedures and Functions . . . . .	3907	00000131
*	TRACE . . . . .	3911	00000132
*	STOPTR. . . . .	3965	00000133
*	FENTR (Call Tracing). . . . .	3993	00000134
*	KEYTR . . . . .	4062	00000135
*	TRPHND (Trace Handler). . . . .	4100	00000136
*	VALTR . . . . .	4125	00000137
*	17. Other Operations . . . . .	4205	00000138
*	ASGN (=). . . . .	4209	00000139
*	CON (Concatenation) . . . . .	4254	00000140
*	IND (Indirect Reference). . . . .	4346	00000141
*	KEYWRD. . . . .	4360	00000142
*	LIT . . . . .	4385	00000143
*	NAME. . . . .	4394	00000144
*	NMD (Value Assignment). . . . .	4406	00000145
*	STR (Unevaluated Expression). . . . .	4446	00000146
*	18. Other Predicates . . . . .	4453	00000147
*	DIFFER. . . . .	4457	00000148
*	IDENT . . . . .	4466	00000149
*	LGT . . . . .	4475	00000150
*	NEG (~) . . . . .	4491	00000151
*	QUES (?) . . . . .	4502	00000152
*	19. Other Primitive Functions. . . . .	4507	00000153
*	APPLY . . . . .	4511	00000154
*	ARG . . . . .	4530	00000155

SOURCE LISTING

*	LOCAL . . . . .	4539	00000156
*	FIELDS. . . . .	4544	00000157
*	CLEAR . . . . .	4581	00000158
*	COLLECT . . . . .	4597	00000159
*	COPY. . . . .	4607	00000160
*	CONVERT . . . . .	4626	00000161
*	DATE. . . . .	4795	00000162
*	DATATYPE. . . . .	4804	00000163
*	DUMP. . . . .	4820	00000164
*	DUPL. . . . .	4885	00000165
*	OPSYN . . . . .	4907	00000166
*	REPLACE . . . . .	4977	00000167
*	SIZE. . . . .	5002	00000168
*	TIME. . . . .	5013	00000169
*	TRIM. . . . .	5024	00000170
*	20. Common Code. . . . .	5031	00000171
*	21. Termination. . . . .	5071	00000172
*	END . . . . .	5072	00000173
*	FTLEND. . . . .	5078	00000174
*	SYSCUT. . . . .	5134	00000175
*	22. Error Handling . . . . .	5139	00000176
*	23. Data . . . . .	5258	00000177
*	Pair Lists. . . . .	5259	00000178
*	Data Type Pairs . . . . .	5381	00000179
*	Switches. . . . .	5410	00000180
*	Constants . . . . .	5423	00000181
*	Pointers to Patterns. . . . .	5454	00000182
*	Function Descriptors. . . . .	5461	00000183
*	Miscellaneous Data. . . . .	5502	00000184
*	Program Pointers. . . . .	5543	00000185
*	Pointers to Specifiers. . . . .	5552	00000186
*	Permanent Pair List Pointers. . . . .	5560	00000187
*	Specifiers for Compilation. . . . .	5566	00000188
*	Strings and Specifiers. . . . .	5576	00000189
*	Character Buffers . . . . .	5611	00000190
*	Pointers to Pair Lists. . . . .	5620	00000191
*	Scratch Descriptors . . . . .	5635	00000192
*	System Descriptors. . . . .	5670	00000193
*	Compiler Descriptors. . . . .	5683	00000194
*	Data Pointers . . . . .	5701	00000195
*	Specifiers. . . . .	5711	00000196
*	Allocator Data. . . . .	5725	00000197
*	Machine Dependent Data. . . . .	5773	00000198
*	Function Table. . . . .	5779	00000199
*	Function Pair List. . . . .	5911	00000200
*	Function Initialization Data. . . . .	6161	00000201
*	Pointers to Initialization Data . . . . .	6258	00000202
*	System Arrays . . . . .	6280	00000203
*	String Storage Bin List . . . . .	6304	00000204
*	Pattern-Matching History List . . . . .	6311	00000205
*	System Stack. . . . .	6316	00000206
*	Primitive Patterns. . . . .	6321	00000207
*	Code Skeleton for TRACE . . . . .	6414	00000208
*	Fatal Error Message Pointers. . . . .	6448	00000209
*	Fatal Error Messages. . . . .	6480	00000210
*	Compiler Error Messages . . . . .	6511	00000211
*	Formats . . . . .	6524	00000212
*			00000213
*			00000214
*			00000215
*			00000216
*			00000217
*			00000218
*			00000219
*			00000220
*			00000221
*			00000222
*			00000223
*			00000224
*			00000225
*			00000226
*			00000227
*			00000228
*			00000229
*			00000230
*			00000231
*			00000232
*			00000233

SOURCE LISTING

*			00000234
*			00000235
*			00000236
*			00000237
*			00000238
*			00000239
*			00000240
*			00000241
*			00000242
*			00000243
*			00000244
*			00000245
*			00000246
*			00000247
*			00000248
*			00000249
*			00000250
*			00000251
	TITLE	'Linkage and Equivalences'	00000252
	COPY	MLINK	Linkage segment
	COPY	PARMS	Machine-dependent parameters
*			00000253
*			00000254
*			00000255
*	Constants		00000256
*			00000257
ATTRIB	EQU	2*DESCR	Offset of label in string structure
LNKFLD	EQU	3*DESCR	Offset of link in string structure
BCDFLD	EQU	4*DESCR	Offset of string in string structure
FATHER	EQU	DESCR	Offset of father in code node
LSON	EQU	2*DESCR	Offset of left son in code node
RSIB	EQU	3*DESCR	Offset of right sibling in code node
CODE	EQU	4*DESCR	Offset of code in code node
ESASIZ	EQU	50	Limit on number of syntactic errors
FBLKSZ	EQU	10*DESCR	Size of function descriptor block
ARRLEN	EQU	20	Limit on length of array print image
CARDSZ	EQU	80	Width of compiler input
SEQSIZ	EQU	8	Width of sequence field
STNOSZ	EQU	8	Length of statement number field
DSTSZ	EQU	2*STNOSZ	Space for left and right numbering
CNODSZ	EQU	4*DESCR	Size of code node
DATSIZ	EQU	1000	Limit on number of defined data type
EXTSIZ	EQU	10	Default allocation for tables
NAMLSZ	EQU	20	Growth quantum for name list
NODESZ	EQU	3*DESCR	Size of pattern node
OBSIZ	EQU	256	Number of bin headers
OBARY	EQU	OBSIZ+3	Total number for bins
OCASIZ	EQU	1500	Descriptors of initial object code
SPDLSZ	EQU	1000	Descriptors of pattern stack
STSIZE	EQU	1000	Descriptors of interpreter stack
SPDR	EQU	SPEC+DESCR	Descriptor plus specifier
OBOFF	EQU	OBSIZ-2	Offset length in bins
SPDLDR	EQU	SPDLSZ*DESCR	Size of pattern stack
*			00000284
*	Equivalences		00000285
*			00000286
*			00000287
ARYTYP	EQU	7	Array reference
CLNTYP	EQU	5	Goto field
CMATYP	EQU	2	Comma
CMTTYP	EQU	2	Comment card
CNTTYP	EQU	4	Continue card
CTLTYP	EQU	3	Control card
DIMTYP	EQU	1	Dimension separator
EOSTYP	EQU	6	End of statement
EQTYP	EQU	4	Equal sign
FGOTYP	EQU	3	Failure goto
FTOTYP	EQU	6	Failure direct goto
FLITYP	EQU	6	Literal real
FNCTYP	EQU	5	Function call
ILITYP	EQU	2	Literal integer
LPTYP	EQU	1	Left parenthesis
NBTYP	EQU	1	Nonbreak character
NEWTYP	EQU	1	New statement
NSTTYP	EQU	4	Parenthesized expression
QLITYP	EQU	1	Quoted literal
RBTYP	EQU	7	Right bracket
RPTYP	EQU	3	Right parenthesis
SGOTYP	EQU	2	Success goto
STOTYP	EQU	5	Success direct goto
UGOTYP	EQU	1	Unconditional goto
			00000311

SOURCE LISTING

UTOTYP	EQU	4	Unconditional direct goto	00000312
VARTYP	EQU	3	Variable	00000313
*				00000314
*	Data type Codes			00000315
*				00000316
A	EQU	4	ARRAY	00000317
B	EQU	2	BLOCK (internal)	00000318
C	EQU	8	CODE	00000319
E	EQU	11	EXPRESSION	00000320
I	EQU	6	INTEGER	00000321
K	EQU	10	KEYWORD (NAME)	00000322
L	EQU	12	LINKED STRING (internal)	00000323
N	EQU	9	NAME	00000324
P	EQU	3	PATTERN	00000325
R	EQU	7	REAL	00000326
S	EQU	1	STRING	00000327
T	EQU	5	TABLE	00000328
*				00000329
	TITLE	'Program Initialization'		00000330
BEGIN	INIT	,	Initialize system	00000331
	ISTACK	,	Initialize stack	00000332
	OUTPUT	OUTPUT, TITLEF	Title listing	00000333
	OUTPUT	OUTPUT, SOURCEF	Print attribution	00000334
	MSTIME	TIMECL	Time in compiler	00000335
	RCALL	SCBSCL, BLOCK, OCALIM	Allocate block for object code	00000336
	MOVD	OCSVCL, SCBSCL	Save object code pointer	00000337
	RESETF	SCBSCL, PTR	Clear pointer flag	00000338
	GETSIZ	YCL, INITLS	Get size of initialization list	00000339
SPCNVT	GETD	XPTR, INITLS, YCL	Get pointer to list	00000340
	GETSIZ	XCL, XPTR	Get size of list	00000341
SPCNV1	GETD	ZPTR, XPTR, XCL	Get pointer to specifier	00000342
	AEQLC	ZPTR, 0, SPCNV2	Skip dummy zero entries	00000343
	RCALL	ZPTR, GENVAR, ZPTR	Convert specifier to structure	00000344
	PUTD	XPTR, XCL, ZPTR	Replace pointer to specifier	00000345
SPCNV2	DECRA	XCL, 2*DESCR	Decrement to next pair	00000346
	ACOMPC	XCL, 0, SPCNV1	Continue if one remains	00000347
	DECRA	YCL, DESCR	Decrement to next list	00000348
	ACOMPC	YCL, 0, SPCNV2	Continue if one remains	00000349
INITD1	GETDC	XPTR, INITB, 0	Get specifier to convert	00000350
	RCALL	YPTR, GENVAR, (XPTR)	Convert it to string structure	00000351
	GETDC	ZPTR, INITB, DESCR	Get location to put it	00000352
	PUTDC	ZPTR, 0, YPTR	Place pointer to string structure	00000353
	INCR	INITB, 2*DESCR	Decrement to next pair	00000354
	ACOMP	INITB, INITE, INITD1	Compare with end	00000355
*				00000356
*				00000357
	PUTDC	ABRTKY, DESCR, ABOPAT	Initial value of ABORT	00000358
	PUTDC	ARBKY, DESCR, ARBPAT	Initial value of ARB	00000359
	PUTDC	BALKY, DESCR, BALPAT	Initial value of BAL	00000360
	PUTDC	FAILKY, DESCR, FALPAT	Initial value of FAIL	00000361
	PUTDC	FNCKY, DESCR, FNCPAT	Initial value of FENCE	00000362
	PUTDC	REMKY, DESCR, REMPAT	Initial value of REM	00000363
	PUTDC	SUCKY, DESCR, SUCPAT	Initial value of SUCCEED	00000364
*				00000365
	SETAC	VARSYM, 0	Set count of variables to zero	00000366
	RCALL	NBSPTR, BLOCK, NMOVER	Allocate block for value assignment	00000367
	MOVD	CMBSCL, SCBSCL	Set up pointer for compiler	00000368
	MOVD	UNIT, INPUT	Set up input unit	00000369
	MOVD	OCBSCL, CMBSCL	Project base for interpreter	00000370
	SUM	OCLIM, CMBSCL, OCALIM	Compute end of code block	00000371
	DECRA	OCLIM, 5*DESCR	Leave room for overflow	00000372
	BRANCH	XLATRN		00000373
*				00000374
*				00000375
	TITLE	'Compilation and Interpreter Invocation'		00000376
XLATRD	AEQLC	LISTCL, 0, XLATRN	Skip print if list is off	00000377
	STPRNT	IOKEY, OUTBLK, LNBFSF	Print line image	00000378
XLATRN	STREAD	INBFSF, UNIT, XLATRN, COMP5		00000379
	SETSP	TEXTSP, NEXTSP	Read card and set up line	00000380
	STREAM	XSP, TEXTSP, CARDTB, COMP3, COMP3		00000381
*			Determine type of card	00000382
	RCALL	, NEWCRD, (XLATRD,)	Process card type	00000383
XLATNX	RCALL	, CMPLE, (COMP3, XLATNX)		00000384
*			Compile statement	00000385
	INCR	CMOFCL, DESCR	Increment offset	00000386
	PUTD	CMBSCL, CMOFCL, ENDCL	Insert END function	00000387
	AEQLC	LISTCL, 0, XLATP	Skip print if list is off	00000388
	STPRNT	IOKEY, OUTBLK, LNBFSF	Print last line image	00000389

SOURCE LISTING

```

XLATP AEQLC STYPE,EOSTYP,,XLAEND 00000390
*                                     Finish on end of statement 00000391
  STREAM XSP,TEXTSP,IBLKT,COMP3,XLAEND 00000392
*                                     Analyze END card 00000393
  AEQLC STYPE,EOSTYP,,XLAEND 00000394
*                                     Finish on end of statement 00000395
  AEQLC STYPE,NBTYP,COMP7 Error if break character 00000396
  STREAM XSP,TEXTSP,LBLTB,COMP7,COMP7 00000397
*                                     Analyze END label 00000398
  RCALL XPTR,GENVAR,(XSPPTR) 00000399
*                                     Generate variable for label 00000400
  GETDC OCBSCL,XPTR,ATTRIB Get start for interpreter 00000401
  AEQLC OCBSCL,0,,COMP7 Error if not attribute 00000402
  AEQLC STYPE,EOSTYP,,XLAEND 00000403
*                                     Finish on end of statement 00000404
  STREAM XSP,TEXTSP,IBLKT,COMP7,,COMP7 00000405
*                                     Analyze remainder of card 00000406
XLAEND AEQLC ESAICL,0,,XLATSC Were there any compilation errors? 00000407
  OUTPUT OUTPUT,ERRCF Print message of errors 00000408
  BRANCH XLATND 00000409
*                                     00000410
XLATSC OUTPUT OUTPUT,SUCCF Print message of no errors 00000411
XLATND SETAC UNIT,0 Reset input unit 00000412
  SETAC LPTR,0 Reset last label pointer 00000413
  SETAC OCLIM,0 Reset limit on object code 00000414
  ZERBLK COMREG,COMDCT Clear compiler descriptors 00000415
  SUM XCL,CBSCL,CMOFLC Compute end of object code 00000416
  RCALL ,SPLIT,(XCL) Split of unused part of block 00000417
  SETAC LISTCL,0 Turn off listing switch 00000418
  MTIME ETMCL Time out compiler 00000419
  SUBTRT TIMECL,ETMCL,TIMECL Compute elapsed time 00000420
  SETAC CNSLCL,1 Permit label redefinition 00000421
  RCALL ,INTERP,,(MAIN1,MAIN1,MAIN1) 00000422
*                                     Call interpreter 00000423
*                                     00000424
*-----* 00000425
  TITLE 'Support Procedures' 00000426
*                                     00000427
* Augmentation of Pair Lists 00000428
*                                     00000429
AUGATL PROC , Procedure to augment pair lists 00000430
  POP (A1PTR,A2PTR,A3PTR) List, type and value 00000431
  LOCAPT A4PTR,A1PTR,ZEROCL,AUG1 00000432
*                                     Look for hole in list 00000433
  PUTDC A4PTR,DESCR,A2PTR Insert type descriptor 00000434
  PUTDC A4PTR,2*DESCR,A3PTR Insert value descriptor 00000435
  MOVD A5PTR,A1PTR Set up return pointer 00000436
  BRANCH A5RTN Return pair list 00000437
*                                     00000438
AUG1 GETSIZ A4PTR,A1PTR Get size of present list 00000439
  INCRA A4PTR,2*DECCR Add two more descriptors 00000440
  SETVC A4PTR,B Insert BLOCK data type 00000441
  RCALL A5PTR,BLOCK,A4PTR Allocate new block 00000442
  PUTD A5PTR,A4PTR,A3PTR Insert value descriptor at end 00000443
  DECRA A4PTR,DESCR Decrement 00000444
  PUTD A5PTR,A4PTR,A2PTR Insert type descriptor above 00000445
AUGMOV DECRA A4PTR,DESCR Adjust size 00000446
  MOVBLK A5PTR,A1PTR,A4PTR Copy old list at top 00000447
  BRANCH A5RTN Return new list 00000448
*-----* 00000449
*                                     00000450
*                                     00000451
* Code Skipping Procedure 00000452
*                                     00000453
CODSKP PROC , Procedure to skip object code 00000454
  POP YCL Restore number of items to skip 00000455
  CODCNT INCRA OCICL,DESCR Increment offset 00000456
  GETD XCL,OCBSCL,OCICL Get object code descriptor 00000457
  TESTF XCL,FNC,,CODFNC Check for function 00000458
  CODECR DECRA YCL,1 Count down 00000459
  ACOMPC YCL,0,CODCNT,RTN1,INTR10 00000460
*                                     Check for end 00000461
*                                     00000462
CODFNC PUSH YCL Save number to skip 00000463
  SETAV YCL,XCL Get arguments to skip 00000464
  RCALL ,CODSKP,(YCL) Call self recursively 00000465
  POP YCL Restore number to skip 00000466
  BRANCH CODECR Go around again 00000467

```



SOURCE LISTING

	PUTDC	F2PTR,0,UNDFCL	Insert undefined function	00000537
	PUTDC	F2PTR,DESCR,F1PTR	Insert name	00000538
	BRANCH	FATBAK	Join return	00000539
*				00000540
FATBLK	RCALL	FBLOCK,BLOCK,FBLKRQ	Allocate new function block	00000541
	SETF	FBLOCK,FNC	Insert function flag	00000542
	SETVC	FBLOCK,0	Clear data type	00000543
	SETAC	NEXFCL,DESCR	Initialize offset	00000544
	BRANCH	FATNXT	Join processing	00000545
*				00000546
*				00000547
	TITLE	'Storage Allocation and Refeneration Procedures'		00000548
*				00000549
*	Allocation of Block			00000550
*				00000551
BLOCK	PROC	.	Procedure to allocate blocks	00000552
	POP	ARG1CL	Restore size to allocate	00000553
	ACOMP	ARG1CL,SIZLMT,SIZERR,SIZERR	Check against size limit	00000554
*				00000555
BLOCK1	MOVD	BLOCL,FRSGPT	Position pointer to title	00000556
	MOVV	BLOCL,ARG1CL	Move data type	00000557
	INCRA	FRSGPT,DESCR	Leave room for title	00000558
	SUM	FRSGPT,FRSGPT,ARG1CL		00000559
*			Move position pointer past end	00000560
	ACOMP	TLSGP1,FRSGPT,,,BLOGC	Check for end of region	00000561
*				00000562
	ZERBLK	BLOCL,ARG1CL	Clear block	00000563
	PUTAC	BLOCL,0,BLOCL	Set up self-pointer in title	00000564
	SETFI	BLOCL,TTL	Insert title flag	00000565
	SETSIZ	BLOCL,ARG1CL	Insert block size	00000566
	RRTURN	BLOCL,1	Return pointer to block	00000567
*				00000568
BLOGC	MOVA	FRSGPT,BLOCL	Restore position pointer	00000569
	RCALL	.GC,(ARG1CL),(ALOC2,BLOCK1)	Regenerate storage	00000570
*				00000571
*				00000572
*				00000573
*				00000574
*	Generation of Natural Variables			00000575
*				00000576
GENVAR	PROC	.	Procedure to generate variable	00000577
	SETAC	CONVSW,0	Note GENVAR entry	00000578
	POP	AXPTR	Resotre pointer to specifier	00000579
	GETSPC	SPECR1,AXPTR,0	Get specifier	00000580
	LEQLC	SPECR1,0,,RT1NUL	Avoid null string	00000581
LOCA1	VARID	EQUVCL,SPECR1	Compute bin and ascension numbers	00000582
	SUM	BUKPTR,OBPTR,EQUVCL	Find bin	00000583
LOCA2	MOVD	LSTPTR,BUKPTR	Save working copy	00000584
	GETAC	BUKPTR,BUKPTR,LNKFLD		00000585
*			Get link descriptor	00000586
	AEQLC	BUKPTR,0,,LOCA5	Check for end of chain	00000587
	VCMPIK	BUKPTR,LNKFLD,EQUVCL,LOCA5,,LOCA2		00000588
*			Compare ascension numbers	00000589
	LOCSP	SPECR2,BUKPTR	Get specifier to string in storage	00000590
	LEXCMP	SPECR1,SPECR2,LOCA2,,LOCA2		00000591
*			Compare strings	00000592
	MOVD	LCPTR,BUKPTR	Return string in storage	00000593
	BRANCH	LOCRET		00000594
*				00000595
LOCA5	GETLG	AXPTR,SPECR1	Get length of string	00000596
	GETLTH	BKLTCL,AXPTR	Compute space required	00000597
	ACOMP	BKLTCL,SIZLMT,SIZERR		00000598
*			Check against size limit	00000599
LOCA7	MOVD	LCPTR,FRSGPT	Point to position in storage	00000600
	SETVC	LCPTR,S	Set data type to STRING	00000601
	INCRA	FRSGPT,DESCR	Leave space for title	00000602
	SUM	FRSGPT,FRSGPT,BKLTCL		00000603
*			Skip required space	00000604
	ACOMP	TLSGP1,FRSGPT,,,LOCA4		00000605
*			Check for end of region	00000606
	PUTDC	LCPTR,0,ZEROCL	Clear title	00000607
	PUTAC	LCPTR,0,LCPTR	Point title to self	00000608
	SETFI	LCPTR,TTL+STTL	Set string and title flags	00000609
	SETSIZ	LCPTR,AXPTR	Insert size of string	00000610
	AEQLC	CONVSW,0,LOCA6	Check for GENVAR entry	00000611
	PUTDC	LCPTR,DESCR,NULVCL	Set value to null string	00000612
	PUTDC	LCPTR,ATTRIB,ZEROCL	Set label attribute to zero	00000613
	LOCSP	SPECR2,LCPTR	Get specifier to string structure	00000614



SOURCE LISTING

	SETLC	SPECR2,0	Clear length	00000615
	APDSP	SPECR2,SPECR1	Move new string in	00000616
LOCA6	PUTVC	LCPTR,LNKFLD,EQUVCL	Insert ascension number	00000617
	PUTAC	LCPTR,LNKFLD,BUKPTR	Insert link pointer	00000618
	PUTAC	LSTPTR,LNKFLD,LCPTR	Link to last structure	00000619
	INCRA	VARSYM,1	Increment count of new variables	00000620
LOCRET	RRTURN	LCPTR,1	Return pointer to structure	00000621
*				00000622
LOCA4	MOVA	FRSGPT,LCPTR	Restore position pointer	00000623
	RCALL	,GC,(BKLTCL),(ALOC2,LOCA7)	Regenerate storage	00000624
*				00000625
*				00000626
*				00000627
*				00000628
*				00000629
*			Generation of Variable from Integer	00000630
*				00000631
GNVARI	PROC	GENVAR	Procedure to generate string	00000632
	SETAC	CONVSW,0	Note GENVAR entry	00000633
	POP	AXPTR	Restore integer	00000634
	INTSPC	SPECR1,AXPTR	Convert to string	00000635
	BRANCH	LOCA1	Join processing	00000636
*				00000637
*				00000638
*				00000639
*			Allocation of Space for Variable	00000640
*				00000641
CONVAR	PROC	GENVAR	Procedure to get space for variable	00000642
	POP	AXPTR	Restore length	00000643
	AEQLC	AXPTR,0,,RT1NUL	Avoid null string	00000644
	SETAC	CONVSW,1	Note CONVAR entry	00000645
	GETLTH	BKLTCL,AXPTR	Get space required	00000646
	ACOMP	BKLTCL,SIZEMT,SIZEER	Check against size limit	00000647
*				00000648
	SUM	TEMPCL,FRSGPT,BKLTCL	Skip required space	00000649
*				00000650
	INCRA	TEMPCL,DESCR	Save space for title	00000651
	ACOMP	TLSGP1,TEMPCL,,,CONVR4	Check for end of region	00000652
*				00000653
CONVR5	PUTDC	FRSGPT,0,ZEROCL	Clear title	00000654
	PUTAC	FRSGPT,0,FRSGPT	Set up self pointer	00000655
	SETFI	FRSGPT,TTL+STTL	Set string and title flags	00000656
	SETSIZ	FRSGPT,AXPTR	Insert tentative size of string	00000657
	PUTDC	FRSGPT,DESCR,NULVCL	Insert null string as value	00000658
	PUTDC	FRSGPT,ATTRIB,ZEROCL	Set label to zero	00000659
*				
	MOVA	BKLTCL,FRSGPT		E3.3.2
	RRTURN	BKLTCL,1		E3.3.2
*				00000661
CONVR4	RCALL	,GC,BKLTCL,(ALOC2,CONVR5)	Regenerate storage	00000662
*				00000663
*				00000664
*				00000665
*				00000666
*				00000667
*			Generation of Variable in Place	00000668
*				00000669
GNVARS	PROC	GENVAR	Procedure to entry string	00000670
	POP	AXPTR	Restore length	00000671
	AEQLC	AXPTR,0,,RT1NUL	Avoid null string	00000672
	LOCSF	SPECR1,FRSGPT	Get specifier to position	00000673
	PUTLG	SPECR1,AXPTR	Insert final length	00000674
	SETSIZ	FRSGPT,AXPTR	Insert size in title	00000675
	BRANCH	LOCA1	Join processing	00000676
*				00000677
*				00000678
*				00000679
*			Storage Regeneration	00000680
*				00000681
GC	PROC	,	Storage regeneration procedure	00000682
	POP	GCREQ	Restore space required	00000683
	PSTACK	BLOCL	Post stack position	00000684
	SUBTRT	BLOCL,BLOCL,STKPTR	Compute stack length used	00000685
	SETSIZ	STKPTR,BLOCL	Set stack size	00000686
	MOVD	BKDXU,PRMDX	Number of resident blocks	00000687
GCT	GETD	GCMPTR,PRMPTR,BKDXU	Get next resident block	00000688
	AEQLC	GCMPTR,0,,GCTDWN	Skip nonpointers	00000689
	RCALL	,GCM,(GMPTR)	Scan resident block	00000690
GCTDWN	DECRA	BKDXU,DESCR	Decrement block count	00000691
	AEQLC	BKDXU,0,GCT	Test for end of loop	00000691

SOURCE LISTING

	SETAC	BKPTR,OBLIST-DESCR	Set up pointer to bins	00000692
GCBA1	ACOMP	BKPTR,OBEND,GCLAD	Check for end of bins	00000693
	INCRA	BKPTR,DESCR	Increment bin pointer	00000694
	MOVD	ST1PTR,BKPTR	Get working copy	00000695
GCBA2	GETAC	ST1PTR,ST1PTR,LNKFLD		00000696
*			Get link pointer	00000697
	AEQLC	ST1PTR,0,,GCBA1	Test for end of chain	00000698
	TESTFI	ST1PTR,MARK,,GCBA2	Test for marked structure	00000699
	GETDC	ST2PTR,ST1PTR,DESCR	Get value descriptor	00000700
	DEQL	ST2PTR,NULVCL,GCBA4	Mark if nonnull	00000701
	AEQLIC	ST1PTR,ATTRIB,0,,GCBA2		00000702
*			Test attribute also	00000703
GCBA4	PUTDC	GCBLK,DESCR,ST1PTR	Set up pseudoblock	00000704
	RCALL	,GCM,(GCBLK),GCBA2	Mark string structure	00000705
*				00000706
GCLAD	MOVD	CPYCL,HDSGPT	Initialize target pointer	00000707
	MOVD	TTLCL,HDSGPT	Initialize block pointer	00000708
GCLAD0	BKSIZE	BKDX,TTLCL	Get size of block	00000709
	TESTFI	TTLCL,MARK,GCLAD7	Is the block marked?	00000710
	SUM	CPYCL,CPYCL,BKDX	Is block marked?	00000711
	SUM	TTLCL,TTLCL,BKDX	Update block pointer	00000712
	AEQL	TTLCL,FRSGPT,GCLAD0,GCB1		00000713
*			Check for end of region	00000714
*				00000715
GCLAD7	MOVD	MVSGPT,TTLCL	Update compression barrier	00000716
GCLAD4	SUM	TTLCL,TTLCL,BKDX	Update block pointer	00000717
	AEQL	TTLCL,FRSGPT,,GCB1	Check for end of region	00000718
	BKSIZE	BKDX,TTLCL	Get size of block	00000719
	TESTFI	TTLCL,MARK,GCLAD4	Is block marked?	00000720
	PUTAC	TTLCL,0,CPYCL	Point title to target	00000721
	SUM	CPYCL,CPYCL,BKDX	Update target pointer	00000722
	BRANCH	GCLAD4	Continue	00000723
*				00000724
GCB1	SETAC	BKPTR,OBLIST-DESCR	Set up pointer to bins	00000725
	SETAC	NODPCL,1	No dump while reorganizing	00000726
GCB2	ACOMP	BKPTR,OBEND,GCLAP	Check for end of bins	00000727
	INCRA	BKPTR,DESCR	Increment bin pointer	00000728
	MOVD	ST1PTR,BKPTR	Get work copy	00000729
GCB3	MOVD	ST2PTR,ST1PTR	Save pointer to be linked	00000730
GCB4	GETAC	ST1PTR,ST1PTR,LNKFLD		00000731
*			Get link pointer	00000732
	AEQLC	ST1PTR,0,,GCB5	Check for end of chain	00000733
	TESTFI	ST1PTR,MARK,GCB4	Is string marked?	00000734
	GETAC	BLOCL,ST1PTR,0	Get target address	00000735
	PUTAC	ST2PTR,LNKFLD,BLOCL	Set link to target	00000736
	BRANCH	GCB3	Continue	00000737
*				00000738
GCB5	PUTAC	ST2PTR,LNKFLD,ZEROCL		00000739
*			Set last link to zero	00000740
	BRANCH	GCB2	Continue	00000741
*				00000742
GCLAP	MOVD	TTLCL,HDSGPT	Initialize target pointer	00000743
GCLAP0	BKSIZE	BKDXU,TTLCL	Get size of block	00000744
	TESTFI	TTLCL,STTL,,GCLAP1	Check for string	00000745
	MOVD	BKDX,BKDXU	Working copy of block size	00000746
	BRANCH	GCLAP2		00000747
*				00000748
GCLAP1	SETAC	BKDX,3*DESCR	Three descriptors for string	00000749
GCLAP2	TESTFI	TTLCL,MARK,GCLAP5	Is block marked?	00000750
	DECRA	BKDX,DESCR	Decrement offset	00000751
GCLAP3	GETD	DESCL,TTLCL,BKDX	Get next descriptor in block	00000752
	TESTF	DESCL,PTR,GCLAP4	Is it a pointer?	00000753
	ACOMP	DESCL,MVSGPT,,GCLAP4		00000754
*			Is it above compression barrier?	00000755
	TOP	TOPCL,OFFSET,DESCL	Compute offset to target	00000756
	ADJUST	DESCL,TOPCL,OFFSET	Adjust pointer to target	00000757
	PUTD	TTLCL,BKDX,DESCL	Put descriptor back in block	00000758
GCLAP4	DECRA	BKDX,DESCR	Decrement offset	00000759
	AEQLC	BKDX,0,GCLAP3	Check for end of block	00000760
GCLAP5	SUM	TTLCL,TTLCL,BKDXU	Move to next block	00000761
	AEQL	TTLCL,FRSGPT,GCLAP0	Check for end of region	00000762
	MOVD	BKDXU,PRMDX	Number of resident blocks	00000763
GCLAT1	GETD	TTLCL,PRMPTR,BKDXU	Get next resident block	00000764
	AEQLC	TTLCL,0,,GCLAT4	Skip nonpointer	00000765
	GETSIZ	BKDX,TTLCL	Get size of block	00000766
GCLAT2	GETD	DESCL,TTLCL,BKDX	Get descriptor from block	00000767
	TESTF	DESCL,PTR,GCLAT3	Is it a pointer?	00000768
	ACOMP	DESCL,MVSGPT,,GCLAT3		00000769

SOURCE LISTING

			Is it above compression barrier?	00000770
*	TOP	TOPCL,OFSET,DESCL	Compute offset to target	00000771
	ADJUST	DESCL, TOPCL, OFSET	Adjust pointer to target	00000772
	PUTD	TTLCL, BKDX, DESC	Put descriptor back in block	00000773
GCLAT3	DECRA	BKDX, DESCR	Decrement offset	00000774
	AEQLC	BKDX, 0, GCLAT2	Check for end of block	00000775
GCLAT4	DECRA	BKDXU, DESCR	Decrement count of resident blocks	00000776
	AEQLC	BKDXU, 0, GCLAT1	Check for end of resident blocks	00000777
	MOVD	TTLCL, HDSGPT	Set up target pointer	00000778
GCLAM0	BKSIZE	BKDXU, TTLCL	Get size of block	00000779
	ACOMP	TTLCL, MVS GPT, GCLAM5, GCLAM5	Get size of block	00000780
*			Has compression barrier been reached	00000781
	GETAC	TOPCL, TTLCL, 0	Get target position	00000782
	MOVDIC	TOPCL, 0, TTLCL, 0	Move title to target position	00000783
	RSETFI	TOPCL, MARK	Clear mark flag	00000784
	BRANCH	GCLAM4	Continue	00000785
*				00000786
GCLAM5	MOVA	BKDX, BKDXU	Working copy of block size	00000787
	DECRA	BKDX, DESCR	Size to be moved	00000788
	TESTFI	TTLCL, MARK, GCLAM4	Is block marked?	00000789
	GETAC	TOPCL, TTLCL, 0	Get target position	00000790
	MOVDIC	TOPCL, 0, TTLCL, 0	Move title	00000791
	RSETFI	TOPCL, MARK	Clear mark flag	00000792
	MOVEBLK	TOPCL, TTLCL, BKDX	Move block itself	00000793
GCLAM4	SUM	TTLCL, TTLCL, BKDXU	Get to next block	00000794
	AEQL	TTLCL, FRSGPT, GCLAM0	Check for end of region	00000795
	INCRA	GCNO, 1	Increment count of regenerations	00000796
	SETAC	NODPCL, 0	Permit dump	00000797
	BKSIZE	BKDX, TOPCL	Get size of last block	00000798
	SUM	FRSGPT, TOPCL, BKDX	Compute new allocation pointer	00000799
	RESETF	FRSGPT, FNC	Clear possible function flag	00000800
	SUBTRT	GCGOT, TLSGP1, FRSGPT	Compute amount reclaimed	00000801
	DECRA	GCGOT, DESCR		00000802
	RESETF	GCGOT, PTR	Clear pointer flag	00000803
	ACOMP	GCREQ, GCGOT, FAIL	Compare with amount required	00000804
	RRTURN	GCGOT, 2		00000805
				00000806
				00000807
				00000808
				00000809
				00000810
				00000811
GCM	PROC	.	Procedure to mark blocks	00000812
	POP	BK1CL	Restore block to mark from	00000813
	PUSH	ZEROCL	Save end marker	00000814
GCMA1	GETSIZ	BKDX, BK1CL	Get size of block	00000815
GCMA2	GETD	DESCL, BK1CL, BKDX	Get descriptor	00000816
	TESTF	DESCL, PTR, GCMA3	Is it a pointer?	00000817
	AEQLC	DESCL, 0, GCMA3	Is address zero?	00000818
	TOP	TOPCL, OFSET, DESC	Get to title of block pointed to	00000819
	TESTFI	TOPCL, MARK, GCMA4	Is block marked?	00000820
GCMA3	DECRA	BKDX, DESCR	Decrement offset	00000821
	AEQLC	BKDX, 0, GCMA2	Check for end of block	00000822
	POP	BK1CL	Restore block pushed	00000823
	AEQLC	BK1CL, 0, RTN1	Check for end	00000824
	SETAV	BKDX, BK1CL	Get size remaining	00000825
	BRANCH	GCMA2	Continue processing	00000826
*				00000827
GCMA4	DECRA	BKDX, DESCR	Decrement offset	00000828
	AEQLC	BKDX, 0, GCMA9	Check for end	00000829
	SETVA	BK1CL, BKDX	Insert offset	00000830
	PUSH	BK1CL	Save current block	00000831
GCMA9	MOVD	BK1CL, TOPCL	Set pointer to new block	00000832
	SETFI	BK1CL, MARK	Mark block	00000833
	TESTFI	BK1CL, STTL, GCMA1	Is it a string?	00000834
	MOVD	BKDX, TWOCL	Set size of string to 2	00000835
	BRANCH	GCMA2	Join processing	00000836
				00000837
				00000838
				00000839
				00000840
SPLIT	PROC	.	Procedure to split blocks	00000841
	POP	A4PTR	Restore pointer to middle of block	00000842
	TOP	A5PTR, A6PTR, A4PTR	Get title and offset	00000843
	AEQLC	A6PTR, 0, RTN1	Avoid block of zero length	00000844
	GETSIZ	A7PTR, A5PTR	Get present block size	00000845
	SUBTRT	A7PTR, A7PTR, A6PTR	Subtract offset	00000846
	DECRA	A7PTR, DESCR	Decrement for title	00000847
	ACOMP	A7PTR, 0, RTN1, RTN1	Avoid block of zero length	00000848



## SOURCE LISTING

CMPSUB	RCALL	SUBJND,ELEMNT,,(CDIAG,COMP3)	00000926
*		Compiler subject	00000927
	RCALL	,FORBLK,,CERR5	00000928
	AEQLC	BRTYPE,NBTYP,,CMPATN	00000929
*		Check for nonbreak	00000930
	AEQLC	BRTYPE,EQTYP,,CMPFRM	00000931
*		Check for assignment	00000932
	RCALL	,TREPUB,(SUBJND)	00000933
	AEQLC	BRTYPE,CLNTYP,,CMPGO	00000934
*		Check for goto	00000935
	AEQLC	BRTYPE,EOSTYP,CERR5,CMPNGO	00000936
*		Check for end of statement	00000937
			00000938
	CMPATN	PATND,EXPR,,CDIAG	00000939
	RCALL	Compile pattern	00000940
	AEQLC	BRTYPE,EQTYP,,CMPASP	00000941
*		Check for replacement	00000942
	INCRA	CMOFCL,DESCR	00000943
	PUTD	CMBSCCL,CMOFCL,SCANCL	00000944
*		Insert SCAN function	00000945
	RCALL	,TREPUB,(SUBJND)	00000946
	RCALL	,TREPUB,(PATND)	00000947
	CMPTGO	AEQLC BRTYPE,EOSTYP,,CMPNGO	00000948
*		Check for end of statement	00000949
	AEQLC	BRTYPE,CLNTYP,CERR5,CMPGO	00000950
*		Check for end of statement	00000951
	CMPFRM	FORMND,EXPR,,CDIAG	00000952
	RCALL	Compile object	00000953
	INCRA	CMOFCL,DESCR	00000954
	PUTD	CMBSCCL,CMOFCL,ASGNCL	00000955
*		Insert ASGN function	00000956
	RCALL	,TREPUB,(SUBJND)	00000957
	BRANCH	CMPFT	00000958
*		Join object publication	00000959
	CMPASP	FORMND,EXPR,,CDIAG	00000960
	RCALL	Compile object	00000961
	INCRA	CMOFCL,DESCR	00000962
	PUTD	CMBSCCL,CMOFCL,SJSRCL	00000963
*		Insert SJSR function	00000964
	RCALL	,TREPUB,(SUBJND)	00000965
	RCALL	,TREPUB,(PATND)	00000966
	CMPFT	RCALL ,TREPUB,FORMND,CMPTGO	00000967
*		Copy object into object code	00000968
	CMPNGO	SETVA CSTNCL,CMOFCL	00000969
	PUTD	CMBSCCL,FRNCL,CSTNCL	00000970
	BRANCH	RTN3	00000971
*		Statement compilation is done	00000972
		Get to next character	00000973
	CMPGO	RCALL ,FORWRD,,COMP3	00000974
	AEQLC	BRTYPE,EOSTYP,,CMPNGO	00000975
*		Check for nonbreak	00000976
	AEQLC	BRTYPE,NBTYP,CERR11	00000977
	STREAM	XSP,TEXTSP,GOTOTB,CERR11,CERR12	00000978
*		Analyze goto field	00000979
	MOVD	GOGOCL,GOTLCL	00000980
	SETAC	GOBRCL,RPTYP	00000981
	ACOMP	STYPE,GTOCL,,CMPGG,CMPGG	00000982
*		Check for direct goto	00000983
	MOVD	GOGOCL,GOTGCL	00000984
	SETAC	GOBRCL,RBTYP	00000985
	SELBRA	STYPE,(,CMPSGO,CMPFGO,,CMPSGO,CMPFGO)	00000986
CMPGG		Branch on type	00000987
*		Set up offset for failure	00000988
	CMPUGO	SETVA CSTNCL,CMOFCL	00000989
	PUTD	CMBSCCL,FRNCL,CSTNCL	00000990
	RCALL	GOTOND,EXPR,,CDIAG	00000991
	AEQL	BRTYPE,GOBRCL,CERR11	00000992
*		Verify closing break	00000993
	INCRA	CMOFCL,DESCR	00000994
	PUTD	CMBSCCL,CMOFCL,GOGOCL	00000995
*		Increment offset	00000996
		Insert goto function	00000997
	RCALL	,TREPUB,(GOTOND)	00000998
	RCALL	,FORWRD,,COMP3	00000999
	AEQLC	BRTYPE,EOSTYP,CERR11,RTN3	00001000
*		Get to next character	00001001
		Check for end of statement	00001002
			00001003
	CMPSGO	RCALL SGOND,EXPR,,CDIAG	00001004
	AEQL	BRTYPE,GOBRCL,CERR11	00001005
*		Verify break character	00001006
	INCRA	CMOFCL,DESCR	00001007
	PUTD	CMBSCCL,CMOFCL,GOGOCL	00001008
		Increment offset	00001009

SOURCE LISTING

*			Insert goto function	00001004
	RCALL	,TREPUB,(SGOND)	Copy goto into object code	00001005
	RCALL	,FORWRD,,COMP3	Get to next character	00001006
	AEQLC	BRTYPE,EOSTYP,CMPILL		00001007
*			Check for end of statement	00001008
	SETVA	CSTNCL,CMOFCL	Set up offset for failure	00001009
	PUTD	CMBSCCL,FRNCL,CSTNCL	Insert argument of INIT	00001010
	BRANCH	RTN3	Compilation is complete, return	00001011
*				00001012
CMPILL	AEQLC	BRTYPE,NBTYP,CERR11	Check for nonbreak	00001013
	STREAM	XSP,TEXTSP,GOTOTB,CERR11,CERR12		00001014
*			Analyze goto field	00001015
	AEQLC	STYPE,FGOTYP,CMPFTC	Check for failure goto	00001016
	MOVD	GOGOCL,GOTLCL	Set up goto	00001017
	SETAC	GOBRCL,RPTYP	Set up closing break	00001018
	BRANCH	CMPUGO	Join processing	00001019
*				00001020
CMPFTC	AEQLC	STYPE,FTOTYP,CERR11	Verify failure goto	00001021
	MOVD	GOGOCL,GOTGCL	Set up goto	00001022
	SETAC	GOBRCL,RBTYP	Set up closing break	00001023
	BRANCH	CMPUGO	Join processing	00001024
*				00001025
CMPFGO	RCALL	FGOND,EXPR,,CDIAG	Compile failure goto	00001026
	AEQL	BRTYPE,GOBRCL,CERR11		00001027
*			Verify failure goto	00001028
	RCALL	,FORWRD,,COMP3	Get to next character	00001029
	AEQLC	BRTYPE,EOSTYP,CMPILM		00001030
*			Check for end of statement	00001031
	INCRA	CMOFCL,DESCR	Increment offset	00001032
	PUTD	CMBSCCL,CMOFCL,GOTOCL		00001033
*			Insert jcto function	00001034
	INCRA	CMOFCL,DESCR	Increment offset	00001035
	MOVD	SRNCL,CMOFCL	Save location for success	00001036
	SETVA	CSTNCL,CMOFCL	Set up failure offset	00001037
	PUTD	CMBSCCL,FRNCL,CSTNCL	Insert argument of INIT	00001038
	INCRA	CMOFCL,DESCR	Increment offset	00001039
	PUTD	CMBSCCL,CMOFCL,GOGOCL		00001040
*			Insert goto function	00001041
	RCALL	,TREPUB,(FGOND)	Copy goto into object code	00001042
	PUTD	CMBSCCL,SRNCL,CMOFCL	Insert success offset into code	00001043
	BRANCH	RTN3	Compilation is complete, return	00001044
*				00001045
CMPILM	AEQLC	BRTYPE,NBTYP,CERR11	Verify nonbreak	00001046
	STREAM	XSP,TEXTSP,GOTOTB,CERR11,CERR12		00001047
*			Analyze goto field	00001048
	AEQLC	STYPE,SGOTYP,CMPSTC	Check for success goto	00001049
	PUSH	GOTLCL	Save goto type	00001050
	SETAC	GOBRCL,RPTYP	Set up closing break	00001051
	BRANCH	CMPILN	Join processing	00001052
*				00001053
CMPSTC	AEQLC	STYPE,STOTYP,CERR11	Verify success goto	00001054
	PUSH	GOTGCL	Save goto type	00001055
	SETAC	GOBRCL,RBTYP	Set up closing break	00001056
CMPILN	RCALL	SGOND,EXPR,,CDIAG	Compile success goto	00001057
	AEQL	BRTYPE,GOBRCL,CERR11		00001058
*			Verify closing break	00001059
	RCALL	,FORWRD,,COMP3	Get to next character	00001060
	AEQLC	BRTYPE,EOSTYP,CERR11		00001061
*			Verify end of statement	00001062
	INCRA	CMOFCL,DESCR	Increment offset	00001063
	POP	WCL	Restore goto type	00001064
	PUTD	CMBSCCL,CMOFCL,WCL	Insert goto function	00001065
	RCALL	,TREPUB,(SGOND)	Copy goto into object code	00001066
	SETVA	CSTNCL,CMOFCL	Set up failure offset	00001067
	PUTD	CMBSCCL,FRNCL,CSTNCL	Insert argument of INIT	00001068
	INCRA	CMOFCL,DESCR	Increment offset	00001069
	PUTD	CMBSCCL,CMOFCL,GOGOCL		00001070
*			Insert goto function	00001071
	RCALL	,TREPUB,(FGOND),RTN3		00001072
*			Copy goto into object code	00001073
*				00001074
CERR1	SETAC	EMSGCL,EMSG1	Erroneous label	00001075
	BRANCH	CDIAG		00001076
*				00001077
CERR2	SETAC	EMSGCL,EMSG2	Multidefined label	00001078
	BRANCH	CDIAG		00001079
*				00001080
CERR3	SETAC	EMSGCL,EMSG3	Break character before subject	00001081

SOURCE LISTING

	BRANCH	CDIAG		00001082
*	CERR5	SETAC	EMSGCL, ILLBRK	Illegal character after pattern
		BRANCH	CDIAG	00001083
				00001084
*	CERR12	SETAC	EMSGCL, ILLEOS	Illegal statement termination
		BRANCH	CDIAG	00001085
				00001086
*	CERR11	SETAC	EMSGCL, EMSG14	Characters after goto
	CDIAG	INCRA	BOSCL, DESCR	Increment offset of beginning
		PUTD	CMBSCL, BOSCL, ERORCL	Insert ERROR function
		INCRA	BOSCL, DESCR	Increment offset
		PUTD	CMBSCL, BOSCL, CSTNCL	Insert argument of ERROR
		MOVD	CMOFCL, BOSCL	Reposition offset
		INCRA	ESAICL, DESCR	Increment count of errors
		ACOMP	ESAICL, ESALIM, COMP9	Test for excessive errors
		AEQLC	LISTCL, 0, CDIAG1	Check for listing mode
		MOVD	YCL, ERBAS	Set up length of error vector
		AEQLC	BRTYPE, EOSTYP, CDIAG3	00001090
*				00001091
		GETLG	XCL, TEXTSP	Check for end of statement
		SUBTRT	YCL, YCL, XCL	Get length remaining
	CDIAG3	PUTLG	ERRSP, YCL	Compute position for marker
		APDSP	ERRSP, QTSP	Insert length
		AEQLC	BRTYPE, EOSTYP, CDIAG2	00001104
*				00001105
				00001106
				00001107
*	CDIAG2	STPRNT	IOKEY, OUTBLK, LNBFS	Check for end of statement
		STPRNT	IOKEY, OUTBLK, ERRSP	Print statement
		PUTLG	ERRSP, YCL	Print error marker
		APDSP	ERRSP, BLS	Insert length in marker
		GETSPC	TSP, EMSGCL, 0	Blank out marker
		SETLC	CERRSP, 0	Get error message
		APDSP	CERRSP, STARS	Clear specifier
		APDSP	CERRSP, TSP	Append attention getter
		STPRNT	IOKEY, OUTBLK, CERRSP	Append error message
		STPRNT	IOKEY, OUTBLK, BLS	Print error message
	CDIAG1	AEQLC	UNIT, 0, RTN1	Print blank line
		AEQLC	BRTYPE, EOSTYP, RTN3	00001117
		STREAM	XSP, TEXTSP, EOSTB, COMP3, RTN3	E3.0.1
*				E3.0.1
				00001120
				00001121
*	DIAGRN	STREAD	INBFS, UNIT, DIAGRN, COMP5	Get to end of statement
*				00001122
		SETSP	TEXTSP, NEXTSP	Read card image
		STREAM	XSP, TEXTSP, CARDTB, COMP3, COMP3	Set up new line
*				00001124
				00001125
				00001126
		RCALL	, NEWCRD, (, RTN3)	Analyze card type
		AEQLC	LISTCL, 0, DIAGRN	Process card image
		STPRNT	IOKEY, OUTBLK, LNBFS	00001127
		BRANCH	DIAGRN	00001128
				00001129
				00001130
				00001131
				00001132
				00001133
*				00001134
*		Element	Analysis	00001135
*				00001136
	ELEMNT	PROC		Element analysis procedure
		RCALL	ELEMND, UNOP, RTN2	Get tree of unary operators
		STREAM	XSP, TEXTSP, ELEMTB, ELEICH, ELEILI	00001137
*				00001138
				00001139
*	ELEMN9	SELBRA	STYPE, (, ELEILT, ELEVBL, ELENST, ELEFNC, ELEFLT, ELEARY)	Break out element
*				00001140
				00001141
		FSHRTN	XSP, 1	Branch on element type
		SHORTN	XSP, 1	Delete initial quote
		RCALL	XPTR, GENVAR, (XSPPTR)	Remove terminal quote
*				00001142
				00001143
				00001144
*	ELEMN5	RCALL	ELEXND, BLOCK, CNDSIZ	Generate variable for literal
		PUTDC	ELEXND, CODE, LITCL	Allocate block for tree node
		RCALL	ELEYND, BLOCK, CNDSIZ	Insert literal function
		PUTDC	ELEYND, CODE, XPTR	Allocate block for tree node
		ADDSON	ELEXND, ELEYND	Insert literal value
		AEQLC	ELEMND, 0, ELEMN6	Add node as son
	ELEMN1	MOVD	ZPTR, ELEXND	Check for empty tree
		BRANCH	ELEMRR	00001150
				00001151
				00001152
				00001153
				00001154
*	ELEMN6	ADDSON	ELEMND, ELEXND	Set up return
	ELEMNR	MOVD	ZPTR, ELEMND	Join return processing
	ELEMRR	AEQLC	ZPTR, FATHER, 0, RTZPTR	00001155
*				00001156
				00001157
				00001158
				00001159
		GETDC	ZPTR, ZPTR, FATHER	Is pointer at top of tree?
				Move back to father

SOURCE LISTING

```

BRANCH  ELEMRR          Continue up tree          00001160
*
ELEILT  SPCINT  XPTR,XSP,ELEINT,ELEMN5          00001161
*
*          Convert string to integer          00001162
*
ELEFLT  SPREAL  XPTR,XSP,ELEDEC,ELEMN5          00001163
*
*          Convert string to real          00001164
*
*          00001165
*          00001166
*          00001167
*          00001168
*          00001169
*          00001170
*          00001171
*          00001172
*          00001173
*          00001174
*          00001175
*          00001176
*          00001177
*          00001178
*          00001179
*          00001180
*          00001181
*          00001182
*          00001183
*          00001184
*          00001185
*          00001186
*          00001187
*          00001188
*          00001189
*          00001190
*          00001191
*          00001192
*          00001193
*          00001194
*          00001195
*          00001196
*          00001197
*          00001198
*          00001199
*          00001200
*          00001201
*          00001202
*          00001203
*          00001204
*          00001205
*          00001206
*          00001207
*          00001208
*          00001209
*          00001210
*          00001211
*          00001212
*          00001213
*          00001214
*          00001215
*          00001216
*          00001217
*          00001218
*          00001219
*          00001220
*          00001221
*          00001222
*          00001223
*          00001224
*          00001225
*          00001226
*          00001227
*          00001228
*          00001229
*          00001230
*          00001231
*          00001232
*          00001233
*          00001234
*          00001235
*          00001236
*          00001237

```



SOURCE LISTING

	ADDSIB	ELEMND,ELEXND	Add as sibling to tree	00001238
	MOVD	ELEMND,ELEXND	Move to new node	00001239
	AEQLC	BRTYPE,RBTYP,,ELEMNR		00001240
*			Check for right bracket	00001241
	AEQLC	BRTYPE,CMATYP,ELECMA,ELEAR1		00001242
*			Verify comma	00001243
*				00001244
*_	ELEICH	SETAC EMSGCL,ILCHAR	'ILLEGAL CHARACTER IN ELEMENT'	00001245
	BRANCH	RTN1	Error return	00001246
*				00001247
*_	ELEILI	AEQLC STYPE,QLITYP,ELEMN9	Check cause of run out	00001248
	SETAC	EMSGCL,OPNLIT	'UNCLOSED LITERAL'	00001249
	BRANCH	RTN1	Error return	00001250
*				00001251
*_	ELEINT	SETAC EMSGCL,ILLINT	'ILLEGAL INTEGER'	00001252
	BRANCH	RTN1	Error return	00001253
*				00001254
*_	ELEDEC	SETAC EMSGCL,ILLDEC	'ILLEGAL REAL'	00001255
	BRANCH	RTN1	Error return	00001256
*				00001257
*_	ELECMA	SETAC EMSGCL,ILBRK	'ILLEGAL BREAK CHARACTER'	00001258
	BRANCH	RTN1	Error return	00001259
*				00001260
*_				00001261
*				00001262
*				00001263
*				00001264
*				00001265
*	Expr	PROC	Procedure to compile expression	00001266
		RCALL	EXELND,ELEMNT,,(RTN1,EXPNULL)	00001267
*			Compile element	00001267
		SETAC	EXPRND,0	00001269
		BRANCH	EXPR2	00001269
			Join main processing	00001270
*				00001271
*_	EXPR1	PUSH	EXPRND	00001272
		RCALL	EXELND,ELEMNT,,(RTN1,EXPERR)	00001273
*			Compile element	00001273
		POP	EXPRND	00001274
		RCALL	EXOPCL,BINOP,,(RTN1,EXPR7)	00001275
*			Restore expression tree	00001275
			Get binary operator	00001276
		RCALL	EXOPND,BLOCK,CNDSIZ	00001277
		PUTDC	EXOPND,CODE,EXOPCL	00001278
		AEQLC	EXPRND,0,EXPR3	00001279
		ADDSON	EXOPND,EXELND	00001280
		MOVD	EXPRND,EXELND	00001281
		BRANCH	EXPR1	00001282
			Move to new node	00001282
			Continue processing	00001283
*				00001284
*_	EXPR3	GETDC	EXOPCL,EXOPCL,2*DESCR	00001285
*			Get precedence descriptor	00001285
		SETAV	EXOPCL,EXOPCL	00001286
		GETDC	ESEXND,EXPRND,FATHER	00001287
*			Get left precedence	00001287
			Get father of node	00001288
		GETDC	XPTR,ESEXND,CODE	00001289
		GETDC	XPTR,XPTR,2*DESCR	00001290
		ACOMP	XPTR,EXOPCL,EXPR4	00001291
		ADDSIB	EXPRND,EXOPND	00001292
		MOVD	EXPRND,EXOPND	00001293
		ADDSON	EXPRND,EXELND	00001294
		MOVD	EXPRND,EXELND	00001295
		BRANCH	EXPR1	00001296
			Move to new node	00001296
			Continue processing	00001296
*				00001297
*_	EXPR4	ADDSIB	EXPRND,EXELND	00001298
		AEQLIC	EXPRND,FATHER,0,,EXPR11	00001299
			Add current node as sibling	00001299
*			Check for root node	00001300
		GETDC	EXPRND,EXPRND,FATHER	00001301
*			Get father node	00001302
		AEQLIC	EXPRND,FATHER,0,,EXPR11	00001303
*			Check for root node	00001304
		GETDC	ESEXND,EXPRND,FATHER	00001305
*			Get father node	00001306
		GETDC	XPTR,ESEXND,CODE	00001307
		GETDC	XPTR,XPTR,2*DESCR	00001308
		ACOMP	XPTR,EXOPCL,EXPR5	00001309
		INSERT	EXPRND,EXOPND	00001310
		BRANCH	EXPR1	00001311
			Insert node above	00001311
			Continue processing	00001312
*				00001312
*_	EXPR7	AEQLC	EXPRND,0,EXPR10	00001313
		MOVD	XPTR,EXELND	00001314
		BRANCH	EXPR9	00001315
			Check for empty tree	00001315
			Set up for return	00001315
			Join end processing	00001315

SOURCE LISTING

```

*
EXPR10 ADDSIB  EXPRND,EXELND      Add node as sibling          00001316
      MOVD    XPTR,EXPRND        Set up for return          00001317
EXPR9  AEQLC  XPTR,FATHER,0,,RTXNAM  Check for root node       00001318
*                                     Go back to father         00001319
      GETDC  XPTR,XPTR,FATHER      Go back to father         00001320
      BRANCH EXPR9                Continue up tree            00001321
*                                     00001322
EXPR11 ADDSON  EXOPND,EXPRND      Add node as son            00001323
      BRANCH  EXPR1                Continue processing         00001324
*                                     00001325
EXPNU  RCALL  EXPRND,BLOCK,CNDSIZ  Allocate block for tree node 00001326
      PUTDC  EXPRND,CODE,LITCL     Insert literal function     00001327
      RCALL  EXEXND,BLOCK,CNDSIZ  Allocate block for tree node 00001328
      PUTDC  EXEXND,CODE,NULVCL   Insert null string as value 00001329
      ADDSON EXPRND,EXEXND        Add node as son            00001330
      MOVD   XPTR,EXPRND          Set up for return          00001331
      BRANCH RTXNAM               00001332
*                                     00001333
EXPERR SETAC  EMSGCL,ILLEOS      'ILLEGAL END OF STATEMENT' 00001334
      BRANCH  RTN1                Take error return         00001335
*                                     00001336
*-----*
*                                     00001337
*                                     00001338
*                                     00001339
*                                     00001340
*                                     00001341
*                                     00001342
*                                     00001343
*                                     00001344
*                                     00001345
*                                     00001346
*                                     00001347
*                                     00001348
*                                     00001349
*                                     00001350
*                                     00001351
*                                     00001352
*                                     00001353
*                                     00001354
*                                     00001355
*                                     00001356
*                                     00001357
*                                     00001358
*                                     00001359
*                                     00001360
*                                     00001361
*                                     00001362
*                                     00001363
*-----*
*                                     00001364
*                                     00001365
*                                     00001366
*                                     00001367
*                                     00001368
*                                     00001369
*                                     00001370
*                                     00001371
*                                     00001372
*                                     00001373
*                                     00001374
*                                     00001375
*                                     00001376
*                                     00001377
*                                     00001378
*                                     00001379
*                                     00001380
*                                     00001381
*                                     00001382
*                                     00001383
*                                     00001384
*                                     00001385
*                                     00001386
*                                     00001387
*                                     00001388
*                                     00001389
*                                     00001390
*                                     00001391
*                                     00001392
*                                     00001393
*
NEWCRD FSHRTN  TEXTSP,1           Remove continue character   00001391
      AEQLC  LISTCL,0,,RTN2       Return if listing is off   00001392
*
CMTCRD AEQLC  LISTCL,0,,RTN1     Return if listing is off   00001393
      SETLC  LNOSP,0             Clear left specifier       00001394
      SETLC  RNOSP,0            Clear right specifier      00001395
      APDSP  LNOSP,BLNSP        Blank left specifier       00001396
      APDSP  RNOSP,BLNSP        Blank right specifier      00001397
      BRANCH RTN1                00001398
*
CARDL  SETLC  LNOSP,0           Clear left specifier       00001399
      APDSP  RNOSP,TSP         Set to statement number    00001400
      BRANCH RTN3                00001401
*
FORWRD PROC  ,                 Procedure to get to next character 00001402
      STREAM XSP,TEXTSP,FRWDTB,COMP3,FORRUR 00001403
*                                     00001404
      FORJRN MOVD  BRTYPE,STYPE     Set up break type         00001405
      BRANCH  RTN2                Return                       00001406
*
FORRUR AEQLC  UNIT,0,,FOREOS     Check for input stream     00001407
      AEQLC  LISTCL,0,,FORRUR     Check listing switch       00001408
      STPRNT IOKEY,OUTBLK,LNBFSP  Print card image          00001409
      STREAM INBFSP,UNIT,FORRUR,COMP5      00001410
*                                     00001411
      SETSP  TEXTSP,NEXTSP        Set up new line           00001412
      STREAM XSP,TEXTSP,CARDTB,COMP3      00001413
*                                     00001414
      RCALL  ,NEWCRD,,(FORRUR,FORWRD)      Determine card type       00001415
*                                     00001416
      FOREOS MOVD  BRTYPE,EOSCL     Set up end-of-card        00001417
      BRANCH  RTN2                Return                       00001418
*
FORBLK PROC  FORWRD           Procedure to get to nonblank 00001419
      STREAM XSP,TEXTSP,IBLKTB,RTN1,FORRUR,FORJRN 00001420
*                                     00001421
*                                     00001422
*-----*
*                                     00001423
*                                     00001424
*                                     00001425
*                                     00001426
*                                     00001427
*                                     00001428
*                                     00001429
*                                     00001430
*                                     00001431
*                                     00001432
*                                     00001433
*                                     00001434
*                                     00001435
*                                     00001436
*                                     00001437
*                                     00001438
*                                     00001439
*                                     00001440
*                                     00001441
*                                     00001442
*                                     00001443
*                                     00001444
*                                     00001445
*                                     00001446
*                                     00001447
*                                     00001448
*                                     00001449
*                                     00001450
*                                     00001451
*                                     00001452
*                                     00001453
*                                     00001454
*                                     00001455
*                                     00001456
*                                     00001457
*                                     00001458
*                                     00001459
*                                     00001460
*                                     00001461
*                                     00001462
*                                     00001463
*                                     00001464
*                                     00001465
*                                     00001466
*                                     00001467
*                                     00001468
*                                     00001469
*                                     00001470
*                                     00001471
*                                     00001472
*                                     00001473
*                                     00001474
*                                     00001475
*                                     00001476
*                                     00001477
*                                     00001478
*                                     00001479
*                                     00001480
*                                     00001481
*                                     00001482
*                                     00001483
*                                     00001484
*                                     00001485
*                                     00001486
*                                     00001487
*                                     00001488
*                                     00001489
*                                     00001490
*                                     00001491
*                                     00001492
*                                     00001493
*                                     00001494
*                                     00001495
*                                     00001496
*                                     00001497
*                                     00001498
*                                     00001499
*                                     00001500

```

SOURCE LISTING

	INTSPC	TSP,CSTNCL	Get specifier for number	00001394	
	AEQLC	LLIST,0,CARDLL	Check for left listing	00001395	
	SETLC	RNOSP,0	Clear right specifier	00001396	
	APDSP	RNOSP,TSP	Set to statement number	00001397	
	BRANCH	RTN2		00001398	
*	CARDLL	SETLC	LNOSP,0	Clear left specifier	00001400
	APDSP	LNOSP,TSP	Set to statement number	00001401	
	BRANCH	RTN2		00001402	
*	CTLCRD	FSHRTN	TEXTSP,1	Delete control character	00001404
	STREAM	XSP,TEXTSP,FRWDTB,COMP3,CMTCRD		00001405	
*				Get to next nonblank character	00001406
	AEQLC	STYPE,NBTYP,CMTCRD	Verify nonbreak	00001407	
	STREAM	XSP,TEXTSP,LBLXTB,CMTCLR,CMTCLR		00001408	
*			Break out command	00001409	
	LEXCMP	XSP,UNLSP,CTLCR1,,CTLCR1		00001410	
*			Is it UNLIST?	00001411	
	SETAC	LISTCL,0	Zero listing switch	00001412	
	BRANCH	RTN1	Return	00001413	
*	CTLCR1	LEXCMP	XSP,LISTSP,CTLCR3,,CTLCR3		00001415
*			Is it LIST?	00001416	
	SETAC	LISTCL,1	Turn on listing	00001417	
	STREAM	XSP,TEXTSP,FRWDTB,COMP3,CMTCLR		00001418	
*			Get to next nonblank character	00001419	
	AEQLC	STYPE,NBTYP,CMTCLR	Verify nonbreak	00001420	
	STREAM	XSP,TEXTSP,LBLXTB,CMTCLR,CMTCLR		00001421	
*			Get type of listing	00001422	
	LEXCMP	XSP,LEFTSP,CTLCR2,,CTLCR2		00001423	
*			Is it LEFT?	00001424	
	SETAC	LLIST,1	Set left listing switch	00001425	
	BRANCH	CMTCLR	Join terminal processing	00001426	
*	CTLCR2	SETAC	LLIST,0	Zero left listing as default	00001427
	BRANCH	CMTCLR	Join terminal processing	00001428	
*	CTLCR3	LEXCMP	XSP,EJCTSP,CMTCLR,,CMTCLR		00001430
*			Is it EJECT?	00001431	
	AEQLC	LISTCL,0,,CMTCLR	Skip eject if not listing	00001432	
	OUTPUT	OUTPUT,EJECTF	Eject page	00001433	
	BRANCH	CMTCLR	Join terminal processing	00001434	
*				00001435	
*				00001436	
*				00001437	
*				00001438	
*				00001439	
*				00001440	
	TREPUB	PROC		Publish code tree	00001441
		POP	YPTR	Restore root node	00001442
	TREPU1	GETDC	XPTR,YPTR,CODE	Get code descriptor	00001443
		INCRA	CMOFCL,DESCR	Increment offset	00001444
		PUTD	CMBSCL,CMOFCL,XPTR	Insert code descriptor	00001445
		SUM	ZPTR,CMBSCL,CMOFCL	Compute total position	00001446
		ACOMP	ZPTR,OCLIM,TREPU5	Check against limit	00001447
	TREPU4	AEQLIC	YPTR,LSON,0,,TREPU2	Is there a left son?	00001448
		GETDC	YPTR,YPTR,LSON	Get left son	00001449
		BRANCH	TREPU1	Continue	00001450
*				00001451	
	TREPU2	AEQLIC	YPTR,RSIB,0,,TREPU3	Is there a right sibling?	00001452
		GETDC	YPTR,YPTR,RSIB	Get right sibling	00001453
		BRANCH	TREPU1	Continue	00001454
*				00001455	
	TREPU3	AEQLIC	YPTR,FATHER,0,,RTN1	Is there a father?	00001456
		GETDC	YPTR,YPTR,FATHER	Get father	00001457
		BRANCH	TREPU2	Continue	00001458
*				00001459	
	TREPU5	SUM	ZPTR,CMOFCL,CODELT	Compute additional to get	00001460
		SETVC	ZPTR,C	Insert CODE data type	00001461
		RCALL	XCL,BLOCK,ZPTR	Allocate new code block	00001462
		AEQLC	LPTR,0,,TREPU6	Is there a last label?	00001463
		PUTDC	LPTR,ATTRIB,XCL	Insert new code position	00001464
	TREPU6	MOVBK	XCL,CMBSCL,CMOFCL	Move old code	00001465
		PUTDC	CMBSCL,DESCR,GOTGCL	Insert direct goto	00001466
		PUTDC	CMBSCL,2*DESCR,DOTCL		00001467
*				Insert literal function	00001468
	PUTDC	CMBSCL,3*DESCR,XCL		Insert pointer to new code	00001469
	INCRA	CMBSCL,3*DESCR		Update end pointer	00001470
	RCALL	,SPLIT,(CMBSCL)		Split off old portion	00001471

SOURCE LISTING

```

MOVDB    CMBSCl,XCL          Set up new compiler base pointer  00001472
SUM      OCLIM,CMBSCl,ZPTR   Compute new limit          00001473
DECRA    OCLIM,5*DESCR      Leave safety factor         00001474
BRANCH   TREPU4            Rejoin processing                    00001475
*
*-----*
*
*      Unary Operator Analysis
*
UNOP     PROC              Unary operator analysis              00001477
RCALL    ,FORWRD,,COMP3    Get to next nonblank character 00001478
SETAC    XPTR,0            Zero code tree              00001479
AEQLC    BRTYPE,NBTYP,RTN1 Verify nonbreak             00001480
UNOPA    STREAM           XSP,TEXTSP,UNOPTB,RTXNAM,RTN1          E3.4.3
*
*      Break out unary operator
*
RCALL    YPTR,BLOCK,CNDSIZ  Allocate block for tree node 00001481
PUTDC    YPTR,CODE,STYPER   Insert function descriptor    00001482
AEQLC    XPTR,0,,UNOPB     Is tree empty                 00001483
ADDSO    XPTR,YPTR         Add new node as son           00001484
UNOPB    MOVDB            XPTR,YPTR         Move to new node              00001486
BRANCH   UNOPA            Continue                               00001487
*
*-----*
*
*      TITLE 'Interpreter Executive and Control Procedures'
*
*      Code Basing
*
BASE     PROC              Interpreter code basing procedure 00001488
SUM      OCBSCL,OCBSCL,OCICL Add offset to base          00001489
SETAC    OCICL,0           Zero offset                    00001490
BRANCH   RTNUL3
*
*-----*
*
*      Direct Goto
*
GOTG     PROC              :<X>
RCALL    ,OCBSCL,ARGVAL,,INTR5
*
*      Get code pointer
*
VEQLC    OCBSCL,C,INTR4    Must have CODE data type    00001491
SETAC    OCICL,0           Zero offset                    00001492
BRANCH   RTNUL3
*
*-----*
*
*      Label Goto
*
GOTL     PROC              :(X)
INCRA    OCICL,DESCR       Increment offset              00001493
GETD     XPTR,OCBSCL,OCICL Get object code descriptor   00001494
TESTF    XPTR,FNC,,GOTLC   Test for function            00001495
GOTLV    ACOMPCL          TRAPCL,0,,GOTLV1,GOTLV1
*
*      Check TRACE
*
LOCAPT   ATPTR,TLABL,XPTR,GOTLV1
*
*      Look for LABEL trace
*
PUSH     XPTR              Save variable                    00001496
RCALL    ,TRPHND,ATPTR
*
*      Perform trace
*
POP      XPTR              Restore variable                  00001497
GOTLV1   DEQL             XPTR,RETCL,GOTL1    Compare with RETURN          00001498
RRTURN   ,6
*
*      Return by value
*
GOTL1    DEQL             XPTR,FRETCL,GOTL2   Compare with FRETURN         00001499
RRTURN   ,4
*
*      Fail
*
GOTL2    DEQL             XPTR,NRETCL,GOTL3   Compare with NRETURN         00001500
RRTURN   ,5
*
*      Return by name
*
GOTL3    GETDC            OCBSCL,XPTR,ATTRIB Get object code base         00001501
AEQLC    OCBSCL,0,,INTR4  Must not be zero             00001502
SETAC    OCICL,0           Zero offset                    00001503
BRANCH   RTNUL3           Return                               00001504
*
*-----*
*
*      Evaluate goto
*
GOTLC    RCALL            XPTR,INVOKE,XPTR,(INTR5,,NEMO)
*
*      Variable must be STRING
*
VEQLC    XPTR,S,INTR4,GOTLV
*
*-----*

```

SOURCE LISTING

```

*
* Internal Goto
*
GOTO PROC , Interpreter goto procedure
      INCRA OCICL,DESCR Increment offset
      GETD OCICL,OCBSCL,OCICL Get offset
      BRANCH RTNUL3 Return
*
*-----*
*
* Statement Initialization
*
INIT PROC , Statement initialization procedure
      MOVD LSTNCL,STNOCL Update &LASTNO
      INCRA OCICL,DESCR Increment offset
      GETD XCL,OCBSCL,OCICL Get statement data
      MOVA STNOCL,XCL Update &STNO
      SETAV FRTNCL,XCL Set up failure offset
      ACOMP EXNOCL,EXLMCL,EXEX,EXEX
*
*
* INCRA EXNOCL,1 Check &STLIMIT
* ACOMP TRAPCL,0,,RTNUL3,RTNUL3 Increment &STCOUNT
*
* LOCAPT ATPTR,TKEYL,STCTRY,RTNUL3 Check &TRACE
* RCALL ,TRPHND,ATPTR Perform trace E3.3.1
*
* BRANCH RTNUL3
*
*-----*
*
* Basic Interpreter Procedure
*
INTERP PROC , Interpreter core procedure
        INCRA OCICL,DESCR Increment offset
        GETD XPTR,OCBSCL,OCICL Get object code descriptor
        TESTF FNC,INTERP Test for function
        RCALL XPTR,INVOKE,(XPTR),(,INTERP,INTERP,RTN1,RTN2,RTN3)
        MOVD OCICL,FRTNCL Set offset for failure
        INCRA FALCL,1 Increment &STFCOUNT
        ACOMP TRAPCL,0,,INTERP,INTERP
*
* LOCAPT ATPTR,TKEYL,FALKY,INTERP Check &TRACE
* RCALL ,TRPHND,ATPTR Perform trace E3.3.1
*
* BRANCH INTERP
*
*-----*
*
* Procedure Invocation
*
INVOKE PROC , Invokation procedure
        POP INCL Get function index
        GETDC XPTR,INCL,0 Get procedure descriptor
        VEQL INCL,XPTR,INVK2 Check argument counts
        INVK1 BRANIC INCL,0 If equal, branch indirect
*
* INVK2 TESTF XPTR,FNC,ARGNER,INVK1
*
* Check for variable argument number
*
*-----*
*
* TITLE 'Argument Evaluation Procedures'
*
* Argument Evaluation
*
ARGVAL PROC , Procedure to evaluate argument
        INCRA OCICL,DESCR Increment interpreter offset
        GETD XPTR,OCBSCL,OCICL Get argument
        TESTF XPTR,FNC,,ARGVC Test for function descriptor
        ARGV1 AEQLC INSW,0,,ARGV2 Check &INPUT
        LOCAPV ZPTR,INATL,XPTR,ARGV2
*
* GETDC ZPTR,ZPTR,DESCR Look for input association
* RCALL XPTR,PUTIN,(ZPTR,XPTR),(FAIL,RTXNAM)
*
* ARGVC RCALL XPTR,INVOKE,(XPTR),(FAIL,ARGV1,RTXNAM)
*
* ARGV2 GETDC XPTR,XPTR,DESCR Get value from name
* BRANCH RTXNAM

```

SOURCE LISTING

*				00001628
*				00001629
*				00001630
*		Evaluation of Unevaluated Expressions		00001631
*				00001632
EXPVAL	PROC		Procedure to evaluate expression	00001633
	SETAC	SCL,1	Note procedure entrance	00001634
EXPVJN	POP	XPTR	Restore pointer to object code	00001635
EXPVJ2	PUSH	(OCBSCL,OCICL,PATBCL,PATICL,WPTR,XCL,YCL,TCL)		00001636
	PUSH	(MAXLEN,LENFCL,PDLPTR,PDLHED,NAMICL,NHEDCL)		00001637
*			Save system state descriptors	00001638
	SPUSH	(HEADSP,TSP,TXSP,XSP)		00001639
*			Save system state specifiers	00001640
	MOVD	OCBSCL,XPTR	Set up new code base	00001641
	SETAC	OCICL,DESCR	Initialize offset	00001642
	MOVD	PDLHED,PDLPTR	Set up new history list header	00001643
	MOVD	NHEDCL,NAMICL	Set up new name list header	00001644
	GETD	XPTR,OCBSCL,OCICL	Get object code descriptor	00001645
	TESTF	XPTR,FNC,,EXPVC	Check for function	00001646
EXPV11	AEQLC	SCL,0,,EXPV6	Check procedure entry	00001647
	AEQLC	INSW,0,,EXPV4	Check &INPUT	00001648
	LOCAPV	ZPTR,INATL,XPTR,EXPV4		00001649
*			Look for input association	00001650
	GETDC	ZPTR,ZPTR,DESCR	Get input association	00001651
	RCALL	XPTR,PUTIN,(ZPTR,XPTR),(EXPV1,EXPV6)		00001652
*			Perform input	00001653
*				00001654
EXPV4	GETDC	XPTR,XPTR,DESCR	Get value	00001655
EXPV6	SETAC	SCL,2	Set up exit	00001656
	BRANCH	EXPV7	Join processing	00001657
*				00001658
EXPV9	POP	SCL	Popoff switch	00001659
EXPV1	SETAC	SCL,1	Set new exit switch	00001660
EXPV7	SPOP	(XSP,TXSP,TSP,HEADSP)		00001661
*			Restore system specifiers	00001662
	POP	(NHEDCL,NAMICL,PDLHED,PDLPTR,LENFCL,MAXLEN)		00001663
	POP	(TCL,YCL,XCL,WPTR,PATICL,PATBCL,OCICL,OCBSCL)		00001664
*			Restore system descriptors	00001665
	SELBRA	SCL,(FAIL,RTXNAM,RTZPTR)		00001666
*			Select exit	00001667
*				00001668
EXPVC	PUSH	SCL	Save entrance indicator	00001669
	RCALL	XPTR,INVOKE,XPTR,(EXPV9,EXPV5,)		00001670
*			Evaluate function	00001671
	POP	SCL	Restore entrance indicator	00001672
	AEQLC	SCL,0,EXPV6	Check entry indicator	00001673
	SETAC	SCL,3	Set exit switch	00001674
	MOVD	ZPTR,XPTR	Set up value	00001675
	BRANCH	EXPV7	Join end processing	00001676
*				00001677
EXPV5	POP	SCL	Restore entry indicator	00001678
	BRANCH	EXPV11	Join processing with name	00001679
*				00001680
EXPEVL	PROC	EXPVAL	Procedure to get expression value	00001681
	SETAC	SCL,0	Set entry indicator	00001682
	BRANCH	EXPVJN	Join processing	00001683
*				00001684
EVAL	PROC	EXPVAL	EVAL(X)	00001685
	RCALL	XPTR,ARGVAL,,FAIL	Get argument	00001686
	VEQLC	XPTR,E,,EVAL1	Is it EXPRESSION?	00001687
	VEQLC	XPTR,I,,RTXPTR	INTEGER is idempotent	00001688
	VEQLC	XPTR,R,,RTXPTR	REAL is idempotent	00001689
	VEQLC	XPTR,S,INTR1	Is it STRING?	00001690
	LOCSP	XSP,XPTR	Get specifier	00001691
	LEQLC	XSP,0,,RTXPTR		00001692
	SPCINT	XPTR,XSP,,RTXPTR	Convert to INTEGER	00001693
	SPREAL	XPTR,XSP,,RTXPTR	Convert to REAL	00001694
	MOVD	ZPTR,XPTR	Set up to convert to EXPRESSION	00001695
	RCALL	XPTR,CONVE,,(FAIL,INTR10)		00001696
*			Convert to EXPRESSION	00001697
EVAL1	SETAC	SCL,0	Set up entry indicator	00001698
	BRANCH	EXPVJ2	Join processing	00001699
*				00001700
*				00001701
*		Evaluation of Integer Argument		00001702
*				00001703
INTVAL	PROC	.	Integer argument procedure	00001704

E3.1.4

SOURCE LISTING

	INCRA	OCICL,DESCR	Increment offset	00001705
	GETD	XPTR,OCBSCL,OCICL	Get object code descriptor	00001706
	TESTF	XPTR,FNC,,INTVC	Check for function	00001707
INTV1	AEQLC	INSW,0,,INTV3	Check &INPUT	00001708
	LOCAPV	ZPTR,INATL,XPTR,INTV3		00001709
*			Look for input association	00001710
	GETDC	ZPTR,ZPTR,DESCR	Get association	00001711
	RCALL	XPTR,PUTIN,(ZPTR,XPTR),FAIL		00001712
*			Perform input	00001713
INTV	LOCSP	XSP,XPTR	Get specifier for string	00001714
	SPCINT	XPTR,XSP,INTR1,RTXNAM		00001715
*			Convert to integer	00001716
*				00001717
INTV3	GETDC	XPTR,XPTR,DESCR	Get value	00001718
INTV2	VEQLC	XPTR,I,,RTXNAM	INTEGER desired	00001719
	VEQLC	XPTR,S,INTR1,INTV	STRING must be converted	00001720
*				00001721
INTVC	RCALL	XPTR,INVOKE,(XPTR),(FAIL,INTV1,INTV2)		00001722
*				00001723
*				00001724
*				00001725
*				00001726
*				00001727
			Evaluation of Argument as Pattern	
				00001728
PATVAL	PROC	.	Evaluate argument as pattern	00001728
	INCRA	OCICL,DESCR	Increment offset	00001729
	GETD	XPTR,OCBSCL,OCICL	Get object code descriptor	00001730
	TESTF	XPTR,FNC,,PATVC	Check for function descriptor	00001731
PATV1	AEQLC	INSW,0,,PATV2	Check &INPUT	00001732
	LOCAPV	ZPTR,INATL,XPTR,PATV2		00001733
*			Look for input association	00001734
	GETDC	ZPTR,ZPTR,DESCR	Get association	00001735
	RCALL	XPTR,PUTIN,(ZPTR,XPTR),(FAIL,RTXNAM)		00001736
*			Perform input	00001737
*				00001738
PATVC	RCALL	XPTR,INVOKE,(XPTR),(FAIL,PATV1,PATV3)		00001739
*			Evaluate argument	00001740
*				00001741
PATV2	GETDC	XPTR,XPTR,DESCR	Get value	00001742
PATV3	VEQLC	XPTR,P,,RTXNAM	Is it PATTERN?	00001743
	VEQLC	XPTR,S,,RTXNAM	Is it STRING?	00001744
	VEQLC	XPTR,I,,GENVIX	Is it INTEGER?	00001745
	VEQLC	XPTR,R,,PATVR	Is it REAL?	00001746
	VEQLC	XPTR,E,INTR1	Is it EXPRESSION?	00001747
	RCALL	TPTR,BLOCK,STARSZ	Allocate block for pattern	00001748
	MOVBLK	TPTR,STRPAT,STARSZ	Copy pattern for expression	00001749
	PUTDC	TPTR,4*DESCR,XPTR	Insert expression	00001750
	MOVD	XPTR,TPTR	Set up value	00001751
	BRANCH	RTXNAM	Return	00001752
*				00001753
PATVR	REALST	XSP,XPTR	Convert REAL to STRING	00001754
	RCALL	XPTR,GENVAR,XSPPTR,RTXNAM		00001755
*			Generate variable	00001756
*				00001757
*				00001758
*				00001759
*				00001760
*				00001761
			Evaluation of Argument as String	
				00001762
VARVAL	PROC	.	Evaluate argument as string	00001762
	INCRA	OCICL,DESCR	Increment offset	00001763
	GETD	XPTR,OCBSCL,OCICL	Get object code descriptor	00001764
	TESTF	XPTR,FNC,,VARVC	Check for function	00001765
VARV1	AEQLC	INSW,0,,VARV4	Check &INPUT	00001766
	LOCAPV	ZPTR,INATL,XPTR,VARV4		00001767
*			Look for input association	00001768
	GETDC	ZPTR,ZPTR,DESCR	Get input association	00001769
	RCALL	XPTR,PUTIN,(ZPTR,XPTR),(FAIL,RTXNAM)		00001770
*			Perform input	00001771
*				00001772
VARV4	GETDC	XPTR,XPTR,DESCR	Get value	00001773
VARV2	VEQLC	XPTR,S,,RTXNAM	Is it STRING?	00001774
	VEQLC	XPTR,I,INTR1,GENVIX	Convert INTEGER to STRING	00001775
*				00001776
VARVC	RCALL	XPTR,INVOKE,(XPTR),(FAIL,VARV1,VARV2)		00001777
*			Evaluate function	00001778
*				00001779
*				00001780
*				00001781
*				00001782
			Evaluation of Argument Pair	

SOURCE LISTING

*	XYARGS	PROC	.	Procedure to evaluate argument pair	00001783
		SETAC	SCL,0	Note first argument	00001784
	XYN	INCRA	OCICL,DESCR	Increment offset	00001785
		GETD	YPTR,OCBSCL,OCICL	Get object code descriptor	00001786
		TESTF	YPTR,FNC,,XYC	Check for function	00001787
	XY1	AEQLC	INSW,0,,XY2	Check &INPUT	00001788
		LOCAPV	ZPTR,INATL,YPTR,XY2	Look for input association	00001789
		GETDC	ZPTR,ZPTR,DESCR	Get input association	00001790
		RCALL	YPTR,PUTIN,(ZPTR,YPTR),FAIL	Perform input	00001791
*					00001792
	XY3	AEQLC	SCL,0,RTN2	Check for completion	00001793
		SETAC	SCL,1	Note second argument	00001794
		MOVD	XPTR,YPTR	Set up first argument	00001795
		BRANCH	XYN	Go around again	00001796
*					00001797
	XY2	GETDC	YPTR,YPTR,DESCR	Get value	00001798
		BRANCH	XY3	Continue	00001799
*					00001800
	XYC	PUSH	(SCL,XPTR)	Save indicator and argument	00001801
		RCALL	YPTR,INVOKE,(YPTR),(FAIL,XY4)	Evaluate function	00001802
*					00001803
		POP	(XPTR,SCL)	Restore indicator and argument	00001804
		BRANCH	XY3	Join processing	00001805
*					00001806
	XY4	POP	(XPTR,SCL)	Restore indicator and argument	00001807
		BRANCH	XY1	Join processing	00001808
*					00001809
					00001810
*					00001811
	ADD	TITLE	'Arithmetic Operations, Predicates, and Functions'		00001812
		PROC	X + Y		00001813
		SETAC	SCL,1		00001814
		BRANCH	ARITH		00001815
*					00001816
	DIV	PROC	ADD	X / Y	00001817
		SETAC	SCL,2		00001818
		BRANCH	ARITH		00001819
*					00001820
	EXP	PROC	ADD	X ** Y and X ↑ Y	00001821
		SETAC	SCL,3		00001822
		BRANCH	ARITH		00001823
*					00001824
	MPY	PROC	ADD	X * Y	00001825
		SETAC	SCL,4		00001826
		BRANCH	ARITH		00001827
*					00001828
	SUB	PROC	ADD	X - Y	00001829
		SETAC	SCL,5		00001830
		BRANCH	ARITH		00001831
*					00001832
	EQ	PROC	ADD	EQ(X,Y)	00001833
		SETAC	SCL,6		00001834
		BRANCH	ARITH		00001835
*					00001836
	GE	PROC	ADD	GE(X,Y)	00001837
		SETAC	SCL,7		00001838
		BRANCH	ARITH		00001839
*					00001840
	GT	PROC	ADD	GT(X,Y)	00001841
		SETAC	SCL,8		00001842
		BRANCH	ARITH		00001843
*					00001844
	LE	PROC	ADD	LE(X,Y)	00001845
		SETAC	SCL,9		00001846
		BRANCH	ARITH		00001847
*					00001848
	LT	PROC	ADD	LT(X,Y)	00001849
		SETAC	SCL,10		00001850
		BRANCH	ARITH		00001851
*					00001852
	NE	PROC	ADD	NE(X,Y)	00001853
		SETAC	SCL,11		00001854
		BRANCH	ARITH		00001855
*					00001856
	REMDR	PROC	ADD	REMDR(X,Y)	00001857
		SETAC	SCL,12		00001858
		BRANCH	ARITH		00001859
*					00001860



SOURCE LISTING

ARITH	PUSH	SCL	Save procedure switch	00001861
	RCALL	,XYARGS,,FAIL	Evaluate arguments	00001862
	POP	SCL	Restore procedure switch	00001863
	SETAV	DTCL,XPTR	Set up data type pair	00001864
	MOVV	DTCL,YPTR		00001865
	DEQL	DTCL,IIDTP,,ARTHII	INTEGER-INTEGERS	00001866
	DEQL	DTCL,IVDTP,,ARTHIV	INTEGER-STRING	00001867
	DEQL	DTCL,VIDTP,,ARTHVI	STRING-INTEGERS	00001868
	DEQL	DTCL,VVDTP,,ARTHVV	STRING-STRING	00001869
	DEQL	DTCL,RRDTP,,ARTHRR	REAL-REAL	00001870
	DEQL	DTCL,IRDTP,,ARTHIR	INTEGER-REAL	00001871
	DEQL	DTCL,RIDTP,,ARTHRI	REAL-INTEGERS	00001872
	DEQL	DTCL,VRDTP,,ARTHVR	STRING-REAL	00001873
	DEQL	DTCL,RVDTP,INTR1,ARTHRV	REAL-STRING	00001874
				00001875
				00001876
*				
*	ARTHII	SELBRA	SCL, (AD, DV, EX, MP, SB, CEQ, CGE, CGT, CLE, CLT, CNE, RM)	00001877
*				00001878
*	ARTHVI	LOCSP	XSP, XPTR	Get specifier
		SPCINT	XPTR, XSP,, ARTHII	Convert string to integer
		SPREAL	XPTR, XSP, INTR1, ARTHRI	Convert to real if possible
				00001882
*				00001883
*	ARTHIV	LOCSP	YSP, YPTR	Get specifier
		SPCINT	YPTR, YSP,, ARTHII	Convert string to integer
		SPREAL	YPTR, YSP, INTR1, ARTHIR	Convert to real if possible
				00001887
*				00001888
*	ARTHVV	LOCSP	XSP, XPTR	Get specifier
		SPCINT	XPTR, XSP,, ARTHIV	Convert string to integer
		SPREAL	XPTR, XSP, INTR1, ARTHRV	Convert to real if possible
				00001892
*				00001893
*	ARTHRR	SELBRA	SCL, (AR, DR, EXR, MR, SR, REQ, RGE, RGT, RLE, RLT, RNE, INTR1)	00001894
*				00001895
*	ARTHIR	INTRL	XPTR, XPTR	Convert integer to real
		BRANCH	ARTHRR	
				00001896
*				00001897
*	ARTHRI	INTRL	YPTR, YPTR	Convert integer to real
		BRANCH	ARTHRR	
				00001898
*				00001899
*	ARTHVR	LOCSP	XSP, XPTR	Get specifier
		SPCINT	XPTR, XSP,, ARTHIR	Convert string to integer
		SPREAL	XPTR, XSP, INTR1, ARTHRR	Convert to real if possible
				00001902
*				00001903
*	ARTHRV	LOCSP	YSP, YPTR	Get specifier
		SPCINT	YPTR, YSP,, ARTHRI	Convert string to integer
		SPREAL	YPTR, YSP, INTR1, ARTHRR	Convert to real if possible
				00001904
*				00001905
*				00001906
*				00001907
*	AD	SUM	ZPTR, XPTR, YPTR, AERROR, ARTN	00001908
*				00001909
*	DV	DIVIDE	ZPTR, XPTR, YPTR, AERROR, ARTN	00001910
*				00001911
*	EX	EXPINT	ZPTR, XPTR, YPTR, AERROR, ARTN	00001912
*				00001913
*	MP	MULT	ZPTR, XPTR, YPTR, AERROR, ARTN	00001914
*				00001915
*	SB	SUBTRT	ZPTR, XPTR, YPTR, AERROR, ARTN	00001916
*				00001917
*	CFQ	AEQL	XPTR, YPTR, FAIL, RETNUL	00001918
*				00001919
*	CGE	ACOMP	XPTR, YPTR, RETNUL, RETNUL, FAIL	00001920
*				00001921
*	CGT	ACOMP	XPTR, YPTR, RETNUL, FAIL, FAIL	00001922
*				00001923
*	CLE	ACOMP	XPTR, YPTR, FAIL, RETNUL, RETNUL	00001924
*				00001925
*	CLT	ACOMP	XPTR, YPTR, FAIL, FAIL, RETNUL	00001926
*				00001927
*	CNE	AEQL	XPTR, YPTR, RETNUL, FAIL	00001928
*				00001929
*	AR	ADREAL	ZPTR, XPTR, YPTR, AERROR, ARTN	00001930
*				00001931
*	DR	DVREAL	ZPTR, XPTR, YPTR, AERROR, ARTN	00001932
*				00001933
*	EXR	EXREAL	ZPTR, XPTR, YPTR, AERROR, ARTN	00001934
				00001935
				00001936
				00001937
				00001938

SOURCE LISTING

*_	MR	MPREAL	ZPTR,XPTR,YPTR,AERROR,ARTN		00001939
*					00001940
*	SR	SBREAL	ZPTR,XPTR,YPTR,AERROR,ARTN		00001941
*					00001942
*	REQ	RCOMP	XPTR,YPTR,FAIL,RETNUL,FAIL		00001943
*					00001944
*	RGE	RCOMP	XPTR,YPTR,RETNUL,RETNUL,FAIL		00001945
*					00001946
*	RGT	RCOMP	XPTR,YPTR,RETNUL,FAIL,FAIL		00001947
*					00001948
*	RLE	RCOMP	XPTR,YPTR,FAIL,RETNUL,RETNUL		00001949
*					00001950
*	RLT	RCOMP	XPTR,YPTR,FAIL,FAIL,RETNUL		00001951
*					00001952
*	RNE	RCOMP	XPTR,YPTR,RETNUL,FAIL,RETNUL		00001953
*					00001954
*	RM	DIVIDE	ZPTR,XPTR,YPTR,AERROR		00001955
*				First divide	00001956
		MULT	WPTR,ZPTR,YPTR	Multiply truncated part	00001957
		SUBTRT	ZPTR,XPTR,WPTR	Get difference	00001958
		BRANCH	ARTN		00001959
*_					00001960
*					00001961
*					00001962
*					00001963
*		INTEGER (X)			00001964
*					00001965
*	INTGER	PROC	.	INTEGER (X)	00001966
		RCALL	XPTR,ARGVAL,,FAIL	Get argument	00001967
		VEQLC	XPTR,I,,RETNUL	INTEGER succeeds	00001968
		VEQLC	XPTR,S,FAIL	STRING must be checked	00001969
		LOCSP	XSP,XPTR	Get specifier	00001970
		SPCINT	XPTR,XSP,FAIL,RETNUL		00001971
*				Try conversion to INTEGER	00001972
*_					00001973
*					00001974
*					00001975
*		Arithmetic Negative			00001976
*					00001977
*	MNS	PROC	.	-X	00001978
		RCALL	XPTR,ARGVAL,,FAIL	Get argument	00001979
		VEQLC	XPTR,I,,MNSM	INTEGER acceptable	00001980
		VEQLC	XPTR,S,,MNSV	STRING must be converted	00001981
		VEQLC	XPTR,R,INTR1,MNSR	REAL is acceptable	00001982
*_					00001983
*	MNSM	MNSINT	ZPTR,XPTR,AERROR,ARTN		00001984
*				Form negative of integer	00001985
*					00001986
*	MNSV	LOCSP	XSP,XPTR	Get specifier for string	00001987
		SPCINT	XPTR,XSP,,MNSM	Convert to INTEGER	00001988
		SPREAL	XPTR,XSP,INTR1	Convert to REAL	00001989
	MNSR	MNREAL	ZPTR,XPTR	Form negative of real	00001990
		BRANCH	ARTN		00001991
*_					00001992
*					00001993
*					00001994
*		Unary Plus Operator			00001995
*					00001996
*	PLS	PROC	.	+X	00001997
		RCALL	ZPTR,ARGVAL,,FAIL	Get argument	00001998
		VEQLC	ZPTR,I,,ARTN	Is it INTEGER?	00001999
		VEQLC	ZPTR,S,,PLSV	Is it STRING?	00002000
		VEQLC	ZPTR,R,INTR1,ARTN	Is it REAL?	00002001
*_					00002002
*	PLSV	LOCSP	XSP,ZPTR	Get specifier	00002003
		SPCINT	ZPTR,XSP,,ARTN	Convert STRING to INTEGER	00002004
		SPREAL	ZPTR,XSP,INTR1,ARTN	Convert STRING to REAL	00002005
*_					00002006
*					00002007
*		TITLE	'Pattern-valued Functions and Operations'		00002008
*	ANY	PROC	.	ANY(S)	00002009
		PUSH	ANYCCL	Save function descriptor	00002010
		BRANCH	CHARZ	Join common processing	00002011
*_					00002012
*	BREAK	PROC	ANY	BREAK(S)	00002013
		PUSH	BRKCCCL	Save function descriptor	00002014
		PUSH	ZEROCL	Save minimum length of zero	00002015
		BRANCH	ABNSND	Join common processing	00002016

SOURCE LISTING

* NOTANY	PROC ANY	NOTANY(S)	00002017
	PUSH NNYCCL	Save function descriptor	00002018
	BRANCH CHARZ		00002019
* SPAN	PROC ANY	SPAN(S)	00002021
	PUSH SPNCCL	Save function descriptor	00002022
CHARZ	PUSH CHARCL	Save minimum length of one	00002023
ABNSND	RCALL XPTR,ARGVAL,,FAIL	Evaluate argument	00002024
	POP (ZCL,YCL)	Restore descriptor and length	00002025
	VEQLC XPTR,S,,PATNOD	STRING is acceptable argument	00002026
	VEQLC XPTR,E,,PATNOD	So is EXPRESSION	00002027
	VEQLC XPTR,I,INTR1	INTEGER must be converted	00002028
	RCALL XPTR,GNVARI,XPTR		00002029
PATNOD	DEQL XPTR,NULVCL,,NONAME		00002030
	RCALL TPTR,BLOCK,LNODSZ		E3.5.4
	MAKNOD ZPTR,TPTR,ZCL,ZEROCL,YCL,XPTR		E3.5.4
*		Construct the pattern	00002032
	BRANCH RTZPTR		00002033
* LFN	PROC ANY	LEN(N)	00002034
	PUSH LNTHCL	Save function descriptor	00002035
	BRANCH LPRTND		00002036
* POS	PROC ANY	POS(N)	00002037
	PUSH POSICL	Save function descriptor	00002038
	BRANCH LPRTND		00002039
* RPOS	PROC ANY	RPOS(N)	00002040
	PUSH RPSICL	Save function descriptor	00002041
	BRANCH LPRTND		00002042
* RTAB	PROC ANY	RTAB(N)	00002043
	PUSH RTBCL	Save function descriptor	00002044
	BRANCH LPRTND		00002045
* TAB	PROC ANY	TAB(N)	00002046
	PUSH TBCL	Save function descriptor	00002047
LPRTND	RCALL XPTR,ARGVAL,,FAIL	Evaluate argument	00002048
	POP YCL	Restore function descriptor	00002049
	MOVD ZCL,ZEROCL	Predict minimum length of zero	00002050
	VEQLC XPTR,I,,LPRTNI	If INTEGER check for LEN	00002051
	VEQLC XPTR,E,,PATNOD	EXPRESSION is acceptable	00002052
	VEQLC XPTR,S,INTR1	STRING must be converted to INTEGER	00002053
	LOCSP ZSP,XPTR	Get specifier	00002054
	SPCINT XPTR,ZSP,INTR1	Convert to INTEGER	00002055
LPRTNI	ACOMPX XPTR,0,,LENERR		00002056
	DEQL YCL,LNTHCL,PATNOD		E3.6.1
	MOVA ZCL,XPTR		E3.6.1
	BRANCH PATNOD	If so, use value of integer	00002063
		Go form pattern	00002064
* -			00002065
* -			00002066
* ARBNO (P)			00002067
* ARBNO	PROC	ARBNO(P)	00002068
	RCALL XPTR,PATVAL,,FAIL	Evaluate argument as pattern	00002069
	VEQLC XPTR,P,,ARBP	PATTERN is desired form	00002070
	VEQLC XPTR,S,INTR1	STRING must be made into PATTERN	00002071
	LOCSP TSP,XPTR	Get specifier	00002072
	GETLG TMVAL,TSP	Get length of string	00002073
	RCALL TPTR,BLOCK,LNODSZ	Allocate block for argument	00002074
	MAKNOD XPTR,TPTR,TMVAL,ZEROCL,CHRCL,XPTR		00002075
ARBNO	GETSIZ XSIZ,XPTR	Get size of pattern	00002076
	SUM TSIZ,XSIZ,ARBSIZ	Add additional space for ARBNO node	00002077
	SETVC TSIZ,P	Insert PATTERN data type	00002078
	RCALL TPTR,BLOCK,TSIZ	Allocate block for pattern	00002079
	MOVD ZPTR,TPTR	Save pointer to return	00002080
	GETSIZ TSIZ,ARHEAD	Set up copy for heading node	00002081
	CPYPAT TPTR,ARHEAD,ZEROCL,ZEROCL,ZEROCL,TSIZ		00002082
	SUM ZSIZ,XSIZ,TSIZ		00002083
	CPYPAT TPTR,XPTR,ZEROCL,TSIZ,ZSIZ,XSIZ		00002084
	SUM TSIZ,NODSIZ,NODSIZ	Set up size for trailing node	00002085
	CPYPAT TPTR,ARTAIL,ZEROCL,ZSIZ,ZEROCL,TSIZ		00002086
	SUM ZSIZ,TSIZ,ZSIZ	Set up size for backup node	00002087
	CPYPAT TPTR,ARBACK,ZEROCL,ZSIZ,TSIZ,TSIZ		00002088
	BRANCH RTZPTR		00002089
			00002090
			00002091
			00002092

SOURCE LISTING

*				* 00002093
*				00002094
*	@X			00002095
*				00002096
ATOP	PROC	,	@X	00002097
	INCRA	OCICL,DESCR	Increment interpreter offset	00002098
	GETD	YPTR,OCBSCL,OCICL	Get object code descriptor	00002099
	TESTF	YPTR,FNC,ATOP1	Test for function descriptor	00002100
	RCALL	YPTR,INVOKE,YPTR,(FAIL,ATOP1,)		00002101
	VEQLC	YPTR,E,NEMO	Only EXPRESSION can be value	00002102
ATOP1	RCALL	TPTR,BLOCK,LNODSZ	Allocate pattern node	00002103
	MAKNOD	ZPTR,TPTR,ZEROCL,ZEROCL,ATOPCL,YPTR		00002104
	BRANCH	RTZPTR		00002105
*				00002106
*				* 00002107
*				00002108
*	Value Assignment Operators			00002109
*				00002110
NAM	PROC	,	X . Y	00002111
	PUSH	ENMECL	Save function descriptor	00002112
	BRANCH	NAM5	Join processing	00002113
*				00002114
DOL	PROC	NAM	X \$ Y	00002115
	PUSH	ENMICL	Save function descriptpor	00002116
NAM5	RCALL	XPTR,PATVAL,,FAIL	Get pattern for first argument	00002117
	INCRA	OCICL,DESCR	Increment offset	00002118
	GETD	YPTR,OCBSCL,OCICL	Get object code descriptor	00002119
	TESTF	YPTR,FNC,,NAMC2	Check for function	00002120
NAM3	VEQLC	XPTR,S,,NAMV	Is first argument STRING?	00002121
	VEQLC	XPTR,P,INTR1,NAMP	Is it PATTERN?	00002122
*				00002123
NAMC2	PUSH	XPTR	Save first argument	00002124
	RCALL	YPTR,INVOKE,YPTR,(FAIL,NAM4,)		00002125
*			Evaluate second argument	00002126
	VEQLC	YPTR,E,NEMO	Verify EXPRESSION	00002127
NAM4	POP	XPTR	Restore first argument	00002128
	BRANCH	NAM3	Join processing	00002129
*				00002130
NAMV	LOCSP	TSP,XPTR	Get specifier	00002131
	GETLG	TVAL,TSP	Get length	00002132
	RCALL	TPTR,BLOCK,LNODSZ	Allocate block for pattern	00002133
	MAKNOD	XPTR,TPTR,TVAL,ZEROCL,CHRCL,XPTR		00002134
*			Make pattern node	00002135
NAMP	RCALL	TPTR,BLOCK,SNODSZ	Allocate block for pattern	00002136
	MAKNOD	WPTR,TPTR,ZEROCL,ZEROCL,NMECL		00002137
*			Make node for naming	00002138
	RCALL	TPTR,BLOCK,LNODSZ	Allocate block for pattern	00002139
	POP	TVAL	Restore function descriptor	00002140
	MAKNOD	YPTR,TPTR,ZEROCL,ZEROCL,TVAL,YPTR		00002141
*			Make pattern for backup	00002142
	GETSIZ	XSIZ,XPTR	Get size of first pattern	00002143
	SUM	YSIZ,XSIZ,NODSIZ	Compute total size	00002144
	GETSIZ	TSIZ,YPTR	Get size of naming node	00002145
	SUM	ZSIZ,YSIZ,TSIZ	Compute total	00002146
	SETVC	ZSIZ,P	Insert PATTERN data type	00002147
	RCALL	TPTR,BLOCK,ZSIZ	Allocate block for total pattern	00002148
	MOVD	ZPTR,TPTR	Save copy	00002149
	LVALUE	TVAL,XPTR	Get least value	00002150
	CPYPAT	TPTR,WPTR,TVAL,ZEROCL,NODSIZ,NODSIZ		00002151
*			Copy three patterns	00002152
	CPYPAT	TPTR,XPTR,ZEROCL,NODSIZ,YSIZ,XSIZ		00002153
	CPYPAT	TPTR,YPTR,ZEROCL,YSIZ,ZEROCL,TSIZ		00002154
	BRANCH	RTZPTR	Return pattern as value	00002155
*				00002156
*				* 00002157
*				00002158
*	Binary Alternation Operator			00002159
*				00002160
OR	PROC	,	X   Y	00002161
	RCALL	XPTR,PATVAL,,FAIL	Get first argument	00002162
	PUSH	XPTR	Save first argument	00002163
	RCALL	YPTR,PATVAL,,FAIL	Get second argument	00002164
	POP	XPTR	Restore first argument	00002165
	SETAV	DTCL,XPTR	Get first data type	00002166
	MOVV	DTCL,YPTR	Insert second data type	00002167
	DEQL	DTCL,VVDTP,,ORVV	Is it STRING-STRING?	00002168
	DEQL	DTCL,VPDTP,,ORVP	Is it STRING-PATTERN?	00002169
	DEQL	DTCL,PVDTP,,ORPV	Is it PATTERN-STRING?	00002170





SOURCE LISTING

	VEQLC	ZPTR,I,,SJSRI	Is object INTEGER?	00002327
	VEQLC	ZPTR,R,,SJSRR	Is object REAL?	00002328
	VEQLC	ZPTR,E,INTR1	Is object EXPRESSION?	00002329
	RCALL	TPTR,BLOCK,STARSZ	Allocate block for pattern	00002330
	MOVBLK	TPTR,STRPAT,STARSZ	Set up pattern for expression	00002331
	PUTDC	TPTR,4*DESCR,ZPTR	Insert object	00002332
	MOVD	ZPTR,TPTR	Set up converted value	00002333
SJSRP	SETSP	XSP,HEADSP	Copy specifier	00002334
	RCALL	XPTR,GENVAR,(XSPPTR)		00002335
*			Generate variable for head	00002336
	GETLG	TMVAL,HEADSP	Get length of head	00002337
	RCALL	TPTR,BLOCK,LNODSZ	Allocate block for pattern	00002338
	MAKNOD	XPTR,TPTR,TMVAL,ZEROCL,CHRCL,XPTR	Make pattern node	00002339
*			Set up tail specifier	00002341
	SETSP	YSP,TAILSP		00002342
	RCALL	YPTR,GENVAR,(YSPPTR)		00002343
*			Generate variable for tail	00002344
	GETLG	TMVAL,TAILSP	Get length of tail	00002345
	RCALL	TPTR,BLOCK,LNODSZ	Allocate block for pattern	00002346
	MAKNOD	YPTR,TPTR,TMVAL,ZEROCL,CHRCL,YPTR	Make pattern node	00002347
*			Get size of head node	00002348
	GETSIZ	XSIZ,XPTR		00002349
	GETSIZ	YSIZ,YPTR	Get size of tail node	00002350
	GETSIZ	ZSIZ,ZPTR	Get size of object	00002351
	SUM	TSIZ,XSIZ,ZSIZ	Compute total size	00002352
	SUM	TSIZ,YSIZ,ZSIZ	Get size of new pattern	00002353
	SETVC	TSIZ,P	Insert PATTERN data type	00002354
	RCALL	TPTR,BLOCK,TSIZ	Allocate block for total pattern	00002355
	MOVD	VVAL,TPTR	Get working copy	00002356
	LVALUE	TVAL,ZPTR	Get least value of replacement	00002357
	CPYPAT	TPTR,XPTR,TVAL,ZEROCL,XSIZ,YSIZ	Copy in head	00002358
*			Get least value of tail	00002359
	LVALUE	TVAL,YPTR		00002360
	SUM	TSIZ,XSIZ,ZSIZ	Get size of first two	00002361
	CPYPAT	TPTR,ZPTR,TVAL,XSIZ,YSIZ	Copy in object	00002362
*			Copy in tail	00002363
	MOVD	ZPTR,VVAL	Set up return value	00002364
	BRANCH	SJSRV1	Join common processing	00002365
*				00002366
SJSRV	LOCSP	ZSP,ZPTR		00002367
SJSRS	GETLG	XPTR,TAILSP	Get length of tail	00002368
	GETLG	YPTR,HEADSP	Get length of tail	00002369
	GETLG	ZPTR,ZSP	Get length of object	00002370
	SUM	XPTR,XPTR,YPTR	Compute total length	00002371
	SUM	XPTR,XPTR,ZPTR		00002372
	ACOMP	XPTR,MLENCL,INTR8	Check &MAXLNTH	00002373
	RCALL	ZPTR,CONVAR,(XPTR)	Allocate storage for string	00002374
	LOCSP	TSP,ZPTR	Get specifier	00002375
	SETLC	TSP,0	Clear length	00002376
	APDSP	TSP,HEADSP	Append head	00002377
	APDSP	TSP,ZSP	Append object	00002378
	APDSP	TSP,TAILSP	Append tail	00002379
	RCALL	ZPTR,GNVARS,XPTR	Enter string into storage	00002380
SJSRV1	PUTDC	WPTR,DESCR,ZPTR	Assign value to subject name	00002381
	AEQLC	OUTSW,0,,SJSRV2	Check &OUTPUT	00002382
	LOCAPV	YPTR,OUTATL,WPTR,SJSRV2		00002383
*			Look for output association	00002384
	GETDC	YPTR,YPTR,DESCR	Get output association	00002385
	RCALL	,PUTOUT,(YPTR,ZPTR)	Perform output	00002386
SJSRV2	ACOMP	TRAPCL,0,,RTN3,RTN3	Check &TRACE	00002387
	LOCAPT	ATPTR,TVALL,WPTR,RTN3		00002388
*			Look for VALUE trace	00002389
	RCALL	,TRPHND,ATPTR,RTN3		E3.3.1
*			Perform trace	00002392
*				00002393
SJSRI	INTSPC	ZSP,ZPTR	Convert INTEGER	00002394
	BRANCH	SJSRS		00002395
*				00002396
SJSRR	REALST	ZSP,ZPTR	Convert REAL	00002397
	BRANCH	SJSRS		00002398
*				00002399
*				00002400
*				00002401
*				00002402
*				00002403
SCNR	PROC		Scanning procedure	00002404

SOURCE LISTING

	GETLG	MAXLEN,XSP	Get maximum length	00002405
	LVALUE	YSIZ,YPTR	Get least value	00002406
	AEQLC	FULLCL,0,SCNR1	Check &FULLSCAN	00002407
	ACOMP	YSIZ,MAXLEN,FAIL	Check maximum against minimum	00002408
SCNR1	SETSP	TXSP,XSP	Set up working specifier for head	00002409
	SETLC	TXSP,0	Zero length	00002410
	MOVD	PDLPTR,PDLHED	Initialize history list	00002411
	MOVD	NAMICL,NHEDCL	Initialize name list	00002412
	AEQLC	ANCCCL,0,SCNR3	Check &ANCHOR	00002413
	AEQLC	FULLCL,0,,SCNR4	Check &FULLSCAN	00002414
	MOVD	YSIZ,MAXLEN	Set up length	00002415
	BRANCH	SCNR5	Join processing	00002416
*				00002417
SCNR4	SUBTRT	YSIZ,MAXLEN,YSIZ	Get difference of lengths	00002418
SCNR5	SUM	YSIZ,YSIZ,CHARCL	Add one	00002419
SCNR2	PUSH	(YPTR,YSIZ)	Save pattern and length	00002420
	SETSP	HEADSP,TXSP	Set up head specifier	00002421
	INCRA	PDLPTR,3*DESCR	Make room for history entry	00002422
	ACOMP	PDLPTR,PDLEND,INTR31		00002423
*			Check for overflow	00002424
	SETAC	LENFCL,1	Set length failure	00002425
	PUTDC	PDLPTR,DESCR,SCONCL	Insert scan function	00002426
	GETLG	TMVAL,TXSP	Get cursor position	00002427
	PUTDC	PDLPTR,2*DESCR,TMVAL		00002428
*			Insert on history list	00002429
	PUTDC	PDLPTR,3*DESCR,LENFCL		00002430
*			Insert length failure	00002431
	BRANCH	SCIN1	Join common scanning	00002432
*				00002433
SCNR3	INCRA	PDLPTR,3*DESCR	Make room for history entry	00002434
	ACOMP	PDLPTR,PDLEND,INTR31		00002435
*			Check for overflow	00002436
	SETLC	HEADSP,0	Zero length of head	00002437
	PUTDC	PDLPTR,DESCR,SCFLCL	Insert scan failure function	00002438
	GETLG	TMVAL,TXSP	Get cursor position	00002439
	PUTDC	PDLPTR,2*DESCR,TMVAL		00002440
*			Insert on history list	00002441
	PUTDC	PDLPTR,3*DESCR,LENFCL		00002442
*			Insert length failure	00002443
	BRANCH	SCIN1	Join common scanning	00002444
*				00002445
SCIN	PROC	SCNR		00002446
SCIN1	MOVD	PATBCL,YPTR	Set up pattern base pointer	00002447
	SETAC	PATICL,0	Zero offset	00002448
SCIN2	SETAC	LENFCL,1	Set length failure	00002449
SCIN3	INCRA	PATICL,DESCR	Increment offset	00002450
	GETD	ZCL,PATBCL,PATICL	Get function descriptor	00002451
	INCRA	PATICL,DESCR	Increment offset	00002452
	GETD	XCL,PATBCL,PATICL	Get then-or descriptor	00002453
	INCRA	PATICL,DESCR	Increment offset	00002454
	GETD	YCL,PATBCL,PATICL	Get value-residual descriptor	00002455
	INCRA	PDLPTR,3*DESCR	Make room for history entry	00002456
	ACOMP	PDLPTR,PDLEND,INTR31		00002457
*			Check for overflow	00002458
	PUTDC	PDLPTR,DESCR,XCL	Insert then-or descriptor	00002459
	GETLG	TMVAL,TXSP	Get cursor position	00002460
	MOVV	TMVAL,YCL	Insert residual	00002461
	PUTDC	PDLPTR,2*DESCR,TMVAL		00002462
*			Insert on history list	00002463
	PUTDC	PDLPTR,3*DESCR,LENFCL		00002464
*			Insert length failure	00002465
	AEQLC	FULLCL,0,SCIN4	Check &FULLSCAN	00002466
	CHKVAL	MAXLEN,YCL,TXSP,SALT1		00002467
*			Check values	00002468
SCIN4	BRANIC	ZCL,0	Branch to procedure	00002469
*				00002470
SALF	PROC	SCNR	Nonlength failure procedure	00002471
SALF1	SETAC	LENFCL,0	Clear length failure	00002472
	BRANCH	SALT2	Join common processing	00002473
*				00002474
SALT	PROC	SCNR	Length failure procedure	00002475
SALT1	GETDC	LENFCL,PDLPTR,3*DESCR		00002476
*			Get length failure from history	00002477
SALT2	GETDC	XCL,PDLPTR,DESCR	Get then-or descriptor	00002478
	GETDC	YCL,PDLPTR,2*DESCR	Get value-residual	00002479
	DECRA	PDLPTR,3*DESCR	Back over history entry	00002480
	MOVD	PATICL,XCL	Set offset to OR link	00002481
	AEQLC	PATICL,0,,SALT3	Check for none	00002482



SOURCE LISTING

	PUTLG	TXSP,YCL	Insert old length of head	00002483
	TESTF	PATICL,FNC,SCIN3	Check for function	00002484
	BRANIC	PATICL,0	Branch to procedure	00002485
*_				00002486
SALT3	AEQLC	LENFCL,0,SALT1	Check length failure	00002487
	BRANCH	SALF1	Go to nonlength failure	00002488
*_				00002489
SCOK	PROC	SCNR	Successful scanning procedure	00002490
	SETAV	PATICL,XCL	Set offset from THEN link	00002491
	AEQLC	PATICL,0,SCIN2,RTN2	Check for none	00002492
*_				00002493
SCON	PROC	SCNR		00002494
	AEQLC	FULLCL,0,SCON1	Check &FULLSCAN	00002495
	AEQLC	LENFCL,0,FAIL	Check length failure	00002496
SCON1	POP	(YSIZ,YPTR)	Restore save descriptors	00002497
	DECRA	YSIZ,1	Decrement possible count	00002498
	ACOMPC	YSIZ,0,,FAIL,INTR13	Check for end	00002499
	ADDLG	TXSP,ONECL	Increment length of head	00002500
	BRANCH	SCNR2	Continue	00002501
*_				00002502
UNSC	PROC	SCNR	Backout procedure	00002503
	MOVD	PATBCL,YPTR	Reset pattern base	00002504
	BRANCH	SALT3	Join processing	00002505
*_				00002506
*_				00002507
*_				00002508
*_				00002509
*_		ANY, BREAK, NOTANY, SPAN		00002510
*_				00002511
ANYC	PROC	.	Matching procedure for ANY(S)	00002512
	SETAC	SCL,1	Post entry	00002513
ABNS	INCRA	PATICL,DESCR	Increment offset	00002514
	GETD	XPTR,PATBCL,PATICL	Get argument	00002515
	PUSH	SCL	Save processor switch	00002516
ABNS1	VEQLC	XPTR,S,,ABNSV		E3.5.5
	VEQLC	XPTR,E,,ABNSE	EXPRESSION must be evaluated	00002518
	VEQLC	XPTR,I,,ABNSI		E3.5.6
	POP	SCL		E3.5.6
	BRANCH	SCDTER		E3.5.6
*_				E3.5.6
ABNSE	RCALL	XPTR,EXPVAL,XPTR,(ABNSF,ABNS1)		E3.5.5
*_				E3.5.5
ABNSF	POP	SCL		E3.5.5
	BRANCH	TSALF		E3.5.5
*_				E3.5.5
ABNSI	RCALL	XPTR,GNVARI,XPTR		00002521
ABNSV	POP	SCL	Restore procedure switch	00002522
	AEQLC	XPTR,0,,SCNAME		E3.5.5
	SELBRA	SCL,(,BRKV,NNYV,SPNV)		00002523
*_			Select processor	00002524
ANYV	DEQL	XPTR,TBLCS,ANYC2	Was last argument the same?	00002525
	AEQL	TBLFNC,ANYCCL,,ANYC3		00002526
*_			If so, was last procedure for ANY(S)	00002527
ANYC2	CLERTB	SNABTB,ERROR	If not, clear stream table	00002528
	LOCSP	YSP,XPTR		00002529
	PLUGTB	SNABTB,STOP,YSP	Plug entries for characters	00002530
	MOVD	TBLCS,XPTR	Save argument to check next time	00002531
	MOVD	TBLFNC,ANYCCL	Save procedure to check next time	00002532
ANYC3	SETSP	VSP,XSP	Set up working specifier	00002533
	AEQLC	FULLCL,0,ANYC4	Leave length alone in FULLSCAN mode	00002534
	PUTLG	VSP,MAXLEN	Else insert maximum length	00002535
	LCOMP	VSP,TXSP,,TSALT	Length failure if too short	00002536
	CHKVAL	MAXLEN,ZEROCL,XSP,,ANYC4,ANYC4		E3.5.7
	ADDLG	VSP,ONECL		E3.5.7
ANYC4	REMSp	YSP,VSP,TXSP	Get specifier to unscanned portion	00002537
	STREAM	ZSP,YSP,SNABTB,TSALF,TSALT		00002538
	GETLG	XPTR,ZSP	Get length accepted	00002539
	ADDLG	TXSP,XPTR	Add to length matched	00002540
	BRANCH	SCOK,SCNR	Return to success point	00002541
*_				00002542
BRKC	PROC	ANYC	Matching procedure for BREAK(S)	00002543
	SETAC	SCL,2	Post entry	00002544
	BRANCH	ABNS		00002545
*_				00002546
BRKV	DEQL	XPTR,TBLCS,BRKC2	Was last argument the same?	00002547
	AEQL	TBLFNC,BRKCCL,,ANYC3		00002548
*_			Was the last procedure for BREAK	00002549
BRKC2	CLERTB	SNABTB,CONTIN	If not, clear stream table	00002550
	LOCSP	YSP,XPTR		00002551

SOURCE LISTING

	PLUGTB	SNABTB,STOPSH,YSP	Plug entries for characters	00002552
	MOVD	TBLCS,XPTR	Save argument to check next time	00002553
	MOVD	TBLFNC,BRKCCCL	Save procedure to check next time	00002554
	BRANCH	ANYC3	Proceed	00002555
*				00002556
NNYC	PROC	ANYC	Matching procedure for NOTANY(S)	00002557
	SETAC	SCL,3	Post entry	00002558
	BRANCH	ABNS		00002559
*				00002560
NNYV	DEQL	XPTR,TBLCS,NNYC2	Was last argument the same?	00002561
	AEQL	TBLFNC,NNYCCL,,ANYC3		00002562
*			Was the last procedure for NOTANY?	00002563
NNYC2	CLERTB	SNABTB,STOP	If not, clear stream table	00002564
	LOCSP	YSP,XPTR		00002565
	PLUGTB	SNABTB,ERROR,YSP	Plug entries for characters	00002566
	MOVD	TBLCS,XPTR	Save argument to check next time	00002567
	MOVD	TBLFNC,NNYCCL	Save procedure to check next time	00002568
	BRANCH	ANYC3	Proceed	00002569
*				00002570
SPNC	PROC	ANYC	Matching procedure for SPAN(S)	00002571
	SETAC	SCL,4	Post entry	00002572
	BRANCH	ABNS		00002573
*				00002574
SPNV	DEQL	XPTR,TBLCS,SPNC2	Was last argument the same?	00002575
	AEQL	TBLFNC,SPNCCL,,SPNC3		00002576
*			Was the last procedure for SPAN?	00002577
SPNC2	CLERTB	SNABTB,STOPSH	If not, clear stream table	00002578
	LOCSP	YSP,XPTR		00002579
	PLUGTB	SNABTB,CONTIN,YSP	Plug entries for characters	00002580
	MOVD	TBLCS,XPTR	Save argument to check next time	00002581
	MOVD	TBLFNC,SPNCCL	Save procedure to check next time	00002582
SPNC3	LCOMP	XSP, TXSP,, TSALT, TSALT		00002583
*			Length failure if too short	00002584
	REMS	YSP, XSP, TXSP	Get specifier to unscanned portion	00002585
	STREAM	ZSP, YSP, SNABTB, TSALF		00002586
	LEQL	ZSP, 0,, TSALF	Failure if length accepted is zero	00002587
	GETLG	XPTR, ZSP	Get length of accepted portion	00002588
	AEQL	FULLCL, 0, SPNC5	Skip length check in FULLSCAN mode	00002589
	CHKVAL	MAXLEN, XPTR, TXSP, TSALT		00002590
SPNC5	ADDLG	TXSP, XPTR	Add length accepted	00002591
	BRANCH	SCOK, SCNR		00002592
*				00002593
*				00002594
*		LEN, POS, RPOS, RTAB, TAB		00002595
*				00002596
*				00002597
LNT	PROC		Matching procedure for LEN(N)	00002598
	SETAC	SCL,1	Note entry	00002599
LPRRT	INCRA	PATICL,DESCR	Increment offset	00002600
	GETD	XPTR,PATBCL,PATICL	Get argument	00002601
	PUSH	SCL	Save entry indicator	00002602
*				00002603
LPRRT1	VEQL	XPTR,I,,LPRRTI	Is it INIEGER?	00002604
	VEQL	XPTR,E,,LPRRTE	Is it EXPRESSION?	00002605
	VEQL	XPTR,S,,LPRRTV		E3.5.6
	POP	SCL		E3.5.6
	BRANCH	SCDTER		E3.5.6
*			Is it STRING?	00002607
LPRRTE	RCALL	XPTR,EXPVAL,XPTR,(,LPRRT1)		E3.2.1
	POP	SCL		E3.2.1
	BRANCH	TSALF		E3.2.1
*				E3.2.1
*			Evaluate EXPRESSION	00002609
LPRRTV	LOCSP	ZSP,XPTR	Get specifier	00002610
	SPCINT	XPTR,ZSP,SCDTER	Convert to INTEGER	00002611
LPRRTI	POP	SCL	Restore entry indicator	00002612
	SELBRA	SCL,(,POSII,RPSII,RTBI,TBI)		00002613
*			Select matching procedure	00002614
	ACOMPC	XPTR,0,,,SCLNR	Check for negative length	00002615
	CHKVAL	MAXLEN,XPTR, TXSP, TSALT		00002616
*			Compare with maximum length	00002617
	ADDLG	TXSP,XPTR	Add to length matched	00002618
	BRANCH	SCOK,SCNR	Return successful match	00002619
*				00002620
POSII	ACOMPC	XPTR,0,,,SCLNR	Check for negative position	00002621
	GETLG	NVAL, TXSP	Get cursor position	00002622
	ACOMP	XPTR,MAXLEN,TSALT	Check desired against maximum	00002623
	ACOMP	XPTR,NVAL,TSALF, TSCOK		00002624

SOURCE LISTING

*			Check against cursor position	00002625
	BRANCH	SALT,SCNR		00002626
*				00002627
RPSII	ACOMPC	XPTR,0,,,SCLENR	Check for negative position	00002628
	GETLG	NVAL,XSP	Get total length	00002629
	SUBTRT	TVAL,NVAL,XPTR	Find desired position	00002630
	GETLG	NVAL,TXSP	Get cursor position	00002631
	ACOMP	NVAL,TVAL,TSALT,TSCOK,TSALF	Compare two positions	00002632
*				00002633
*				00002634
RTBI	ACOMPC	XPTR,0,,,SCLENR	Check for negative length	00002635
	GETLG	NVAL,XSP	Get total length	00002636
	SUBTRT	TVAL,NVAL,XPTR	Find desired position	00002637
	GETLG	NVAL,TXSP	Get current position	00002638
	ACOMP	NVAL,TVAL,TSALT	Compare two positions	00002639
	AEQLC	FULLCL,0,RTBII	Check &FULLSCAN	00002640
	SETAV	NVAL,YCL	Get residual	00002641
	SUBTRT	NVAL,MAXLEN,NVAL	Find maximum allowed position	00002642
	ACOMP	NVAL,TVAL,,,TSALT	Compare with desired position	00002643
RTBII	PUTLG	TXSP,TVAL	Update length of string matched	00002644
	BRANCH	SCOK,SCNR		00002645
*				00002646
TBI	ACOMPC	XPTR,0,,,SCLENR	Check for negative length	00002647
	GETLG	NVAL,TXSP	Get cursor position	00002648
	ACOMP	NVAL,XPTR,TSALT	Check against desired position	00002649
	ACOMP	XPTR,MAXLEN,TSALT	Check for tab beyond end	00002650
	PUTLG	TXSP,XPTR	Update length of string matched	00002651
	BRANCH	SCOK,SCNR		00002652
*				00002653
POSI	PROC	LNTH	Matching procedure for POS (N)	00002654
	SETAC	SCL,2	Note entry	00002655
	BRANCH	LPRRT	Join common processing	00002656
*				00002657
RPSI	PROC	LNTH	Matching procedure for RPOS (N)	00002658
	SETAC	SCL,3	Note entry	00002659
	BRANCH	LPRRT	Join common processing	00002660
*				00002661
RTB	PROC	LNTH	Matching procedure for RTAB (N)	00002662
	SETAC	SCL,4	Note entry	00002663
	BRANCH	LPRRT	Join common processing	00002664
*				00002665
TB	PROC	LNTH	Matching procedure for TAB (N)	00002666
	SETAC	SCL,5	Note entry	00002667
	BRANCH	LPRRT	Join common processing	00002668
*				00002669
*				00002670
*				00002671
*	ARBNO			00002672
*				00002673
ARBNO	PROC		Matching for ARBNO (P)	00002674
	GETLG	TMVAL,TXSP	Get cursor position	00002675
	PUSH	TMVAL	Save cursor position	00002676
	BRANCH	SCOK,SCNR	Return matching successfully	00002677
*				00002678
ARBFB	PROC	ARBNO	Backup matching for ARBNO (P)	00002679
	POP	(TMVAL)	Restore cursor position	00002680
	BRANCH	ONAR2	Join common processing	00002681
*				00002682
EARB	PROC	ARBNO		00002683
	POP	(TMVAL)	Restore cursor position	00002684
	PUTDC	PDLPTR,DESCR,TMVAL	Insert on history list	00002685
	GETLG	TMVAL,TXSP	Get cursor position	00002686
	PUTDC	PDLPTR,2*DESCR,TMVAL		00002687
	PUTDC	PDLPTR,3*DESCR,ZEROCL		00002688
	BRANCH	SCOK,SCNR	Return matching successfully	00002689
*				00002690
ONAR	PROC	ARBNO		00002691
	AEQLC	FULLCL,0,TSCOK	Check &FULLSCAN	00002692
	MOVD	TVAL,ZEROCL		00002693
	GETAC	TVAL,PDLPTR,-2*DESCR		00002694
*			Get old cursor position	00002695
	GETLG	TMVAL,TXSP	Get current cursor position	00002696
	ACOMP	TVAL,TMVAL,TSCOK,,TSCOK		00002697
*			Compare positions	00002698
ONAR1	PUSH	TVAL	Save cursor position	00002699
	DECRA	PDLPTR,6*DESCR	Delete history entries	00002700
ONAR2	AEQLC	LENFCL,0,TSALT	Check length failure	00002701
	BRANCH	SALF,SCNR	Return matching failure	00002702

SOURCE LISTING

```

*
* ONRF PROC ARBN 00002703
* MOVD TVAL,ZEROCL 00002704
* GETAC TVAL,PDLPTR,-2*DESCR 00002705
* 00002706
* BRANCH ONAR1 Get old cursor position 00002707
* Join processing 00002708
*
* FARB PROC 00002709
* AEQLC FULLCL,0,,FARB2 Check &FULLSCAN 00002710
* SETAC NVAL,0 Set residual length to 0 00002711
* BRANCH FARB3 Join processing 00002712
* 00002713
* FARB2 AEQLC LENFCL,0,FARB1 Check for length failure 00002714
* SETAV NVAL,YCL Get residual length 00002715
* FARB3 GETLG TVAL, TXSP Get cursor position 00002716
* SUM TVAL,TVAL,NVAL Add them 00002717
* ACOMP TVAL,MAXLEN,FARB1,FARB1 00002718
* 00002719
* ADDLG TXSP,ONECL Check against maximum 00002720
* GETLG TVAL, TXSP Add one for ARB 00002721
* PUTAC PDLPTR,2*DESCR,TVAL Get length matched 00002722
* BRANCH SCOK,SCNR Insert on history list 00002723
* Return successful match 00002724
* 00002725
* FARB1 DECRA PDLPTR,3*DESCR Back over history entry 00002726
* BRANCH SALT,SCNR 00002727
* 00002728
*-----*
* 00002729
* 00002730
* 00002731
* 00002732
* ATP PROC Matching procedure for @X 00002733
* INCRA PATICL,DESCR Increment pattern offset 00002734
* GETD XPTR,PATBCL,PATICL Get argument 00002735
* ATP1 VEQLC XPTR,E,,ATPEXN EXPRESSION must be evaluated 00002736
* GETLG NVAL, TXSP Get length of text matched 00002737
* SETVC NVAL,I Set INTEGER data type 00002738
* PUTDC XPTR,DESCR,NVAL Assign as value of variable X 00002739
* AEQLC OUTSW,0,,ATP2 Check &OUTPUT 00002740
* LOCAPV ZPTR,OUTATL,XPTR,ATP2 00002741
* 00002742
* GETDC ZPTR,ZPTR,DESCR Look for output association 00002743
* RCALL ,PUTOUT,(ZPTR,NVAL) Get output association descriptor 00002744
* ATP2 AEQLC TRAPCL,0,,TSCOK Perform output 00002745
* LOCAPT ATPTR,TVAL,XPTR,TSCOK Check &TRACE 00002746
* 00002747
* Look for trace association
* PUSH (PATBCL,PATICL,WPTR,XCL,YCL) 00002748
* PUSH (MAXLEN,LENFCL,PDLPTR,PDLHED,NAMICL,NHEDCL) 00002749
* SPUSH (HEADSP,TSP, TXSP,XSP) 00002750
* MOVD PDLHED,PDLPTR Set new stack heading 00002751
* MOVD NHEDCL,NAMICL Set new name list heading 00002752
* RCALL ,TRPHND,ATPTR E3.3.1
* 00002754
* Perform tracing
* SPOP (XSP, TXSP,TSP,HEADSP) 00002755
* POP (NHEDCL,NAMICL,PDLHED,PDLPTR,LENFCL,MAXLEN) 00002756
* POP (YCL,XCL,WPTR,PATICL,PATBCL) 00002757
* BRANCH SCOK,SCNR 00002758
* 00002759
* ATPEXN RCALL XPTR,EXPEVL,XPTR,(TSALF,ATP1,SCNEMO) E3.4.4
*-----*
* 00002761
* 00002762
* 00002763
* 00002764
* 00002765
* BAL PROC Matching procedure for BAL 00002766
* BALF1 AEQLC FULLCL,0,,BALF4 Check &FULLSCAN 00002767
* SETAC NVAL,0 Set length to zero 00002768
* BRANCH BALF2 00002769
* 00002770
* BALF4 SETAV NVAL,YCL 00002771
* BALF2 GETLG TVAL, TXSP Get length of text matched so far 00002772
* SUM TVAL,TVAL,NVAL Add remainder possible 00002773
* ACOMP TVAL,MAXLEN,BAL1,BAL1 00002774
* 00002775
* SUBTRT TVAL,MAXLEN,TVAL Compare to maximum 00002776
* GETBAL TXSP,TVAL,BAL1 Get maximum length for BAL 00002777
* GETLG TVAL, TXSP Get balanced string 00002778
* PUTAC PDLPTR,2*DESCR,TVAL Get length matched 00002779
* BRANCH SCOK,SCNR Insert history entry 00002780
* Successful match 00002780

```

SOURCE LISTING

```

*
BAL1  DECRA  PDLPTR,3*DESCR      Back over history entry
      ACOMP  PDLPTR,PDLHED,TSALF,TSALF,INTR13
*
BALF  PROC    BAL          Matching procedure for BAL retry
      AEQLC  FULLCL,0,,BALF3  Check &FULLSCAN
      SETAC  NVAL,0        If off, set length to zero
      BRANCH BALF2        Reenter balanced matching
*
BALF3 AEQLC  LENFCL,0,BAL1,BALF1 If on, test for length failure
*
-----*
*
*      Matching for String
*
CHR   PROC    /          Matching character string
      INCRA  PATICL,DESCR  Increment offset
      GETD   YPTR,PATBCL,PATICL  Get argument
CHR1  LOCSP   TSP,YPTR    Get specifier
CHR2  REMSP   VSP,XSP,TXSP  Remove part matched
      SUBSP  VSP,TSP,VSP,TSALT  Get part to match
      LEXCMP VSP,TSP,TSALF,,TSALF
*
      GETLG  YPTR,TSP      Compare strings
      ADDLG  TXSP,YPTR     Get length
      BRANCH SCOK,SCNR     Update string matched
                              Return successful match
*
-----*
*
*      *X
*
STAR  PROC    CHR          Matching procedure for expressions
      INCRA  PATICL,DESCR  Increment offset
      GETD   YPTR,PATBCL,PATICL  Get argument expression
STAR2 RCALL   YPTR,EXPVAL,YPTR,TSALF
*
      VEQLC  YPTR,E,,STAR2  Evaluate argument
      SUM    XPTR,PATBCL,PATICL  Is is EXPRESSION?
      PUTDC  XPTR,7*DESCR,YPTR  Compute pointer to argument
      VEQLC  YPTR,S,,CHR1    Insert pointer in backup node
      VEQLC  YPTR,P,,STARP   Is it STRING?
      VEQLC  YPTR,I,SCDTER   Is it PATTERN?
      INTSPC TSP,YPTR        Is it INTEGER?
      BRANCH CHR2           Get specifier for integer
                              Join processing
*
STARP AEQLC  FULLCL,0,,STARP1  Check &FULLSCAN
      SETAC  NVAL,0          Zero length
      BRANCH STARP4         Join processing
*
STARP1 SETAV  NVAL,YCL        Get length
STARP4 SUBTRT NVAL,MAXLEN,NVAL  Compute residual
      ACOMP  NVAL,0,,TSALT
      LVALUE TSIZ,YPTR      Check &FULLSCAN
      AEQLC  FULLCL,0,STARP6
      ACOMP  TSIZ,NVAL,TSALT  Check against length
STARP6 INCRA  PDLPTR,3*DESCR  Make room for history
      ACOMP  PDLPTR,PDLEND,INTR31
*
      PUTDC  PDLPTR,DESCR,SCFLCL  Check for overflow
      GETLG  TMVAL,TXSP         Insert failure function
      PUTDC  PDLPTR,2*DESCR,TMVAL  Get cursor position
*
      PUTDC  PDLPTR,3*DESCR,LENFCL  Insert on history list
*
      PUSH   (MAXLEN,PATBCL,PATICL,XCL,YCL)  Insert length failure
      MOVD   MAXLEN,NVAL        Save scanner state
      RCALL  ,SCIN,,(STARP5,,RTNUL3)  Set up new maximum
*
STARP2 POP   (YCL,XCL,PATICL,PATBCL,MAXLEN)  Call the scanner
      BRANCH SCOK,SCNR         Restore scanner state
                              Return matching successfully
*
STARP5 POP   (YCL,XCL,PATICL,PATBCL,MAXLEN)  Restore scanner state
*
STARP3 AEQLC  LENFCL,0,TSALT   Check length failure
      BRANCH SALF,SCNR        Return matching failure
*
-----*
00002781
00002782
00002783
00002784
00002785
00002786
00002787
00002788
00002789
00002790
00002791
00002792
00002793
00002794
00002795
00002796
00002797
00002798
00002799
00002800
00002801
00002802
00002803
00002804
00002805
00002806
00002807
00002808
00002809
00002810
00002811
00002812
00002813
00002814
00002815
00002816
00002817
00002818
00002819
00002820
00002821
00002822
00002823
00002824
00002825
00002826
00002827
00002828
00002829
00002830
00002831
00002832
00002833
00002834
00002835
00002836
00002837
00002838
00002839
00002840
00002841
00002842
00002843
00002844
00002845
00002846
00002847
00002848
00002849
00002850
00002851
00002852
00002853
00002854
00002855
00002856
00002857
00002858

```

SOURCE LISTING

DSAR	PROC	CHR	Backup matching for expression	00002859
	INCRA	PATICL,DESCR	Increment offset	00002860
	GETD	YPTR,PATBCL,PATICL	Get argument	00002861
	VEQLC	YPTR,S,,STARP3	Is it STRING?	00002862
	VEQLC	YPTR,P,,DSARP	Is it PATTERN?	00002863
	VEQLC	YPTR,I,SCDTER,STARP3	Is it INTEGER?	00002864
*				00002865
DSARP	AEQLC	FULLCL,0,,DSARP1	Check &FULLSCAN	00002866
	SETAC	NVAL,0	Zero length	00002867
	BRANCH	DSARP2	Join processing	00002868
*				00002869
DSARP1	SETAV	NVAL,YCL	Get length	00002870
DSARP2	SUBTRT	NVAL,MAXLEN,NVAL	Compute residual	00002871
	PUSH	(MAXLEN,PATBCL,PATICL,XCL,YCL)		00002872
*			Save scanner state	00002873
	MOVD	MAXLEN,NVAL	Set up new maximum	00002874
	RCALL	,UNSC,,(STARP5,STARP2,RTNUL3)		00002875
*			Call unscanning procedure	00002876
*				00002877
*				00002878
*				00002879
*	FENCE			00002880
*				00002881
FENCE	PROC	.	Procedure for matching FENCE	00002882
	INCRA	PDLPTR,3*DESCR	Create new history entry	00002883
	ACOMP	PDLPTR,PDLEND,INTR31		00002884
*			Check for overflow	00002885
	PUTDC	PDLPTR,DESCR,FNCFCL	Insert FENCE failure function	00002886
	GETLG	TMVAL,TXSP	Get length	00002887
	PUTDC	PDLPTR,2*DESCR,TMVAL		00002888
*			Save length	00002889
	PUTDC	PDLPTR,3*DESCR,LENFCL		00002890
*			Save length failure switch	00002891
	SETAC	LENFCL,1	Set length failure switch	00002892
	BRANIC	SCOKCL,0	Return matching	00002893
*				00002894
*				00002895
*				00002896
*	X . Y and X \$ Y			00002897
*				00002898
NME	PROC	.	Matching procedure for naming	00002899
	INCRA	PDLPTR,3*DESCR	Make room for history entry	00002900
	ACOMP	PDLPTR,PDLEND,INTR31		00002901
*			Check for end of list	00002902
	PUTDC	PDLPTR,DESCR,FNMECL	Insert backup function	00002903
	GETLG	TMVAL,TXSP	Get cursor position	00002904
	PUTDC	PDLPTR,2*DESCR,TMVAL		00002905
*			Put on history list	00002906
	PUTDC	PDLPTR,3*DESCR,LENFCL		00002907
*			Put length failure indicator	00002908
	PUSH	(TMVAL)	Save cursor	00002909
	SETAC	LENFCL,1	Set length failure indicator	00002910
	BRANCH	SCOK,SCNR	Return matching successfully	00002911
*				00002912
FNME	PROC	NME	Backup procedure for naming	00002913
	POP	(TVAL)	Restore cursor	00002914
FNME1	AEQLC	LENFCL,0,TSALT,TSALF		00002915
*			Check length failure indicator	00002916
*				00002917
ENME	PROC	NME	Naming process for X . Y	00002918
	INCRA	PATICL,DESCR	Increment offset	00002919
	GETD	YPTR,PATBCL,PATICL	Get argument	00002920
	POP	(NVAL)	Restore previous cursor position	00002921
	SETVA	YCL,NVAL	Set up length	00002922
	SETSP	TSP,TXSP	Copy specifier	00002923
	PUTLG	TSP,NVAL	Insert length	00002924
	REMSR	TSP,TXSP,TSP	Compute remainder	00002925
	SUM	TPTR,NBSPTR,NAMICL	Compute position on name list	00002926
	PUTSPC	TPTR,DESCR,TSP	Insert specifier	00002927
	PUTDC	TPTR,DESCR+SPEC,YPTR		00002928
*			Insert argument	00002929
	INCRA	NAMICL,DESCR+SPEC	Increment list offset	00002930
	ACOMP	NAMICL,NMOVER,INTR13,ENME1		00002931
*			Check for overflow	00002932
ENME2	INCRA	PDLPTR,DESCR+SPEC	Make room on history list	00002933
	ACOMP	PDLPTR,PDLEND,INTR31		00002934
*			Check for overflow	00002935
				00002936

SOURCE LISTING

	PUTDC	PDLPTR,DESCR,DNMECL	Insert unravelling function	00002937
ENME3	GETLG	TMVAL,TXSP	Get cursor position	00002938
	MOVV	TMVAL,YCL		00002939
	PUTDC	PDLPTR,2*DESCR,TMVAL		00002940
*			Insert on list	00002941
	PUTDC	PDLPTR,3*DESCR,LENFCL		00002942
*			Insert length failure	00002943
	SETAC	LENFCL,1	Set length failure	00002944
	BRANCH	SCOK,SCNR	Return matching successfully	00002945
*				00002946
ENME1	MOVD	WCL,NMOVER	Save copy of cuurent name list end	00002947
	INCRA	NMOVER,NAMLSZ*SPDR	Increment for larger block	00002948
	RCALL	TPTR,BLOCK,NMOVER	Allocate larger block	00002949
	MOVBLK	TPTR,NBSPTR,WCL	Move in old block	00002950
	MOVD	NBSPTR,TPTR	Set up new base pointer	00002951
	BRANCH	ENME2	Rejoin processing	00002952
*				00002953
DNME	PROC	NME	Unravelling procedure for naming	00002954
	DECRA	NAMICL,DESCR*SPEC	Back off named string	00002955
	SUM	TPTR,NBSPTR,NAMICL	Compute current position	00002956
DNME1	PROC	NME		00002957
	SETAV	VVAL,YCL		00002958
	PUSH	(VVAL)	Preserve length	00002959
	BRANCH	FNME1		00002960
*				00002961
ENMI	PROC	NME	Matching for X \$ Y	00002962
	INCRA	PATICL,DESCR	Increment offset	00002963
	GETD	YPTR,PATBCL,PATICL	Get argument	00002964
	POP	(NVAL)	Restore initial length	00002965
	SETVA	YCL,NVAL	Move initial length into value field	00002966
	SETSP	TSP,TXSP	Get working specifier	00002967
	PUTLG	TSP,NVAL	Insert length	00002968
	REMS	TSP,TXSP,TSP	Get specifier for part matched	00002969
	GETLG	ZCL,TSP	Get length of part	00002970
	ACOMP	ZCL,MLENCL,SCLNOR	Check EMAXLNGTH	00002971
	VEQLC	YPTR,E,,ENMEXN	Is it EXPRESSION?	00002972
ENMI5	VEQLC	YPTR,K,,ENMIC	Check for KEYWORD data type	00002973
	RCALL	VVAL,GENVAR,(TSPPTR)		00002974
*			Generate variable	00002975
ENMI3	PUTDC	YPTR,DESCR,VVAL	Perform assignment	00002976
	AEQLC	OUTSW,0,,ENMI4	Check %OUTPUT	00002977
	LOCAPV	ZPTR,OUTATL,YPTR,ENMI4		00002978
*			Look for output association	00002979
	GETDC	ZPTR,ZPTR,DESCR	Get association	00002980
	RCALL	,PUTOUT,(ZPTR,VVAL)	Perform output	00002981
ENMI4	ACOMP	TRAPCL,0,,ENMI2,ENMI2		00002982
*			Check %TRACE	00002983
	LOCAPT	ATPTR,TVALL,YPTR,ENMI2		00002984
*			Look for VALUE trace	00002985
	PUSH	(PATBCL,PATICL,WPTR,XCL,YCL)		00002986
*			Save relevant descriptors	00002987
	PUSH	(MAXLEN,LENFCL,PDLPTR,PDLHED,NAMICL,NHEDCL)		00002988
	SPUSH	(HEADSP,TSP,TXSP,XSP)		00002989
*			Save relevant specifiers	00002990
	MOVD	PDLHED,PDLPTR	Set up new history list head	00002991
	MOVD	NHEDCL,NAMICL	Set up new name list head	00002992
	RCALL	,TRPHND,ATPTR		E3.3.1
*			Perform trace	00002994
	SPOP	(XSP,TXSP,TSP,HEADSP)		00002995
*			Restore specifiers	00002996
	POP	(NHEDCL,NAMICL,PDLHED,PDLPTR,LENFCL,MAXLEN)		00002997
*			Restore descriptors	00002998
	POP	(YCL,XCL,WPTR,PATICL,PATBCL)		00002999
ENMI2	INCRA	PDLPTR,3*DESCR	Make room on history list	00003000
	ACOMP	PDLPTR,PDLEND,INTR31		00003001
*			Check for overflow	00003002
	PUTDC	PDLPTR,DESCR,DNMICL	Insert unravelling function	00003003
	BRANCH	ENME3	Join common processing	00003004
*				00003005
ENMIC	SPCINT	VVAL,TSP,SCDTER,ENMI3		00003006
*			Convert STRING to INTEGER	00003007
*				00003008
ENMEXN	PUSH	ZEROCL		E3.4.4 & E3.5.8
	RCALL	YPTR,EXPEVL,YPTR,(TSALF,,SCNEMO)		E3.4.4 & E3.5.8
	POP	ZEROCL		E3.4.4 & E3.5.8
	BRANCH	ENMI5		E3.4.4 & E3.5.8
*				00003011
*				00003012

SOURCE LISTING

```

*
* SUCCEED 00003013
* 00003014
* 00003015
SUCE PROC Matching procedure for SUCCEED 00003016
SUCE1 INCRA PDLPTR,3*DESCR Make room for history entry 00003017
ACOMP PDLPTR,PDLEND,INTR31 00003018
* Check for overflow 00003019
PUTDC PDLPTR,DESCR,SUCFCL Insert SUCCESS backup function 00003020
GETLG TVAL,TXSP Get length matched 00003021
PUTDC PDLPTR,2*DESCR,TVAL 00003022
* Save on history list 00003023
PUTDC PDLPTR,3*DESCR,LENFCL 00003024
* Save current length failure 00003025
SETAC LENFCL,1 Set length failure 00003026
BRANIC SCOKCL,0 Return successful match 00003027
* 00003028
SUCF PROC SUCE SUCCEED failure 00003029
GETDC XCL,PDLPTR,DESCR Get history entries 00003030
GETDC YCL,PDLPTR,2*DESCR 00003031
BRANCH SUCE1 Go in front door 00003032
* 00003033
*-----* 00003034
TITLE 'Defined Functions' 00003035
* 00003036
* DEFINE(P,E) 00003037
* 00003038
DEFINE PROC DEFINE(P,E) 00003039
RCALL XPTR,VARVAL,,FAIL Get prototype 00003040
PUSH XPTR Save prototype 00003041
RCALL YPTR,VARVAL,,FAIL Get entry point 00003042
POP XPTR Restore prototype 00003043
LOCSP XSP,XPTR Specifier for prototype 00003044
STREAM YSP,XSP,VARATB,PROTER,PROTER 00003045
* Break out function name 00003046
AEQLC STYPE,LPTYP,PROTER Verify open parenthesis 00003047
RCALL XPTR,GENVAR,(YSPPTR) 00003048
* Get variable for function name 00003049
RCALL ZCL,FINDEX,(XPTR) Get function descriptor for function 00003050
DEQL YPTR,NULVCL,DEFIN3 Check for omitted entry point 00003051
MOVD YPTR,XPTR If omitted use function name 00003052
DEFIN3 PUSH YPTR Save entry point 00003053
MOVD YCL,ZEROCL Set argument count to 0 00003054
PUSH XPTR Save function name 00003055
DEFIN4 FSHRTN XSP,1 Remove break character 00003056
STREAM YSP,XSP,VARATB,PROTER,PROTER 00003057
* Break out argument 00003058
SELBRA STYPE,(PROTER,,DEFIN6) 00003059
* Check for end 00003060
LEQLC YSP,0,,DEFIN4 Check for null argument 00003061
RCALL XPTR,GENVAR,(YSPPTR) 00003062
* Generate variable for argument 00003063
PUSH XPTR Save argument 00003064
INCRA YCL,1 Increment argument count 00003065
BRANCH DEFIN4 Continue 00003066
* 00003067
DEFIN6 LEQLC YSP,0,,DEFIN9 00003068
INCRA YCL,1 Increment argument count 00003069
RCALL XPTR,GENVAR,(YSPPTR) 00003070
* Generate variable for argument 00003071
PUSH XPTR Save argument 00003072
DEFIN9 SETVA DEFCL,YCL 00003073
DEFIN8 FSHRTN XSP,1 00003074
STREAM YSP,XSP,VARATB,PROTER,DEF10 00003075
* Break out local arguments 00003076
AEQLC STYPE,CMATYP,PROTER Verify comma 00003077
LEQLC YSP,0,,DEFIN8 Check for null argument 00003078
RCALL XPTR,GENVAR,(YSPPTR) 00003079
* Generate variable 00003080
PUSH XPTR Save local argument 00003081
INCRA YCL,1 Increment total count 00003082
BRANCH DEFIN8 Continue 00003083
* 00003084
DEF10 LEQLC YSP,0,,DEF11 Check for null argument 00003085
RCALL XPTR,GENVAR,YSPPTR Generate variable 00003086
PUSH XPTR Save argument 00003087
INCRA YCL,1 Increment total count 00003088
DEF11 INCRA YCL,2 Increment for name and label 00003089
MULTC XCL,YCL,DESCR Convert to address units 00003090

```



SOURCE LISTING

	SETVC	XCL,B	Insert block data type	00003091
	RCALL	XPTR,BLOCK,XCL	Allocate block for definition	00003092
	PUTDC	ZCL,0,DEFCL	Point to procedure descriptor	00003093
	PUTDC	ZCL,DESCR,XPTR	Insert definition block	00003094
	SUM	XPTR,XPTR,XCL	Compute end of block	00003095
DEF12	DECRA	XPTR,DESCR	Decrement pointer	00003096
	POP	YPTR	Restore argument	00003097
	PUTDC	XPTR,DESCR,YPTR	Insert in definition block	00003098
	DECRA	YCL,1	Decrement total count	00003099
	AEQLC	YCL,0,DEF12,RETNUL	Check for end	00003100
	*			00003101
	*			00003102
	*			00003103
	*	Invocation of Defined Function		00003104
	*			00003105
DEFFNC	PROC	,	Procedure to invoke defined function	00003106
	SETAV	XCL,INCL	Get number of arguments in call	00003107
	MOVD	WCL,XCL	Save copy	00003108
	MOVD	YCL,INCL	Save function descriptor	00003109
	PSTACK	YPTR	Post stack position	00003110
	PUSH	NULVCL	Save null value for function name	00003111
DEFF1	INCRA	OCICL,DESCR	Increment offset	00003112
	GETD	XPTR,OCBSCL,OCICL	Get object code descriptor	00003113
	TESTF	XPTR,FNC,,DEFFC	Check for function descriptor	00003114
DEFF2	AEQLC	INSW,0,,DEFF14	Check &INPUT	00003115
	LOCAPV	ZPTR,INATL,XPTR,DEFF14		00003116
	*		Look for input association	00003117
	GETDC	ZPTR,ZPTR,DESCR	Get association	00003118
	PUSH	(XCL,WCL,YCL,YPTR)	Save relevant descriptors	00003119
	RCALL	XPTR,PUTIN,(ZPTR,XPTR),FAIL		00003120
	*		Perform input	00003121
	POP	(YPTR,YCL,WCL,XCL)	Restore descriptors	00003122
	BRANCH	DEFF3	Join processing	00003123
	*			00003124
DEFF14	GETDC	XPTR,XPTR,DESCR	Get value	00003125
DEFF3	PUSH	XPTR	Save value	00003126
	DECRA	XCL,1	Decrement argument count	00003127
	ACOMPC	XCL,0,DEFF1,,INTR10	Check for end	00003128
	GETDC	XCL,YCL,0	Get expected number of arguments	00003129
	SETAV	XCL,XCL	Insert in A-field	00003130
DEFF4	ACOMP	WCL,XCL,DEFF9,DEFF5	Compare given and expected	00003131
	PUSH	NULVCL	Not enough, save null string	00003132
	INCRA	WCL,1	Increment count	00003133
	BRANCH	DEFF4	Continue	00003134
	*			00003135
DEFF9	POP	ZCL	Throw away extra argument	00003136
	DECRA	WCL,1	Decrement count	00003137
	BRANCH	DEFF4	Continue	00003138
	*			00003139
DEFF5	GETDC	ZCL,YCL,DESCR	Get definition block	00003140
	MOVD	XPTR,ZCL	Save copy	00003141
	GETSIZ	WCL,ZCL	Get size of block	00003142
	SUM	WPTR,ZCL,WCL	Compute pointer to end	00003143
	INCRA	XCL,1	Increment for function name	00003144
DEFF8	INCRA	XPTR,DESCR	Increment pointer to block	00003145
	INCRA	YPTR,DESCR	Adjust stack pointer	00003146
	GETDC	ZPTR,XPTR,DESCR	Get argument name	00003147
	GETDC	TPTR,ZPTR,DESCR	Get current argument value	00003148
	GETDC	ATPTR,YPTR,DESCR	Get value from stack	00003149
	PUTDC	ZPTR,DESCR,ATPTR	Assign to argument name	00003150
	PUTDC	YPTR,DESCR,TPTR	Put current argument on stack	00003151
	DECRA	XCL,1	Decrement count	00003152
	ACOMPC	XCL,0,DEFF8,,INTR10	Check for end	00003153
DEFF10	INCRA	XPTR,DESCR	Increment pointer to block	00003154
	AEQL	XPTR,WPTR,,DEFFGO		00003155
	GETDC	ZPTR,XPTR,DESCR	Get argument name from block	00003156
	GETDC	TPTR,ZPTR,DESCR	Get current value of argument	00003157
	PUSH	TPTR	Save current value	00003158
	PUTDC	ZPTR,DESCR,NULVCL	Assign null value to local	00003159
	BRANCH	DEFF10	Continue	00003160
	*			00003161
DEFFGO	PUSH	(FRTNCL,STNOCL,OCICL,OCBSCL,ZCL,ZCL)	Save system state	00003162
	*		Get entry label	00003163
	GETDC	XCL,ZCL,DESCR		00003164
	AEQLIC	XCL,ATTRIB,0,,UNDFFE		E3.0.2
	GETDC	OCBSCL,XCL,ATTRIB		E3.0.2
	ACOMPC	TRACL,0,,DEFF18,DEFF18		00003167
	*		Check &FTRACE	00003168

SOURCE LISTING

	DECRA	TRACL,1	Decrement &FTRACE	00003169
	GETDC	ATPTR,ZCL,2*DESCR	Get function name	00003170
	PUSH	ZCL	Save definition block	00003171
	RCALL	,FENTR2,(ATPTR),(INTR10,INTR10)	Perform function trace	00003172
*	POP	ZCL	Restore definition block	00003173
DEFF18	ACOMPC	TRAPCL,0,,DEFF19,DEFF19	Check &FTRACE	00003174
*	GETDC	ATPTR,ZCL,2*DESCR	Get function name	00003175
	LOCAPT	ATPTR,TFENTL,ATPTR,DEFF19	Check for CALL trace	00003176
*	PUSH	(OCBSCL,ZCL)	Save object code base and block	00003177
	RCALL	,TRPHND,ATPTR	E3.3.1	00003178
*	POP	(ZCL,OCBSCL)	Restore base and block	00003179
DEFF19	INCRA	LVLCL,1	Increment &FNCLVCL	00003180
	ACOMPC	TRAPCL,0,,DEFF15,DEFF15	Check &FTRACE	00003181
*	LOCAPT	ATPTR,TKEYL,FNCLKY,DEFF15	Look for KEYWORD trace	00003182
*	RCALL	,TRPHND,ATPTR	E3.3.1	00003183
DEFF15	SETAC	OCICL,0	Zero offset	00003184
	RCALL	,INTERP,,(DEFFF,DEFFNR)	Call interpreter	00003185
*	MOVD	RETPCL,RETCL	Set &RTNTYPE to RETURN	00003186
DEFFS1	POP	ZCL	Restore definition block	00003187
	ACOMPC	TRACL,0,,DEFF20,DEFF20	Check &FTRACE	00003188
*	DECRA	TRACL,1	Decrement &FTRACE	00003189
	GETDC	ATPTR,ZCL,2*DESCR	Get function name	00003190
	PUSH	ZCL	Save definition block	00003191
	RCALL	,FNEXT2,(ATPTR),(INTR10,INTR10)	Perform function trace	00003192
*	POP	ZCL	Restore definition block	00003193
DEFF20	ACOMPC	TRAPCL,0,,DEFFS2,DEFFS2	Check &FTRACE	00003194
*	GETDC	ATPTR,ZCL,2*DESCR	Get function name	00003195
	LOCAPT	ATPTR,TFEXTL,ATPTR,DEFFS2	Check for RETURN trace	00003196
*	PUSH	(RETPCL,ZCL)	Save return and block	00003197
	RCALL	,TRPHND,ATPTR	E3.3.1	00003198
*	POP	(ZCL,RETPCL)	Restore block and return	00003199
DEFFS2	DECRA	LVLCL,1	Decrement &FNCLVCL	00003200
	ACOMPC	TRAPCL,0,,DEFF17,DEFF17	Check &FTRACE	00003201
*	LOCAPT	ATPTR,TKEYL,FNCLKY,DEFF17	Check for KEYWORD trace	00003202
*	PUSH	(RETPCL,ZCL)	Save return and block	00003203
	RCALL	,TRPHND,ATPTR	E3.3.1	00003204
*	POP	(ZCL,RETPCL)	Restore block and return	00003205
DEFF17	POP	(ZCL,OCBSCL,OCICL,STNOCL,FRTNCL)	Restore system state	00003206
*	GETSIZ	WCL,ZCL	Get size of definition block	00003207
	DECRA	WCL,DESCR	Decrement pointer	00003208
	ACOMPC	WCL,0,,INTR10,INTR10	Check for end	00003209
*	SUM	WPTR,ZCL,WCL	Compute pointer to last descriptor	00003210
	MOVD	YPTR,ZCL	Save pointer to block	00003211
	INCRA	YPTR,DESCR	Increment pointer	00003212
	GETDC	ZPTR,YPTR,DESCR	Get function name	00003213
	GETDC	ZPTR,ZPTR,DESCR	Get value to be returned	00003214
DEFF6	POP	XPTR	Get old value	00003215
	GETDC	YPTR,WPTR,DESCR	Get argument name	00003216
	PUTDC	YPTR,DESCR,XPTR	Restore old value	00003217
	DECRA	WPTR,DESCR	Decrement pointer	00003218
	AEQL	WPTR,ZCL,DEFF6	Check for end	00003219
	DEQL	RETPCL,FRETCL,,FAIL	Check for FRETURN	00003220
	DEQL	RETPCL,NRETCL,RTZPTR	Check for NRETURN	00003221
*	MOVD	XPTR,ZPTR	Move name to correct descriptor	00003222
	VEQLC	XPTR,S,,DEFFVX	Check for natural variable	00003223
	VEQLC	XPTR,I,,GENVIX	Convert integer	00003224
	VEQLC	XPTR,N,,RTXNAM	Check for created variable	00003225
*	VEQLC	XPTR,K,,NONAME,RTXNAM	Check for keyword variable	00003226

SOURCE LISTING

	DEFFVK AEQLC	XPTR,0,RTXNAM,ONAME	Check for null string	00003247
*				00003248
*				00003249
	DEFF	MOVD RETPCL,FRETCL	Set up FRETURN	00003250
		BRANCH DEFFS1	Join processing	00003251
*				00003252
	DEFFC	PUSH (XCL,WCL,YCL,YPTR)	Save relevant descriptors	00003253
		RCALL XPTR,INVOKE,(XPTR),(FAIL,DEFFN)	Evaluate argument	00003254
*				00003255
		POP (YPTR,YCL,WCL,XCL)	Restore relevant variables	00003256
		BRANCH DEFF3	Join processing	00003257
*				00003258
	DEFFN	POP (YPTR,YCL,WCL,XCL)	Restore relevant variables	00003259
		BRANCH DEFF2	Join processing	00003260
*				00003261
	DEFFNR	MOVD RETPCL,NRETCL	Set up NRETURN	00003262
		BRANCH DEFFS1	Join processing	00003263
*				00003264
*				00003265
		TITLE 'External Functions'		00003266
*				00003267
*		LOAD(P)		00003268
*				00003269
	LOAD	PROC	LOAD(P)	00003270
		RCALL XPTR,VARVAL,,FAIL	Get prototype	00003271
		PUSH XPTR	Save prototype	00003272
		RCALL WPTR,VARVAL,,FAIL	Get library name	00003273
		LOCSP VSP,WPTR	Get specifier for library	00003274
		POP XPTR	Restore prototypr	00003275
		LOCSP XSP,XPTR	Get specifier for prototype	00003276
		STREAM YSP,XSP,VARATB,PROTER,PROTER	Get function name from prototype	00003277
*				00003278
		AEQLC STYPE,LPTYP,PROTER	Verify left parenthesis	00003279
		RCALL XPTR,GENVAR,YSPPTR	Generate variable for function	00003280
		RCALL ZCL,FINDEX,XPTR	Find function	00003281
		MOVD YCL,ZEROCL	Set argument count to zero	00003282
	LOAD4	FSHRTN XSP,1	Remove break character	00003283
		STREAM ZSP,XSP,VARATB,LOAD1,PROTER	Break out argument	00003284
*				00003285
		SELBRA STYPE,(PROTER,,LOAD6)	Branch on break type	00003286
*				00003287
		RCALL XPTR,GENVAR,ZSPPTR	Generate variable for data type	00003288
		LOCAPV XPTR,DTATL,XPTR,LOAD9	Look up data type	00003289
*				00003290
		GETDC XPTR,XPTR,DESCR	Extract data type code	00003291
		PUSH XPTR	Save data type code	00003292
	LOAD10	INCRA YCL,1	Increment count of arguments	00003293
		BRANCH LOAD4	Continue	00003294
*				00003295
	LOAD6	INCRA YCL,1	Count last argument	00003296
		RCALL XPTR,GENVAR,ZSPPTR	Generate variable for data type	00003297
		LOCAPV XPTR,DTATL,XPTR,LOAD11	Look up data type	00003298
*				00003299
		GETDC XPTR,XPTR,DESCR	Get data type code	00003300
		PUSH XPTR	Save data type code	00003301
	LOAD13	FSHRTN XSP,1	Delete right parenthesis	00003302
		RCALL XPTR,GENVAR,XSPPTR	Generate variable for target	00003303
		LOCAPV XPTR,DTATL,XPTR,LOAD7	Look up data type	00003304
*				00003305
		GETDC XPTR,XPTR,DESCR	Get data type code	00003306
		PUSH XPTR	Save data type code	00003307
	LOAD8	SETVA LODCL,YCL	Insert number of arguments	00003308
		INCRA YCL,1	Increment count	00003309
		MULTC XCL,YCL,DESCR	Convert to address units	00003310
		INCRA XCL,DESCR	Add space for entry point	00003311
		SETVC XCL,B	Insert BLOCK data type	00003312
		RCALL XPTR,BLOCK,XCL	Allocate block for definition	00003313
		PUTDC ZCL,0,LODCL	Insert procedure descriptor	00003314
		PUTDC ZCL,DESCR,XPTR	Insert definition block	00003315
		SUM XPTR,XPTR,XCL	Compute pointer to end of block	00003316
	LOAD12	DECRA XPTR,DESCR	Decrement pointer	00003317
		POP YPTR	Restore data type	00003318
		PUTDC XPTR,DESCR,YPTR	Insert in block	00003319
		DECRA YCL,1	Decrement count	00003320
		ACOMPC YCL,0,LOAD12	Check for end	00003321
		LOAD YPTR,YSP,VSP,FAIL	Load external function	00003322
		PUTDC XPTR,0,YPTR	Insert entry point	00003323
		BRANCH RETNUL	Return null string as value	00003324

SOURCE LISTING

```

*
LOAD7  PUSH  ZEROCL          Save 0 for unspecified type
      BRANCH LOAD8          Continue
*
LOAD9  PUSH  ZEROCL          Save 0 for unspecified type
      BRANCH LOAD10         Continue
*
LOAD1  PUSH  ZEROCL          Save 0 for unspecified type
      SETSP  TSP,XSP        Set up break check
      SETLC  TSP,1          Set length to 1
      INCRA  YCL,1
      LEXCMP TSP,RPRNSP,LOAD4,LOAD13,LOAD4
*
LOAD11 PUSH  ZEROCL          Save 0 for unspecified type
      BRANCH LOAD13         Continue
*
*-----*
*
*      UNLOAD(F)
*
UNLOAD PROC , UNLOAD(F)
      RCALL  XPTR,VARVAL,,FAIL Get function name
      RCALL  ZCL,FINDEX,XPTR  Locate function descriptor
      PUTDC  ZCL,0,UNDFCL    Undefine function
      LOCSP  XSP,XPTR        Get specifier
      UNLOAD XSP             Unload external definition
      BRANCH RETNUL         Return
*
*-----*
*
*      Linkage to External Functions
*
LNKFNC PROC , Procedure to link to externals
      SETAV  XCL,INCL        Get actual number of arguments
      MOVD   WCL,XCL         Save copy
      MOVD   YCL,INCL        Save function descriptor
      GETDC  ZCL,YCL,DESCR   Get definition block
      PSTACK YPTR           Post stack position
      SETAC  TCL,2*DESCR     Set offset for first argument
LNKF1  PUSH  (XCL,ZCL,TCL,YPTR,WCL,YCL)
*
      RCALL  XPTR,ARGVAL,,FAIL Evaluate argument
      POP    (YCL,WCL,YPTR,TCL,ZCL,XCL)
*
LNKF7  GETD  ZPTR,ZCL,TCL    Get data type required
      VEQLC  ZPTR,0,,LNKF6   Check for possible conversion
      VEQL   ZPTR,XPTR,,LNKF6 Skip if data types the same
      SETAV  DTCL,XPTR       Data type of argument
      MOVV   DTCL,ZPTR       Data type required
      DEQL   DTCL,VIDTP,,LNKVI STRING-INTEGER
      DEQL   DTCL,IVDTP,,LNKIV INTEGER-STRING
      DEQL   DTCL,RIDTP,,LNKRI REAL-INTEGER
      DEQL   DTCL,IRDTP,,LNKIR INTEGER-REAL
      DEQL   DTCL,RVDTP,,LNKRV REAL-STRING
      DEQL   DTCL,VRDTP,INTR1,LNKVR
*
LNKIV  RCALL  XPTR,GNVARI,XPTR,LNKF6
*
*      Convert INTEGER to STRING
*
LNKRI  RLINT  XPTR,XPTR,INTR1,LNKF6
*
*      Convert REAL to INTEGER
*
LNKIR  INTRL  XPTR,XPTR          Convert INTEGER to REAL
      BRANCH  LNKF6
*
LNKVR  LOCSP  XSP,XPTR          Get specifier
      SPCINT  XPTR,XSP,,LNKIR   Convert STRING to INTEGER
      SPREAL  XPTR,XSP,INTR1,LNKF6
*
*      Convert STRING to REAL
*
LNKRV  REALST XSP,XPTR
      RCALL  XPTR,GENVAR,XSPPTR,LNKF6
*
LNKVI  LOCSP  XSP,XPTR          Get specifier
      SPCINT  XPTR,XSP,,LNKF6   Convert to INTEGER
      SPREAL  XPTR,XSP,INTR1,LNKRI
*
LNKF6  INCRA  TCL,DESCR        Convert STRING to REAL
*
*      Increment offset
*

```

SOURCE LISTING

	PUSH	XPTR	Save argument	00003403
	DECRA	XCL,1	Decrement argument count	00003404
	ACOMPC	XCL,0,LNKF1,,LNKF4	Check for end	00003405
	GETDC	WPTR,YCL,0	Get procedure descriptor	00003406
	SETAV	WPTR,WPTR	Get argument count required	00003407
LNKF4	ACOMP	WCL,WPTR,LNKF9,LNKF5		00003408
*			Check against arguments occurring	00003409
	MOVD	XPTR,NULVCL	Supply null string	00003410
	INCRA	WCL,1	Increment count	00003411
	BRANCH	LNKF7		00003412
*				00003413
LNKF9	POP	ZPTR	Throw away extra argument	00003414
	DECRA	WCL,1	Decrement argument count	00003415
	BRANCH	LNKF4	Continue	00003416
*				00003417
LNKF5	GETSIZ	WCL,ZCL	Get size of definition block	00003418
	SUM	XPTR,ZCL,WCL	Compute pointer to end	00003419
	GETDC	ZPTR,XPTR,0	Get data target descriptor	00003420
	GETDC	ZCL,ZCL,DESCR	Get function address	00003421
	INCRA	YPTR,2*DESCR	Get pointer to argument list	00003422
	LINK	ZPTR,YPTR,WPTR,ZCL,FAIL		00003423
*			Link to external function	00003424
	VEQLC	ZPTR,L,RTZPTR	Check for linked string	00003425
	GETSPC	ZSP,ZPTR,0	Get specifier	00003426
	BRANCH	GENVRZ	Go generate variable	00003427
*				00003428
---				00003429
*	TITLE	'Arrays, Tables, and Defined Data Objects'		00003430
*				00003431
*	ARRAY (P,V)			00003432
*				00003433
ARRAY	PROC		ARRAY (P,V)	00003434
	RCALL	XPTR,VARVAL,,FAIL	Get prototype	00003435
	PUSH	XPTR	Save prototype	00003436
	RCALL	TPTR,ARGVAL,,FAIL	Get initial value for array elements	00003437
	POP	XPTR	Restore prototype	00003438
	SETAC	ARRMRK,0	Clear prototype analysis switch	00003439
	MOVD	WCL,ZEROCL	Initialize dimensionality to zero	00003440
	MOVD	XCL,ONECL	Initialize size to one	00003441
	LOCSP	XSP,XPTR	Get specifier to prototype	00003442
	PUSH	XPTR	Save prototype for later insertion	00003443
ARRAY1	STREAM	YSP,XSP,NUMBTB,PROTER,ARROT1		E3.5.1
	SPCINT	YCL,YSP,PROTER	Convert string to integer	00003446
	SELBRA	STYPE,(,ARRAY3)	Branch on colon or comma	00003447
	FSHRTN	XSP,1	Delete colon	00003448
	STREAM	ZSP,XSP,NUMBTB,PROTER,ARROT2		00003449
	SPCINT	ZCL,ZSP,PROTER	Convert upper bound to integer	00003450
	SELBRA	STYPE,(PROTER,ARRAY5)		00003451
*			Verify break character	00003452
*				00003453
ARRAY3	ACOMPC	YCL,0,,PROTER,PROTER		00003454
*			Single number must be positive	00003455
	MOVD	ZCL,YCL	Move to copy	00003456
	SETAC	YCL,1	Set lower bound to default of one	00003457
	BRANCH	ARRAY6		00003458
*				00003459
ARRAY5	SUBTRT	ZCL,ZCL,YCL	Compute difference	00003460
	SUM	ZCL,ZCL,ONECL	Add one	00003461
	ACOMPC	ZCL,0,,PROTER		00003462
ARRAY6	SETVA	YCL,ZCL	Insert width of dimension	00003463
	PUSH	YCL	Save dimension information	00003464
	MULT	XCL,XCL,ZCL,PROTER	Compute size of array to this point	00003465
	INCRA	WCL,1	Increase count of dimensions	00003466
	AEQLC	ARRMRK,0,ARRAY7		E3.5.1
	FSHRTN	XSP,1	Remove break character	00003467
	BRANCH	ARRAY1		00003468
*				00003469
ARROT1	SETAC	ARRMRK,1	On run out, mark end of prototype	00003470
	SPCINT	YCL,YSP,PROTER,ARRAY3		00003471
*			Convert string to integer	00003472
*				00003473
ARROT2	SETAC	ARRMRK,1	On run out, mark end of prototype	00003474
	SPCINT	ZCL,ZSP,PROTER,ARRAY5		00003475
*			Convert string to integer	00003476
*				00003477
ARRAY7	SUM	ZCL,XCL,WCL	Add dimensionality to array size	00003478
	INCRA	ZCL,2	Add two for heading information	00003479
	MULTC	ZCL,ZCL,DESCR	Convert to address units	00003480

SOURCE LISTING

```

SETVC      ZCL,A          Insert ARRAY data type      00003481
RCALL      ZPTR,BLOCK,ZCL Allocate block for array structure 00003482
MOVD       XPTR,ZPTR      Save copy                      00003483
SUM        WPTR,XPTR,ZCL  Get pointer to last descriptor 00003484
PUTDC     ZPTR,2*DESCR,WCL Insert dimensionality          00003485
INCRA     XPTR,DESCR     Update working pointer          00003486
ARRAY8 INCRA XPTR,DESCR  Update working pointer for another 00003487
POP       YPTR           Restore index pair              00003488
PUTDC     XPTR,DESCR,YPTR Insert in structure             00003489
DECRA     WCL,1          Decrement dimensionality       00003490
ACOMPC    WCL,0,ARRAY8,ARRFIL Check for last one             00003491
ARRAY9 PUTDC XPTR,DESCR,TPTR Insert initial value           00003492
ARRFIL INCRA XPTR,DESCR  Update working pointer          00003493
ACOMP     XPTR,WPTR,INTR10,,ARRAY9 00003494
*
*           Check for end                00003495
*           POP YPTR Restore prototype          00003496
*           PUTDC ZPTR,DESCR,YPTR Insert prototype in structure 00003497
*           BRANCH RTZPTR Return pointer to array structure 00003498
*
*-----*
*           00003500
*           00003501
*           00003502
*           00003503
*           00003504
ASSOC PROC , TABLE(N,M) 00003504
RCALL XPTR,INTVAL,,FAIL Get table size 00003505
PUSH XPTR Save size 00003506
RCALL WPTR,INTVAL,,FAIL Get secondary allocation 00003507
POP XPTR Restore size 00003508
ACOMPC XPTR,0,ASSOC1,,LENERR 00003509
SETAC XPTR,EXTSIZ 00003510
ASSOC1 INCRA XPTR,1 E3.2.3
MULTC XPTR,XPTR,2*DESCR E3.2.3
ACOMPC WPTR,0,ASSOC4,,LENERR 00003512
SETAC WPTR,EXTSIZ 00003513
ASSOC4 INCRA WPTR,1 E3.2.3
MULTC WPTR,WPTR,2*DESCR E3.2.3
SETVC XPTR,T E3.2.3
ASSOC PROC ASSOC E3.2.3
RCALL ZPTR,BLOCK,XPTR E3.2.3
PUTD ZPTR,XPTR,ONECL E3.2.3
DECRA XPTR,DESCR E3.2.3
PUTD ZPTR,XPTR,WPTR E3.2.3
ASSOC2 DECRA XPTR,2*DESCR E3.2.3
PUTD ZPTR,XPTR,NULVCL E3.2.3
AEQLC XPTR,DESCR,ASSOC2,RTZPTR E3.2.3
*
*-----*
*           00003529
*           00003530
*           00003531
*           00003532
*           00003533
*           00003534
DATDEF PROC , DATA(P) 00003534
RCALL XPTR,VARVAL,,FAIL Get prototype 00003535
SETAC DATACL,0 Initialize prototype switch 00003536
LOCSP XSP,XPTR Get specifier 00003537
STREAM YSP,XSP,VARATB,PROTER,PROTER 00003538
*           Break out data type name 00003539
*           AEQLC STYPE,LPTYP,PROTER Verify left parenthesis 00003540
*           RCALL XPTR,GENVAR,(YSPPTR) 00003541
*           Generate variable for name 00003542
*           RCALL ZCL,FINDEX,(XPTR) Find function descriptor 00003543
*           INCRV DATSEG,1 Increment data type code 00003544
*           VEQLC DATSEG,DATSIZ,,INTR27 00003545
*           Check against limit 00003546
*           MOVD YCL,ZEROCL Initialize count of fields 00003547
*           RCALL DTATL,AUGATL,(DTATL,DATSEG,XPTR) 00003548
*           Augment data type pair list 00003549
*           PSTACK WPTR Post stack position 00003550
*           PUSH (DATSEG,XPTR) Save code and name 00003551
DATA3 FSHRTN XSP,1 Delete break character 00003552
AEQLC DATACL,0,DAT5 Check for prototype end 00003553
STREAM YSP,XSP,VARATB,PROTER,PROTER 00003554
*           Break out field 00003555
*           SELBRA STYPE,(PROTER,,DATA6) 00003556
DATA4 LEQLC YSP,0,,DATA3 Check for zero length 00003557
RCALL XPTR,GENVAR,YSPPTR Generate variable 00003558
PUSH XPTR Save field name 00003559
RCALL XCL,FINDEX,(XPTR) Find function descriptor for field 00003560
GETDC WCL,XCL,0 Get procedure descriptor 00003561

```

SOURCE LISTING

	DEQL	WCL,FLDCL,DAT6	Check for FIELD procedure	0003562
	GETDC	ZPTR,XCL,DESCR	Get field definition block	00003563
	MULTC	TCL,YCL,DESCR		00003564
	RCALL	ZPTR,AUGATL,(ZPTR,DATSEG,TCL)		00003565
DAT7	PUTDC	XCL,DESCR,ZPTR	Insert new definition block	00003566
	INCRA	YCL,1		00003567
	BRANCH	DATA3	Continue	00003568
*				00003569
DATA6	SETAC	DATACL,1	Note end of prototype analysis	00003570
	BRANCH	DATA4	Join field processing	00003571
*				00003572
DAT5	LEQLC	XSP,0,PROTER	Verify prototype consumption	00003573
	AEQLC	YCL,0,,PROTER	E3.1.2	
	SETVA	DATCL,YCL	Insert field count for data function	00003574
	PUTDC	ZCL,0,DATCL	Insert new procedure descriptor	00003575
	MULTC	YCL,YCL,DESCR		00003576
	INCRA	YCL,2*DESCR	Add two for the number and name	00003577
	MOVV	YCL,DATSEG	Insert defined data code	00003578
	RCALL	ZPTR,BLOCK,YCL	Allocate definition block	00003579
	INCRA	WPTR,DESCR	E3.0.3	
	MOVBK	ZPTR,WPTR,YCL	Copy from stack into block	00003580
	PUTDC	ZCL,DESCR,ZPTR	Insert definition block	00003581
	BRANCH	RETNULL	Return null value	00003582
*				00003583
DAT6	PUTDC	XCL,0,FLDCL	Insert FIELD procedure descriptor	00003584
	RCALL	ZPTR,BLOCK,TWOCL	Allocate definition block	00003585
	PUTDC	ZPTR,DESCR,DATSEG	Insert data type code	00003586
	MULTC	TCL,YCL,DESCR		00003587
	PUTDC	ZPTR,2*DESCR,TCL		00003588
	BRANCH	DAT7	Join processing	00003589
*				00003590
*				00003591
*				00003592
*				00003593
*				00003594
PROTO	PROC	,	PROTOTYPE (A)	00003595
	RCALL	XPTR,ARGVAL,,FAIL	Get argument	00003596
	VEQLC	XPTR,A,NONARY	Verify ARRAY	00003597
	GETDC	ZPTR,XPTR,DESCR	Get prototype	00003598
	BRANCH	RTZPTR	Return	00003599
*				00003600
*				00003601
*				00003602
*				00003603
*				00003604
*				00003605
ITEM	PROC	,	Array or table reference	00003606
	SETAV	XCL,INCL	Get argument count	00003607
	DECRA	XCL,1	Skip referenced object	00003608
	PUSH	XCL	Save count	00003609
	RCALL	YCL,ARGVAL,,FAIL	Get referenced object	00003610
	POP	XCL	Restore count	00003611
	VEQLC	YCL,A,,ARYAD3	ARRAY is acceptable	00003612
	VEQLC	YCL,T,NONARY,ASSCR	TABLE is acceptable	00003613
ARYAD3	MOVD	WCL,XCL	Save copy of argument count	00003614
ARYAD1	ACOMP	XCL,0,,ARYAD2,ARYAD2		00003615
*			Count down on arguments	00003616
	PUSH	(XCL,WCL,YCL)	Save	00003617
	RCALL	XPTR,INTVAL,,FAIL	Get index	00003618
	POP	(YCL,WCL,XCL)	Restore saved descriptors	00003619
	PUSH	XPTR	Save index	00003620
	DECRA	XCL,1	Decrement argument count	00003621
	BRANCH	ARYAD1		00003622
*				00003623
ARYAD2	MOVD	ZPTR,ZEROCL	Initialize offset to zero	00003624
	GETDC	ZCL,YCL,2*DESCR	Get number of dimensions	00003625
	MULTC	YPTR,ZCL,DESCR	Convert to addressing units	00003626
	SUM	YPTR,YCL,YPTR	Add base and offset	00003627
	INCRA	YPTR,2*DESCR	Add two for heading	00003628
ARYAD7	ACOMP	WCL,ZCL,ARGNER,ARYAD9		00003629
*			Compare given and required number	00003630
	PUSH	ZEROCL	If too few, supply a zero	00003631
	INCRA	WCL,1	Increment and loop	00003632
	BRANCH	ARYAD7		00003633
*				00003634
ARYAD9	INCRA	YCL,2*DESCR		00003635
	GETDC	WPTR,YCL,DESCR	Get index pair	00003636
	SETAV	TPTR,WPTR	Get extent of dimension	00003637
ARYA11	POP	XPTR	Get index value	00003637

SOURCE LISTING

	SUBTRT	XPTR,XPTR,WPTR	Compute differenece from lower bound	00003638
	ACOMPC	XPTR,0,,,FAIL	If less than zero, out of bounds	00003639
	ACOMP	XPTR,TPTR,FAIL,FAIL	If greater than extent, out of bound	00003640
	SUM	XPTR,ZPTR,XPTR	Else add to evolving sum	00003641
	DECRA	ZCL,1	Decrement dimension count	00003642
	ACOMPC	ZCL,0,,ARYA12	Get out if done	00003643
	INCRA	YCL,DESCR	Adjust bas pointer	00003644
	GETDC	WPTR,YCL,DESCR	Get index pair	00003645
	SETAV	TPTR,WPTR	Get extent of dimension	00003646
	MULT	ZPTR,XPTR,TPTR	Multiply for next dimension	00003647
	BRANCH	ARYA11	Continue with next dimension	00003648
*				00003649
ARYA12	MULTC	XPTR,XPTR,DESCR	Expand offset into addressing units	00003650
	SUM	XPTR,YPTR,XPTR	Add to adjusted base	00003651
ARYA10	SETVC	XPTR,N	Insert NAME data type	00003652
	BRANCH	RTXNAM	Return interior pointer	00003653
*				00003654
ASSCR	AEQLC	XCL,1,ARGNER	Only one argument for tables	00003655
	PUSH	YCL	Save pointer to object	00003656
	RCALL	YPTR,ARGVAL,,FAIL	Evaluate argument	00003657
	POP	XPTR		E3.2.3
ASSCR5	LOCAPV	WPTR,XPTR,YPTR,,ASSCR4		E3.2.3
	LOCAPV	WPTR,XPTR,ZEROCL,ASSCR2		00003661
*			Look for item with null value	00003662
ASSCR4	MOVA	XPTR,WPTR		00003663
	PUTDC	XPTR,2*DESCR,YPTR		E3.2.3
	BRANCH	ARYA10	Join array reference exit	00003665
*				00003666
ASSCR2	GETSIZ	TCL,XPTR		E3.2.3
	GETD	ZPTR,XPTR,TCL		E3.2.3
	AEQLC	ZPTR,1,,ASSCR3		E3.2.3
	MOVD	XPTR,ZPTR		E3.2.3
	BRANCH	ASSCR5		E3.2.3
*				E3.2.3
ASSCR3	DECRA	TCL,DESCR		E3.2.3
	GETD	WPTR,XPTR,TCL		E3.2.3
	PUSH	(XPTR,TCL,YPTR)		E3.2.3
	MOVD	XPTR,WPTR		E3.2.3
	RCALL	ZPTR,ASSOCE,,(INTR10,INTR10)		E3.2.3
	POP	(YPTR,TCL,XPTR)		E3.2.3
	SETVC	ZPTR,B		E3.2.3
	INCRA	TCL,DESCR		E3.2.3
	PUTD	XPTR,TCL,ZPTR		E3.2.3
	PUTDC	ZPTR,2*DESCR,YPTR		E3.2.3
	MOVD	XPTR,ZPTR		E3.2.3
	BRANCH	ARYA10		E3.2.3
*				00003683
*				00003684
*				00003685
*				00003686
DEFDAT	PROC	,	Procedure to create defined objects	00003687
	SETAV	XCL,INCL	Get given number of arguments	00003688
	MOVD	WCL,XCL	Save a copy	00003689
	MOVD	YCL,INCL	Save function descriptor	00003690
	PSTACK	YPTR	Post stack position	00003691
DEFD1	INCRA	OCICL,DESCR	Increment offset	00003692
	GETD	XPTR,OCBSCL,OCICL	Get object code descriptor	00003693
	TESTF	XPTR,FNC,,DEFDC	Check for function	00003694
DEFD2	AEQLC	INSW,0,,DEFD8	Check &INPUT	00003695
	LOCAPV	ZPTR,INATL,XPTR,DEFD8		00003696
*			Look for input association	00003697
	GETDC	ZPTR,ZPTR,DESCR	Get association	00003698
	PUSH	(XCL,WCL,YCL,YPTR)	Save relevant descriptors	00003699
	RCALL	XPTR,PUTIN,(ZPTR,XPTR),FAIL		00003700
	POP	(YPTR,YCL,WCL,XCL)	Restore relevant descriptors	00003701
	BRANCH	DEFD3	Join main processing	00003702
*				00003703
DEFD8	GETDC	XPTR,XPTR,DESCR	Get value	00003704
DEFD3	PUSH	XPTR	Save value	00003705
	DECRA	XCL,1	Decrement argument count	00003706
	ACOMPC	XCL,0,DEFD1,,INTR10	Check for end	00003707
	GETDC	XCL,YCL,0	Get procedure descriptor	00003708
	SETAV	XCL,XCL	Get number of arguments expected	00003709
DEFD4	ACOMP	WCL,XCL,DEFD5,DEFD5	Compare given with expected	00003710
	PUSH	NULVCL	Save null for omitted argument	00003711
	INCRA	WCL,1	Increment count	00003712
	BRANCH	DEFD4	Continue	00003713
*				00003714



SOURCE LISTING

DEFD5	GETDC	WCL, YCL, DESCR	Get definition block	00003715
	MULTC	XCL, XCL, DESCR		00003716
	MOVV	XCL, WCL	Insert data type code	00003717
	RCALL	ZPTR, BLOCK, XCL	Allocate block for data object	00003718
	INCRA	YPTR, DESCR	Adjust stack position	00003719
	MOVBLK	ZPTR, YPTR, XCL	Move values into block	00003720
	BRANCH	RTZPTR	Return new object	00003721
*				00003722
DEFDC	PUSH	(XCL, WCL, YCL, YPTR)	Save relevant descriptors	00003723
	RCALL	XPTR, INVOKE, (XPTR), (FAIL, DEFDC)		00003724
	POP	(YPTR, YCL, WCL, XCL)	Restore relevant descriptors	00003725
	BRANCH	DEFD3	Join main processing	00003726
*				00003727
DEFDN	POP	(YPTR, YCL, WCL, XCL)	Restore relevant descriptors	00003728
	BRANCH	DEFD2	Join main processing	00003729
*				00003730
*				00003731
*				00003732
*				00003733
*				00003734
*				00003735
FIELD	PROC	.	Field function procedure	00003736
	PUSH	INCL	Save function descriptor	00003737
	RCALL	XPTR, ARGVAL, , FAIL	Get value	00003738
	DEQL	XPTR, NULVCL, , NONAME	Check for null value	00003739
	POP	YCL	Restore function descriptor	00003740
	VEQLC	XPTR, I, FIELD1	Check for INTEGER	00003741
	RCALL	XPTR, GNVARI, XPTR	Convert INTEGER to STRING	00003742
FIELD1	MOVV	DT1CL, XPTR	Set up data type	00003743
	GETDC	YPTR, YCL, DESCR	Get definition block	00003744
	LOCAPT	ZCL, YPTR, DT1CL, INTR1		00003745
*			Look for data type offset	00003746
	GETDC	ZCL, ZCL, 2*DESCR	Get offset	00003747
	SUM	XPTR, XPTR, ZCL	Compute field position	00003748
	SETVC	XPTR, N	Insert NAME data type	00003749
	BRANCH	RTXNAM	Return name	00003750
*				00003751
*				00003752
*	TITLE	'Input and Output'		00003753
*				00003754
*	INPUT (V, U, L)			00003755
*				00003756
READ	PROC	.	INPUT (V, U, L)	00003757
	RCALL	XPTR, IND, , FAIL	Get variable	00003758
	PUSH	XPTR	Save variable	00003759
	RCALL	YPTR, INTVAL, , FAIL	Get unit	00003760
	PUSH	YPTR	Save unit	00003761
	RCALL	ZPTR, INTVAL, , FAIL	Get length	00003762
	POP	(YPTR, XPTR)	Restore unit and variable	00003763
	ACOMPC	YPTR, 0, , READ5, UNTERR		00003764
*			Check for defaulted unit	00003765
READ6	ACOMPC	ZPTR, 0, READ2, , LENERR		00003766
*			Check for defaulted length	00003767
	LOCAPT	TPTR, INSATL, YPTR, READ4		00003768
*			Look for default length	00003769
READ3	LOCAPV	ZPTR, INATL, XPTR, READ1		00003770
*			Look for existing association	00003771
	PUTDC	ZPTR, DESCR, TPTR	Inset input block	00003772
	BRANCH	RETNUL	Return	00003773
*			Add new association pair	00003774
READ1	RCALL	INATL, AUGATL, (INATL, TPTR, XPTR), RETNUL		00003775
*				00003776
READ4	MOVD	ZPTR, DFLSZ	Set standard default	00003777
READ2	RCALL	TPTR, BLOCK, IOBLSZ	Allocate block	00003778
	PUTDC	TPTR, DESCR, YPTR	Insert unit	00003779
	PUTDC	TPTR, 2*DESCR, ZPTR	Insert format	00003780
	BRANCH	READ3	Rejoin processing	00003781
*				00003782
READ5	SETAC	YPTR, UNITI	Set up default unit	00003783
	BRANCH	READ6	Join processing	00003784
*				00003785
*				00003786
*				00003787
*				00003788
*				00003789
PRINT	PROC	.	OUTPUT (V, U, F)	00003790
	RCALL	XPTR, IND, , FAIL	Get variable	00003791
	PUSH	XPTR	Save variable	00003792
	RCALL	YPTR, INTVAL, , FAIL	Get unit	00003793

SOURCE LISTING

	PUSH	YPTR	Save unit	00003793
	RCALL	ZPTR,VARVAL,,FAIL	Get format	00003794
	POP	(YPTR,XPTR)	Restore unit and variable	00003795
	ACOMPC	YPTR,0,,PRINT5,UNTERR		00003796
PRINT6	AEQLC	ZPTR,0,PRINT2	Check for defaulted format	00003797
	LOCAPV	TPTR,OTSATL,YPTR,PRINT4		00003798
*			Insert length	00003799
PRINT3	LOCAPV	ZPTR,OUTATL,XPTR,PRINT1		00003800
*			Look for output association	00003801
	PUTDC	ZPTR,DESCR,TPTR	Insert output block	00003802
	BRANCH	RETNUL	Return	00003803
*				00003804
PRINT1	RCALL	OUTATL,AUGATL,(OUTATL,TPTR,XPTR),RETNUL		00003805
*			Add new association pair	00003806
*				00003807
PRINT4	MOVD	ZPTR,DFLEST	Set up standard default	00003808
PRINT2	RCALL	TPTR,BLOCK,IOBLSZ	Allocate block	00003809
	PUTDC	TPTR,DESCR,YPTR	Insert unit	00003810
	PUTDC	TPTR,2*DESCR,ZPTR	Insert format	00003811
	BRANCH	PRINT3	Rejoin processing	00003812
*				00003813
PRINT5	SETAC	YPTR,UNITO	Set default unit	00003814
	BRANCH	PRINT6	Join processing	00003815
*				00003816
-----*				00003817
*				00003818
*			BACKSPACE(U), ENDFILE(U), and REWIND(U)	00003819
*				00003820
BKSPCE	PROC	.	BACKSPACE(N)	00003821
	SETAC	SCL,1	Indicate backspace	00003822
	BRANCH	IOOP		00003823
*				00003824
ENFILE	PROC	BKSPCE	ENDFILE(N)	00003825
	SETAC	SCL,2	Indicate end of file	00003826
	BRANCH	IOOP		00003827
*				00003828
REWIND	PROC	BKSPCE	REWIND(N)	00003829
	SETAC	SCL,3	Indicate rewind	00003830
IOOP	PUSH	SCL	Push indicator	00003831
	RCALL	XCL,INTVAL,,FAIL	Evaluate integer argument	00003832
	ACOMPC	XCL,0,,UNTERR,UNTERR		00003833
*			Reject negative or zero	00003834
	POP	SCL	Restore indicator	00003835
	SELBRA	SCL,(,EOP,ROP)	Select operation	00003836
	BKSPCE	XCL	Backspace unit	00003837
	BRANCH	RETNUL		00003838
*				00003839
EOP	ENFILE	XCL	End file unit	00003840
	BRANCH	RETNUL		00003841
*				00003842
ROP	REWIND	XCL	Rewind unit	00003843
	BRANCH	RETNUL		00003844
*				00003845
-----*				00003846
*				00003847
*			DETACH(N)	00003848
*				00003849
DETACH	PROC	.	DETACH(N)	00003850
	RCALL	XPTR,IND,,FAIL	Get name of variable	00003851
	LOCAPV	ZPTR,INATL,XPTR,DTCH1		00003852
*			Look for input association	00003853
	PUTDC	ZPTR,DESCR,ZEROCL	Delete association if there is one	00003854
	PUTDC	ZPTR,2*DESCR,ZEROCL	Clear association pointer also	00003855
DTCH1	LOCAPV	ZPTR,OUTATL,XPTR,RETNUL		00003856
*			Look for output association	00003857
	PUTDC	ZPTR,DESCR,ZEROCL	Delete association is there is one	00003858
	PUTDC	ZPTR,2*DESCR,ZEROCL	Clear association pointer also	00003859
	BRANCH	RETNUL	Return null value	00003860
*				00003861
-----*				00003862
*				00003863
*			Input Procedure	00003864
*				00003865
PUTIN	PROC	.	Input procedure	00003866
	POP	(IO1PTR,IO2PTR)	Restore block and variable	00003867
	GETDC	IO3PTR,IO1PTR,DESCR	Get unit	00003868
	GETDC	IO1PTR,IO1PTR,2*DESCR		00003869
*			Get length	00003870

SOURCE LISTING

```

ACOMP IO1PTR,MLENCL,INTR8 Check &MAXLNGLTH 0003871
RCALL IO4PTR,CONVAR,(IO1PTR) 0003872
*
*   LOCSP IOSP,IO4PTR Get space for string 00003873
*   INCRA RSTAT,1 Get specifier 00003874
*   STREAD IOSP,IO3PTR,FAIL,COMP5 Increment count of reads 00003875
*
*   AEQLC TRIMCL,0,,PUTIN1 Perform read 00003876
*   TRIMSP IOSP,IOSP Check &INPUT 00003877
*   GETLG IO1PTR,IOSP Trim string 00003878
*   PUTIN1 RCALL IO1PTR,GVARS,IO1PTR Get length 00003879
*   PUTDC IO2PTR,DESCR,IO1PTR Form variable for string 00003880
*   RRTURN IO1PTR,2 Assign value 00003881
*   Return value 00003882
*
*-----*
*   Output Procedure
*
*   PUTOUT PROC , Output procedure 00003887
*   POP (IO1PTR,IO2PTR) Restore block and value 00003888
*   VEQLC IO2PTR,S,,PUTV Is value STRING? 00003889
*   VEQLC IO2PTR,I,,PUTI Is value INTEGER? 00003890
*   RCALL IO2PTR,DTREP,IO2PTR Get data type representation 00003891
*   GETSPC IOSP,IO2PTR,0 Get specifier 00003892
*   BRANCH PUTVU Join processing 00003893
*
*   PUTV LOCSP IOSP,IO2PTR Get specifier 00003894
*   PUTVU STPRNT IOKEY,IO1PTR,IOSP Perform print 00003895
*   INCRA WSTAT,1 Increment count of writes 00003896
*   BRANCH RTN1 Return 00003897
*
*   PUTI INTSPC IOSP,IO2PTR Convert INTEGER to STRING 00003898
*   BRANCH PUTVU Rejoin processing 00003899
*
*-----*
*   TITLE 'Tracing Procedures and Functions'
*
*   TRACE(V,R,T,F)
*
*   TRACE PROC , TRACE(V,R,T,F) 00003907
*   RCALL XPTR,IND,,FAIL Get name of variable 00003908
*   PUSH XPTR Save name 00003909
*   RCALL YPTR,VARVAL,,FAIL Get trace type 00003910
*   PUSH YPTR Save type 00003911
*   RCALL WPTR,ARGVAL,,FAIL Get tag 00003912
*   PUSH WPTR Save tag 00003913
*   RCALL ZPTR,VARVAL,,FAIL Get trace function 00003914
*   POP (WPTR,YPTR,XPTR) Restore saved arguments 00003915
*   DEQL YPTR,NULVCL,TRAC5 Is type defaulted?? 00003916
*   MOVD YPTR,VALTRS Set up VALUE default 00003917
*   TRAC5 LOCAPV YPTR,TRATL,YPTR,TRAC1 00003918
*
*   GETDC YPTR,YPTR,DESCR Get sub pair list 00003919
*   TRACE PROC TRACE Subentry for TRACE 00003920
*   GETDC TPTR,YPTR,DESCR Get default function 00003921
*   DEQL ZPTR,NULVCL,,TRAC2 Check for null 00003922
*   RCALL TPTR,FINDEX,(ZPTR) Locate function descriptor 00003923
*   TRAC2 SETAC XSIZ,5*DESCR V3.7 00003924
*   SETVC XSIZ,C Insert CODE data type 00003925
*   RCALL XCL,BLOCK,XSIZ V3.7 00003926
*   MOVBLK XCL,TRCBLK,XSIZ 00003927
*   SETVC TPTR,2 Set up 2 arguments 00003928
*   PUTDC XCL,1*DESCR,TPTR Insert function descriptor 00003930
*   PUTDC XCL,3*DESCR,XPTR Insert name to be traced 00003931
*   PUTDC XCL,5*DESCR,WPTR Insert tag 00003932
*   GETDC TPTR,YPTR,0 Make entry for proper attribute 00003933
*   AEQLC TPTR,0,,TRAC4 00003934
*   LOCAPT TPTR,TPTR,XPTR,TRAC3 00003935
*
*   PUTDC TPTR,2*DESCR,XCL Locate trace 00003936
*   BRANCH RETNUL Insert new code block 00003937
*   Return 00003938
*
*   TRAC3 RCALL TPTR,AUGATL,(TPTR,XPTR,XCL) 00003939
*   Augment pair list for new entry 00003940
*   TRAC6 PUTDC YPTR,0,TPTR Link in new pair list 00003941
*   BRANCH RETNUL Return 00003942
*
*-----*

```

SOURCE LISTING

```

TRAC1 DEQL YPTR,FUNTCL,INTR30 Is type FUNCTION? 00003949
      MOVD YPTR,TFNCLP Set up CALL trace 00003950
      RCALL ,TRACEP,,(INTR10,INTR10) 00003951
*      Call subentry to do it 00003952
      MOVD YPTR,TFNRLP Set up RETURN trace 00003953
      BRANCH TRACEP Branch to subentry to do it 00003954
*      00003955
TRAC4 RCALL TPTR,BLOCK,TWOCL Allocate new pair list 00003956
      PUTDC TPTR,DESCR,XPTR Insert name to be traced 00003957
      PUTDC TPTR,2*DESCR,XCL Insert pointer to pseudo-code 00003958
      BRANCH TRAC6 00003959
*      00003960
*-----* 00003961
*      00003962
*      00003963
*      STOPTR(N,T) 00003964
*      00003965
STOPTR PROC , STOPTR(T,R) 00003966
      RCALL XPTR,IND,,FAIL Get name of variable 00003967
      PUSH XPTR Save name 00003968
      RCALL YPTR,VARVAL,,FAIL Get trace respect 00003969
      POP XPTR 00003970
      DEQL YPTR,NULVCL,STOPT2 Check for defaulted respect 00003971
      MOVD YPTR,VALTRS Set up VALUE as default 00003972
STOPT2 LOCAPV YPTR,TRATL,YPTR,STOPT1 00003973
*      Look for trace respect 00003974
      GETDC YPTR,YPTR,DESCR Get pointer to trace list 00003975
STOPTP PROC STOPTR Subentry for FUNCTION 00003976
      GETDC YPTR,YPTR,0 Get trace list 00003977
      LOCAPT YPTR,YPTR,XPTR,FAIL Look for traced variable 00003978
      PUTDC YPTR,DESCR,ZEROCL Zero the entry 00003979
      PUTDC YPTR,2*DESCR,ZEROCL Overwrite trace 00003980
      BRANCH RETNUL Return 00003981
*      00003982
STOPT1 DEQL YPTR,FUNTCL,INTR30 Check for FUNCTION 00003983
      MOVD YPTR,TFNCLP Set up CALL 00003984
      RCALL ,STOPTP,,(FAIL,INTR10) 00003985
*      Call subprocedure 00003986
      MOVD YPTR,TFNRLP Set up RETURN 00003987
      BRANCH STOPTP Branch to subentry 00003988
*      00003989
*-----* 00003990
*      00003991
*      Call Tracing 00003992
*      00003993
FENTR PROC , Procedure to trace on CALL 00003994
      RCALL WPTR,VARVAL,,FAIL Get argument 00003995
FENTR3 SETLC PROTSP,0 Clear specifier 00003996
      APDSP PROTSP,TRSTSP Append trace message 00003997
      INTSPC XSP,STNOCL Convert %STNO to string 00003998
      APDSP PROTSP,XSP Append %STNO 00003999
      APDSP PROTSP,COLSP Append colon 00004000
      APDSP PROTSP,TRLVSP Append level message 00004001
      INTSPC XSP,LVLCL Convert %FNCLEVEL to string 00004002
      APDSP PROTSP,XSP Append %FNCLEVEL 00004003
      APDSP PROTSP,TRCLSP Append call message 00004004
      LOCSP XSP,WPTR Get specifier for argument 00004005
      GETLG TCL,XSP Get length 00004006
      ACOMPC TCL,BUFLEN,FXOVR,FXOVR 00004007
*      Check for excessively long string 00004008
      APDSP PROTSP,XSP Append function name 00004009
      APDSP PROTSP,LPRNSP Append left parenthesis 00004010
      SETAC WCL,0 Set argument count to 0 00004011
FNTRLP INCRA WCL,1 Increment argument count 00004012
      RCALL ZPTR,ARGINT,(WPTR,WCL),(FENTR4,INTR10) 00004013
*      Get argument 00004014
      GETDC ZPTR,ZPTR,DESCR Get value 00004015
      VEQLC ZPTR,S,,DEFTV Is it STRING? 00004016
      VEQLC ZPTR,I,,DEFTI Is it INTEGER? 00004017
      RCALL A2PTR,DTREP,ZPTR Get data type representation 00004018
      GETSPC XSP,A2PTR,0 Get specifier 00004019
      GETLG SCL,XSP Get length 00004020
      SUM TCL,TCL,SCL Total length 00004021
      ACOMPC TCL,BUFLEN,FXOVR,FXOVR 00004022
*      Check for excessively long string 00004023
      DEFTIA APDSP PROTSP,XSP Append value 00004024
      BRANCH DEFDTT Continue with next argument 00004025
*      00004026
DEFTI INTSPC XSP,ZPTR Convert INTEGER to STRING

```

SOURCE LISTING

	BRANCH	DEFTIA	Rejoin processing	00004027
*_	DEFTV	LOCSP	XSP,ZPTR	00004028
		GETLG	SCL,XSP	00004029
		SUM	TCL,TCL,SCL	00004030
		ACOMPC	TCL,BUFLEN,FXOVR,FXOVR	00004031
*			Get total length	00004032
			Check for excessively long string	00004033
	APDSP	PROTSP,QTSP	Append quote	00004034
	APDSP	PROTSP,XSP	Append value	00004035
	APDSP	PROTSP,QTSP	Append quote	00004036
DEFDIT	APDSP	PROTSP,CMASP	Append comma	00004037
	BRANCH	FNTRLP	Continue processing	00004038
*				00004039
FENTR4	AEQLC	WCL,1,,FENTR5	Leave paren if no arguments	00004040
	SHORTN	PROTSP,1	Delete last comma	00004041
FENTR5	APDSP	PROTSP,RPRNSP	Append right parenthesis	00004042
	MSTIME	ZPTR	Get time	00004043
	SUBTRT	ZPTR,ZPTR,ETMCL	Compute elapsed time	00004044
	INTSPC	XSP,ZPTR	Convert to STRING	00004045
	APDSP	PROTSP,ETIMSP	Append time message	00004046
	APDSP	PROTSP,XSP	Append time	00004047
	STPRNT	IOKEY,OUTBLK,PROTSP	Print trace message	00004048
	BRANCH	RTNUL3	Return	00004049
*				00004050
FENTR2	PROC	FENTR	Standard entry	00004051
	POP	WPTR	Restore function name	00004052
	BRANCH	FENTR3		00004053
*				00004054
FXOVR	OUTPUT	OUTPUT,PRTOVF	Print error message	00004055
	BRANCH	RTNUL3	Return	00004056
*				00004057
*_				00004058
*				00004059
*				00004060
*		Keyword and Label Tracing		00004061
*				00004062
KEYTR	PROC	.	Procedure to trace keywords	00004063
	SETAC	FNVLCL,1	Set entry indicator	00004064
	RCALL	WPTR,VARVAL,,FAIL	Get keyword	00004065
	LOCSP	XSP,WPTR	Get specifier	00004066
	RCALL	YCL,KEYT,(WPTR),(INTR10,)	Get value of keyword	00004067
*				00004068
KEYTR3	SETLC	PROTSP,0	Clear specifier	00004069
	APDSP	PROTSP,TRSTSP	Append trace message	00004070
	INTSPC	TSP,STNOCL	Convert &STNO to string	00004071
	APDSP	PROTSP,TSP	Append &STNO	00004072
	APDSP	PROTSP,COLSP	Append colon	00004073
	AEQLC	FNVLCL,0,,KEYTR4	Check entry indicator	00004074
	APDSP	PROTSP,AMPSP	Append ampersand	00004075
KEYTR4	APDSP	PROTSP,XSP	Append name of keyword	00004076
	APDSP	PROTSP,ELSP	Append blank	00004077
	AEQLC	FNVLCL,0,,KEYTR5	Check entry indicator	00004078
	INTSPC	YSP,YCL	Convert keyword value to string	00004079
	APDSP	PROTSP,EQLSP	Append equal sign	00004080
KEYTR5	APDSP	PROTSP,YSP	Append value	00004081
	MSTIME	YPTR	Get time	00004082
	SUBTRT	YPTR,YPTR,ETMCL	Compute elapsed time	00004083
	INTSPC	XSP,YPTR	Convert time to string	00004084
	APDSP	PROTSP,ETIMSP	Append time message	00004085
	APDSP	PROTSP,XSP	Append time	00004086
	STPRNT	IOKEY,OUTBLK,PROTSP	Print trace message	00004087
	BRANCH	RTN2	Return	00004088
*				00004089
LABTR	PROC	KEYTR	Procedure to trace labels	00004090
	SETAC	FNVLCL,0	Set entry indicator	00004091
	RCALL	YPTR,VARVAL,,FAIL	Get label name	00004092
	LOCSP	YSP,YPTR	Get specifier	00004093
	SETSP	XSP,XFERSP	Set up message specifier	00004094
	BRANCH	KEYTR3	Join common processing	00004095
*				00004096
*_				00004097
*				00004098
*		Trace Handler		00004099
*				00004100
TRPHND	PROC	.	Trace handling procedure	00004101
	POP	ATPTR	Restore trace	00004102
	DECRA	TRAPCL,1	Decrement &TRACE	00004103
	PUSH	(LSTNCL,STNOCL,FRTNCL,OCBSCL,OCICL,TRAPCL,TRACL)	Save system descriptors	00004104
*				

SOURCE LISTING

GETDC	OCBSCL,ATPTR,2*DESCR	NEW CODE BASE	00004105
*		Get new code base	00004106
SETAC	OCICL,DESCR	Set up offset	00004107
GETD	XPTR,OCBSCL,OCICL	Get function descriptor	00004108
SETAC	TRAPCL,0	Set &TRACE to 0	00004109
SETAC	TRACL,0	Set &FTRACE to 0	00004110
RCALL	,INVOKE,XPTR,(,)		E3.3.1
*		Evaluate function	00004112
POP	(TRACL,TRAPCL,OCICL,OCBSCL,FRTNCL,STNOCL,LSTNCL)	Restore system descriptors	00004113
*			00004114
BRANCH	RTN1		E3.3.1
*			00004116
-----*			00004121
*			00004122
*	Value Tracing		00004123
*			00004124
VALTR	PROC	Tracing procedures	00004125
	SETAC	FNVLCL,1	Note entry
VALTR2	RCALL	XPTR,IND,,FAIL	Get variable to be traced
	PUSH	XPTR	Save name
	RCALL	ZPTR,VARVAL,,FAIL	Get tag
	POP	XPTR	Restore variable
VALTR4	SETLC	TRACSP,0	Clear specifier
	APDSP	TRACSP,TRSTSP	Append trace message
	INTSPC	XSP,STNOCL	Convert &STNO to string
	APDSP	TRACSP,XSP	Append &STNO
	APDSP	TRACSP,COLSP	Append colon
	AEQLC	FNVLCL,0,,FNEXT1	Check entry indicator
	VEQLC	XPTR,S,DEFDT	Is variable a string?
VALTR3	LOCSP	XSP,XPTR	Get specifier
	GETLG	TCL,XSP	Get length
	ACOMPC	TCL,BUFLEN,VXOVR,VXOVR	00004140
*		Check for excessively long name	00004141
VALTR1	APDSP	TRACSP,XSP	Append name of variable
	APDSP	TRACSP,BLEQSP	Append ' = '
	GETDC	YPTR,XPTR,DESCR	Get value of traced variable
	VEQLC	YPTR,S,,TRV	Is it STRING?
	VEQLC	YPTR,I,,TRI	Is it INTEGER?
	RCALL	XPTR,DTREP,YPTR	Else get data type representation
	GETSPC	XSP,XPTR,0	Get specifier
TRI2	APDSP	TRACSP,XSP	Append value
	BRANCH	TRPRT	Join common processing
*			00004150
TRV	LOCSP	XSP,YPTR	Get specifier
	GETLG	SCL,XSP	Get length
	SUM	TCL,TCL,SCL	Compute total length
	ACOMPC	TCL,BUFLEN,VXOVR,VXOVR	00004155
*		Check for excessively long message	00004156
	APDSP	TRACSP,QTSP	Append quote
	APDSP	TRACSP,XSP	Append string
	APDSP	TRACSP,QTSP	Append quote
TRPRT	MSTIME	YPTR	Get time
	SUBTRT	YPTR,YPTR,ETMCL	Compute time in interpreter
	INTSPC	XSP,YPTR	Convert to STRING
	APDSP	TRACSP,ETIMSP	Append time message
	APDSP	TRACSP,XSP	Append time
	STPRNT	IOKEY,OUTBLK,TRACSP	Print trace message
	BRANCH	RTNUL3	Return
*			00004167
TRI	INTSPC	XSP,YPTR	Convert INTEGER to STRING
	BRANCH	TRI2	Join processing
*			00004169
DEFDT	LOCSP	XSP,ZPTR	Get specifier for tag
	BRANCH	VALTR1	Join processing
*			00004170
FNEXTR	PROC	VALTR	Return tracing procedure
	SETAC	FNVLCL,0	Note entry
	BRANCH	VALTR2	Join processing
*			00004174
FNEXT1	APDSP	TRACSP,TRLVSP	Append level message
	MOVD	XCL,LVLCL	Copy &PNCLEVEL
	DECRA	XCL,1	Decrement
	INTSPC	XSP,XCL	Convert to STRING
	APDSP	TRACSP,XSP	Append function level
	APDSP	TRACSP,BLSP	Append blank
	LOCSP	XSP,RETACL	Get specifier for return
	APDSP	TRACSP,XSP	Append return type
	APDSP	TRACSP,OFSP	Append ' OF '

SOURCE LISTING

	DEQL	RETPCL, FRETCL, VALTR3		00004187
*			Check for FRETURN	00004188
	LOCSP	XSP, XPTR	Get specifier for function name	00004189
	GETLG	TCL, XSP	Get length	00004190
	ACOMPC	TCL, BUFLN, VXOVR, VXOVR		00004191
*			Check for excessively long string	00004192
	APDSP	TRACSP, XSP	Append name of function	00004193
	BRANCH	TRPRT	Join common processing	00004194
*			FTRACE call trace	00004195
FNEXT2	PROC	VALTR	Note entry	00004196
	SETAC	FNVLCCL, 0	Restore function name	00004197
	POP	XPTR	Join common processing	00004198
	BRANCH	VALTR4		00004199
*				00004200
VXOVR	OUTPUT	OUTPUT, PRTOVF	Print error message	00004201
	BRANCH	RTNUL3	Return	00004202
*				00004203
*				00004204
	TITLE	'Other Operations'		00004205
*				00004206
*	Assignment			00004207
*				00004208
ASGN	PROC	,	X = Y	00004209
	INCRA	OCICL, DESCR	Increment offset in object code	00004210
	GETD	XPTR, OCBSCL, OCICL	Get object code descriptor	00004211
	TESTF	XPTR, FNC, , ASGNC	Test for function descriptor	00004212
ASGNV	VEQLC	XPTR, K, , ASGNIC	Check for keyword subject	00004213
	INCRA	OCICL, DESCR	Increment offset in object code	00004214
	GETD	YPTR, CCBSCL, OCICL	Get object code descriptor	00004215
	TESTF	YPTR, FNC, , ASGNV	Test for function descriptor	00004216
ASGNVN	AEQLC	INSW, 0, , ASGNV1	Check &INPUT	00004217
	LOCAPV	ZPTR, INATL, YPTR, ASGNV1		00004218
*			Look for input association	00004219
	GETDC	ZPTR, ZPTR, DESCR	Get input association descriptor	00004220
	RCALL	YPTR, PUTIN, (ZPTR, YPTR), (FAIL, ASGNVV)		00004221
*				00004222
ASGNV1	GETDC	YPTR, YPTR, DESCR	Get value	00004223
ASGNVV	PUTDC	XPTR, DESCR, YPTR	Perform assignment	00004224
	AEQLC	OUTSW, 0, , ASGN1	Check &OUTPUT	00004225
	LOCAPV	ZPTR, OUTATL, XPTR, ASGN1		00004226
*			Look for output association	00004227
	GETDC	ZPTR, ZPTR, DESCR	Get output association descriptor	00004228
	RCALL	, PUTOUT, (ZPTR, YPTR)	Perform output	00004229
ASGN1	ACOMPC	TRAPCL, 0, , RTNUL3, RTNUL3		00004230
*			Check &TRACE	00004231
	LOCAPT	ATPTR, TVALL, XPTR, RTNUL3		00004232
*			Look for VALUE trace	00004233
*	RCALL	, TRPHND, ATPTR, RTNUL3		E3.3.1 00004235
ASGNC	RCALL	XPTR, INVOKE, (XPTR), (FAIL, ASGNV, NEMO)		00004236
*				00004237
ASGNV	PUSH	XPTR	Save subject of assignment	00004238
	RCALL	YPTR, INVOKE, (YPTR), (FAIL, ASGNV)		00004239
ASGNV	POP	XPTR	Restore subject.	00004240
	BRANCH	ASGNV		00004241
*				00004242
ASGNV	POP	XPTR	Restore subject	00004243
	BRANCH	ASGNV		00004244
*				00004245
ASGNIC	PUSH	XPTR	Save subject of assignment	00004246
	RCALL	YPTR, INTVAL, , (FAIL, ASGNV)		00004247
*			Get integer value for keyword	00004248
*				00004249
*				00004250
*				00004251
*	X Y (concatenation)			00004252
*				00004253
CON	PROC	,	X Y (concatenation)	00004254
	RCALL	, XYARGS, , FAIL	Get two arguments	00004255
	DEQL	XPTR, NULVCL, , RTYPTR	If first is null, return second	00004256
	DEQL	YPTR, NULVCL, , RTXPTR	If second is null, return first	00004257
	VEQLC	XPTR, S, , CON5	Is first STRING?	00004258
	VEQLC	XPTR, P, , CON5	Is first PATTERN?	00004259
	VEQLC	XPTR, I, , CON4I	Is first INTEGER?	00004260
	VEQLC	XPTR, R, , CON4R	Is first REAL?	00004261
	VEQLC	XPTR, E, INTR1	Is first EXPRESSION?	00004262
	RCALL	TPTR, BLOCK, STARSZ	Allocate block for pattern	00004263
	MOVBLK	TPTR, STRPAT, STARSZ	Set up pattern for expression	00004264

SOURCE LISTING

	PUTDC	TPTR,4*DESCR,XPTR	Insert pointer to expression	00004265
	MOVD	XPTR,TPTR	Set up as first argument	00004266
	BRANCH	CON5		00004267
*				00004268
CON4R	REALST	REALSP,XPTR	Convert REAL to STRING	00004269
	SETSP	XSP,REALSP	Set up specifier	00004270
	RCALL	XPTR,GENVAR,XSPPTR,CON5		00004271
*			Generate variable	00004272
*				00004273
CON4I	INTSPC	ZSP,XPTR	Convert INTEGER to STRING	00004274
	RCALL	XPTR,GENVAR,(ZSPPTR)		00004275
*			Generate variable	00004276
CON5	VEQLC	YPTR,S,,CON7	Is second STRING?	00004277
	VEQLC	YPTR,P,,CON7	Is second PATTERN?	00004278
	VEQLC	YPTR,I,,CON5I	Is second INTEGER?	00004279
	VEQLC	YPTR,R,,CON5R	Is second REAL?	00004280
	VEQLC	YPTR,E,INTR1	Is second EXPRESSION?	00004281
	RCALL	TPTR,BLOCK,STAR5Z	Allocate block for pattern	00004282
	MOVBLK	TPTR,STRPAT,STAR5Z	Set up pattern for expression	00004283
	PUTDC	TPTR,4*DESCR,YPTR	Insert pointer to expression	00004284
	MOVD	YPTR,TPTR	Set up as second argument	00004285
	BRANCH	CON7	Join processing	00004286
*				00004287
CON5R	REALST	REALSP,YPTR	Convert REAL to STRING	00004288
	SETSP	YSP,REALSP	Set up sepcifier	00004289
	RCALL	YPTR,GENVAR,YSPPTR,CON7		00004290
*			Generate variable	00004291
*				00004292
CON5I	INTSPC	ZSP,YPTR	Convert INTEGER to STRING	00004293
	RCALL	YPTR,GENVAR,(ZSPPTR)		00004294
*			Generate variable	00004295
CON7	SETAV	DTCL,XPTR	Get data type of first	00004296
	MOVV	DTCL,YPTR	Get data type of second	00004297
	DEQL	DTCL,VVDTP,,CONVV	Check for STRING-STRING	00004298
	DEQL	DTCL,VPDTP,,CONVP	Check for STRING-PATTERN	00004299
	DEQL	DTCL,PVDTP,,CONPV	Check for PATTERN-STRING	00004300
	DEQL	DTCL,PPDTP,INTR1,CONPP	Check for PATTERN-PATTERN	00004301
*				00004302
*				00004303
CONVV	LOCSP	XSP,XPTR	Specifier for first string	00004304
	LOCSP	YSP,YPTR	Specifier for second string	00004305
	GETLG	XCL,XSP	Length of first string	00004306
	GETLG	YCL,YSP	Length of second string	00004307
	SUM	XCL,XCL,YCL	Total length	00004308
	ACOMP	XCL,MLENCL,INTR8	Check against EMAXLNTH	00004309
	RCALL	ZPTR,CONVAR,(XCL)	Allocate space for string	00004310
	LOCSP	TSP,ZPTR	Get specifier to allocated space	00004311
	SETLC	TSP,0	Clear length	00004312
	APDSP	TSP,XSP	Move in first string	00004313
	APDSP	TSP,YSP	Append second string	00004314
	BRANCH	GENVSZ	Generate variable	00004315
*				00004316
CONVP	LOCSP	TSP,XPTR	Specifier to string	00004317
	GETLG	TMVAL,TSP	Get length of string	00004318
	RCALL	TPTR,BLOCK,LNODSZ	Allocate block for pattern	00004319
	MAKNOD	XPTR,TPTR,TMVAL,ZEROCL,CHRCL,XPTR		00004320
*			Construct pattern	00004321
CONPP	GETSIZ	XSIZ,XPTR	Get size of first pattern	00004322
	GETSIZ	YSIZ,YPTR	Get size of second pattern	00004323
	SUM	TSIZ,XSIZ,YSIZ	Compute total size required	00004324
	SETVC	TSIZ,P	Insert PATTERN data type	00004325
	RCALL	TPTR,BLOCK,TSIZ	Allocate block for new pattern	00004326
	MOVD	ZPTR,TPTR	Save copy to return	00004327
	LVALUE	TVAL,YPTR	Get least value for second pattern	00004328
	CPYPAT	TPTR,XPTR,TVAL,ZEROCL,XSIZ,XSIZ		00004329
*			Copy in first pattern	00004330
	CPYPAT	TPTR,YPTR,ZEROCL,XSIZ,ZEROCL,YSIZ		00004331
*			Copy in second pattern	00004332
*			Return pattern as value	00004333
*				00004334
CONPV	LOCSP	TSP,YPTR	Get specifier to string	00004335
	GETLG	TMVAL,TSP	Get length of string	00004336
	RCALL	TPTR,BLOCK,LNODSZ	Allocate block for pattern	00004337
	MAKNOD	YPTR,TPTR,TMVAL,ZEROCL,CHRCL,YPTR		00004338
*			Construct pattern for string	00004339
*			Join common processing	00004340
*				00004341
*				00004342



SOURCE LISTING

*				00004343
*				00004344
*				00004345
*				00004346
IND	PROC	.	\$X	00004347
	RCALL	XPTR,ARGVAL,,FAIL	Get argument	00004348
	VEQLC	XPTR,S,,INDV	STRING is acceptable	00004349
	VEQLC	XPTR,N,,RTXNAM	NAME can be returned directly	00004350
	VEQLC	XPTR,I,,GENVIX	Convert INTEGER	00004351
	VEQLC	XPTR,K,INTR1,RTXNAM	KEYWORD is like NAME	00004352
*				00004353
INDV	AEQLC	XPTR,0,RTXNAM,NONAME		00004354
*			Be sure string is not null	00004355
*				00004356
*				00004357
*				00004358
*				00004359
*				00004360
	KEYWRD	PROC	.	5X
		INCRA	OCICL,DESCR	Increment offset
		GETD	XPTR,OCBSCL,OCICL	Get object code descriptor
		TESTF	XPTR,FNC,,KEYC	Check for function
KEYN	LOCAPV	XPTR,KNATL,XPTR,KEYV		00004364
*			Look up X on unprotected list	00004365
		SETVC	XPTR,K	Set KEYWORD (NAME) data type
		BRANCH	RTXNAM	Return by name
*				00004368
KEYV	LOCAPV	ATPTR,KVATL,XPTR,UNKNKW		00004369
*			Look up X on protected list	00004370
		GETDC	ZPTR,ATPTR,DESCR	Get value
		BRANCH	RTZPTR	Return by value
*				00004371
KEYC	RCALL	XPTR,INVOKE,(XPTR),(FAIL,KEYN,NEMO)		00004372
*			Evaluate computed keyword	00004373
*				00004374
KEYT	PROC	KEYWRD		00004375
	POP	XPTR		00004376
	BRANCH	KEYN		00004377
*			Procedure to get keyword for trace	00004378
			Restore argument	00004379
*				00004380
*			Join common processing	00004381
*				00004382
*				00004383
*				00004384
*				00004385
LIT	PROC	.	'X'	00004386
	INCRA	OCICL,DESCR	Increment offset	00004387
	GETD	ZPTR,OCBSCL,OCICL	Get object code descriptor	00004388
	BRANCH	RTZPTR	Return value	00004389
*				00004390
*				00004391
*				00004392
*				00004393
*				00004394
NAME	PROC	.	.X	00004395
	INCRA	OCICL,DESCR	Increment offset	00004396
	GETD	ZPTR,OCBSCL,OCICL	Get object code descriptor	00004397
	TESTF	ZPTR,FNC,RTZPTR	Test for function	00004398
	RCALL	ZPTR,INVOKE,ZPTR,(FAIL,RTZPTR,NEMO)		00004399
*				00004400
*				00004401
*				00004402
*				00004403
*				00004404
*				00004405
*				00004406
NMD	PROC	.		00004407
	MOVD	TCL,NHEDCL		00004408
NMD1	ACOMP	TCL,NAMICL,INTR13,RTN2		00004409
*			Check for end	00004410
	SUM	TPTR,NBSPTR,TCL	Compute address	00004411
	GETSPC	TSP,TPTR,DESCR	Get specifier	00004412
	GETDC	TVAL,TPTR,DESCR+SPEC		00004413
*			get variable	00004414
	GETLG	XCL,TSP	Get length	00004415
	ACOMP	XCL,MLENCL,INTR8	Check &MAXLNGTH	00004416
	VEQLC	TVAL,E,,NAMEXN	Is Variable EXPRESSION?	00004417
NMD5	VEQLC	TVAL,K,,NMDIC	Is variable KEYWORD?	00004418
	RCALL	VVAL,GENVAR,(TSPPTR)		00004419
*			Generate string	00004420
NMD4	PUTDC	TVAL,DESCR,VVAL	Assign value	00004421



SOURCE LISTING

*				00004499
*		Unary Interrogation Operator		00004500
*				00004501
QUES	PROC		?X	00004502
	RCALL	, ARGVAL,, (FAIL, RETNUL)		00004503
*			Evaluate argument	00004504
*				00004505
*				00004506
*	TITLE	'Other Functions'		00004507
*				00004508
*	APPLY	(F, A <sub>1</sub> , ..., A <sub>n</sub> )		00004509
*				00004510
APPLY	PROC		APPLY (F, A <sub>1</sub> , ..., A <sub>n</sub> )	00004511
	SETAV	XCL, INCL	Get count of arguments	00004512
	DECRA	XCL, 1	Decrement to skip function name	00004513
	ACOMP	XCL, 1,, ARGNER	E3.3.3	
	PUSH	XCL	Save argument count	00004514
	RCALL	XPTR, VARVAL,, FAIL	Get function name	00004515
	POP	XCL	Restore argument count	00004517
	LOCAPV	XPTR, FNCPL, XPTR, UNDF		00004518
*			Locate function	00004519
	GETDC	INCL, XPTR, DESCR	Get function descriptor	00004520
	SETVA	INCL, XCL	Insert actual number of arguments	00004521
	RCALL	ZPTR, INVOKE, (INCL), (FAIL,, RTZPTR)		00004522
	MOVD	XPTR, ZPTR	Return by name	00004523
	BRANCH	RTXNAM		00004524
*				00004525
*				00004526
*		ARG (F, N), FIELD (F, N), and LOCAL (F, N)		00004527
*				00004528
*	ARG		ARG (F, N)	00004529
	PUSH	(ONECL, DEFCL)	Save ARG indicators	00004531
	BRANCH	ARG1	Join main processing	00004532
*				00004533
ARGINT	PROC	ARG	Procedure used for CALL tracing	00004534
	POP	(XPTR, XCL)	Restore arguments	00004535
	PUSH	(ONECL, DEFCL)	Save indicators	00004536
	BRANCH	ARG2	Join processing	00004537
*				00004538
LOCAL	PROC	ARG	LOCAL (F, N)	00004539
	PUSH	(ONECL, ZEROCL, DEFCL)		00004540
*			Save LOCAL indicators	00004541
	BRANCH	ARG1	Join main processing	00004542
*				00004543
FIELDS	PROC	ARG	FIELD (F, N)	00004544
	PUSH	(ZEROCL, ZEROCL, DATCL)		00004545
*			Save FIELD indicators	00004546
ARG1	RCALL	XPTR, VARVAL,, FAIL	Get function name	00004547
	PUSH	XPTR	Save function name	00004548
	RCALL	XCL, INTVAL,, FAIL	Get number	00004549
	ACOMP	ZEROCL, XCL, FAIL, FAIL		00004550
*			Verify positive number	00004551
	POP	XPTR	Restore function name	00004552
ARG2	LOCAPV	XPTR, FNCPL, XPTR, INTR30		00004553
*			Look for function descriptor	00004554
	GETDC	XPTR, XPTR, DESCR	Get function descriptor	00004555
	GETDC	YCL, XPTR, 0	Get procedure descriptor	00004556
	GETDC	XPTR, XPTR, DESCR	Get definition block	00004557
	POP	(ZCL, ALCL)	Restore indicators	00004558
	AEQL	YCL, ZCL, INTR30	Check procedure type	00004559
	MULTC	XCL, XCL, DESCR	Convert number to address units	00004560
	INCRA	XCL, 2*DESCR	Skip prototype information	00004561
	SETAV	YCL, YCL	Get argument count	00004562
	MULTC	YCL, YCL, DESCR	Convert to address units	00004563
	AEQLC	ALCL, 0,, ARG4	Check function type	00004564
	INCRA	YCL, 2*DESCR	Increment for heading	00004565
	MOVD	ZCL, YCL	Get working copy	00004566
	BRANCH	ARG5	Branch to continue processing	00004567
*				00004568
ARG4	GETSIZ	ZCL, XPTR	Get size of block	00004569
	POP	ALCL	Restore entry indicator	00004570
	AEQLC	ALCL, 0,, ARG5	Check entry type	00004571
	SUM	XCL, XCL, YCL	Skip formal arguments	00004572
ARG5	ACOMP	XCL, ZCL, FAIL	Check number in bounds	00004573
	GETD	ZPTR, XPTR, XCL	Get the desired name	00004574
	BRANCH	RTZPTR	Return name as value	00004575
*				00004576

SOURCE LISTING

*			* 00004577
*			00004578
*	CLEAR ()		00004579
*			00004580
CLEAR	PROC	CLEAR ()	00004581
	RCALL	, ARGVAL,, FAIL	00004582
	SETAC	DMPPTR, OBLIST-DESCR	00004583
CLEAR1	ACOMP	DMPPTR, OBEND, RETNUL	00004584
	INCRA	DMPPTR, DESCR	00004585
	MOVD	YPTR, DMPPTR	00004586
CLEAR2	GETAC	YPTR, YPTR, LNKFLD	00004587
	AEQLC	YPTR, 0,, CLEAR1	00004588
	PUTDC	YPTR, DESCR, NULVCL	00004589
	BRANCH	CLEAR2	00004590
*			* 00004591
*			00004592
*	COLLECT (N)		00004593
*			00004594
*			00004595
*	COLECT	PROC	00004596
		RCALL	00004597
		ACOMPC	00004598
		RCALL	00004599
		SETVC	00004600
		BRANCH	00004601
*			00004602
*			* 00004603
*			00004604
*	COPY (X)		00004605
*			00004606
*	COPY	PROC	00004607
		RCALL	00004608
		VEQLC	00004609
		VEQLC	00004610
		VEQLC	00004611
		VEQLC	00004612
		VEQLC	00004613
		VEQLC	00004614
		VEQLC	00004615
		GETSIZ	00004616
		MOVV	00004617
		RCALL	00004618
		MOVBLK	00004619
		BRANCH	00004620
*			00004621
*			00004622
*			00004623
*	CONVERT (X, T)		00004624
*			00004625
*	CNVRT	PROC	00004626
		RCALL	00004627
		PUSH	00004628
		RCALL	00004629
		POP	00004630
		LOCAPV	00004631
			00004632
		GETDC	00004633
		SETAV	00004634
		MOVV	00004635
		DEQL	00004636
		DEQL	00004637
		DEQL	00004638
		DEQL	00004639
		DEQL	00004640
		DEQL	00004641
		DEQL	00004642
		DEQL	00004643
		DEQL	00004644
		VEQL	E3.0.4
		VEQLC	E3.0.4
			00004647
			00004648
			00004649
			00004650
			E3.1.5
			E3.1.5
			00004653
			00004654

SOURCE LISTING

	SETVC	OCALIM,C	Insert CODE data type	00004655
	RCALL	CMBSCL,BLOCK,OCALIM	Allocate block for object code	00004656
	SUM	OCLIM,CMBSCL,OCALIM	Compute end	00004657
	DECRA	OCLIM,6*DESCR		00004658
	SETAC	CMOFCL,0	Zero offset	00004659
	SETAC	ESAICL,0	Zero error count	00004660
	PUSH	CMBSCL	Save block pointer	00004661
	SELBRA	SCL,(CONVEX)	Select correct procedure	00004662
RECOM1	LEQLC	TEXTSP,0,,RECOM2	Is string exhausted?	00004663
	RCALL	,CMPLE,,(RECOMF,,RECOM1)		00004664
*			Compile statement	00004665
RECOM2	SETAC	SCL,3	Set return switch	00004666
RECOMQ	INCRA	CMOFCL,DESCR	Increment offset	00004667
	PUTD	CMBSCL,CMOFCL,ENDCL	Insert END function	00004668
	POP	ZPTR	Restore pointer to code block	00004669
RECOMZ	SUM	CMBSCL,CMBSCL,CMOFCL		00004670
*			Compute used portion of block	00004671
	RCALL	,SPLIT,(CMBSCL)	Split off remainder	00004672
	SETAC	OCLIM,0	Clear limit pointer	00004673
	SETAC	LPTR,0	Clear label pointer	00004674
	ZERBLK	COMREG,COMDCT	Zero compiler descriptors	00004675
	SELBRA	SCL,(FAIL,INTR10,RTZPTR)		00004676
*			Select return	00004677
*				00004678
RECOMF	SETAC	SCL,1	Set failure return	00004679
	BRANCH	RECOMQ	Rejoin processing	00004680
*				00004681
RECOMN	SETSP	TEXTSP,BLSP		E3.1.5
	BRANCH	RECOMT		E3.1.5
*				E3.1.5
CODER	PROC	CNVRT	CODE(S)	00004682
	RCALL	ZPTR,VARVAL,,(FAIL,RECOMP)		00004683
*			Get argument	00004684
*				00004685
CONVE	PROC	CNVRT	Convert to EXPRESSION	00004686
	SETAC	SCL,2	Set switch	00004687
	BRANCH	RECOMJ	Join common program	00004688
*				00004689
CONVEX	RCALL	FORMND,EXPR,,FAIL	Compile expression	00004690
	LEQLC	TEXTSP,0,FAIL	Verify complete compilation	00004691
	RCALL	,TREPUB,FORMND	Publish code tree	00004692
	MOVD	ZPTR,CMBSCL		E3.1.6
	SETVC	ZPTR,E	Insert EXPRESSION data type	00004694
	SETAC	SCL,3	Set return branch	00004695
	BRANCH	RECOMZ	Join common program	00004696
*				00004697
CONVR	LOCSP	ZSP,ZPTR	Get specifier	00004698
	SPCINT	ZPTR,ZSP,,CONIR	Try conversion to INTEGER first	00004699
	SPREAL	ZPTR,ZSP,FAIL,RTZPTR		00004700
*			Convert to REAL	00004701
*				00004702
CONIR	INTRL	ZPTR,ZPTR	Convert INTEGER to REAL	00004703
	BRANCH	RTZPTR	Return value	00004704
*				00004705
CONRI	RLINT	ZPTR,ZPTR,FAIL,RTZPTR		00004706
*			Convert REAL to INTEGER	00004707
*				00004708
CONVIV	RCALL	ZPTR,GNVARI,ZPTR,RTZPTR		00004709
*			Convert INTEGER to STRING	00004710
*				00004711
CONVI	LOCSP	ZSP,ZPTR	Get specifier	00004712
	SPCINT	ZPTR,ZSP,,RTZPTR	Convert STRING to INTEGER	00004713
	SPREAL	ZPTR,ZSP,FAIL,CONRI	Try conversion to REAL	00004714
*				00004715
CONVRTS	RCALL	XPTR,DTREP,ZPTR	Get data type representation	00004716
	GETSPC	ZSP,XPTR,0	Get specifier	00004717
	BRANCH	GENVRZ	Go generate variable	00004718
*				00004719
CONVTA	MOVD	YPTR,ZPTR		E3.2.3
	MOVD	YCL,ZEROCL		E3.2.3
CONVTA7	GETSIZ	XCL,YPTR		E3.2.3
	MOVD	WPTR,YPTR		E3.2.3
	MOVD	ZCL,XCL		E3.2.3
	DECRA	XCL,3*DESCR		E3.2.3
CONVTA1	GETD	WCL,WPTR,XCL	Get item value	00004724
	DEQL	WCL,NULVCL,,CONVTA2	Check for null value	00004725
	INCRA	YCL,1	Otherwise count item	00004726
CONVTA2	AEQLC	XCL,DESCR,,CONVTA6		E3.2.3

SOURCE LISTING

	DECRA	XCL,2*DESCR	Count down	00004728
	BRANCH	CNVTA1	Process next item	00004729
				00004730
*	CNVTA6	GETD	YPTR,YPTR,ZCL	E3.2.3
		AEQLC	YPTR,1,CNVTA7	E3.2.3
	CNVTA4	AEQLC	YCL,0,,FAIL	Fail on empty table
		MOVD	WPTR,ZPTR	E3.2.3
		MULTC	XCL,YCL,2*DESCR	Convert count to address units
		INTSPC	YSP,YCL	Get prototype for size
		SETLC	PROTSP,0	Clear specifier
		APDSP	PROTSP,YSP	Append length
		APDSP	PROTSP,CMASP	Append comma
		MOVD	WCL,ZEROCL	E3.1.1
		SETAC	WCL,2	Set up 2 for second dimension
		INTSPC	XSP,WCL	Convert to string
		APDSP	PROTSP,XSP	Append 2
		SETSP	XSP,PROTSP	Move specifier
		RCALL	TPTR,GENVAR,XSPPTR	E3.5.2
*			Generate variable for prototype	00004742
		MOVD	ZCL,XCL	Save size
		INCRA	XCL,4*DESCR	Increment for heading
		RCALL	ZPTR,BLOCK,XCL	Get block for array
		SETVC	ZPTR,A	Insert ARRAY data type
		MOVD	ATPRCL,TPTR	E3.5.2
		SETVA	ATEXCL,YCL	Insert First dimension in head
		MOVBLK	ZPTR,ATRHD,FRDSCL	Copy heading information
		MOVD	YPTR,ZPTR	Save copy of block pointer
		MULTC	YCL,YCL,DESCR	Convert item count to address units
		INCRA	YPTR,5*DESCR	Skip heading
		SUM	TPTR,YPTR,YCL	Compute second half position
	CNVTA8	GETSIZ	WCL,WPTR	E3.2.3
		DECRA	WCL,2*DESCR	E3.2.3
		SUM	WCL,WPTR,WCL	E3.2.3
	CNVTA3	GETDC	TCL,WPTR,DESCR	E3.2.3
		DEQL	TCL,NULVCL,,CNVTA5	E3.2.3
		PUTDC	TPTR,0,TCL	E3.2.3
		MOVDIC	YPTR,0,WPTR,2*DESCR	00004756
		INCRA	YPTR,DESCR	Increment upper pointer
		INCRA	TPTR,DESCR	Increment lower pointer
	CNVTA5	INCRA	WPTR,2*DESCR	00004760
		AEQL	WCL,WPTR,CNVTA3	E3.2.3
		GETDC	WPTR,WCL,2*DESCR	E3.2.3
		AEQLC	WPTR,1,CNVTA8,RTZPTR	E3.2.3
*				00004763
	CNVAT	GETDC	XCL,ZPTR,2*DESCR	Get array dimensionality
		MOVD	YPTR,ZPTR	Save copy of array pointer
		AEQLC	XCL,2,FAIL	Verify rectangular array
		GETDC	XCL,ZPTR,3*DESCR	Get second dimension
		VEQLC	XCL,2,FAIL	Verify extent of 2
		GETSIZ	XCL,ZPTR	Get size of array block
		DECRA	XCL,2*DESCR	E3.2.3
		RCALL	XPTR,BLOCK,XCL	Allocate block for pair list
		SETVC	XPTR,T	E3.2.3
		GETDC	YCL,ZPTR,4*DESCR	E3.2.3
		MOVD	ZPTR,XPTR	E3.2.3
		PUTD	XPTR,XCL,ONECL	E3.2.3
		DECRA	XCL,DESCR	E3.2.3
		MOVD	TCL,EXTVAL	E3.2.3
		INCRA	TCL,2*DESCR	E3.2.3
		PUTD	XPTR,XCL,TCL	E3.2.3
		SETAV	YCL,YCL	E3.2.3
		MULTC	YCL,YCL,DESCR	E3.2.3
		INCRA	YPTR,5*DESCR	E3.2.3
		SUM	WPTR,YPTR,YCL	E3.2.3
	CNVAT2	MOVDIC	XPTR,DESCR,WPTR,0	E3.2.3
		MOVDIC	XPTR,2*DESCR,YPTR,0	E3.2.3
		DECRA	YCL,DESCR	E3.2.3
		AEQLC	YCL,0,,RTZPTR	E3.2.3
		INCRA	XPTR,2*DESCR	Increment pair list pointer
		INCRA	WPTR,DESCR	Increment lower array pointer
		INCRA	YPTR,DESCR	Increment upper array pointer
		BRANCH	CNVAT2	Continue
				00004786
				00004787
				00004788
				00004789
				00004790
				00004791
				00004792
				00004793
				00004794
				00004795
*				
*				
*	DATE	()		
*				
*	DATE	PROC	DATE()	

SOURCE LISTING

	RCALL	, ARGVAL,, FAIL	Get rid of argument	00004796
	DATE	ZSP	Get the date	00004797
	BRANCH	GENVRZ	Go generate the variable	00004798
*				00004799
*				00004800
*				00004801
*				00004802
	DT	PROC	DATATYPE (X)	00004803
		RCALL	A2PTR, ARGVAL,, FAIL	00004804
		MOVV	DT1CL, A2PTR	00004805
		LOCAPT	A3PTR, DTATL, DT1CL, DTEXTN	00004806
*			Look for data type	00004807
		GETDC	A3PTR, A3PTR, 2*DESCR	00004808
	DTRTN	RRTURN	A3PTR, 3	00004809
			Return name	00004810
*				00004811
	DTEXTN	MOVD	A3PTR, EXTPTR	00004812
		BRANCH	DTRTN	00004813
			Set up EXTERNAL data type	00004814
			Return	00004815
*				00004816
*				00004817
*				00004818
*				00004819
	DMP	PROC	DUMP (N)	00004820
		RCALL	XPTR, INTVAL,, FAIL	00004821
		AEQLC	XPTR, 0,, RETNUL	00004822
	DUMP	PROC	DMP	00004823
		SETAC	WPTR, OBLIST-DESCR	00004824
	DMPB	ACOMP	WPTR, OBEND, RETNUL	00004825
		INCRA	WPTR, DESCR	00004826
		MOVD	YPTR, WPTR	00004827
	DMPA	GETAC	YPTR, YPTR, LNKFLD	00004828
		AEQLC	YPTR, 0,, DMPB	00004829
		GETDC	XPTR, YPTR, DESCR	00004830
		DEQL	XPTR, NULVCL,, DMPA	00004831
		SETLC	DMPSP, 0	00004832
		LOCSP	YSP, YPTR	00004833
		GETLG	YCL, YSP	00004834
		ACOMP	YCL, BUFLN, DMPOVR, DMPOVR	00004835
*			Check for excessive length	00004836
		APDSP	DMPSP, YSP	00004837
		APDSP	DMPSP, BLEQSP	00004838
		VEQLC	XPTR, S,, DMPV	00004839
		VEQLC	XPTR, I,, DMPI	00004840
		RCALL	A1PTR, DTREP, XPTR	00004841
		GETSPC	YSP, A1PTR, 0	00004842
	DMPX	GETLG	XCL, YSP	00004843
		SUM	YCL, YCL, XCL	00004844
		ACOMP	YCL, BUFLN, DMPOVR	00004845
		APDSP	DMPSP, YSP	00004846
		BRANCH	DMPRT	00004847
*				00004848
	DMPV	LOCSP	YSP, XPTR	00004849
		GETLG	XCL, YSP	00004850
		SUM	YCL, YCL, XCL	00004851
		ACOMP	YCL, BUFLN, DMPOVR	00004852
		APDSP	DMPSP, QTSP	00004853
		APDSP	DMPSP, YSP	00004854
		APDSP	DMPSP, QTSP	00004855
	DMPRT	STPRNT	IOKEY, OUTBLK, DMPSP	00004856
		BRANCH	DMPA	00004857
*				00004858
	DMPI	INTSPC	YSP, XPTR	00004859
		BRANCH	DMPX	00004860
			Convert integer	00004861
			Rejoin processing	00004862
*				00004863
	DMPOVR	OUTPUT	OUTPUT, PRTOVF	00004864
		BRANCH	DMPA	00004865
			Print error message	00004866
			Continue	00004867
*				00004868
	DMK	PROC	Procedure to dump keywords	00004869
		OUTPUT	OUTPUT, PKEYF	00004870
		GETSIZ	XCL, KNLIST	00004871
		GETD	XPTR, KNLIST, XCL	00004872
	DMPK1	DECRA	XCL, DESCR	00004873
		GETD	YPTR, KNLIST, XCL	00004874
		INTSPC	YSP, YPTR	00004875
		LOCSP	XSP, XPTR	00004876
		SETLC	DMPSP, 0	00004877
		APDSP	DMPSP, AMPSP	00004878
			Clear specifier	00004879
			Append ampersand	00004880

SOURCE LISTING

APDSP	DMPSP,XSP	Append name	00004874
APDSP	DMPSP,BLEQSP	Append ' = '	00004875
APDSP	DMPSP,YSP	Append value	00004876
STPRNT	IOKEY,OUTBLK,DMPSP	Print line	00004877
DECRA	XCL,DESCR	Adjust offset	00004878
AEQLC	XCL,0,DMPK1,RTN1	Check for end	00004879
*			00004880
*			00004881
*			00004882
*	DUPL(S,N)		00004883
*			00004884
DUPL	PROC ,	DUPL(S,N)	00004885
	RCALL XPTR,VARVAL,,FAIL	Get string to duplicate	00004886
	PUSH XPTR	Save string	00004887
	RCALL YPTR,INTVAL,,FAIL	Get duplication factor	00004888
	POP XPTR	Restore string	00004889
	ACOMP YPTR,0,,RETNUL,FAIL	Return null for 0 duplications	00004890
	LOCSP XSP,XPTR	Get specifier	00004891
	GETLG XCL,XSP	Get length	00004892
	MULT XCL,XCL,YPTR,INTR8	E3.4.2	
	ACOMP XCL,MLENCL,INTR8	Check &MAXLNGTH	00004894
	RCALL ZPTR,CONVAR,XCL	Allocate space for string	00004895
	LOCSP TSP,ZPTR	Get specifier	00004896
	SETLC TSP,0	Zero length	00004897
DUPL1	APDSP TSP,XSP	Append a copy	00004898
	DECRA YPTR,1	Count down	00004899
	AEQLC YPTR,0,DUPL1,GENVSZ	Check for end	00004900
*			00004901
*			00004902
*			00004903
*	OPSYN(F <sub>1</sub> ,F <sub>2</sub> ,N)		00004904
*			00004905
OPSYN	PROC ,	OPSYN(F,G,N)	00004906
	RCALL XPTR,VARVAL,,FAIL	Get object function	00004907
	PUSH XPTR	Save object function	00004908
	RCALL YPTR,VARVAL,,FAIL	Get image function	00004909
	PUSH YPTR	Save image function	00004910
	RCALL ZPTR,INTVAL,,FAIL	Get type indicator	00004911
	POP (YPTR,XPTR)	Restore image and object functions	00004912
	AEQLC XPTR,0,,NONAME	Object may not be null	00004913
	AEQLC ZPTR,1,,UNYOP	Check for unary definition	00004914
	AEQLC ZPTR,2,,BNYOP	Check for binary definition	00004915
	AEQLC ZPTR,0,INTR30	Check for function definition	00004916
	RCALL XPTR,FINDEX,XPTR	Get function descriptor for object	00004917
UNBF	RCALL YPTR,FINDEX,YPTR	E3.6.2	
OPPD	MOVDIC XPTR,0,YPTR,0	Move procedure descriptor pair	00004921
	MOVDIC XPTR,DESCR,YPTR,DESCR		00004922
	BRANCH RETNUL		00004923
*			00004924
UNYOP	LOCSP XSP,XPTR	Get specifier for image	00004925
	LEQLC XSP,1,UNAF	Length must be 1 for operator	00004926
	SETSP ZSP,PROTSP	E3.5.3	
	SETLC ZSP,0	E3.5.3	
	APDSP ZSP,XSP	E3.5.3	
	APDSP ZSP,LPRNSP	E3.5.3	
	STREAM TSP,ZSP,UNOPTB,UNAF,UNAF	E3.5.3	
	MOVD XPTR,STYPE	STYPE has function descriptor	00004931
UNCF	LOCSP YSP,YPTR	Get specifier for image	00004932
	LEQLC YSP,1,UNBF	Length must be 1 for operator	00004933
	SETSP ZSP,PROTSP	E3.5.3	
	SETLC ZSP,0	E3.5.3	
	APDSP ZSP,YSB	E3.5.3	
	APDSP ZSP,LPRNSP	E3.5.3	
	STREAM TSP,ZSP,UNOPTB,UNBF,UNBF	E3.5.3	
	MOVD YPTR,STYPE	STYPE has function descriptor	00004938
	BRANCH OPPD	Join to copy descriptors	00004939
*			00004940
UNAF	RCALL XPTR,FINDEX,XPTR	Find definition of image	00004941
	BRANCH UNCF	Join search for object	00004942
*			00004943
BNYOP	LOCSP XSP,XPTR	Get specifier for image	00004944
	LCOMP XSP,EQLSP,BNAF	Length must be 2 or less	00004945
	SETSP ZSP,PROTSP	E3.5.3	
	SETLC ZSP,0	E3.5.3	
	APDSP ZSP,XSP	E3.5.3	
	APDSP ZSP,BLSP	E3.5.3	
	STREAM TSP,ZSP,BIOPTB,BNAF,BNAF	E3.5.3	
	LEQLC ZSP,0,BNAF	E3.5.3	



SOURCE LISTING

	MOVD	XPTR,STYPE	STYPE has function descriptor	00004951
BNCF	LOCSP	YSP,YPTR	Get specifier for object	00004952
	LCOMP	YSP,EQLSP,BNBF	Length must be 2 or less	00004953
	SETSP	ZSP,PROTSP		E3.5.3
	SETLC	ZSP,0		E3.5.3
	APDSP	ZSP,YSP		E3.5.3
	APDSP	ZSP,BLSP		E3.5.3
	STREAM	TSP,ZSP,BIOPTB,BNBF,BNBF		E3.5.3
	LEQLC	ZSP,0,BNBF		E3.5.3
	MOVD	YPTR,STYPE	STYPE has function descriptor	00004959
	BRANCH	OPPD	Join to copy descriptors	00004960
*_				00004961
*_	BNAF	LEXCMP XSP,BLSP,,BNCN	Check for concatenation	00004962
	RCALL	XPTR,FINDEX,XPTR	Find definition of image	00004963
	BRANCH	BNCF	Join search for object	00004964
*_				00004965
*_	BNCN	MOVD XPTR,CONCL	CONCL represents concatenation	00004966
	BRANCH	BNCF	Join search for object	00004967
*_				00004968
*_	BNBF	LEXCMP YSP,BLSP,UNBF,,UNBF	Check for concatenation	00004969
	MOVD	YPTR,CONCL	CONCL represents concatenation	00004970
	BRANCH	OPPD	Join to copy descriptors	00004971
*_				00004972
*_				00004973
*_				00004974
*_				00004975
*_		REPLACE(S <sub>1</sub> ,S <sub>2</sub> ,S <sub>3</sub> )		00004976
*_				00004977
RPLACE	PROC	.	REPLACE(S <sub>1</sub> ,S <sub>2</sub> ,S <sub>3</sub> )	00004978
	RCALL	XPTR,VARVAL,,FAIL	Get first argument	00004979
	PUSH	XPTR	Save first argument	00004980
	RCALL	YPTR,VARVAL,,FAIL	Get second argument	00004981
	PUSH	YPTR	Save second argument	00004982
	RCALL	ZPTR,VARVAL,,FAIL	Get third argument	00004983
	POP	(YPTR,XPTR)	Restore first and second	00004984
	AEQLC	XPTR,0,,RTXPTR	Ignore replacement on null	00004985
	LOCSP	YSP,YPTR	Get specifier for second	00004986
	LOCSP	ZSP,ZPTR	Get specifier for third	00004987
	LCOMP	ZSP,YSP,FAIL,,FAIL	Verify same lengths	00004988
	AEQLC	YPTR,0,,FAIL	Ignore null replacement	00004989
	LOCSP	XSP,XPTR	Get specifier for first	00004990
	GETLG	XCL,XSP	Get length	00004991
	RCALL	ZPTR,CONVAR,XCL	Allocate space for result	00004992
	LOCSP	TSP,ZPTR	Get specifier	00004993
	SETLC	TSP,0	Clear specifier	00004994
	APDSP	TSP,XSP	Append first argument	00004995
	RPLACE	TSP,YSP,ZSP	Perform replacement	00004996
	BRANCH	GENVSZ	Got generate variable	00004997
*_				00004998
*_				00004999
*_				00005000
*_		SIZE(S)		00005001
*_				00005002
SIZE	PROC	.	SIZE(S)	00005003
	RCALL	XPTR,VARVAL,,FAIL	Get argument	00005004
	LOCSP	XSP,XPTR	Get specifier	00005005
	GETLG	ZPTR,XSP	Get length	00005006
	SETVC	ZPTR,I	Insert INTEGER data type	00005007
	BRANCH	RTZPTR	Return length	00005008
*_				00005009
*_				00005010
*_				00005011
*_				00005012
*_				00005013
TIME	PROC	.	TIME()	00005014
	RCALL	,ARGVAL,,FAIL	Get rid of argument	00005015
	MSTIME	ZPTR	Get elapsed time	00005016
	SUBTRT	ZPTR,ZPTR,ETMCL	Compute time in interpreter	00005017
	SETVC	ZPTR,I	Insert INTEGER data type	00005018
	BRANCH	RTZPTR	Return time	00005019
*_				00005020
*_				00005021
*_				00005022
*_				00005023
*_				00005024
TRIM	PROC	.	TRIM(S)	00005025
	RCALL	XPTR,VARVAL,,FAIL	Get string	00005026
	LOCSP	ZSP,XPTR	Get specifier	00005027
	TRIMSP	ZSP,ZSP	Trim string	00005027

SOURCE LISTING

```

*      BRANCH  GENVRZ          Generate new variable          00005028
*-----*
*      TITLE   'Common Code'
DATA  LHERE
RTINUL RRTURN  NULVCL,1      Return null string by exit 1  00005032
*
RTN1   LHERE
FAIL  RRTURN  ,1           Return by exit 1              00005036
*
RETNUL RRTURN  NULVCL,3      Return null string by exit 3  00005038
*
RTN2   RRTURN  ,2           Return by exit 2              00005040
*
RTN3   LHERE
RTNUL3 RRTURN  ,3           Return by exit 3              00005044
*
RTXNAM RRTURN  XPTR,2        Return XPTR by exit 2        00005046
*
RTXPTR RRTURN  XPTR,3        Return XPTR by exit 3        00005048
*
RTYPTR RRTURN  YPTR,3        Return YPTR by exit 3        00005050
*
ARTN   INCRA  ARTHCL,1      Increment count of arithmetic 00005051
RTZPTR RRTURN  ZPTR,3        Return ZPTR by exit 3        00005052
*
A5RTN  RRTURN  A5PTR,1      Return A5PTR by exit 1       00005054
*
TSALF  BRANCH  SALF,SCNR     Branch to SALF in scanner    00005056
*
TSALT  BRANCH  SALT,SCNR     Branch to SALT in scanner    00005058
*
TSCOK  BRANCH  SCOK,SCNR     Branch to SCOK in scanner    00005060
*
GENVSZ RCALL   ZPTR,GNVARS,XCL,RTZPTR
*                               Generate variable from storage  00005062
*
GENVRZ RCALL   ZPTR,GENVAR,ZSPPTR,RTZPTR
*                               Generate variable                  00005066
*
GENVIX RCALL   XPTR,GNVARI,XPTR,RTXNAM
*                               Generate variable from integer    00005068
*
*      TITLE   'Termination'
END    OUTPUT  OUTPUT,NRMEND,(LVLCL)
*                               End procedure                      00005072
*
*      OUTPUT  OUTPUT,LASTSF,(STNOCL)
*                               Print status                      00005074
*
*      BRANCH  FTLENZ
*                               Join termination procedure         00005076
*
*      FTLEND OUTPUT  OUTPUT,FTLCF,(ERRTYP,STNOCL,LVLCL)
*                               Print status                      00005080
*
*      MULTC   YCL,ERRTYP,DESCR  Convert error type to address units 00005081
*      GETD    YCL,MSGNO,YCL     Get message pointer           00005082
*      GETSPC  TSP,YCL,0         Get message specifier        00005083
*      STPRNT  ISTACK            Print error message          00005084
*      FTLEN2  ISTACK            Reset system stack            00005085
*      AEQLC   ETMCL,0,FTLEN4    Was compiler done?           00005086
*      MSTIME  ETMCL             Time out compiler              00005087
*      SUBTRT  TIMECL,ETMCL,TIMECL Compute time in compiler    00005088
*      SETAC   ETMCL,0          Set interpreter time to 0     00005089
*      BRANCH  FTLEN1
*                               Join end game                    00005090
*
*      FTLEN4 MSTIME  XCL         Time out interpreter        00005092
*      SUBTRT  ETMCL,XCL,ETMCL   Compute time in interpreter    00005093
*      FTLEN1  AEQLC  DMPCL,0,,END1 Check &DUMP                 00005094
*      AEQLC   NODPCL,0,DMPNO    Check storage condition     00005095
*      ORDVST  ,                Order string structures       00005096
*      OUTPUT  OUTPUT,STDMP      Print dump title             00005097
*      OUTPUT  OUTPUT,NVARF      Print subtitle               00005098
*      RCALL   ,DUMP,,(INTR10,INTR10,DMPK)
*                               Dump natural variables           00005099
*
*      DMPNO  OUTPUT  OUTPUT,INCGCF Print disclaimer             00005102
*      OUTPUT  OUTPUT,NODMPF     Print reason                 00005103
*      BRANCH  END1
*                               Join end game                    00005104
*
*      DMPK   RCALL   ,DMK       Dump keywords                00005105
*

```

SOURCE LISTING

END1	OUTPUT	OUTPUT,STATHD	Print statistics title	00005107
	OUTPUT	OUTPUT,CMTIME,(TIMECL)	Print compilation time	00005108
*	OUTPUT	OUTPUT,INTIME,(ETMCL)	Print interpretation time	00005109
*	OUTPUT	OUTPUT,EXNO,(EXNOCL,FALCL)	Print execution stats	00005110
*	OUTPUT	OUTPUT,ARTHNO,(ARTHCL)	Print arithmetic stats	00005111
*	OUTPUT	OUTPUT,SCANNO,(SCNCL)	Print scanner stats	00005112
*	OUTPUT	OUTPUT,STGENO,(GCNO)	Print regeneration stats	00005113
*	OUTPUT	OUTPUT,READNO,(RSTAT)	Print read stats	00005114
*	OUTPUT	OUTPUT,WRITNO,(WSTAT)	Print write stats	00005115
	AEQLC	EXNOCL,0,END2	Check for no interpretation	00005116
	INTRL	FCL,ZEROCL		00005117
	BRANCH	AVTIME	Join end game	00005118
*_	END2	INTRL	EXNOCL,EXNOCL	Convert execution total to REAL
		INTRL	XCL,ETMCL	Convert execution time to REAL
		DVREAL	FCL,XCL,EXNOCL	Compute average time
	AVTIME	OUTPUT	OUTPUT,TIMEPS,(FCL)	Print average time
	ENDALL	ENDEX	ABNDCL	E3.2.2
*	SYSCUT	OUTPUT	OUTPUT,SYSCMT,(STNOCL,LVLCL)	00005133
			System cut exit	00005134
*	AEQLC	CUTNO,0,ENDALL		E3.2.2
	SETAC	CUTNO,1		E3.2.2
	BRANCH	FTLEN2	Join end game	00005136
*_				00005137
	AERROR	SETAC	'Error Handling'	00005138
		BRANCH	ERRTYP,2	Arithmetic error
			FTLTST	00005140
*_	ALOC2	SETAC	ERRTYP,20	Storage exhausted
		BRANCH	FTLEND	00005143
*	ARGNER	SETAC	ERRTYP,25	Incorrect number of arguments
		BRANCH	FTLEND	00005144
*_	INTR10	LHERE	,	00005146
	INTR13	LHERE	,	00005147
	COMP3	SETAC	ERRTYP,17	Program error
		BRANCH	FTLEND	00005148
*	COMP5	SETAC	ERRTYP,11	Reading error
		BRANCH	FTLTST	00005149
*_	COMP7	SETAC	ERRTYP,27	Erroneous end statement
		BRANCH	FTLEND	00005150
*_	COMP9	SETAC	ERRTYP,26	Compilation error limit
		DECRA	ESAICL,DESCR	Decrement error count
		BRANCH	FTLEND	00005151
*_	EROR	SETAC	ERRTYP,28	Erroneous statement
		INCRA	OCICL,DESCR	Increment offset
		GETD	STNOCL,OCBSCL,OCICL	Get statement number
		BRANCH	FTLEND	00005152
*_	EXEX	SETAC	ERRTYP,22	Exceeded &STLIMIT
		BRANCH	FTLEND	00005153
*_	INTR1	SETAC	ERRTYP,1	Illegal data type
		BRANCH	FTLTST	00005154
*	INTR4	SETAC	ERRTYP,24	Erroneous goto
		BRANCH	FTLEND	00005155
*_	INTR5	SETAC	ERRTYP,19	Failure in goto
		BRANCH	FTLEND	00005156
*_	INTR8	SETAC	ERRTYP,15	Exceeded &MAXLNGLTH
		BRANCH	FTLTST	00005157

SOURCE LISTING

*_	INTR27	SETAC	ERRTYP,13	Excessive data types	00005183
		BRANCH	FTLTST		00005184
					00005185
*	INTR30	SETAC	ERRTYP,10	Illegal argument	00005186
		BRANCH	FTLTST		00005187
					00005188
*	INTR31	SETAC	ERRTYP,16	Overflow in pattern matching	00005189
		SETAC	SCERCL,3		00005190
		BRANCH	FTERST		00005191
					00005192
					00005193
*	LENERR	SETAC	ERRTYP,14	Negative number	00005194
		BRANCH	FTLTST		00005195
					00005196
*	MAIN1	SETAC	ERRTYP,18	Return from level zero	00005197
		BRANCH	FTLEND		00005198
					00005199
*	NEMO	SETAC	ERRTYP,8	Variable not present	00005200
		BRANCH	FTLTST		00005201
					00005202
*	NONAME	SETAC	ERRTYP,4	Null string	00005203
		BRANCH	FTLTST		00005204
					00005205
*	NONARY	SETAC	ERRTYP,3	Erroneous array or table reference	00005206
		BRANCH	FTLTST		00005207
					00005208
*	OVER	SETAC	ERRTYP,21	Stack overflow	00005209
		BRANCH	FTLEND		00005210
					00005211
*	PROTER	SETAC	ERRTYP,6	Erroneous prototype	00005212
		BRANCH	FTLTST		00005213
					00005214
*	SCDTER	SETAC	ERRTYP,1	Illegal data type	00005215
		BRANCH	SCERST		00005216
					00005217
*	SCLENR	SETAC	ERRTYP,14	Negative number	00005218
		BRANCH	SCERST		00005219
					00005220
*	SCLNOR	SETAC	ERRTYP,15	String overflow	00005221
		BRANCH	SCERST		00005222
					00005223
*	SCNAME	SETAC	ERRTYP,4	Null string	00005224
		BRANCH	SCERST		00005225
					00005226
*	SCNEMO	SETAC	ERRTYP,8		E3.4.4
		BRANCH	SCERST		E3.4.4
					E3.4.4
*	SIZERR	SETAC	ERRTYP,23	Object too large	00005227
		BRANCH	FTLEND		00005228
					00005229
*	UNDF	SETAC	ERRTYP,5	Undefined function	00005230
		BRANCH	FTLTST		00005231
					00005232
*	UNDFFE	SETAC	ERRTYP,9	Function entry point not label	00005233
		BRANCH	FTLTST		00005234
					00005235
*	UNKNKW	SETAC	ERRTYP,7	Unknown keyword	00005236
		BRANCH	FTLTST		00005237
					00005238
*	UNTERR	SETAC	ERRTYP,12	Illegal I/O unit	00005239
		BRANCH	FTLTST		00005240
					00005241
*	SCERST	SETAC	SCERCL,1	Note failure during pattern matching	00005242
		BRANCH	FTERST		00005243
					00005244
*	FTLTST	SETAC	SCERCL,2	Note failure outside pattern matchin	00005245
		FTERST	ERRLCL,0,,FTLEND,FTLEND		00005246
				Check &ERRLIMIT	00005247
*		DECRA	ERRLCL,1	Decrement &ERRLIMIT	00005248
		ACOMPC	TRAPCL,0,,FTERBR,FTERBR		00005249
				Check &TRACE	00005250
*		LOCAPT	ATPTR,TKEYL,ERRTKY,FTERBR		00005251
				Look for KEYWORD trace	00005252
*		PUSH	SCERCL		E3.1.3
		RCALL	,TRPHND,ATPTR		E3.3.1
				Perform trace	00005254
*		POP	SCERCL		E3.1.3
		FTERBR	SELBRA	SCERCL,(TSALF,FAIL,RTNUL3)	00005255

SOURCE LISTING

				00005256
				00005257
				00005258
				00005259
				00005260
				00005261
			STRING	00005262
				00005263
			INTEGER	00005264
				00005265
			PATTERN	00005266
				00005267
			ARRAY	00005268
				00005269
			REAL	00005270
				00005271
			CODE	00005272
				00005273
			NAME	00005274
				00005275
			NAME (for keyword)	00005276
				00005277
			EXPRESSION	00005278
				00005279
			TABLE	00005280
				00005281
				00005282
				00005283
			STRIM	00005284
				00005285
			STRACE	00005286
				00005287
			ESTLIMIT	00005288
				00005289
			EOUTPUT	00005290
				00005291
			&MAXLNGTH	00005292
				00005293
			&INPUT	00005294
				00005295
			&FULLSCAN	00005296
				00005297
			&FTRACE	00005298
				00005299
			&ERRLIMIT	00005300
				00005301
			&DUMP	00005302
				00005303
			&CODE	00005304
				00005305
			&ANCHOR	00005306
				00005307
			&ABEND	00005308
				00005309
				00005310
				00005311
				00005312
			&ERRTYPE	00005313
				00005314
			&ARB	00005315
				00005316
			&BAL	00005317
				00005318
			&FENCE	00005319
				00005320
			&ABORT	00005321
				00005322
			&FAIL	00005323
				00005324
			&REM	00005325
				00005326
			&SUCCEED	00005327
				00005328
			&STFCOUNT	00005329
				00005330
			&LASTNO	00005331
				00005332
			&RTNTYPE	00005333

SOURCE LISTING

STNOCL	DESCR	0,0,I	ESTNO	00005334
	DESCR	STNOSP,0,0		00005335
ALPHVL	DESCR	0,0,0	EALPHABET	00005336
	DESCR	ALNMSP,0,0		00005337
EXNOCL	DESCR	0,0,I	ESTCOUNT	00005338
STCTKY	DESCR	STCTSP,0,0		00005339
LVLCL	DESCR	0,0,I	EFNCLLEVEL	00005340
FNCLKY	DESCR	FNCLSP,0,0		00005341
KVEND	LHERE	.		00005342
*				00005343
INLIST	DESCR	INLIST,TTL+MARK,2*DESCR		00005344
	DESCR	INPUT-DESCR,0,0	INPUT block	00005345
	DESCR	INSP,0,0		00005346
OTLIST	DESCR	OTLIST,TTL+MARK,4*DESCR		00005347
	DESCR	OUTPUT-DESCR,0,0	OUTPUT block	00005348
	DESCR	OUTSP,0,0		00005349
	DESCR	PUNCH-DESCR,0,0	PUNCH block	00005350
	DESCR	PNCHSP,0,0		00005351
OTSATL	DESCR	OTSATL,TTL+MARK,4*DESCR		00005352
OUTPUT	DESCR	UNITO,0,I	OUTPUT unit	00005353
	DESCR	OUTPSP,0,0	OUTPUT format	00005354
PUNCH	DESCR	UNITP,0,I	PUNCH unit	00005355
PCHFST	DESCR	CRDFSP,0,0	PUNCH format	00005356
INSATL	DESCR	INSATL,TTL+MARK,2*DESCR		00005357
INPUT	DESCR	UNITI,0,I	INPUT unit	00005358
DFLSIZ	DESCR	80,0,I	INPUT length	00005359
*				00005360
TRLIST	DESCR	TRLIST,TTL+MARK,10*DESCR		00005361
	DESCR	TVALL,0,0	VALUE trace	00005362
VALTRS	DESCR	VALSP,0,0		00005363
	DESCR	TLABL,0,0	LABEL trace	00005364
	DESCR	TRLASP,0,0		00005365
TFNCLP	DESCR	TFENTL,0,0	CALL trace	00005366
	DESCR	TRFRSP,0,0		00005367
TFNRLP	DESCR	TFEXTL,0,0	RETURN trace	00005368
	DESCR	RETSP,0,0		00005369
	DESCR	TKEYL,0,0	KEYWORD trace	00005370
	DESCR	TRKYS,0,0		00005371
*				00005372
TRCBLK	DESCR	TRCBLK,TTL+MARK,5*DESCR		V3.7
	DESCR	0,FNC,2	TRACE FUNCTION DESCRIPTOR	V3.7
	DESCR	DOTFN,FNC,1	LITERAL FUNCTION DESCRIPTOR	V3.7
	DESCR	0,0,0	VARIABLE TO BE TRACED	V3.7
	DESCR	DOTFN,FNC,1	LITERAL FUNCTION DESCRIPTOR	V3.7
	DESCR	0,0,0	TAG SUPPLIED FOR TRACE	V3.7
*				
ATRHD	DESCR	ATPRCL-DESCR,0,0	Array header converting from TABLE	00005373
ATPRCL	DESCR	0,0,0	Prototype	00005374
	DESCR	2,0,0	Dimensionality	00005375
	DESCR	1,0,2	1:2 second dimension	00005376
ATEXCL	DESCR	1,0,0	1:n first dimension	00005377
*				00005378
*	Data type pairs			00005379
*				00005380
ATDTP	DESCR	A,0,T	ARRAY-TABLE	00005381
IIDTP	DESCR	I,0,I	INTEGER-INTEGERS	00005382
IPDTP	DESCR	I,0,P	INTEGER-PATTERN	00005383
IRDTP	DESCR	I,0,R	INTEGER-REAL	00005384
IVDTP	DESCR	I,0,S	INTEGER-STRING	00005385
PIDTP	DESCR	P,0,I	PATTERN-INTEGERS	00005386
PPDTP	DESCR	P,0,P	PATTERN-PATTERN	00005387
PVDTP	DESCR	P,0,S	PATTERN-STRING	00005388
RIDTP	DESCR	R,0,I	REAL-INTEGERS	00005389
RPDTP	DESCR	R,0,P	REAL-PATTERN	00005390
RRDTP	DESCR	R,0,R	REAL-REAL	00005391
RVDTP	DESCR	R,0,S	REAL-STRING	00005392
TADTP	DESCR	T,0,A	TABLE-ARRAY	00005393
VCDTP	DESCR	S,0,C	STRING-CODE	00005394
VEDTP	DESCR	S,0,E	STRING-EXPRESSION	00005395
VIDTP	DESCR	S,0,I	STRING-INTEGERS	00005396
VPDTP	DESCR	S,0,P	STRING-PATTERN	00005397
VRDTP	DESCR	S,0,R	STRING-REAL	00005398
VVDTP	DESCR	S,0,S	STRING-STRING	00005399
*				00005400
ARTHCL	DESCR	0,0,0	Number of arithmetic operations	00005401
CSTNCL	DESCR	0,0,I	Compiler statement number	00005402
RSTAT	DESCR	0,0,0	Number of reads	00005403
SCNCL	DESCR	0,0,0	Number of scanner entrances	00005404

SOURCE LISTING

WSTAT	DESCR	0,0,0	Number of writes	00005405
TIMECL	DESCR	0,0,0	Millisecond time	00005406
*				00005407
*	SWITCHES			00005408
*				00005409
ALCL	DESCR	0,0,0	Entry point switch for ARG(F,N)	00005410
ARRMRK	DESCR	0,0,0	Prototype end switch for ARRAY(P,V)	00005411
CUTNO	DESCR	0,0,0	E3.2.2	
CNSLCL	DESCR	0,0,0	Label redefinition switch	00005412
DATACL	DESCR	0,0,0	Prototype end switch for DATA(P)	00005413
FNVLCL	DESCR	0,0,0	FUNCTION-VALUE switch for trace	00005414
LENFCL	DESCR	0,0,0	Length failure switch	00005415
LISTCL	DESCR	1,0,0	Compiler listing switch	00005416
LLIST	DESCR	0,0,0	Left listing switch	00005417
NAMGCL	DESCR	0,0,0	Naming switch for SJSR	00005418
SCERCL	DESCR	0,0,0	Error branch switch	00005419
*				00005420
*	Constants			00005421
*				00005422
ARBSIZ	DESCR	8*NODESZ,0,0	Node size for ARBNO(P)	00005423
CHARCL	DESCR	1,0,0	Length constant 1	00005424
CNDSIZ	DESCR	CNODSZ,0,B	Compiler node size	00005425
CODELT	DESCR	200*DESCR,0,C	Object code excess	00005426
DSCRW	DESCR	2*DESCR,0,0	Constant 2*DESCR	00005427
EOSCL	DESCR	EOSTYP,0,0	End of statement switch	00005428
ESALIM	DESCR	ESASIZ*DESCR,0,0	Bound on compilation errors	00005429
EXTVAL	DESCR	EXTSIZ*2*DESCR,0,I	Default M for TABLE(N,M)	00005430
FBLKRQ	DESCR	FBLKSZ,0,B	Quantum on allocated function blocks	00005431
GOBRCL	DESCR	0,0,0	Goto break character switch	00005432
GTOCL	DESCR	FGOTYP,0,0	Goto decision switch	00005433
IOBLSZ	DESCR	2*DESCR,0,B	Size of I/O blocks	00005434
LNODSZ	DESCR	NOLESZ+DESCR,0,P	Size of long pattern node	00005435
NODSIZ	DESCR	NODESZ,0,P	Size of short pattern node	00005436
OBEND	DESCR	OBLIST+DESCR*OBOFF,0,0	End on bin list	00005437
*				00005438
OCALIM	DESCR	OCASIZ*DESCR,0,C	Size of object code block	00005439
ONECL	DESCR	1,0,0	Constant 1	00005440
OUTBLK	DESCR	OUTPUT-DESCR,0,0	Pointer to OUTPUT block	00005441
SIZLMT	DESCR	SIZLIM,0,0	Limit on size of data object	00005442
SNODSZ	DESCR	NODESZ,0,P	Small pattern node size	00005443
STARSZ	DESCR	11*DESCR,0,P	Size of EXPRESSION pattern	00005444
ZEROCL	DESCR	0,0,0	Constant zero	00005445
COMDCT	DESCR	14*DESCR,0,0		00005447
COMREG	DESCR	ELEMND,0,0	Pointer to compiler descriptors	00005448
*				00005449
*				00005450
*				00005451
*	Pointers to Assembled Data Patterns			00005452
*				00005453
ARBACK	DESCR	ARBAK,0,P		00005454
ARHEAD	DESCR	ARHED,0,P		00005455
ARTAIL	DESCR	ARTAL,0,P		00005456
STRPAT	DESCR	STARPT,0,P		00005457
*				00005458
*	Function Descriptors			00005459
*				00005460
ANYCCL	DESCR	ANYCFN,FNC,3		00005461
ASGNCL	DESCR	ASGNFN,FNC,2		00005462
ATOPCL	DESCR	ATOPFN,FNC,3		00005463
BASECL	DESCR	BASEFN,FNC,0		00005464
BRKCCCL	DESCR	BRKCFN,FNC,3		00005465
CHRCL	DESCR	CHRFN,FNC,3		00005466
CONCL	DESCR	CONFN,FNC,0	Argument count is incremented	00005467
DNMECL	DESCR	DNMEFN,FNC,2		00005468
DNMICL	DESCR	DNMIFN,FNC,2		00005469
DOTCL	DESCR	DOTFN,FNC,1		00005470
ENDCL	DESCR	ENDFN,FNC,0		00005471
ENMECL	DESCR	ENMEFN,FNC,3		00005472
ENMICL	DESCR	ENMIFN,FNC,3		00005473
ERORCL	DESCR	ERORFN,FNC,1		00005474
FNCFCL	DESCR	FNCFFN,FNC,2		00005475
FNMECL	DESCR	FNMEFN,FNC,2		00005476
GOTGCL	DESCR	GOTGFN,FNC,1		00005477
GOTLCL	DESCR	GOTLFN,FNC,1		00005478
GOTOCL	DESCR	GOTOFN,FNC,1		00005479
INITCL	DESCR	INITFN,FNC,1		00005480
ITEMCL	DESCR	AREFN,FNC,0		00005481
LITCL	DESCR	LITFN,FNC,0	Argument count is incremented	00005482

SOURCE LISTING

LNTHCL	DESCR	LNTHFN,FNC,3		00005483
NMECL	DESCR	NMEFN,FNC,2		00005484
NNYCCL	DESCR	NNYCFN,FNC,3		00005485
POSICL	DESCR	POSIFN,FNC,3		00005486
RPSICL	DESCR	RPSIFN,FNC,3		00005487
RTBCL	DESCR	RTBFN,FNC,3		00005488
SCANCL	DESCR	SCANFN,FNC,2		00005489
SCFLCL	DESCR	SCFLFN,FNC,2		00005490
SCOKCL	DESCR	SCOKFN,FNC,2		00005491
SCONCL	DESCR	SCONFN,FNC,2		00005492
SJSRCL	DESCR	SJSRFN,FNC,3		00005493
SPNCCL	DESCR	SPNCFN,FNC,3		00005494
SUCFCL	DESCR	SUCFFN,FNC,2		00005495
TBCL	DESCR	TBFN,FNC,3		00005496
INITB	DESCR	ABNDB,0,0		00005497
INITE	DESCR	DTEND+DESCR,0,0		00005498
*				00005499
*				00005500
		Miscellaneous Data Cells		00005501
*				00005502
A4PTR	DESCR	0,0,0	Scratch descriptor	00005502
A5PTR	DESCR	0,0,0	Scratch descriptor	00005503
A6PTR	DESCR	0,0,0	Scratch descriptor	00005504
A7PTR	DESCR	0,0,0	Scratch descriptor	00005505
BRTYPE	DESCR	0,0,0	Break type returned by FORWRD	00005506
CMOFCL	DESCR	0,0,0	Compiler offset	00005507
DATSEG	DESCR	0,0,100	Beginning of defined data types	00005508
DMPPTR	DESCR	0,0,0	Bin pointer for DUMP	00005509
DTCL	DESCR	0,0,0	Data type descriptor	00005510
DT1CL	DESCR	0,0,0	Data type descriptor	00005511
EMSGCL	DESCR	0,0,0	Present error message address	00005512
ERRBAS	DESCR	CARDSZ+STNOSZ-SEQSZ,0,0		00005513
ESAICL	DESCR	0,0,0	Count of compiler errors	00005514
ETMCL	DESCR	0,0,0	Time descriptor	00005515
FCL	DESCR	0,0,0	Real number descriptor	00005517
NEXFCL	DESCR	FBLKSZ,0,0	Offset in function block	00005518
FRTNCL	DESCR	0,0,0	Failure return	00005519
GOGOCL	DESCR	0,0,0	goto descriptor	00005520
INCL	DESCR	0,0,0	Global function descriptor	00005521
IOKEY	DESCR	0,0,0	I/O indicator	00005522
MAXLEN	DESCR	0,0,0	Maximum length for matching	00005523
MSGNO	DESCR	MSGLIST,0,0	Pointer to error message list	00005524
NAMICL	DESCR	0,0,0	Offset on naming list	00005525
NHEDCL	DESCR	0,0,0	Name list head offset	00005526
NMOVER	DESCR	NAMLSZ*SPDR,0,B	Name list end offset	00005527
NULVCL	DESCR	0,0,S	Null string value	00005528
OCICL	DESCR	0,0,0	Object code offset	00005529
PATICL	DESCR	0,0,0	Pattern code offset	00005530
PDLEND	DESCR	PDLBLK+SPDLDR-NODESZ,0,0		00005531
*			Pattern history list end	00005532
PDLPTR	DESCR	PDLBLK,0,0	Pattern history list beginning	00005533
SCL	DESCR	0,0,0	Switch descriptor	00005534
STKPTR	DESCR	STACK,0,0	Pointer to stack	00005535
STYPE	DESCR	0,FNC,0	Descriptor return by STREAM	00005536
TBLFNC	DESCR	0,0,0	Pointer to last pattern table	00005537
UNIT	DESCR	0,0,0	Input unit switch	00005538
VARSYM	DESCR	0,0,0		00005539
*				00005540
*				00005541
		Program Pointers		00005542
*				00005543
DATCL	DESCR	DEFDAT,FNC,0	Defined data objects	00005543
DEFCL	DESCR	DEFFNC,FNC,0	Defined functions	00005544
FLDCL	DESCR	FIELD,0,1	Field of defined data objects	00005545
LODCL	DESCR	LNKFNC,FNC,0	External functions	00005546
PDLHED	DESCR	PDLBLK,C,0	History list head	00005547
UNDFCL	DESCR	UNDF,FNC,0	Undefined functions	00005548
*				00005549
*				00005550
		Pointers to Specifiers		00005551
*				00005552
DSPPTR	DESCR	DPSP,0,0		00005552
XSPPTR	DESCR	XSP,0,0		00005553
YSPPTR	DESCR	YSP,0,0		00005554
ZSPPTR	DESCR	ZSP,0,0		00005555
TSPPTR	DESCR	TSP,0,0		00005556
*				00005557
*				00005558
		Permanent Attribute List Pointers		00005559
*				00005560
KNATL	DESCR	KNLIST,0,0	Unprotected keyword list	00005560
KVATL	DESCR	KVLIST,0,0	Protected keyword list	00005561



SOURCE LISTING

TRATL	DESCR	TRLIST,0,0	Trace list	00005562
*				00005563
*			Specifiers for Compilation Listing	00005564
*				00005565
BLNSP	SPEC	BLNBUF,0,0,0,STNOSZ		00005566
ERRSP	SPEC	ERRBUF,0,0,0,CARDSZ+STNOSZ-SEQSIZ+1		00005567
INBFSP	SPEC	INBUF,0,0,STNOSZ,CARDSZ		00005568
LNBFSP	SPEC	INBUF,0,0,0,CARDSZ+DSTSZ+1		00005569
NEXTSP	SPEC	INBUF,0,0,STNOSZ,CARDSZ-SEQSIZ		00005570
LNOSP	SPEC	INBUF,0,0,0,STNOSZ		00005571
RNOSP	SPEC	INBUF,0,0,CARDSZ+STNOSZ+1,STNOSZ		00005572
*				00005573
*			Strings and Specifiers	00005574
*				00005575
ALPHSP	SPEC	ALPHA,0,0,0,ALPHSZ	Alphabet	00005576
AMPSP	SPEC	AMPST,0,0,0,1	Amperсанд	00005577
CERRSP	SPEC	ANYSP,0,0,0,0	Buffer specifier	00005578
COLSP	SPEC	COLSTR,0,0,0,2	Colon for trace messages	00005579
DMPSP	SPEC	ANYSP,0,0,0,0	Buffer specifier	00005580
DTARSP	SPEC	DTARBF,0,0,0,ARRLEN+9	Array representation specifier	00005581
*			Buffer specifier	00005582
PROTSP	SPEC	ANYSP,0,0,0,0	Buffer specifier	00005583
QTSP	SPEC	QTSTR,0,0,0,1	Quote for messages	00005584
REALSP	SPEC	REALBF,0,0,0,10	Specifier for real conversion	00005585
TRACSP	SPEC	ANYSP,0,0,0,0	Buffer specifier	00005586
*				00005587
ARRSP	STRING	'ARRAY'		00005588
ASSCSP	STRING	'TABLE'		00005589
BLS	STRING	' '		00005590
BLEQSP	STRING	' = '		00005591
CMA	STRING	' , '		00005592
EJCTSP	STRING	'EJECT'		00005593
EQLSP	STRING	' = '		00005594
ETIMSP	STRING	' , TIME = '		00005595
EXDTSP	STRING	'EXTERNAL'		00005596
LEFTSP	STRING	'LEFT'		00005597
LISTSP	STRING	'LIST'		00005598
LPRNSP	STRING	' ('		00005599
OFSP	STRING	' OF '		00005600
RPRNSP	STRING	' ) '		00005601
STARSP	STRING	' *** '		00005602
TRCLSP	STRING	' CALL OF '		00005603
TRLVSP	STRING	' LEVEL '		00005604
TRSTSP	STRING	' STATEMENT '		00005605
UNLSP	STRING	'UNLIST'		00005606
XFERSP	STRING	'TRANSFER TO'		00005607
*				00005608
*			Character Buffers	00005609
*				00005610
BLNBUF	BUFFER	STNOSZ	Blanks for statment number field	00005611
DTARBF	BUFFER	ARRLEN+7	Array representation buffer	00005612
ERRBUF	BUFFER	CARDSZ+STNOSZ-SEQSIZ+1		00005613
INBUF	BUFFER	CARDSZ+DSTSZ+1	Card input buffer	00005614
REALBF	BUFFER	36	Buffer for real number conversion	00005615
ICLBLK	DESCR	ICLBLK,TTL+MARK,ICLEND-ICLBLK-DESCR		00005616
*				00005617
*			Pointers to Attribute Lists	00005618
*				00005619
DTATL	DESCR	DTLIST,0,0	Data type pair list	00005620
FNCP	DESCR	FNLIST,0,0	Function pair list	00005621
INATL	DESCR	INLIST,0,0	Input association pair list	00005622
OUTATL	DESCR	OTLIST,0,0	Output association pair list	00005623
TVALL	DESCR	TVALPL,0,0	Value trace pair list	00005624
	DESCR	VLTRFN,FNC,2	Default value trace procedure	00005625
TLABL	DESCR	TLABPL,0,0	Label trace pair list	00005626
	DESCR	LABTFN,FNC,1	Default label trace procedure	00005627
TFENTL	DESCR	TFENPL,0,0	Call trace pair list	00005628
	DESCR	FNTRFN,FNC,2	Default call trace procedure	00005629
TFEXTL	DESCR	TFEXPL,0,0	Return trace pair list	00005630
	DESCR	FXTRFN,FNC,2	Default return trace procedure	00005631
TKEYL	DESCR	TKEYPL,0,0	Keyword trace pair list	00005632
	DESCR	KEYTFN,FNC,1	Default keyword trace procedure	00005633
*				00005634
*			Scratch Descriptors	00005635
*				00005636
A1PTR	DESCR	0,0,0		00005637
A2PTR	DESCR	0,0,0		00005638
A3PTR	DESCR	0,0,0		00005639

SOURCE LISTING

ATPTR	DESCR	0,0,0		00005640
F1PTR	DESCR	0,0,0		00005641
F2PTR	DESCR	0,0,0		00005642
IO2PTR	DESCR	0,0,0		00005643
IO1PTR	DESCR	0,0,0		00005644
LPTR	DESCR	0,0,0	Last label pointer	00005645
NVAL	DESCR	0,0,0		00005646
IO3PTR	DESCR	0,0,0		00005647
IO4PTR	DESCR	0,0,0		00005648
TBLCS	DESCR	0,0,0		00005649
TMVAL	DESCR	0,0,0		00005650
TPTR	DESCR	0,0,0		00005651
TCL	DESCR	0,0,0		00005652
TSIZ	DESCR	0,0,0		00005653
TVAL	DESCR	0,0,0		00005654
VVAL	DESCR	0,0,0		00005655
WCL	DESCR	0,0,0		00005656
WPTR	DESCR	0,0,0		00005657
XCL	DESCR	0,0,0		00005658
XPTR	DESCR	0,0,0		00005659
XSIZ	DESCR	0,0,0		00005660
YCL	DESCR	0,0,0		00005661
YPTR	DESCR	0,0,0		00005662
YSIZ	DESCR	0,0,0		00005663
ZCL	DESCR	0,0,0		00005664
ZPTR	DESCR	0,0,0		00005665
ZSIZ	DESCR	0,0,0		00005666
*				00005667
*	System Descriptors			00005668
*				00005669
BOSCL	DESCR	0,0,0	Offset of beginning of statement	00005670
CMBSCL	DESCR	0,0,0	Compiler code base descriptor	00005671
NBSPTR	DESCR	0,0,0	Name list base pointer	00005672
FBLOCK	DESCR	0,0,0	Function procedure descriptor block	00005673
OCBSCL	DESCR	0,0,0	Interpreter code base descriptor	00005674
OCLIM	DESCR	0,0,0	End of object code block	00005675
OCSVCL	DESCR	0,0,0	Pointer to basic object code	00005676
PATBCL	DESCR	0,0,0	Pattern code base descriptor	00005677
SCBSCL	DESCR	0,0,0		00005678
SRNCL	DESCR	0,0,0	Success return descriptor	00005679
*				00005680
*	Compiler Descriptors			00005681
*				00005682
ELEMND	DESCR	0,0,0	Element node	00005683
ELEXND	DESCR	0,0,0	Temporary node	00005684
ELEYND	DESCR	0,0,0	Temporary node	00005685
EXELND	DESCR	0,0,0	Temporary node	00005686
EXEXND	DESCR	0,0,0	Temporary node	00005687
EXOPCL	DESCR	0,0,0	Operator node	00005688
EXOPND	DESCR	0,0,0	Operator node	00005689
EXPRND	DESCR	0,0,0	Expression node	00005690
FGOND	DESCR	0,0,0	Failure goto node	00005691
FORMND	DESCR	0,0,0	Object node	00005692
FRNCL	DESCR	0,0,0	Failure return descriptor	00005693
GOTOND	DESCR	0,0,0	Goto node	00005694
PATND	DESCR	0,0,0	Pattern node	00005695
SGOND	DESCR	0,0,0	Success goto node	00005696
SUBJND	DESCR	0,0,0	Subject node	00005697
*				00005698
*	Data Pointers			00005699
*				00005700
DFLFST	DESCR	0,0,0	Default output format	00005701
ENDPTR	DESCR	0,0,0	'END'	00005702
EXTPTR	DESCR	0,0,0	'EXTERNAL'	00005703
FRETCL	DESCR	0,0,0	'FRETURN'	00005704
NRETCL	DESCR	0,0,0	'NRETURN'	00005705
RETCL	DESCR	0,0,0	'RETURN'	00005706
FUNTCL	DESCR	0,0,0	'FUNCTION'	00005707
*				00005708
*	Specifiers			00005709
*				00005710
DPSP	SPEC	0,0,0,0,0	Data type specifier	00005711
HEADSP	SPEC	0,0,0,0,0	Matching head specifier	00005712
IOSP	SPEC	0,0,0,0,0	I/O specifier	00005713
TAILSP	SPEC	0,0,0,0,0	Matching tail specifier	00005714
TEXTSP	SPEC	0,0,0,0,0	Compiler statement specifier	00005715
TSP	SPEC	0,0,0,0,0	Scratch specifier	00005716
TXSP	SPEC	0,0,0,0,0	Scratch specifier	00005717

SOURCE LISTING

VSP	SPEC	0,0,0,0,0	Scratch specifier	00005718
XSP	SPEC	0,0,0,0,0	Scratch specifier	00005719
YSP	SPEC	0,0,0,0,0	Scratch specifier	00005720
ZSP	SPEC	0,0,0,0,0	Scratch specifier	00005721
*				00005722
*	Allocator Data			00005723
*				00005724
ARG1CL	DESCR	0,0,0	Scratch descriptor	00005725
BUKPTR	DESCR	0,PTR,S	Bin pointer	00005726
LSTPTR	DESCR	0,PTR,S	Pointer to last structure	00005727
AXPTR	DESCR	0,0,0	Allocation size descriptor	00005728
SPECR1	SPEC	0,0,0,0,0	Scratch specifier	00005729
SPECR2	SPEC	0,0,0,0,0	Scratch specifier	00005730
ICLEND	LHERE	,	End of basic block	00005731
*				00005732
*	Allocator Data			00005733
*				00005734
BK1CL	DESCR	0,0,0	Pointer to block being marked	00005735
BKDX	DESCR	0,0,0	Offset in block being marked	00005736
BKDXU	DESCR	0,0,0	Offset in block	00005737
BKLTCL	DESCR	0,0,0		00005738
BKPTR	DESCR	0,PTR,S		00005739
BLOCL	DESCR	0,0,0		00005740
CONVSW	DESCR	0,0,0	CONVAR-GENVAR entry switch	00005741
CPYCL	DESCR	0,0,0	Regeneration block pointer	00005742
DESCL	DESCR	0,0,0	Regeneration scratch descriptor	00005743
EQUVCL	DESCR	0,0,0	Variable identification descriptor	00005744
FRDSCCL	DESCR	4*DESCR,0,0		00005745
GCBLK	DESCR	GCXTTL,0,0	Pointer to marking block	00005746
GCNO	DESCR	0,0,0	Count of regenerations	00005747
GCMPTTR	DESCR	0,0,0	Pointer to basic blocks	00005748
GCREQ	DESCR	0,0,0	Space required from regeneration	00005749
GCGOT	DESCR	0,0,I	Space obtained from regeneration	00005750
LCPTR	DESCR	0,0,0	Scratch descriptor	00005751
MVSGPT	DESCR	0,0,0	Compression boundary pointer	00005752
NODPCL	DESCR	0,0,0	Regeneration switch	00005753
OBPTR	DESCR	OBLIST,PTR,S	Pointer to bins	00005754
OFSET	DESCR	0,0,0	Offset in block during regeneration	00005755
PRMDX	DESCR	PRMSIZ,0,0	Size of basic block list	00005756
PRMPTR	DESCR	PRMTBL,0,0	Pointer to list of basic blocks	00005757
ST1PTR	DESCR	0,PTR,S	Regeneration link pointer	00005758
ST2PTR	DESCR	0,PTR,S	Regeneration link pointer	00005759
TEMPCL	DESCR	0,PTR,0	Scratch descriptor	00005760
TOPCL	DESCR	0,0,0	Pointer to block title	00005761
TTLCL	DESCR	0,0,0	Pointer to block title	00005762
TWOCL	DESCR	2*DESCR,0,B	Size of string to be marked	00005763
*				00005764
*				00005765
FRSGPT	DESCR	0,PTR,0	Position pointer	00005766
HDSGPT	DESCR	0,PTR,0	Head of allocated data region	00005767
TLSGP1	DESCR	0,PTR,0	End of allocated data region	00005768
GCXTTL	DESCR	GCXTTL,TTL+MARK,DESCR		00005769
*			Block to prime marking procedure	00005770
	DESCR	0,0,0	Pointer to block to mark	00005771
*				00005772
*	Machine-dependent Data			00005773
*				00005774
	COPY	MDATA	Segment of machine-dependent data	00005775
*				00005776
*	Function Table			00005777
*				00005778
FTABLE	DESCR	FTABLE,TTL+MARK,FTBLND-FTABLE-DESCR		00005779
*				00005780
*	Primitive Functions			00005781
*				00005782
ANYFN	DESCR	ANY,0,1		00005783
	DESCR	0,0,0		00005784
APLYFN	DESCR	APPLY,FNC,1		00005785
	DESCR	0,0,0		00005786
ARBOFN	DESCR	ARBNO,0,1		00005787
	DESCR	0,0,0		00005788
ARGFN	DESCR	ARG,0,2		00005789
	DESCR	0,0,0		00005790
ARRAFN	DESCR	ARRAY,0,2		00005791
	DESCR	0,0,0		00005792
ASSCFN	DESCR	ASSOC,0,2		00005793
	DESCR	0,0,0		00005794
BACKFN	DESCR	BKSPCE,0,1		00005795

SOURCE LISTING

BREAFN	DESCR	0,0,0	00005796
BREAFN	DESCR	BREAK,0,1	00005797
	DESCR	0,0,0	00005798
CLEAFN	DESCR	CLEAR,0,1	00005799
	DESCR	0,0,0	00005800
CODEFN	DESCR	CODER,0,1	00005801
	DESCR	0,0,0	00005802
COLEFN	DESCR	COLECT,0,1	00005803
	DESCR	0,0,0	00005804
CNVRFN	DESCR	CNVRT,0,2	00005805
	DESCR	0,0,0	00005806
COPYFN	DESCR	COPY,0,1	00005807
	DESCR	0,0,0	00005808
DATFN	DESCR	DATE,0,1	00005809
	DESCR	0,0,0	00005810
DATDFN	DESCR	DATDEF,0,1	00005811
	DESCR	0,0,0	00005812
DEFIFN	DESCR	DEFINE,0,2	00005813
	DESCR	0,0,0	00005814
DIFFFN	DESCR	DIFFER,0,2	00005815
	DESCR	0,0,0	00005816
DTCHFN	DESCR	DETACH,0,1	00005817
	DESCR	0,0,0	00005818
DTFN	DESCR	DT,0,1	00005819
	DESCR	0,0,0	00005820
DUMPFN	DESCR	DMP,0,1	00005821
	DESCR	0,0,0	00005822
DUPLFN	DESCR	DUPL,0,2	00005823
	DESCR	0,0,0	00005824
ENDFFN	DESCR	ENFILE,0,1	00005825
	DESCR	0,0,0	00005826
EQFN	DESCR	EQ,0,2	00005827
	DESCR	0,0,0	00005829
EVALFN	DESCR	EVAL,0,1	00005829
	DESCR	0,0,0	00005830
FLDSFN	DESCR	FIELDS,0,2	00005831
	DESCR	0,0,0	00005832
GEFN	DESCR	GE,0,2	00005833
	DESCR	0,0,0	00005834
GTFN	DESCR	GT,0,2	00005835
	DESCR	0,0,0	00005836
IDENFN	DESCR	IDENT,0,2	00005837
	DESCR	0,0,0	00005838
INTGFN	DESCR	INTGER,0,1	00005839
	DESCR	0,0,0	00005840
ITEMFN	DESCR	ITEM,FNC,1	00005841
	DESCR	0,0,0	00005842
LEFN	DESCR	LE,0,2	00005843
	DESCR	0,0,0	00005844
LENFN	DESCR	LEN,0,1	00005845
	DESCR	0,0,0	00005846
LGTFN	DESCR	LGT,0,2	00005847
	DESCR	0,0,0	00005848
LOADFN	DESCR	LOAD,0,2	00005849
	DESCR	0,0,0	00005850
LOCFN	DESCR	LOCAL,0,2	00005851
	DESCR	0,0,0	00005852
LTFN	DESCR	LT,0,2	00005853
	DESCR	0,0,0	00005854
NEFN	DESCR	NE,0,2	00005855
	DESCR	0,0,0	00005856
NOTAFN	DESCR	NOTANY,0,1	00005857
	DESCR	0,0,0	00005858
OPSYFN	DESCR	OPSYN,0,3	00005859
	DESCR	0,0,0	00005860
POSFN	DESCR	POS,0,1	00005861
	DESCR	0,0,0	00005862
PRINFN	DESCR	PRINT,0,3	00005863
	DESCR	0,0,0	00005864
PROTFN	DESCR	PROTO,0,1	00005865
	DESCR	0,0,0	00005866
REMDFN	DESCR	REMDR,0,2	00005867
	DESCR	0,0,0	00005868
RPLAFN	DESCR	RPLACE,0,3	00005869
	DESCR	0,0,0	00005870
READFN	DESCR	READ,0,3	00005871
	DESCR	0,0,0	00005872
REWTFN	DESCR	REWIND,0,1	00005873

SOURCE LISTING

	DESCR	0,0,0		00005874
RPOSFN	DESCR	RPOS,0,1		00005875
	DESCR	0,0,0		00005876
RTABFN	DESCR	RTAB,0,1		00005877
	DESCR	0,0,0		00005878
SIZEFN	DESCR	SIZE,0,1		00005879
	DESCR	0,0,0		00005880
SPANFN	DESCR	SPAN,0,1		00005881
	DESCR	0,0,0		00005882
STPTFN	DESCR	STOPTR,0,2		00005883
	DESCR	0,0,0		00005884
TABFN	DESCR	TAB,0,1		00005885
	DESCR	0,0,0		00005886
TIMFN	DESCR	TIME,0,1		00005887
	DESCR	0,0,0		00005888
TRCFN	DESCR	TRACE,0,4		00005889
	DESCR	0,0,0		00005890
TRIMFN	DESCR	TRIM,0,1		00005891
	DESCR	0,0,0		00005892
UNLDFN	DESCR	UNLOAD,0,1		00005893
	DESCR	0,0,0		00005894
VALFN	DESCR	FIELD,0,1		00005895
	DESCR	VALBLK,0,0		00005896
FTBLND	LHERE	.		00005897
*				00005898
INITLS	DESCR	INITLS,TTL*MARK,8*DESCR		00005899
	DESCR	DTLIST,0,0		00005900
	DESCR	FNLIST,0,0		00005901
	DESCR	INLIST,0,0		00005902
	DESCR	KNLIST,0,0		00005903
	DESCR	KVLIST,0,0		00005904
	DESCR	OTLIST,0,0		00005905
	DESCR	OTSATL,0,0		00005906
	DESCR	TRLIST,0,0		00005907
*				00005908
*	Function Pair List			00005909
*				00005910
FNLIST	DESCR	FNLIST,TTL*MARK,FNCPLF-FNLIST-DESCR		00005911
	DESCR	ANYFN,FNC,0	ANY (CS)	00005912
	DESCR	ANYSP,0,0		00005913
	DESCR	APLYFN,FNC,0	APPLY (F,A1,...,AN)	00005914
	DESCR	APLYSP,0,0		00005915
	DESCR	ARBOFN,FNC,0	ARBNO (P)	00005916
	DESCR	ARBNSP,0,0		00005917
	DESCR	ARGFN,FNC,0	ARG (F,N)	00005918
	DESCR	ARGSP,0,0		00005919
	DESCR	ARRAFN,FNC,0	ARRAY (P,V)	00005920
	DESCR	ARRSP,0,0		00005921
	DESCR	BACKFN,FNC,0	BACKSPACE (N)	00005922
	DESCR	BACKSP,0,0		00005923
	DESCR	BREAFN,FNC,0	BREAK (CS)	00005924
	DESCR	BRKSP,0,0		00005925
	DESCR	CLEAFN,FNC,0	CLEAR ( )	00005926
	DESCR	CLERSP,0,0		00005927
	DESCR	CODEFN,FNC,0	CODE (S)	00005928
	DESCR	CODESP,0,0		00005929
	DESCR	COLEFN,FNC,0	COLLECT (N)	00005930
	DESCR	CLSP,0,0		00005931
	DESCR	CNVRFN,FNC,0	CONVERT (V,DT)	00005932
	DESCR	CNVTSP,0,0		00005933
	DESCR	COPYFN,FNC,0	COPY (V)	00005934
	DESCR	COPYSP,0,0		00005935
	DESCR	DATDFN,FNC,0	DATA (P)	00005936
	DESCR	DATASP,0,0		00005937
	DESCR	DATFN,FNC,0		E3.0.5
	DESCR	DATSP,0,0		00005939
	DESCR	DEFIFN,FNC,0	DEFINE (P,L)	00005940
	DESCR	DEFISP,0,0		00005941
	DESCR	DIFFFN,FNC,0	DIFFER (V1,V2)	00005942
	DESCR	DIFFS,0,0		00005943
	DESCR	DTCHF,0,0	DETACH (V)	00005944
	DESCR	DTCHSP,0,0		00005945
	DESCR	DTFN,FNC,0	DATATYPE (V)	00005946
	DESCR	DTSP,0,0		00005947
	DESCR	DUMPFN,FNC,0	DUMP ( )	00005948
	DESCR	DUMPS,0,0		00005949
	DESCR	DUPLFN,FNC,0	DUPL (S,N)	00005950
	DESCR	DUPLSP,0,0		00005951

SOURCE LISTING

DESCR	ENDFFN,FNC,0	ENDFILE (N)	00005952
DESCR	ENDFSP,0,0		00005953
DESCR	EQFN,FNC,0	EQ (I1,I2)	00005954
DESCR	EQSP,0,0		00005955
DESCR	EVALFN,FNC,0	EVAL (E)	00005956
DESCR	EVALSP,0,0		00005957
DESCR	FLDSFN,FNC,0	FIELD (V,N)	00005958
DESCR	FLDSSP,0,0		00005959
DESCR	GEFN,FNC,0	GE (I1,I2)	00005960
DESCR	GESP,0,0		00005961
DESCR	GTFN,FNC,0	GT (I1,I2)	00005962
DESCR	GTSP,0,0		00005963
DESCR	IDENFN,FNC,0	IDENT (V1,V2)	00005964
DESCR	IDENSP,0,0		00005965
DESCR	READFN,FNC,0	INPUT (V,N,L)	00005966
DESCR	INSP,0,0		00005967
DESCR	INTGFN,FNC,0	INTEGER (V)	00005968
DESCR	INTGSP,0,0		00005969
DESCR	ITEMFN,FNC,0	ITEM (A,I1,...,IN)	00005970
DESCR	ITEMSP,0,0		00005971
DESCR	LENFN,FNC,0	LEN (N)	00005972
DESCR	LENSP,0,0		00005973
DESCR	LEFN,FNC,0	LE (I1,I2)	00005974
DESCR	LESP,0,0		00005975
DESCR	LGTFN,FNC,0	LGT (S1,S2)	00005976
DESCR	LGTSP,0,0		00005977
DESCR	LOADFN,FNC,0	LOAD (P)	00005978
DESCR	LOADSP,0,0		00005979
DESCR	LOCFN,FNC,0	LOCAL (F,N)	00005980
DESCR	LOCSP,0,0		00005981
DESCR	LTFN,FNC,0	LT (I1,I2)	00005982
DESCR	LTSP,0,0		00005983
DESCR	NEFN,FNC,0	NE (I1,I2)	00005984
DESCR	NESP,0,0		00005985
DESCR	NOTAFN,FNC,0	NOTANY (CS)	00005986
DESCR	NNYSP,0,0		00005987
DESCR	OPSYFN,FNC,0	OPSYN (F1,F2,N)	00005988
DESCR	OPSNP,0,0		00005989
DESCR	PRINFN,FNC,0	OUTPUT (V,N,F)	00005990
DESCR	OUTSP,0,0		00005991
DESCR	POSFN,FNC,0	POS (N)	00005992
DESCR	POSSP,0,0		00005993
DESCR	PROTFN,FNC,0	PROTOTYPE (A)	00005994
DESCR	PRTSP,0,0		00005995
DESCR	REMDFN,FNC,0	REMDR (N,M)	00005996
DESCR	REMDSP,0,0		00005997
DESCR	REWNFN,FNC,0	REWIND (N)	00005998
DESCR	REWNSP,0,0		00005999
DESCR	RPLAFN,FNC,0	REPLACE (S,CS1,CS2)	00006000
DESCR	RPLCSP,0,0		00006001
DESCR	RPOSFN,FNC,0	RPOS (N)	00006002
DESCR	RPOSSP,0,0		00006003
DESCR	RTABFN,FNC,0	RTAB (N)	00006004
DESCR	RTABSP,0,0		00006005
DESCR	SIZEFN,FNC,0	SIZE (S)	00006006
DESCR	SIZESP,0,0		00006007
DESCR	SPANFN,FNC,0	SPAN (CS)	00006008
DESCR	SPANSP,0,0		00006009
DESCR	STPTFN,FNC,0	STOPTR (V,R)	00006010
DESCR	STPTSP,0,0		00006011
DESCR	TABFN,FNC,0	TAB (N)	00006012
DESCR	TABSP,0,0		00006013
DESCR	ASSCFN,FNC,0	TABLE (N,M)	00006014
DESCR	ASSCSP,0,0		00006015
DESCR	TIMFN,FNC,0	TIME (I)	00006016
DESCR	TIMSP,0,0		00006017
DESCR	TRCFN,FNC,0	TRACE (V,R,T,F)	00006018
DESCR	TRCESP,0,0		00006019
DESCR	TRIMFN,FNC,0	TRIM (S)	00006020
DESCR	TRMSP,0,0		00006021
DESCR	UNLDFN,FNC,0	UNLOAD (S)	00006022
DESCR	UNLDSP,0,0		00006023
DESCR	VALFN,FNC,0	VALUE (S)	00006024
DESCR	VALSP,0,0		00006025
ARRAY	10*2	Space for 10 more functions	00006026
FNCPL	LHERE	End of function pair list	00006027
OPTBL	DESCR	OPTBL,TTL+MARK,OPTBND-OPTBL-DESCR	00006028
ADDFN	DESCR	ADD,0,2 X + Y addition	00006029

SOURCE LISTING

	DESCR	0,0,0			00006030
	DESCR	30,0,29			00006031
BIAMFN	DESCR	UNDF,FNC,0	X & Y	definable	00006032
	DESCR	0,0,0			00006033
	DESCR	5,0,4			00006034
BIATFN	DESCR	UNDF,FNC,0	X @ Y	definable	00006035
	DESCR	0,0,0			00006036
	DESCR	25,0,24			00006037
BINGFN	DESCR	UNDF,FNC,0	X ~ Y	definable	00006038
	DESCR	0,0,0			00006039
	DESCR	70,0,70			00006040
BIPDFN	DESCR	UNDF,FNC,0	X # Y	definable	00006041
	DESCR	0,0,0			00006042
	DESCR	35,0,34			00006043
BIPRFN	DESCR	UNDF,FNC,0	X % Y	definable	00006044
	DESCR	0,0,0			00006045
	DESCR	45,0,44			00006046
BIQSFN	DESCR	UNDF,FNC,0	X ? Y	definable	00006047
	DESCR	0,0,0			00006048
	DESCR	70,0,69			00006049
CONFN	DESCR	CON,0,2	X Y	concatenation	00006050
	DESCR	0,0,0			00006051
	DESCR	20,0,19			00006052
DIVFN	DESCR	DIV,0,2	X / Y	division	00006053
	DESCR	0,0,0			00006054
	DESCR	40,0,39			00006055
DOLFN	DESCR	DOL,0,2	X \$ Y	immediate naming	00006056
	DESCR	0,0,0			00006057
	DESCR	60,0,59			00006058
EXPFN	DESCR	EXP,0,2	X ** Y	exponentiation	00006059
	DESCR	0,0,0			00006060
	DESCR	50,0,50			00006061
MPYFN	DESCR	MPY,0,2	X * Y	multiplication	00006062
	DESCR	0,0,0			00006063
	DESCR	42,0,41			00006064
NAMFN	DESCR	NAM,0,2	X . Y	naming	00006065
	DESCR	0,0,0			00006066
	DESCR	60,0,59			00006067
ORFN	DESCR	OR,0,2	X   Y	alternation	00006068
	DESCR	0,0,0			00006069
	DESCR	10,0,9			00006070
SUBFN	DESCR	SUB,0,2	X - Y	subtraction	00006071
	DESCR	0,0,0			00006072
	DESCR	30,0,29			00006073
AROWFN	DESCR	UNDF,FNC,0	!X	definable	00006074
	DESCR	0,0,0			00006075
ATFN	DESCR	ATOP,0,1	@X	scanner position	00006076
	DESCR	0,0,0			00006077
BARFN	DESCR	UNDF,FNC,0	X	definable	00006078
	DESCR	0,0,0			00006079
DOTFN	DESCR	NAME,0,1	.X	name	00006080
	DESCR	0,0,0			00006081
INDFN	DESCR	IND,0,1	\$X	indirect reference	00006082
	DESCR	0,0,0			00006083
KEYFN	DESCR	KEYWRD,0,1	&X	keyword	00006084
	DESCR	0,0,0			00006085
MNSFN	DESCR	MNS,0,1	-X	minus	00006086
	DESCR	0,0,0			00006087
NEGFN	DESCR	NEG,0,1	~X	negation	00006088
	DESCR	0,0,0			00006089
PDFN	DESCR	UNDF,FNC,0	*X	definable	00006090
	DESCR	0,0,0			00006091
PLSFN	DESCR	PLS,0,1	+X	plus	00006092
	DESCR	0,0,0			00006093
PRFN	DESCR	UNDF,FNC,0	%X	definable	00006094
	DESCR	0,0,0			00006095
QUESFN	DESCR	QUES,0,1	?X	interrogation	00006096
	DESCR	0,0,0			00006097
SLHFN	DESCR	UNDF,FNC,0	/X	definable	00006098
	DESCR	0,0,0			00006099
STRFN	DESCR	STR,0,1	*X	unevaluated expression	00006100
	DESCR	0,0,0			00006101
OPTBND	LHERE	,		End of operator table	00006102
*					00006103
*					00006104
AREFN	DESCR	ITEM,FNC,1		Array or table reference	00006105
ASGNFN	DESCR	ASGN,0,2	X = Y		00006106
BASEFN	DESCR	BASE,0,0		Base object code	00006107

SOURCE LISTING

ENDAFN	DESCR	ARGNER,0,0	Safety exit on trace psuedo-code	00006108
ENDFN	DESCR	END,0,0	End of program	00006109
ERORFN	DESCR	EROR,0,1	Erroneous statement	00006110
FNTRFN	DESCR	FENTR,0,2	Call tracing	00006111
FXTRFN	DESCR	FNEXTR,0,2	Return tracing	00006112
GOTGFN	DESCR	GOTG,0,1	:<X>	00006113
GOTLFN	DESCR	GOTL,0,1	:(L)	00006114
GOTOFN	DESCR	GOTO,0,1	Internal goto	00006115
INITFN	DESCR	INIT,0,1	Statement initialization	00006116
KEYTFN	DESCR	KEYTR,0,2	Keyword tracing	00006117
LABTFN	DESCR	LABTR,0,2	Label tracing	00006118
LITFN	DESCR	LIT,0,1	Literal evaluation	00006119
SCANFN	DESCR	SCAN,0,2	Pattern matching	00006120
SJSRFN	DESCR	SJSR,0,3	Pattern matching with replacement	00006121
VLTRFN	DESCR	VALTR,0,2	Value tracing	00006122
ANYCFN	DESCR	ANYC,0,3	Matching for ANY(S)	00006123
ARBFN	DESCR	ARBF,0,2	Failure for ARB	00006124
ARBNFN	DESCR	ARBNO,0,2	Matching for ARBNO(P)	00006125
ATOPFN	DESCR	ATP,0,3	Matching for @X	00006126
CHRFN	DESCR	CHR,0,3	Matching for string	00006127
BALFN	DESCR	BAL,0,2	Matching for BAL	00006128
BALFFN	DESCR	BALF,0,2	Failure for BAL	00006129
BRKCFN	DESCR	BRKC,0,3	Matching for BREAK(S)	00006130
DNMEFN	DESCR	DNME,0,2		00006131
DNMIFN	DESCR	DNME1,0,2		00006132
EARBFN	DESCR	EARB,0,2		00006133
DSARFN	DESCR	DSAR,0,3		00006134
ENMEFN	DESCR	ENME,0,3		00006135
ENMIFN	DESCR	ENMI,0,3		00006136
FARBFN	DESCR	FARB,0,2		00006137
FNMEFN	DESCR	FNME,0,2		00006138
LNTHFN	DESCR	LNTH,0,3	Matching for LEN(N)	00006139
NMEFN	DESCR	NME,0,2		00006140
NNYCFN	DESCR	NNYC,0,3	Matching for NOTANY(S)	00006141
ONARFN	DESCR	ONAR,0,2		00006142
ONRFFN	DESCR	ONRF,0,2		00006143
POSIFN	DESCR	POSI,0,3	Matching for POS(N)	00006144
RPSIFN	DESCR	RPSI,0,3	Matching for RPOS(N)	00006145
RTBFN	DESCR	RTB,0,3	Matching for RTAB(N)	00006146
SALFFN	DESCR	SALF,0,2		00006147
SCFLFN	DESCR	FAIL,0,2		00006148
SCOKFN	DESCR	SCOK,0,2	Successful match procedure	00006149
SCONFN	DESCR	SCON,0,2		00006150
SPNCFN	DESCR	SPNC,0,3	Matching for SPAN(S)	00006151
STARFN	DESCR	STAR,0,3	Matching for *X	00006152
TBFN	DESCR	TB,0,3	Matching for TAB(N)	00006153
ABORFN	DESCR	RTNUL3,0,3	Matching for ABORT	00006154
FNCFN	DESCR	FNCE,0,2	Matching for FENCE	00006155
FNCFFN	DESCR	RTNUL3,0,2	Failure for FENCE	00006156
SUCFFN	DESCR	SUCF,0,2	Matching for SUCCEED	00006157
*				00006158
*	Initialization Data for Functions			00006159
*				00006160
ABNDSP	STRING	'ABEND'		00006161
ABORSP	STRING	'ABORT'		00006162
ALNMSP	STRING	'ALPHABET'		00006163
ANCHSP	STRING	'ANCHOR'		00006164
ANYSP	STRING	'ANY'		00006165
APLYSP	STRING	'APPLY'		00006166
ARBS	STRING	'ARB'		00006167
ARBNSP	STRING	'ARBNO'		00006168
ARGSP	STRING	'ARG'		00006169
BACKSP	STRING	'BACKSPACE'		00006170
BALSP	STRING	'BAL'		00006171
BRKSP	STRING	'BREAK'		00006172
TRFRSP	STRING	'CALL'		00006173
CLERSP	STRING	'CLEAR'		00006174
CODESP	STRING	'CODE'		00006175
CLSP	STRING	'COLLECT'		00006176
CNVTSP	STRING	'CONVERT'		00006177
COPYSP	STRING	'COPY'		00006178
DATSP	STRING	'DATE'		00006179
DATASP	STRING	'DATA'		00006180
DEFISP	STRING	'DEFINE'		00006181
DIFFS	STRING	'DIFFER'		00006182
DTCHSP	STRING	'DETACH'		00006183
DTSP	STRING	'DATATYPE'		00006184
DUMPS	STRING	'DUMP'		00006185



SOURCE LISTING

DUPLSP	STRING	'DUPL'		00006186
ENDSP	STRING	'END'		00006187
ENDFSP	STRING	'ENDFILE'		00006188
EQSP	STRING	'EQ'		00006189
ERRLSP	STRING	'ERRLIMIT'		00006190
ERRTSP	STRING	'ERRTYPE'		00006191
EVALSP	STRING	'EVAL'		00006192
EXPSP	STRING	'EXPRESSION'		00006193
FAILSP	STRING	'FAIL'		00006194
FNCESP	STRING	'FENCE'		00006195
FLDSSP	STRING	'FIELD'		00006196
FNCLSP	STRING	'FNCLEVEL'		00006197
FRETSP	STRING	'FRETURN'		00006198
FTRCSP	STRING	'FTRACE'		00006199
FULLSP	STRING	'FULLSCAN'		00006200
FUNTSP	STRING	'FUNCTION'		00006201
GESP	STRING	'GE'		00006202
GTSP	STRING	'GT'		00006203
IDENSP	STRING	'IDENT'		00006204
INSP	STRING	'INPUT'		00006205
INTGSP	STRING	'INTEGER'		00006206
ITEMSP	STRING	'ITEM'		00006207
TRKYSP	STRING	'KEYWORD'		00006208
TRLASP	STRING	'LABEL'		00006209
LSTNSP	STRING	'LASTNO'		00006210
LENSP	STRING	'LEN'		00006211
LESP	STRING	'LE'		00006212
LGTSP	STRING	'LGT'		00006213
LOADSP	STRING	'LOAD'		00006214
LOCSP	STRING	'LOCAL'		00006215
LTSP	STRING	'LT'		00006216
MAXLSP	STRING	'MAXLNTH'		00006217
NAMESP	STRING	'NAME'		00006218
NESP	STRING	'NE'		00006219
NNYSP	STRING	'NOTANY'		00006220
NRETSP	STRING	'NRETURN'		00006221
OPSNP	STRING	'OPSYN'		00006222
OUTSP	STRING	'OUTPUT'		00006223
PATSP	STRING	'PATTERN'		00006224
POSSP	STRING	'POS'		00006225
PRTSP	STRING	'PROTOTYPE'		00006226
PNCHSP	STRING	'PUNCH'		00006227
RLSP	STRING	'REAL'		00006228
REMS	STRING	'REM'		00006229
REMDSP	STRING	'REMDR'		00006230
RETSP	STRING	'RETURN'		00006231
REWNP	STRING	'REWIND'		00006232
RPLCSP	STRING	'REPLACE'		00006233
RPOSSP	STRING	'RPOS'		00006234
RTABSP	STRING	'RTAB'		00006235
RTYSP	STRING	'RTNTYPE'		00006236
SIZEP	STRING	'SIZE'		00006237
SPANP	STRING	'SPAN'		00006238
STCTSP	STRING	'STCOUNT'		00006239
STFCSP	STRING	'STFCOUNT'		00006240
STLMS	STRING	'STLIMIT'		00006241
STPTSP	STRING	'STOPTR'		00006242
STNOSP	STRING	'STNO'		00006243
VARS	STRING	'STRING'		00006244
SUCCSP	STRING	'SUCCEED'		00006245
TABSP	STRING	'TAB'		00006246
TIMSP	STRING	'TIME'		00006247
TRCESP	STRING	'TRACE'		00006248
TRMSP	STRING	'TRIM'		00006249
UNLDSP	STRING	'UNLOAD'		00006250
VALSP	STRING	'VALUE'		00006251
*				00006252
CRDFSP	STRING	'(80A1)'	Default output format	00006253
OUTPSP	STRING	'(1X,132A1)'	Standard print format	00006254
*				00006255
*		Pointers to Other Initialization		00006256
*				00006257
ABNDB	LHERE			00006258
	DESCR	ALPHSP,0,0	&ALPHABET	00006259
	DESCR	ALPHVL,0,0		00006260
	DESCR	CRDFSP,0,0	Default output format	00006261
	DESCR	DFLFST,0,0		00006262
	DESCR	EXDTSP,0,0	'EXTERNAL'	00006263

SOURCE LISTING

DESCR	EXTPTR,0,0		00006264
DESCR	ENDSP,0,0	'END'	00006265
DESCR	ENDPTR,0,0		00006266
DESCR	FRETSP,0,0	'FRETURN'	00006267
DESCR	FRETCL,0,0		00006268
DESCR	FUNTSP,0,0	'FUNCTION'	00006269
DESCR	FUNTCL,0,0		00006270
DESCR	NRETSP,0,0	'NRETURN'	00006271
DESCR	NRETCL,0,0		00006272
DESCR	RETSP,0,0	'RETURN'	00006273
DTEND	DESCR	RETCL,0,0	00006274
BUFEXT	EQU	DTEND-ANYSP	00006275
BUFLN	EQU	BUFEXT*CPA	00006276
*			00006277
*	System Arrays		00006278
*			00006279
PRMTBL	DESCR	PRMTBL,TTL+MARK,PRMSIZ	00006280
DESCR	DTLIST,0,0	Data type pair list	00006281
DESCR	FNLIST,0,0	Function pair list	00006282
DESCR	FTABLE,0,0	Procedure descriptor table	00006283
DESCR	ICLBLK,0,0	Miscellaneous data	00006284
DESCR	KNLIST,0,0	Unprotected keyword pair list	00006285
DESCR	KVLIST,0,0	Protected keyword pair list	00006286
DESCR	OPTBL,0,0	Operator procedure descriptors	00006287
DESCR	STACK,0,0	Interpreter stack	00006288
DESCR	INLIST,0,0	Input association pair list	00006289
DESCR	OTLIST,0,0	Output association pair list	00006290
DESCR	INSATL,0,0	Input block list	00006291
DESCR	OTSATL,0,0	Output block list	00006292
DESCR	TFENPL,0,0	Call trace pair list	00006293
DESCR	TFEXPL,0,0	Return trace pair list	00006294
DESCR	TKEYPL,0,0	Keyword trace pair list	00006295
DESCR	TLABPL,0,0	Label trace pair list	00006296
DESCR	TRLIST,0,0	Trace pair list	00006297
DESCR	TVALPL,0,0	Value trace pair list	00006298
PRMTRM	LHERE	,	00006299
PRMSIZ	EQU	PRMTRM-PRMTBL-DESCR	00006300
*			00006301
*	String Storage Bin List		00006302
*			00006303
OBLOCK	DESCR	OBLOCK,TTL+MARK,OBARY*DESCR	00006304
ARRAY	3	Pseudo heading	00006305
OBSTRT	ARRAY	OBSIZ	00006306
OBLIST	EQU	OBSTRT-LNKFLD	00006307
*			00006308
*	Pattern Matching History List		00006309
*			00006310
PDLBLK	DESCR	PDLBLK,TTL+MARK,SPDLSZ*DESCR	00006311
ARRAY	SPDLSZ	Pattern history list	00006312
*			00006313
*	SYSTEM STACK		00006314
*			00006315
STACK	DESCR	STACK,TTL+MARK,STSIZE*DESCR	00006316
ARRAY	STSIZE	Interpreter stack	00006317
*			00006318
*	Primitive Patterns		00006319
*			00006320
ABORPT	DESCR	ABORPT,TTL+MARK,3*DESCR	00006321
DESCR	ABORFN,FNC,2	ABORT	00006322
DESCR	0,0,0		00006323
DESCR	0,0,0		00006324
*			00006325
ARBAK	DESCR	ARBAK,TTL+MARK,6*DESCR	00006326
DESCR	ONARFN,FNC,2		00006327
DESCR	3*DESCR,0,0		00006328
DESCR	0,0,0		00006329
DESCR	ONRFFN,FNC,2		00006330
DESCR	0,0,0		00006331
DESCR	0,0,0		00006332
*			00006333
ARBPT	DESCR	ARBPT,TTL+MARK,9*DESCR	00006334
DESCR	SCOKFN,FNC,2	ARB	00006335
DESCR	0,0,3*DESCR		00006336
DESCR	0,0,0		00006337
DESCR	SCOKFN,FNC,2		00006338
DESCR	6*DESCR,0,0		00006339
DESCR	0,0,0		00006340
DESCR	FARBFN,FNC,2		00006341

SOURCE LISTING

	DESCR	6*DESCR,0,0		00006342
	DESCR	0,0,0		00006343
*	ARHED	DESCR	ARHED, TTL+MARK, 12*DESCR	00006344
		DESCR	SCOKFN, FNC, 2	00006345
		DESCR	0,0,3*DESCR	00006346
		DESCR	0,0,0	00006347
		DESCR	SCOKFN, FNC, 2	00006348
		DESCR	6*DESCR, 0,0	00006349
		DESCR	0,0,0	00006350
		DESCR	ARBTFN, FNC, 2	00006351
		DESCR	9*DESCR, 0, 12*DESCR	00006352
		DESCR	0,0,0	00006353
		DESCR	ARBFFN, FNC, 2	00006354
		DESCR	0,0,0	00006355
		DESCR	0,0,0	00006356
		DESCR	0,0,0	00006357
*	ARTAL	DESCR	ARTAL, TTL+MARK, 6*DESCR	00006358
		DESCR	EARBFN, FNC, 2	00006359
		DESCR	0,0,3*DESCR	00006360
		DESCR	0,0,0	00006361
		DESCR	SCOKFN, FNC, 2	00006362
		DESCR	6*DESCR, 0,0	00006363
		DESCR	0,0,0	00006364
				00006365
				00006366
*	BALPT	DESCR	BALPT, TTL+MARK, 9*DESCR	00006367
		DESCR	SCOKFN, FNC, 2 BAL	00006368
		DESCR	0,0,3*DESCR	00006369
		DESCR	0,0,0	00006370
		DESCR	BALFN, FNC, 2	00006371
		DESCR	6*DESCR, 0,0	00006372
		DESCR	0,0,0	00006373
		DESCR	BALFFN, FNC, 2	00006374
		DESCR	6*DESCR, 0,0	00006375
		DESCR	0,0,0	00006376
				00006377
*	FAILPT	DESCR	FAILPT, TTL+MARK, 3*DESCR	00006378
		DESCR	SALFFN, FNC, 2 FAIL	00006379
		DESCR	0,0,0	00006380
		DESCR	0,0,0	00006381
				00006382
*	FNCEPT	DESCR	FNCEPT, TTL+MARK, 3*DESCR	00006383
		DESCR	FNCFN, FNC, 2 FENCE	00006384
		DESCR	0,0,0	00006385
		DESCR	0,0,0	00006386
				00006387
*	REMPT	DESCR	REMPT, TTL+MARK, 4*DESCR	00006388
		DESCR	RTBFN, FNC, 3 REM	00006389
		DESCR	0,0,0	00006390
		DESCR	0,0,0	00006391
		DESCR	0,0,1	00006392
				00006393
*	STARPT	DESCR	STARPT, TTL+MARK, 11*DESCR	00006394
		DESCR	STARFN, FNC, 3	00006395
		DESCR	0,0,4*DESCR	00006396
		DESCR	1,0,0	00006397
		DESCR	0,0,0	00006398
		DESCR	SCOKFN, FNC, 2	00006399
		DESCR	7*DESCR, 0,0	00006400
		DESCR	0,0,0	00006401
		DESCR	DSARFN, FNC, 3	00006402
		DESCR	0,0,4*DESCR	00006403
		DESCR	0,0,0	00006404
		DESCR	0,0,0	00006405
				00006406
*	SUCOPT	DESCR	SUCOPT, TTL+MARK, 3*DESCR	00006407
		DESCR	SUCFFN, FNC, 2 SUCCEED	00006408
		DESCR	0,0,0	00006409
		DESCR	0,0,0	00006410
				00006421
*	TVALPL	DESCR	TVALPL, TTL+MARK, 2*DESCR	00006422
		DESCR	0,0,0 VALUE trace	00006423
		DESCR	0,0,0	00006424
	TLABPL	DESCR	TLABPL, TTL+MARK, 2*DESCR	00006425
		DESCR	0,0,0 LABEL trace	00006426
		DESCR	0,0,0	00006427
	TFENPL	DESCR	TFENPL, TTL+MARK, 2*DESCR	00006428
		DESCR	0,0,0 CALL trace	00006429

SOURCE LISTING

	DESCR	0,0,0	00006430
TFEXPL	DESCR	TFEXPL,TTL+MARK,2*DESCR	00006431
	DESCR	0,0,0 RETURN trace	00006432
	DESCR	0,0,0	00006433
TKEYPL	DESCR	TKEYPL,TTL+MARK,2*DESCR	00006434
	DESCR	0,0,0 KEYWORD trace	00006435
	DESCR	0,0,0	00006436
*			00006437
VALBLK	DESCR	VALBLK,TTL+MARK,6*DESCR	00006438
	DESCR	0,0,S STRING	00006439
	DESCR	0,0,0 0 offset	00006440
	DESCR	0,0,N NAME	00006441
	DESCR	0,0,0 0 offset	00006442
	DESCR	0,0,K KEYWORD (NAME)	00006443
	DESCR	0,0,0 0 offset	00006444
*			00006445
*	Fatal Error Message Pointers		00006446
*			00006447
MSGLST	DESCR	0,0,0	00006448
	DESCR	MSG1,0,0	00006449
	DESCR	MSG2,0,0	00006450
	DESCR	MSG3,0,0	00006451
	DESCR	MSG4,0,0	00006452
	DESCR	MSG5,0,0	00006453
	DESCR	MSG6,0,0	00006454
	DESCR	MSG7,0,0	00006455
	DESCR	MSG8,0,0	00006456
	DESCR	MSG9,0,0	00006457
	DESCR	MSG10,0,0	00006458
	DESCR	MSG11,0,0	00006459
	DESCR	MSG12,0,0	00006460
	DESCR	MSG13,0,0	00006461
	DESCR	MSG14,0,0	00006462
	DESCR	MSG15,0,0	00006463
	DESCR	MSG16,0,0	00006464
	DESCR	MSG17,0,0	00006465
	DESCR	MSG18,0,0	00006466
	DESCR	MSG19,0,0	00006467
	DESCR	MSG20,0,0	00006468
	DESCR	MSG21,0,0	00006469
	DESCR	MSG22,0,0	00006470
	DESCR	MSG23,0,0	00006471
	DESCR	MSG24,0,0	00006472
	DESCR	MSG25,0,0	00006473
	DESCR	MSG26,0,0	00006474
	DESCR	MSG27,0,0	00006475
	DESCR	MSG28,0,0	00006476
*			00006477
*	Fatal Error Messages		00006478
*			00006479
MSG1	STRING	'ILLEGAL DATA TYPE'	00006480
MSG2	STRING	'ERROR IN ARITHMETIC OPERATION'	00006481
MSG3	STRING	'ERRONEOUS ARRAY OR TABLE REFERENCE'	00006482
MSG4	STRING	'NULL STRING IN ILLEGAL CONTEXT'	00006483
MSG5	STRING	'UNDEFINED FUNCTION OR OPERATION'	00006484
MSG6	STRING	'ERRONEOUS PROTOTYPE'	00006485
MSG7	STRING	'UNKNOWN KEYWORD'	00006486
MSG8	STRING	'VARIABLE NOT PRESENT WHERE REQUIRED'	00006487
MSG9	STRING	'ENTRY POINT OF FUNCTION NOT LABEL'	00006488
MSG10	STRING	'ILLEGAL ARGUMENT TO PRIMITIVE FUNCTION'	00006489
MSG11	STRING	'READING ERROR'	00006490
MSG12	STRING	'ILLEGAL I/O UNIT'	00006491
MSG13	STRING	'LIMIT ON DEFINED DATA TYPES EXCEEDED'	00006492
MSG14	STRING	'NEGATIVE NUMBER IN ILLEGAL CONTEXT'	00006493
MSG15	STRING	'STRING OVERFLOW'	00006494
MSG16	STRING	'OVERFLOW DURING PATTERN MATCHING'	00006495
MSG17	STRING	'ERROR IN SNOBOL4 SYSTEM'	00006496
MSG18	STRING	'RETURN FROM LEVEL ZERO'	00006497
MSG19	STRING	'FAILURE DURING GOTO EVALUATION'	00006498
MSG20	STRING	'INSUFFICIENT STORAGE TO CONTINUE'	00006499
MSG21	STRING	'STACK OVERFLOW'	00006500
MSG22	STRING	'LIMIT ON STATEMENT EXECUTION EXCEEDED'	00006501
MSG23	STRING	'OBJECT EXCEEDS SIZE LIMIT'	00006502
MSG24	STRING	'UNDEFINED OR ERRONEOUS GOTO'	00006503
MSG25	STRING	'INCORRECT NUMBER OF ARGUMENTS'	00006504
MSG26	STRING	'LIMIT ON COMPILATION ERRORS EXCEEDED'	00006505
MSG27	STRING	'ERRONEOUS END STATEMENT'	00006506
MSG28	STRING	'EXECUTION OF STATEMENT WITH COMPILATION ERROR'	00006507

SOURCE LISTING

*			00006508
*	Compiler Error Messages		00006509
*			00006510
	EMSG1 STRING	'ERRONEOUS LABEL'	00006511
	EMSG2 STRING	'PREVIOUSLY DEFINED LABEL'	00006512
	EMSG3 STRING	'ERRONEOUS SUBJECT'	00006513
	EMSG14 STRING	'ERROR IN GOTO'	00006514
	ILCHAR STRING	'ILLEGAL CHARACTER IN ELEMENT'	00006515
	ILLBIN STRING	'BINARY OPERATOR MISSING OR IN ERROR'	00006516
	ILLBRK STRING	'ERRONEOUS OR MISSING BREAK CHARACTER'	00006517
	ILLDEC STRING	'ERRONEOUS REAL NUMBER'	00006518
	ILLEOS STRING	'IMPROPERLY TERMINATED STATEMENT'	00006519
	ILLINT STRING	'ERRONEOUS INTEGER'	00006520
	OPNLIT STRING	'UNCLOSED LITERAL'	00006521
*			00006522
*	Formats		00006523
*			00006524
	ARTHNO FORMAT	'(1H0,I15,32H ARITHMETIC OPERATIONS PERFORMED)'	00006525
	CMTIME FORMAT	'(1H0,I15,21H MS. COMPILATION TIME)'	00006526
	EJECTF FORMAT	'(1H1)'	00006527
	ERRCF FORMAT	'(34H0ERRORS DETECTED IN SOURCE PROGRAM/1H1)'	00006528
	EXNO FORMAT	'(1H0,I15,21H STATEMENTS EXECUTED,,18,7H FAILED)'	00006529
	FTLCF FORMAT	'(6H1ERROR,I3,13H IN STATEMENT,I5,9H AT LEVEL,I3)'	
		E3.4.1	
*			00006531
	INCGCF FORMAT	'(33H1INCOMPLETE STORAGE REGENERATION.)'	00006532
	INTIME FORMAT	'(1H0,I15,19H MS. EXECUTION TIME)'	00006533
	LASTSF FORMAT	'(28H LAST STATEMENT EXECUTED WAS,I5)'	00006534
	NODMPF FORMAT	'(28H1TERMINAL DUMP NOT POSSIBLE.)'	00006535
	NRMEND FORMAT	'(28H1NORMAL TERMINATION AT LEVEL,I3)'	00006536
	NVARF FORMAT	'(18H0NATURAL VARIABLES,/1H)'	00006537
	PKEYF FORMAT	'(21H0UNPROTECTED KEYWORDS/1H)'	00006538
	PRTOVF FORMAT	'(29H ***PRINT REQUEST TOO LONG***)'	00006539
	READNO FORMAT	'(1H0,I15,16H READS PERFORMED)'	00006540
	SCANNO FORMAT	'(1H0,I15,26H PATTERN MATCHES PERFORMED)'	00006541
	SOURCF FORMAT	'(42H0BELL TELEPHONE LABORATORIES, INCORPORATED,/1H1)'	00006542
	STATHD FORMAT	'(28H1SNOBOL4 STATISTICS SUMMARY-)'	00006543
	STDMP FORMAT	'(33H1DUMP OF VARIABLES AT TERMINATION/1H)'	00006544
	STGENO FORMAT	'(1H0,I15,33H REGENERATIONS OF DYNAMIC STORAGE)'	00006545
	SUCCF FORMAT	'(37H0NO ERRORS DETECTED IN SOURCE PROGRAM/1H1)'	
	SYSCMT FORMAT	'(27H0CUT BY SYSTEM IN STATEMENT,I5,9H AT LEVEL,I3)'	
		E3.4.1	
*			00006547
	TIMEPS FORMAT	'(1H0,F15.2,35H MS. AVERAGE PER STATEMENT EXECUTED/1H1)'	
	TITLEF FORMAT	'(37H1SNOBOL4 (VERSION 3.7, JUL. 10, 1971)/8H+_____)'	
		V3.7	
*			00006549
	WRITNO FORMAT	'(1H0,I15,17H WRITES PERFORMED)'	00006550
	END		

A cross-reference listing of the macro source for Version 3.7 of SNOBOL4 follows. This listing is provided to assist implementors of SNOBOL4 in locating the definition and use of symbols. The following conventions apply:

(1) All numbers refer to the sequence numbers given in the original source listing for Version 3.0. These numbers appear in columns 77-80 of the Version 3.7 source. A number followed by a + indicates a line changed or added in Version 3.7. The number given is that of the last numbered line preceding the change.

(2) Up to 19 characters of the operand field are printed. Longer fields are truncated at 16 characters and followed by ... .

(3) Some symbols are referenced but not defined in the source listing. These are indicated by ---- .

This cross-reference listing was produced by adapting programs written by Randy Davis of the Stanford Linear Accelerator Center. Permission to use these programs is gratefully acknowledged. A copy of a report, CGTM 118, describing these programs is available from the author:

Mr. Randy Davis  
SLAC, P. O. Box 4349  
Stanford, California 94305

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																	
A	0317	EQU	4	0475	3481	3597	3611	4746	5266	5381	5393										
ABNDB	6258	LHERE	,	5497																	
ABNDCL	5307	DESCR	0,0,I	5131+																	
ABNDSP	6161	STRING	'ABEND'	5308																	
ABNS	2513	INCRA	PATICL,DESCR	2545	2559	2573															
ABNSE	2518+	RCALL	XPTR,EXPVAL,XPTR...	2518																	
ABNSF	2518+	POP	SCL	2518+																	
ABNSI	2521	RCALL	XPTR,GNVARI,XPTR	2518+																	
ABNSND	2025	RCALL	XPTR,ARGVAL,,FAIL	2016																	
ABNSV	2522	POP	SCL	2515+																	
ABNS1	2515+	VEQLC	XPTR,S,,ABNSV	2518+																	
ABOPAT	5320	DESCR	ABORPT,0,P	0358																	
ABORFN	6154	DESCR	RTNUL3,0,3	6322																	
ABORPT	6321	DESCR	ABORPT,TTL+MARK,...	5320	6321																
ABORSP	6162	STRING	'ABORT'	5321																	
ABRTKY	5321	DESCR	ABORSP,0,0	0358																	
AD	1912	SUM	ZPTR,XPTR,YPTR,A...	1877																	
ADD	1813	PROC	,	1817	1821	1825	1829	1833	1837	1841	1845	1849									
				1853	1857	6029															
ADDFN	6029	DESCR	ADD,0,2																		
AERROR	5140	SETAC	ERRTYP,2	1912	1914	1916	1918	1920	1934	1936	1938	1940									
				1942	1956	1984															
ALCL	5410	DESCR	0,0,0	4558	4564	4570	4571														
ALNMSP	6163	STRING	'ALPHABET'	5337																	
ALOC2	5143	SETAC	ERRTYP,20	0570	0624	0662															
ALPHA	----			5576																	
ALPHSP	5576	SPEC	ALPHA,0,0,0,ALPHSZ	6259																	
ALPHSZ	----			5576																	
ALPHVL	5336	DESCR	0,0,0	6260																	
AMPSP	5577	SPEC	AMPST,0,0,0,1	4074	4873																
AMPST	----			5577																	
ANCCL	5305	DESCR	0,0,I	2229	2303	2413															
ANCHSP	6164	STRING	'ANCHOR'	5306																	
ANY	2009	PROC	,	2013	2018	2022	2036	2040	2044	2048	2052	5742									
ANYC	2511	PROC	,	2543	2557	2571	6123														
ANYCCL	5461	DESCR	ANYCFN,FNC,3	2010	2526	2532															
ANYCFN	6123	DESCR	ANYC,0,3	5461																	
ANYC2	2528	CLERTB	SNABTB,ERROR	2525																	
ANYC3	2533	SETSP	VSP,XSP	2526	2548	2555	2562	2569													
ANYC4	2537	REMSP	YSP,VSP,TXSP	2534	2536+	2536+															
ANYFN	5783	DESCR	ANY,0,1	5912																	
ANYSP	6165	STRING	'ANY'	5578	5580	5583	5586	5913	6275												
ANYV	2525	DEQL	XPTR,TBLCS,ANYC2																		
APLYFN	5785	DESCR	APPLY,FNC,1	5914																	
APLYSP	6166	STRING	'APPLY'	5915																	
APPLY	4511	PROC	,	5785																	
AR	1934	ADREAL	ZPTR,XPTR,YPTR,A...	1894																	
ARBACK	5454	DESCR	ARBAK,0,P	2090																	
ARBAK	6326	DESCR	ARBAK,TTL+MARK,6...	5454	6326																
ARBF	2679	PROC	ARBAN	6124																	
ARBFFN	6124	DESCR	ARBF,0,2	6355																	
ARBKY	5315	DESCR	ARBSP,0,0	0359																	
ARBAN	2674	PROC	,	2679	2683	2691	2704	6125													
ARBANFN	6125	DESCR	ARBAN,0,2	6352																	
ARBNO	2070	PROC	,	5787																	
ARBNSP	6168	STRING	'ARBNO'	5917																	
ARBOFN	5787	DESCR	ARBNO,0,1	5916																	
ARBP	2078	GETSIZ	XSIZ,XPTR	2072																	
ARBPAT	5314	DESCR	ARBPT,0,P	0359																	
ARBPT	6334	DESCR	ARBPT,TTL+MARK,9...	5314	6334																
ARBSIZ	5423	DESCR	8*NODESZ,0,0	2079																	
ARBSP	6167	STRING	'ARB'	5315																	
AREFN	6105	DESCR	ITEM,FNC,1	5481																	
ARG	4530	PROC	,	4534	4539	4544	5789														
ARGFN	5789	DESCR	ARG,0,2	5918																	
ARGINT	4534	PROC	ARG	4012																	
ARGNER	5146	SETAC	ERRTYP,25	1606	3628	3655	4513+	6108													
ARGSP	6169	STRING	'ARG'	5919																	
ARGVAL	1614	PROC	,	1509	1686	1967	1979	1998	2025	2054	2210	2320									
				3366	3437	3596	3609	3657	3737	3916	4347	4493									
				4503	4582	4608	4627	4796	4805	5014											
ARGVC	1624	RCALL	XPTR,INVOKE,(XPT...	1617																	
ARGV1	1618	AEQLC	INSW,0,,ARGV2	1624																	
ARGV2	1626	GETDC	XPTR,XPTR,DESCR	1618	1619																
ARG1	4547	RCALL	XPTR,VARVAL,,FAIL	4532	4542																
ARG1CL	5725	DESCR	0,0,0	0553	0554	0557	0559	0563	0566	0570											

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>														
ARG2	4553	LOCAPV	XPTR, FNCPL, XPTR, ...	4537														
ARG4	4569	GETSIZ	ZCL, XPTR	4564														
ARG5	4573	ACOMP	XCL, ZCL, FAIL	4567	4571													
ARHEAD	5455	DESCR	ARHED, 0, P	2083	2084													
ARHED	6345	DESCR	ARHED, TTL+MARK, 1...	5455	6345													
ARITH	1861	PUSH	SCL	1815	1819	1823	1827	1831	1835	1839	1843	1847						
				1851	1855	1859												
AROWFN	6074	DESCR	UNDF, FNC, 0															
ARRAFN	5791	DESCR	ARRAY, 0, 2	5920														
ARRAY	3434	PROC	.	5791														
ARRAY1	3443+	STREAM	YSP, XSP, NUMBTB, P...	3468														
ARRAY3	3454	ACOMPC	YCL, 0, , PROTER, PR...	3447	3471													
ARRAY5	3460	SUBTRT	ZCL, ZCL, YCL	3451	3475													
ARRAY6	3463	SETVA	YCL, ZCL	3458														
ARRAY7	3478	SUM	ZCL, XCL, WCL	3466+														
ARRAY8	3487	INCRA	XPTR, DESCR	3491														
ARRAY9	3492	PUTDC	XPTR, DESCR, TPTR	3494														
ARRFIL	3493	INCRA	XPTR, DESCR	3491														
ARRLEN	0267	EQU	20	0484	5581	5612												
ARRMRK	5411	DESCR	0, 0, 0	3439	3466+	3470	3474											
ARROT1	3470	SETAC	ARRMRK, 1	3443+														
ARROT2	3474	SETAC	ARRMRK, 1	3449														
ARRSP	5588	STRING	'ARRAY'	0486	5267	5921												
ARTAIL	5456	DESCR	ARTAL, 0, P	2088														
ARTAL	6359	DESCR	ARTAL, TTL+MARK, 6...	5456	6359													
ARTHCL	5401	DESCR	0, 0, 0	5051	5114													
ARTHII	1877	SELBRA	SCL, (AD, DV, EX, MP...	1866	1880	1885												
ARTHIR	1896	INTRL	XPTR, XPTR	1871	1886	1903												
ARTHIV	1884	LOCSP	YSP, YPTR	1867	1890													
ARTHNO	6525	FORMAT	'(1H0, I15, 32H AR...	5114														
ARTHRI	1899	INTRL	YPTR, YPTR	1872	1881	1908												
ARTHRR	1394	SELBEA	SCL, (AR, DR, EXR, M...	1870	1897	1900	1904	1909										
ARTHRV	1907	LOCSP	YSP, YPTR	1874	1891													
ARTHVI	1879	LOCSP	XSP, XPTR	1868														
ARTHVR	1902	LOCSP	XSP, XPTR	1873														
ARTHVV	1889	LOCSP	XSP, XPTR	1869														
ARTN	5051	INCRA	ARTHCL, 1	1912	1914	1916	1918	1920	1934	1936	1938	1940						
				1942	1960	1984	1991	1999	2001	2004	2005							
ARYAD1	3614	ACOMPC	XCL, 0, , ARYAD2, AR...	3621														
ARYAD2	3623	MOVD	ZPTR, ZEROCL	3614	3614													
ARYAD3	3613	MOVD	WCL, XCL	3611														
ARYAD7	3628	ACOMP	WCL, ZCL, ARGNER, A...	3632														
ARYAD9	3634	INCRA	YCL, 2*DESCR	3628														
ARYA10	3652	SETVC	XPTR, N	3665+	3665													
ARYA11	3637	POP	XPTR	3648														
ARYA12	3650	MULTC	XPTR, XPTR, DESCR	3643														
ARYTYP	0288	EQU	7															
ASGN	4209	PROC	.	6106														
ASGNC	4236	RCALL	XPTR, INVOKE, (XPT...	4212														
ASGNCJ	4240	POP	XPTR	4247														
ASGNCL	5462	DESCR	ASGNFN, FNC, 2	0954														
ASGNCV	4238	PUSH	XPTR	4216														
ASGNFN	6106	DESCR	ASGN, 0, 2	5462														
ASGNIC	4246	PUSH	XPTR	4213														
ASGNV	4213	VEQLC	XPTR, K, , ASGNIC	4236														
ASGNVN	4217	AEQLC	INSW, 0, , ASGNV1	4244														
ASGNVP	4243	POP	XPTR	4239														
ASGNVV	4224	PUTDC	XPTR, DESCR, YPTR	4221	4241													
ASGNV1	4223	GETDC	YPTR, YPTR, DESCR	4217	4218													
ASGN1	4230	ACOMPC	TRAPCL, 0, , RTNUL3...	4225	4226													
ASSCFN	5793	DESCR	ASSOC, 0, 2	6014														
ASSCR	3655	AEQLC	XCL, 1, ARGNER	3612														
ASSCR2	3665+	GETSIZ	TCL, XPTR	3661														
ASSCR3	3665+	DECRA	TCL, DESCR	3665+														
ASSCP4	3663	MOVA	XPTR, WPTR	3657+														
ASSCR5	3657+	LOCAPV	WPTR, XPTR, YPTR, ....	3665+														
ASSCSP	5589	STRING	'TABLE'	0500	5279	6015												
ASSOC	3504	PROC	.	3513+	5793													
ASSOCE	3513+	PROC	ASSOC	3665+														
ASSOC1	3510+	INCRA	XPTR, 1	3509														
ASSOC2	3513+	DECRA	XPTR, 2*DESCR	3513+														
ASSOC4	3513+	INCRA	WPTR, 1	3512														
ATDTP	5381	DESCR	A, 0, T	4643														
ATEXCL	5377	DESCR	1, 0, 0	4747														
ATFN	6076	DESCR	ATOP, 0, 1															
ATOP	2097	PROC	.	6076														



CROSS REFERENCE

symbol	defn	type	value	references
ATOPCL	5463	DESCR	ATOPFN,FNC,3	2104
ATOPFN	6126	DESCR	ATP,0,3	5463
ATOP1	2103	RCALL	TPTR,BLOCK,LNODSZ	2100 2101
ATP	2733	PROC	,	6126
ATPEXN	2758+	RCALL	XPTR,EXPEVL,XPTR...	2736
ATPRCL	5374	DESCR	0,0,0	4746+ 5373
ATPTR	5640	DESCR	0,0,0	1525 1527+ 1573+ 1573 1591 1591+ 2389 2389+ 2746
				2752+ 2984 2992+ 3149 3150 3170 3172 3177 3178
				3178 3180+ 3187 3187+ 3199 3201 3206 3207 3207
				3209+ 3216 3218+ 4101 4105 4232+ 4232 4369 4371
				4427 4430+ 5251+ 5251
				2758+
ATP1	2736	VEQLC	XPTR,E,,ATPEXN	2740 2741
ATP2	2745	AEQLC	TRAPCL,0,,TSCOK	4748
ATRHD	5373	DESCR	ATPRCL-DESCR,0,0	0401 0613 0658 0702 0909 0912 1464 1540 3164+
ATTRIB	0258	EQU	2*DESCR	3164+
				0535 3548 3565 3774 3805 3944
AUGATL	0430	PROC	,	
AUGMOV	0446	DECRA	A4PTR,DESCR	
AUG1	0439	GETSIZ	A4PTR,A1PTR	0432
AVTIME	5131	OUTPUT	OUTPUT,TIMEPS,(FCL)	5126
AXPTR	5728	DESCR	0,0,0	0579 0580 0596 0597 0610 0633 0634 0642 0643
				0645 0656 0670 0671 0673 0674
				0431 0432 0436 0439 0447 0493+ 0493+ 0493+ 0493+
A1PTR	5637	DESCR	0,0,0	4840 4841
				0431 0434 0445 0474 0475 0476 0477 0478 0481
A2PTR	5638	DESCR	0,0,0	0493+ 0493+ 0493+ 0493+ 0493+ 0493+ 0493+ 0503+ 0503+
				0503+ 0510 4017 4018 4805 4806
A3PTR	5639	DESCR	0,0,0	0431 0435 0443 0481 0482 0483 0484 0493+ 0493+
				0493+ 0493+ 0493+ 0493+ 0493+ 0497 0497 0497 0498
				0511 0513 0513 0514 4807 4809 4809 4810 4812
A4PTR	5502	DESCR	0,0,0	0432 0434 0435 0439 0440 0441 0442 0443 0444
				0445 0446 0447 0841 0842 0849 0850 0851 0851
				0852 0853
A5PTR	5503	DESCR	0,0,0	0436 0442 0443 0445 0447 0842 0844 0848 5054
A5RTN	5054	RRTURN	A5PTR,1	0437 0448
A6PTR	5504	DESCR	0,0,0	0842 0843 0845 0848
A7PTR	5505	DESCR	0,0,0	0844 0845 0845 0846 0847 0853
B	0318	EQU	2	0441 3091 3312 3665+ 5425 5431 5434 5527 5763
BACKFN	5795	DESCR	BKSPCE,0,1	5922
BACKSP	6170	STRING	'BACKSPACE'	5923
BAL	2766	PROC	,	2785 6128
BALF	2785	PROC	BAL	6129
BALFFN	6129	DESCR	BALF,0,2	6374
BALFN	6128	DESCR	BAL,0,2	6371
BALF1	2767	AEQLC	FULLCL,0,,BALF4	2790
BALF2	2772	GETLG	TVAL,TXSP	2769 2788
BALF3	2790	AEQLC	LENFCL,0,BAL1,BALF1	2786
BALF4	2771	SETAV	NVAL,YCL	2767
BALKY	5317	DESCR	BALSP,0,0	0360
BALPAT	5316	DESCR	BALPT,0,P	0360
BALPT	6367	DESCR	BALPT,TTL+MARK,9...	5316 6367
BALSP	6171	STRING	'BAL'	5317
BAL1	2782	DECRA	PDLPTR,3*DESCR	2774 2774 2777 2790
BARFN	6078	DESCR	UNDF,FNC,0	
BASE	1499	PROC	,	6107
BASECL	5464	DESCR	BASEFN,FNC,0	0891 0904
BASEFN	6107	DESCR	BASE,0,0	5464
BCDFLD	0260	EQU	4*DESCR	
BEGIN	0331	INIT	,	
BIAMFN	6032	DESCR	UNDF,FNC,0	
BIATFN	6035	DESCR	UNDF,FNC,0	
BINCON	0873	MOVD	ZPTR,CONCL	0864
BINEOS	0876	SETAC	EMSGCL,ILLEOS	
BINERR	0870	SETAC	EMSGCL,ILLBIN	
BINGFN	6038	DESCR	UNDF,FNC,0	
BINOP	0861	PROC	,	1275
BINOP1	0868	RCALL	,FORWRD,,COMP3	0862
BIOPTB	----			0864 4945+ 4953+
BIPDFN	6041	DESCR	UNDF,FNC,0	
BIPRFN	6044	DESCR	UNDF,FNC,0	
BIQSFN	6047	DESCR	UNDF,FNC,0	
BKDX	5736	DESCR	0,0,0	0709 0711 0712 0717 0719 0722 0746 0749 0751
				0752 0758 0759 0760 0766 0767 0773 0774 0775
				0787 0788 0793 0798 0799 0814 0815 0820 0821
				0824 0827 0828 0829 0834
BKDXU	5737	DESCR	0,0,0	0686 0687 0690 0691 0744 0746 0761 0763 0764

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																	
BKLTCL	5738	DESCR	0,0,0	0776	0777	0779	0787	0794													
				0597	0598	0603	0624	0645	0646	0648	0658+	0658+									
				0662																	
BKPTR	5739	DESCR	0,PTR,S	0692	0693	0694	0695	0725	0727	0728	0729										
BKSPCE	3821	PROC	,	3825	3829	5795															
BK1CL	5735	DESCR	0,0,0	0812	0814	0815	0822	0823	0824	0829	0830	0831									
				0832	0833																
BLEQSP	5591	STRING	' = '	4143	4837	4875															
BLNBUF	5611	BUFFER	STNOSZ	5566																	
BLNSP	5566	SPEC	BLNBUF,0,0,0,STNOSZ	1388	1389																
BLOCK	0552	PROC	,	0336	0367	0442	0541	0897	1146	1148	1170	1184									
				1213	1215	1226	1231	1277	1327	1329	1462	1487									
				1748	2030+	2076	2081	2103	2133	2136	2139	2148									
				2176	2181	2188	2199	2330	2338	2345	2354	2949									
				3092	3313	3482	3513+	3579	3585	3718	3777	3809									
				3931	3956	4263	4282	4319	4326	4337	4618	4656									
				4745	4771																
BLOCK1	0556	MOVD	BLOCL,FRSGPT	0570																	
BLOCL	5740	DESCR	0,0,0	0556	0557	0563	0564	0564	0565	0566	0567	0569									
				0683	0684	0684	0685	0735	0736												
BLOGC	0569	MOVA	FRSGPT,BLOCL	0561																	
BLSP	5590	STRING	' '	1111	1117	4076	4183	4680+	4945+	4953+	4962	4969									
BNAF	4962	LEXCMP	XSP,BLSP,,BNCN	4945+	4945	4945+	4945+														
ENBF	4969	LEXCMP	YSP,BLSP,UNBF,,UNBF	4953+	4953+	4953	4953+														
BNCF	4952	LOCSP	YSP,YPTR	4964	4967																
BNCN	4966	MOVD	XPTR,CONCL	4962																	
BNYOP	4944	LOCSP	XSP,XPTR	4915																	
BOSCL	5670	DESCR	0,0,0	0885	0907	1091	1092	1093	1094	1095											
BREAFN	5797	DESCR	BREAK,0,1	5924																	
BREAK	2013	PROC	ANY	5797																	
BRKC	2543	PROC	ANYC	6130																	
BRKCCL	5465	DESCR	BRKCFN,FNC,3	2014	2548	2554															
BRKCFN	6130	DESCR	BRKC,0,3	5465																	
BRKC2	2550	CLERTB	SNABTB,CONTIN	2547																	
BRKSP	6172	STRING	'BREAK'	5925																	
BRKV	2547	DEQL	XPTR,TBLCB,BRKC2	2523																	
BRTYPE	5506	DESCR	0,0,0	0863	0869	0884	0915	0921	0923	0929	0931	0934									
				0936	0940	0947	0949	0973	0975	0989	0996	1000									
				1007	1013	1027	1030	1046	1058	1061	1100	1106									
				1117+	1177	1193	1195	1240	1242	1345	1358	1484									
BUFEXT	6275	EQU	DTEND-ANYSP	6276																	
BUFLEN	6276	EQU	BUFEXT*CPA	4006	4021	4032	4140	4155	4191	4834	4844	4851									
BUKPTR	5726	DESCR	0,PTR,S	0583	0584	0585	0585	0587	0588	0590	0593	0618									
C	0319	EQU	8	1461	1511	3930	4655	5270	5394	5426	5439										
CARDL	1381	SETLC	LNOSP,0	1376																	
CARDLL	1400	SETLC	LNOSP,0	1395																	
CARDSZ	0268	EQU	80	5513	5567	5568	5569	5570	5572	5613	5614										
CARDTB	----			0381	1125	1354															
CDIAG	1091	INCRA	BOSCL,DESCR	0926	0939	0952	0959	0988	0999	1026	1057	1076									
				1079	1082	1085	1088														
CDIAG1	1117+	AEQLC	UNIT,0,,R1N1	1098																	
CDIAG2	1109	STPRNT	IOKEY,OUTBLK,ERRSP	1106																	
CDIAG3	1104	PUTLG	ERRSP,YCL	1100																	
CEQ	1922	AEQL	XPTR,YPTR,FAIL,R...	1877																	
CERRSP	5578	SPEC	ANYSP,0,0,0,0	1113	1114	1115	1116														
CERR1	1075	SETAC	MSGCL,MSG1	0887																	
CERR11	1090	SETAC	MSGCL,MSG14	0975	0976	0989	0996	1000	1013	1014	1021	1027									
				1046	1047	1054	1058	1061													
CERR12	1087	SETAC	MSGCL,ILLEOS	0914	0976	1014	1047														
CERR2	1078	SETAC	MSGCL,MSG2	0911																	
CERR3	1081	SETAC	MSGCL,MSG3	0923																	
CERR5	1084	SETAC	MSGCL,ILLERK	0928	0936	0949															
CGE	1924	ACOMP	XPTR,YPTR,RETNUL...	1877																	
CGT	1926	ACOMP	XPTR,YPTR,RETNUL...	1877																	
CHARCL	5424	DESCR	1,0,0	2024	2419																
CHARZ	2024	PUSH	CHARCL	2011	2020																
CHR	2796	PROC	,	2812	2859	6127															
CHRCL	5466	DESCR	CHRFN,FNC,3	2077	2134	2177	2182	2200	2339	2346	4320	4338									
CHRFN	6127	DESCR	CHR,0,3	5466																	
CHR1	2799	LOCSP	TSP,YPTR	2820																	
CHR2	2800	REMSP	VSP,XSP,TXSP	2824																	
CLE	1928	ACOMP	XPTR,YPTR,FAIL,R...	1877																	
CLEAFN	5799	DESCR	CLEAR,0,1	5926																	
CLEAR	4581	PROC	,	5799																	
CLEAR1	4584	ACOMP	DMPPTR,OBEND,RETNUL	4588																	
CLEAR2	4587	GETAC	YPTR,YPTR,LNKFLD	4590																	



CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>										
CODFNC	0463	PUSH	YCL	0458										
CODSKP	0454	PROC	,	0465	4448	4495								
COLECT	4596	PROC	,	5803										
COLEFN	5803	DESCR	COLECT,0,1	5930										
COLSP	5579	SPEC	COLSTR,0,0,0,2	3999	4072	4135								
COLSTR	-----			5579										
COMDCT	5447	DESCR	14*DESCR,0,0	0415	4675									
COMP3	5151	SETAC	ERRTYP,17	0381	0381	0384	0392	0868	0926	0972	0995	1006		
				1029	1060	1120	1125	1125	1343	1354	1354	1405		
				1418	1482									
COMP5	5154	SETAC	ERRTYP,11	0379	1122	1351	3876							
COMP7	5157	SETAC	ERRTYP,27	0396	0397	0397	0402	0405	0405					
COMP9	5160	SETAC	ERRTYP,26	1097										
COMREG	5448	DESCR	ELEMND,0,0	0415	4675									
CON	4254	PROC	,	6050										
CONCL	5467	DESCR	CONFN,FNC,0	0873	4966	4970								
CONFN	6050	DESCR	CON,0,2	5467										
CONIR	4703	INTRL	ZPTR,ZPTR	4641	4699									
CONPP	4322	GETSIZ	XSIZ,XPTR	4301	4340									
CONPV	4335	LOCSP	TSP,YPTR	4300										
CONRI	4706	RLINT	ZPTR,ZPTR,FAIL,R...	4640	4714									
CONTIN	-----			2550	2580									
CONVAR	0641	PROC	GENVAR	2375	3872	4310	4895	4991						
CONVE	4686	PROC	CNVRT	1695	4638									
CONVEK	4690	RCALL	FORMND,EXPR,,FAIL	4662										
CONVP	4317	LOCSP	TSP,XPTR	4299										
CONVR	4698	LOCSP	ZSP,ZPTR	4639										
CONVR4	0662	RCALL	,GC,BKLTCL,(ALOC...	0651										
CONVR5	0653	PUTDC	FRSGPT,0,ZEROCL	0662										
CONVSW	5741	DESCR	0,0,0	0578	0611	0632	0644							
CONVV	4304	LOCSP	XSP,XPTR	4298										
CON41	4274	INTSPC	ZSP,XPTR	4260										
CON4R	4269	REALST	REALSP,XPTR	4261										
CON5	4277	VEQLC	YPTR,S,,CON7	4258	4259	4267	4271							
CON5I	4293	INTSPC	ZSP,YPTR	4279										
CON5R	4288	REALST	REALSP,YPTR	4280										
CON7	4296	SETAV	DTCL,XPTR	4277	4278	4286	4290							
COPY	4607	PROC	,	5807										
COPYFN	5807	DESCR	COPY,0,1	5934										
COPYSP	6178	STRING	'COPY'	5935										
CPA	-----			6276										
CPYCL	5742	DESCR	0,0,0	0707	0711	0711	0721	0722	0722					
CRDFSP	6253	STRING	'(80A1)'	5356	6261									
CSTNCL	5402	DESCR	0,0,I	0886	0968	0969	0986	0987	1009	1010	1037	1038		
				1067	1068	1094	1373	1394						
CTLCRD	1404	FSHRTN	TEXTSP,1	1370										
CTLCR1	1415	LEXCMP	XSP,LISTSP,CTLCR...	1410	1410									
CTLCR2	1428	SETAC	LLIST,0	1423	1423									
CTLCR3	1431	LEXCMP	XSP,EJCTSP,CMTCL...	1415	1415									
CTLTYP	0293	EQU	3											
CUTNO	5411+	DESCR	0,0,0	5134+	5134+									
DATA	5032	LHERE	,											
DATACL	5413	DESCR	0,0,0	3536	3553	3570								
DATASP	6180	STRING	'DATA'	5937										
DATA3	3552	FSHRTN	XSP,1	3557	3568									
DATA4	3557	LEQLC	YSP,0,,DATA3	3571										
DATA6	3570	SETAC	DATACL,1	3556										
DATCL	5543	DESCR	DEFDAT,FNC,0	3574	3575	4545								
DATDEF	3534	PROC	,	5811										
DATDFN	5811	DESCR	DATDEF,0,1	5936										
DATE	4795	PROC	,	5809										
DATFN	5809	DESCR	DATE,0,1	5937+										
DATSEG	5508	DESCR	0,0,100	3544	3545	3548	3551	3565	3578	3586				
DATSIZ	0273	EQU	1000	3545										
DATSP	6179	STRING	'DATE'	5939										
DAT5	3573	LEQLC	XSP,0,PROTER	3553										
DAT6	3584	PUTDC	XCL,0,FLDCL	3562										
DAT7	3566	PUTDC	XCL,DESCR,ZPTR	3589										
DEFCL	5544	DESCR	DEFDFNC,FNC,0	3073	3093	4531	4536	4540						
DEFDAT	3687	PROC	,	5543										
DEFDC	3723	PUSH	(XCL,WCL,YCL,YPTR)	3694										
DEFDN	3728	POP	(YPTR,YCL,WCL,XCL)	3724										
DEFDT	4171	LOCSP	XSP,ZPTR	4137										
DEFDTT	4037	APDSP	PROTSP,CMASP	4024										
DEFD1	3692	INCRA	OCICL,DESCR	3707										
DEFD2	3695	AEQLC	INSW,0,,DEFD8	3729										

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																
DEFD3	3705	PUSH	XPTR	3702	3726															
DEFD4	3710	ACOMP	WCL,XCL,DEFD5,DEFD5	3713																
DEFD5	3715	GETDC	WCL,YCL,DESCR	3710	3710															
DEFD8	3704	GETDC	XPTR,XPTR,DESCR	3695	3696															
DEFFC	3253	PUSH	(XCL,WCL,YCL,YPTR)	3114																
DEFFF	3250	MOVD	RETPCL,FRETCL	3192																
DEFFGO	3162	PUSH	(FRTNCL,STNOCL,O...	3155																
DEFFN	3259	POP	(YPTR,YCL,WCL,XCL)	3254																
DEFFNC	3106	PROC	,	5544																
DEFFNR	3262	MOVD	RETPCL,NRETCL	3192																
DEFFS1	3195	POP	ZCL	3251	3263															
DEFFS2	3213	DECRA	LVLCL,1	3204	3204	3207														
DEFFVX	3247	AEQLC	XPTR,0,RTXNAM,NO...	3242																
DEFF1	3112	INCRA	OCICL,DESCR	3128																
DEFF10	3154	INCRA	XPTR,DESCR	3160																
DEFF14	3125	GETDC	XPTR,XPTR,DESCR	3115	3116															
DEFF15	3191	SETAC	OCICL,0	3185	3185	3187														
DEFF17	3222	POP	(ZCL,OCBSCL,OCIC...	3214	3214	3216														
DEFF18	3175	ACOMP	TRAPCL,0,,DEFF19...	3167	3167															
DEFF19	3184	INCRA	LVLCL,1	3175	3175	3178														
DEFF2	3115	AEQLC	INSW,0,,DEFF14	3260																
DEFF20	3204	ACOMP	TRAPCL,0,,DEFFS2...	3196	3196															
DEFF3	3126	PUSH	XPTR	3123	3257															
DEFF4	3131	ACOMP	WCL,XCL,DEFF9,DEFF5	3134	3138															
DEFF5	3140	GETDC	ZCL,YCL,DESCR	3131																
DEFF6	3233	POP	XPTR	3237																
DEFF8	3145	INCRA	XPTR,DESCR	3153																
DEFF9	3136	POP	ZCL	3131																
DEFIFN	5813	DESCR	DEFINE,0,2	5940																
DEFINE	3039	PFOC	,	5813																
DEFIN3	3053	PUSH	YPTR	3051																
DEFIN4	3056	FSHRTN	XSP,1	3061	3066															
DEFIN6	3068	LEQLC	YSP,0,,DEFIN9	3059																
DEFIN8	3074	FSHRTN	XSP,1	3078	3083															
DEFIN9	3073	SETVA	DEFCL,YCL	3068																
DEFISP	6181	STRING	'DEFINE'	5941																
DEFTI	4026	INTSPC	XSP,ZPTR	4016																
DEFTIA	4023	APDSP	PROTSP,XSP	4027																
DEFTV	4029	LOCSP	XSP,ZPTR	4015																
DEF10	3085	LEQLC	YSP,0,,DEF11	3075																
DEF11	3089	INCRA	YCL,2	3085																
DEF12	3096	DECRA	XPTR,DESCR	3100																
DESCL	5743	DESCR	0,0,0	0752	0753	0754	0756	0757	0758	0767	0768	0769								
				0771	0772	0773	0815	0816	0817	0818										
				0258	0259	0260	0261	0262	0263	0264	0266	0272								
				0276	0282	0284	0346	0348	0352	0354	0358	0359								
				0360	0361	0362	0363	0364	0372	0386	0434	0435								
				0440	0444	0446	0456	0481	C493+	0493+	0493+	0493+								
				0513	0528	0531	0538	0544	0558	0602	0612	0650								
				0657	0690	0692	0694	0700	0704	0725	0728	0749								
				0751	0759	0774	0776	0788	0802	0820	0827	0846								
				0849	0890	0899	0900	0903	0904	0905	0916	0919								
				0942	0953	0960	0991	1002	1032	1035	1039	1063								
				1069	1091	1093	1096	1284	1290	1308	1444	1466								
				1467	1469	1470	1474	1520	1554	1564	1583	1615								
				1621	1626	1642	1651	1655	1705	1711	1718	1729								
				1735	1742	1750	1763	1769	1773	1786	1791	1799								
				2098	2118	2256	2262	2266	2332	2382	2386	2422								
				2426	2428	2430	2434	2438	2440	2442	2450	2452								
				2454	2456	2459	2462	2464	2476	2478	2479	2480								
				2513	2600	2685	2687	2688	2694	2700	2706	2723								
				2726	2734	2739	2743	2779	2782	2797	2813	2819								
				2836	2839	2841	2843	2860	2884	2887	2889	2891								
				2901	2904	2906	2908	2920	2928	2929	2931	2934								
				2937	2940	2942	2955	2963	2976	2980	3000	3003								
				3017	3020	3022	3024	3030	3031	3090	3094	3096								
				3098	3112	3118	3125	3140	3145	3146	3147	3148								
				3149	3150	3151	3154	3156	3157	3159	3164	3170								
				3177	3199	3206	3225	3230	3231	3232	3234	3235								
				3236	3291	3300	3306	3310	3311	3315	3317	3319								
				3361	3363	3402	3421	3422	3480	3485	3486	3487								
				3489	3492	3493	3497	3510+	3513+	3513+	3513+	3513+								
				3563	3564	3566	3576	3577	3579+	3581	3586	3587								
				3588	3598	3624	3625	3627	3634	3635	3644	3645								
				3650	3663+	3665+	3665+	3665+	3692	3698	3704	3715								
				3716	3719	3743	3746	3771	3778	3779	3802	3810								

CROSS REFERENCE

symbol	defn	type	value	references
				3811 3854 3855 3858 3859 3868 3869 3883 3924
				3926 3928+ 3934 3935 3936 3941 3957 3958 3974
				3978 3979 4014 4105 4107 4144 4210 4214 4220
				4223 4224 4228 4265 4284 4361 4371 4386 4395
				4411 4412 4420 4424 4434 4520 4555 4557 4560
				4561 4563 4565 4583 4585 4589 4633 4653 4654
				4658 4667 4718+ 4726+ 4728 4732 4744 4750 4751
				4752+ 4752+ 4756 4759 4760 4761+ 4761 4764 4767
				4769+ 4771+ 4771+ 4771+ 4771+ 4771+ 4771+ 4771+ 4771+
				4786 4787 4788 4809 4823 4825 4829 4868 4878
				4922 4922 5081 5161 5165 5259 5282 5311 5344
				5345 5347 5348 5350 5352 5357 5361 5371+ 5373
				5426 5427 5429 5430 5434 5435 5437 5439 5441
				5444 5447 5498 5616 5745 5763 5769 5779 5899
				5911 6028 6300 6304 6311 6316 6321 6326 6328
				6334 6336 6339 6342 6345 6347 6350 6353 6353
				6359 6361 6364 6367 6369 6372 6375 6378 6383
				6388 6394 6396 6400 6403 6407 6422 6425 6428
				6431 6434 6438
				5817
DETACH	3850	PROC	,	5817
DFLFST	5701	DESCR	0,0,0	3808 6262
DFLSIZ	5359	DESCR	80,0,I	3776
DIAGRN	1122	STREAD	INBFSP,UNIT,DIAG...	1122 1128 1130
DIFFER	4457	PROC	,	5815
DIFFFN	5815	DESCR	DIFFER,0,2	5942
DIFFSP	6182	STRING	'DIFFER'	5943
DIMTYP	0294	EQU	1	
DIV	1817	PROC	ADD	6053
DIVFN	6053	DESCR	DIV,0,2	
DMK	4864	PROC	,	5106
DMP	4819	PROC	,	4822 5821
DMPA	4827	GETAC	YPTR,YPTR,LNKFLD	4830 4856 4862
DMPB	4824	ACOMP	WPTR,OBEND,RETNUL	4828
DMPCL	5301	DESCR	0,0,I	5094
DMPI	4858	INTSPC	YSP,XPTR	4839
DMPK	5106	RCALL	,DMK	5099
DMPK1	4867	GETD	XPTR,KNLIST,XCL	4879
DMPNO	5102	OUTPUT	OUTPUT,INCGCF	5095
DMPOVR	4861	OUTPUT	OUTPUT,PRTOVF	4834 4834 4844 4851
DMPPTR	5509	DESCR	0,0,0	4583 4584 4585 4586
DMPRT	4855	STPRNT	IOKEY,OUTBLK,DMPSP	4846
DMPSP	5580	SPEC	ANYSP,0,0,0,0	4831 4836 4837 4845 4852 4853 4854 4855 4872
				4873 4874 4875 4876 4877
DMPV	4848	LOCSP	YSP,XPTR	4838
DMPX	4842	GETLG	XCL,YSP	4859
DNME	2954	PROC	NME	6131
DNMECL	5468	DESCR	DNMEFN,FNC,2	2937
DNMEFN	6131	DESCR	DNME,0,2	5468
DNME1	2957	PROC	NME	6132
DNMICL	5469	DESCR	DNMIFN,FNC,2	3003
DNMIFN	6132	DESCR	DNME1,0,2	5469
DOL	2115	PROC	NAM	6056
DOLFN	6056	DESCR	DOL,0,2	
DOTCL	5470	DESCR	DOTFN,FNC,1	0899 1467
DOTFN	6080	DESCR	NAME,0,1	5371+ 5371+ 5470
DPSP	5711	SPEC	0,0,0,0,0	0478 0492 0514 0517 5552
DPSPTR	5552	DESCR	DPSP,0,0	0515
DR	1936	DVREAL	ZPTR,XPTR,YPTR,A...	1894
DSAR	2859	PROC	CHR	6134
DSARFN	6134	DESCR	DSAR,0,3	6402
DSARP	2867	AEQLC	FULLCL,0,,DSARP1	2863
DSARP1	2871	SETAV	NVAL,YCL	2867
DSARP2	2872	SUBTRT	NVAL,MAXLEN,NVAL	2869
DSCRTW	5427	DESCR	2*DESCR,0,0	0497 0503+
DSTSZ	0271	EQU	2*STNOSZ	5569 5614
DT	4804	PROC	,	5819
DTABLE	0493+	GETSIZ	A3PTR,A2PTR	0476
DTABL1	0493+	AEQLC	A1PTR,1,,DTABL2	0493+
DTABL2	0493+	DECRA	A3PTR,DESCR	0493+
DTARBF	5612	BUFFER	ARRLEN+7	5581
DTARRY	0481	GETDC	A3PTR,A2PTR,DESCR	0475
DTARSP	5581	SPEC	DTARBF,0,0,0,ARR...	0485 0486 0487 0488 0489 0490 0491 0492 0499
				0500 0501 0502 0503 0507
DTARTB	0491	APDSP	DTARSP,RPRNSP	0508
DTATL	5620	DESCR	DTLIST,0,0	0511 3289 3298 3304 3548 3548 4631 4807
DTCHFEN	5817	DESCR	DETACH,0,1	5944

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																
DTCHSP	6183	STRING	'DETACH'	5945																
DTCH1	3856	LOCAPV	ZPTR,OUTATL,XPTR...	3852																
DTCL	5510	DESCR	0,0,0	1864	1865	1866	1867	1868	1869	1870	1871	1872								
				1873	1874	2166	2167	2168	2169	2170	2171	2214								
				2215	2217	2218	2219	2220	2221	2222	2270	2271								
				2273	2274	2275	2276	2277	2278	3372	3373	3374								
				3375	3376	3377	3378	3379	4296	4297	4298	4299								
				4300	4301	4634	4635	4636	4637	4638	4639	4640								
				4641	4642	4643	4644													
				5498	6275															
DTEND	6274	DESCR	RETCL,0,0	4807																
DTEXTN	4812	MOVD	A3PTR,EXTPTR	5946																
DTFN	5819	DESCR	DT,0,1	5259																
DTLEND	5280	LHERE	,	5259	5259	5620	5900	6281												
DTLIST	5259	DESCR	DTLIST,TTL+MARK,...	3894	4017	4147	4716	4840												
DTREP	0473	PROC	,	0511																
DTREPE	0517	SETSP	DPSP,EXDTSP	0479	0493	0518														
DTREPR	0515	RRTURN	DPSPTR,1	0477	0484															
DTREP1	0510	MOVV	DT1CL,A2PTR	4813																
DTRTN	4810	RRTURN	A3PTR,3	5947																
DTSP	6184	STRING	'DATATYPE'	0510	0511	3742	3744	4806	4807											
DT1CL	5511	DESCR	0,0,0	5099																
DUMP	4822	PROC	DMP	5948																
DUMPFN	5821	DESCR	DMP,0,1	5302	5949															
DUMPSP	6185	STRING	'DUMP'	5823																
DUPL	4885	PROC	,	5950																
DUPLFN	5823	DESCR	DUPL,0,2	5951																
DUPLSP	6186	STRING	'DUPL'	4900																
DUPL1	4898	APDSP	TSP,XSP	1877																
JV	1914	DIVIDE	ZPTR,XPTR,YPTR,A...	1687	1747	2028	2058	2102	2127	2329	2510	2605								
E	0320	EQU	11	2736	2817	2972	4262	4281	4416	4449	4614	4694								
				5276	5395															
				6133																
EARB	2683	PROC	ARBN	6360																
EARBFN	6133	DESCR	EARB,0,2	1431																
EJECTSP	5593	STRING	'EJECT'	1434																
EJECTF	6527	FORMAT	'(H1)'	1140																
ELEARY	1223	SHORTN	XSP,1	1242																
ELEAR1	1235	PUSH	ELEMND	1177	1195	1242														
ELECMA	1258	SETAC	EMSGCL,ILLBRK	1165																
ELEDEC	1255	SETAC	EMSGCL,ILLDEC	1140																
ELEFLT	1165	SPREAL	XPTR,XSP,ELEDEC,...	1140																
ELEFNC	1180	SHORTN	XSP,1	1138																
ELEICH	1245	SETAC	EMSGCL,ILCHAR	1138																
ELEILI	1248	AEQLC	STYPE,QLITYP,ELEMN9	1140																
ELEILT	1162	SPCINT	XPTR,XSP,ELEINT,...	1162																
ELEINT	1252	SETAC	EMSGCL,ILLINT	1137	1151	1155	1156	1174	1176	1186	1187	1190								
ELEMND	5683	DESCR	0,0,0	1191	1192	1197	1199	1200	1201	1204	1218	1219								
				1228	1229	1230	1233	1234	1235	1237	1238	1239								
				5448																
				1208	1211	1211	1240													
ELEMNR	1156	MOVD	ZPTR,ELEMND	0926	1266	1272														
ELEMNT	1136	PROC	,	1172	1177															
ELEMN1	1151	AEQLC	ELEMND,0,ELEMN6	1202																
ELEMN2	1193	AEQLC	BRTYPE,RPTYP,,EL...	1193																
ELEMN3	1204	GETDC	ELEXND,ELEMND,FA...	1221																
ELEMN4	1211	ACOMP	XCL,YCL,ELEMNR,E...	1162	1165															
ELEMN5	1146	RCALL	ELEXND,BLOCK,CNDSIZ	1151																
ELEMN6	1155	ADDSON	ELEMND,ELEXND	1186																
ELEMN7	1188	PUSH	ELEXND	1228																
ELEMN8	1230	MOVD	ELEMND,ELEXND	1248																
ELEMN9	1140	SELBRA	STYPE,(,ELEILT,E...	1153	1160															
ELEMRR	1157	AEQLIC	ZPTR,FATHER,0,,R...	1138																
ELEMTB	----			1140																
ELENST	1174	PUSH	ELEMND	1140																
ELEVBL	1168	RCALL	XPTR,GENVAR,(XSP...	1146	1147	1150	1152	1155	1170	1171	1175	1184								
ELEXND	5684	DESCR	0,0,0	1185	1187	1188	1189	1191	1192	1198	1200	1201								
				1204	1206	1215	1216	1217	1226	1227	1229	1230								
				1231	1232	1233	1234	1236	1238	1239										
				1148	1149	1150	1213	1214	1217	1218	1219									
ELEYND	5685	DESCR	0,0,0	0870	0876	1075	1078	1081	1084	1087	1090	1112								
EMSGCL	5512	DESCR	0,0,0	1245	1249	1252	1255	1258	1335											
				1075																
EMSG1	6511	STRING	'ERRONEOUS LABEL'	1090																
EMSG14	6514	STRING	'ERROR IN GOTO'	1078																
EMSG2	6512	STRING	'PREVIOUSLY DEFINED'	1081																
EMSG3	6513	STRING	'ERRONEOUS SUBJECT'																	

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																
END	5072	OUTPUT	OUTPUT,NRMEND,(L...	6109																
ENDAFN	6108	DESCR	ARGNER,0,0																	
ENDALL	5131+	ENDEX	ABNDCL	5134+																
ENDCL	5471	DESCR	ENDFN,FNC,0	0387	4668															
ENDFFN	5825	DESCR	ENFILE,0,1	5952																
ENDFN	6109	DESCR	END,0,0	5471																
ENDFSP	6188	STRING	'ENDFILE'	5953																
ENDPTR	5702	DESCR	0,0,0	0913	6266															
ENDSP	6187	STRING	'END'	6265																
END1	5107	OUTPUT	OUTPUT,STATHD	5094	5104															
END2	5128	INTRL	EXNOCL,EXNOCL	5124																
ENFILE	3825	PROC	BKSPCE	5825																
ENME	2919	PROC	NME	6135																
ENMECL	5472	DESCR	ENMEFN,FNC,3	2112																
ENMEFN	6135	DESCR	ENME,0,3	5472																
ENMEFN	3006+	PUSH	ZEROCCL	2972																
ENME1	2947	MOVD	WCL,NMOVER	2932																
ENME2	2934	INCRA	PDLPTR,DESCR+SPEC	2952																
ENME3	2938	GETLG	TMVAL,TKSP	3004																
ENMI	2962	PROC	NME	6136																
ENMIC	3006	SPCINT	VVAL,TSP,SCDTER,...	2973																
ENMICL	5473	DESCR	ENMIFN,FNC,3	2116																
ENMIFN	6136	DESCR	ENMI,0,3	5473																
ENMI2	3000	INCRA	PDLPTR,3*DESCR	2982	2982	2984														
ENMI3	2976	PUTDC	YPTR,DESCR,VVAL	3006																
ENMI4	2982	ACOMP	TRAPCL,0,,ENMI2,...	2977	2978															
ENMI5	2973	VEQLC	YPTR,K,,ENMIC	3006+																
EOP	3840	ENFILE	XCL	3836																
EOSCL	5428	DESCR	EOSTYP,0,0	1358																
EOSTB	----			1120																
EOSTYP	0295	EQU	ε	0390	0394	0403	0915	0936	0947	0973	0996	1007								
				1030	1061	1100	1106	1117+	5428											
EQ	1833	PROC	ADD	5827																
EQFN	5827	DESCR	EQ,0,2	5954																
EQLSP	5594	STRING	'='	4079	4945	4953														
EQSP	6189	STRING	'EQ'	5955																
EQTYP	0296	EQU	4	0931	0940															
EQUVCL	5744	DESCR	0,0,0	0582	0583	0588	0617													
EROR	5164	SETAC	ERRTYP,28	6110																
ERORCL	5474	DESCR	ERORFN,FNC,1	1092																
ERORFN	6110	DESCR	EROR,0,1	5474																
ERRBAS	5513	DESCR	CARDSZ+STNOSZ-SE...	1099																
ERRBUF	5613	BUFFER	CARDSZ+STNOSZ-SE...	5567																
ERRCF	6528	FORMAT	'(34HOERRORS DET...	0408																
ERRLCL	5299	DESCR	0,0,I	5246	5248															
ERRLSP	6190	STRING	'ERRLIMIT'	5300																
ERROR	----			2528	2566															
ERRSP	5567	SPEC	ERRBUF,0,0,0,CAR...	1104	1105	1109	1110	1111												
ERRTKY	5313	DESCR	ERRTSP,0,0	5251																
ERRTSP	6191	STRING	'ERRTYPE'	5313																
ERRTYP	5312	DESCR	0,0,I	5076+	5081	5140	5143	5146	5151	5154	5157	5160								
				5164	5169	5172	5175	5178	5181	5184	5187	5190								
				5194	5197	5200	5203	5206	5209	5212	5215	5218								
				5221	5224	5225+	5227	5230	5233	5236	5239									
				0407	1096	1097	4660	5161												
ESACL	5514	DESCR	0,0,0	1097																
ESALIM	5429	DESCR	ESASIZ*DESCR,0,0	1097																
ESASIZ	0265	EQU	50	5429																
ETIMSP	5595	STRING	' ,TIME = '	4046	4084	4163														
ETMCL	5515	DESCR	0,0,0	0419	0420	4044	4082	4161	5016	5086	5087	5088								
				5089	5093	5093	5110	5129												
EVAL	1685	PROC	EXPVAL	5829																
EVALFN	5829	DESCR	EVAL,0,1	5956																
EVALSP	6192	STRING	'EVAL'	5957																
EVAL1	1697	SETAC	SCL,0	1687																
EX	1916	EXPINT	ZPTR,XPTR,YPTR,A...	1877																
EXDTSP	5596	STRING	'EXTERNAL'	0517	6263															
EXELND	5686	DESCR	0,0,0	1266	1272	1280	1281	1294	1295	1298	1314	1317								
EXEX	5169	SETAC	ERRTYP,22	1568	1568															
EXEXND	5687	DESCR	0,0,0	1287	1289	1305	1307	1329	1330	1331										
EXLMCL	5287	DESCR	50000,0,I	1568																
EXNO	6529	FORMAT	'(1H0,I15,21H ST...	5112																
EXNOCL	5338	DESCR	0,0,I	1568	1570	5112	5124	5128	5128	5130										
EXOPCL	5688	DESCR	0,0,0	1275	1278	1284	1284	1286	1286	1291	1309									
EXOPND	5689	DESCR	0,0,0	1277	1278	1280	1292	1293	1310	1324										
EXP	1821	PROC	ADD	6059																
EXPERR	1335	SETAC	EMSGCL,ILLEOS	1272																



CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																		
EXPEVL	1681	PROC	EXPVAL	2758+	3006+	4439																
EXPFN	6059	DESCR	EXP,0,2																			
EXPNU	1327	RCALL	EXPRND,BLOCK,CNDSIZ	1266																		
EXPR	1265	PROC	.	0939	0952	0959	0988	0999	1026	1057	1175	1189										
				1198	1236	4690																
				1268	1271	1274	1279	1281	1287	1292	1293	1294										
EXPRND	5690	DESCR	0,0,0	1295	1298	1299	1301	1301	1303	1305	1310	1313										
				1317	1318	1324	1327	1328	1331	1332												
				1282	1296	1311	1325															
EXPR1	1271	PUSH	EXPRND	1313																		
EXPR10	1317	ADDSIB	EXPRND,EXELND	1299	1303																	
EXPR11	1324	ADDSIB	EXOPND,EXPRND	1269																		
EXPR2	1275	RCALL	EXOPCL,BINOP,,(R...	1279																		
EXPR3	1284	GETDC	EXOPCL,EXOPCL,2*...	1291																		
EXPR4	1298	ADDSIB	EXPRND,EXELND	1309																		
EXPR5	1299	AEQLC	EXPRND,FATHER,0,...	1275																		
EXPR7	1313	AEQLC	EXPRND,0,EXPR10	1315	1322																	
EXPR9	1319	AEQLC	XPTR,FATHER,0,,R...	5277																		
EXPSP	6193	STRING	'EXPRESSION'	1681	1685	2518+	2605+	2815														
EXPVAL	1633	PROC	.	1646																		
EXPVC	1669	PUSH	SCL	1683																		
EXPVJN	1635	POP	XPTR	1698																		
EXPVJ2	1636	PUSH	(OCBSCL,OCICL,PA...	1652																		
EXPV1	1660	SETAC	SCL,1	1679																		
EXPV11	1647	AEQLC	SCL,0,,EXPV6	1648	1649																	
EXPV4	1655	GETDC	XPTR,XPTR,DESCR	1670																		
EXPV5	1678	POP	SCL	1647	1652	1673																
EXPV6	1656	SETAC	SCL,2	1657	1676																	
EXPV7	1661	SPOP	(XSP, TXSP, TSP, HE...	1670																		
EXPV9	1659	POP	SCL	1894																		
EXR	1938	EXREAL	ZPTR,XPTR,YPTR,A...	4812	6264																	
EXTPTR	5703	DESCR	0,0,0	3510	3513	5430																
EXTSIZ	0274	EQU	10	4771+																		
EXTVAL	5430	DESCR	EXTSIZ*2*DESCR,0,I	0804	1622	1624	1666	1686	1695	1712	1722	1736										
FAIL	5036	RRTURN	,1	1739	1770	1777	1792	1803	1862	1922	1924	1926										
				1926	1928	1930	1930	1932	1944	1944	1946	1948										
				1948	1950	1952	1952	1954	1967	1969	1971	1979										
				1998	2025	2054	2071	2101	2117	2125	2162	2164										
				2210	2212	2227	2229	2237	2237	2238	2263	2268										
				2280	2284	2284	2303	2312	2319	2320	2408	2496										
				2499	3040	3042	3120	3238	3254	3271	3273	3322										
				3346	3366	3423	3435	3437	3505	3507	3535	3596										
				3609	3617	3639	3640	3640	3657	3700	3724	3737										
				3757	3759	3761	3790	3792	3794	3832	3851	3876										
				3912	3914	3916	3918	3966	3968	3977	3984	3994										
				4064	4091	4127	4129	4221	4236	4239	4247	4255										
				4347	4374	4398	4458	4459	4467	4468	4476	4478										
				4480	4484	4484	4493	4503	4516	4522	4547	4549										
				4550	4550	4573	4582	4597	4599	4608	4627	4629										
				4644+	4676	4683	4690	4691	4700	4706	4714	4731										
				4766	4768	4796	4805	4820	4886	4888	4890	4907										
				4909	4911	4978	4980	4982	4987	4987	4988	5003										
				5014	5025	5255	6148															
				0361																		
FAILKY	5323	DESCR	FAILSP,0,0	5322	6378																	
FAILPT	6378	DESCR	FAILPT,TTL+MARK,...	5323																		
FAILSP	6194	STRING	'FAIL'	1588	5112																	
FALCL	5328	DESCR	0,0,I	1591																		
FALKY	5329	DESCR	STFCSP,0,0	0361																		
FALPAT	5322	DESCR	FAILPT,0,P	6137																		
FARB	2710	PROC	.	6341																		
FARBFN	6137	DESCR	FARB,0,2	2715	2719	2719																
FARB1	2726	DECRA	PDLPTR,3*DESCR	2711																		
FARB2	2715	AEQLC	LENFCL,0,FARB1	2713																		
FARB3	2717	GETLG	TVAL, TXSP	0539																		
FATBAK	0529	RRTURN	F2PTR,1	0532																		
FATBLK	0541	RCALL	FBLOCK,BLOCK,FBLKRQ	1157	1159	1204	1287	1299	1301	1303	1305	1319										
FATHER	0261	EQU	DESCR	1321	1456	1457																
				0526																		
FATNF	0531	INCRA	NEXFCL,2*DESCR	0545																		
FATNXT	0534	SUM	F2PTR,FBLOCK,NEXFCL	0541																		
FBLKRQ	5431	DESCR	FBLKSZ,0,B	0532	5431	5518																
FBLKSZ	0266	EQU	10*DESCR	0534	0541	0542	0543															
FBLOCK	5673	DESCR	0,0,0	5125	5130	5131																
FCL	5517	DESCR	0,0,0	4051	6111																	
FENTR	3993	PROC	.	3172																		
FENTR2	4051	PROC	FENTR																			

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																
FENTR3	3995	SETLC	PROTSP,0	4053																
FENTR4	4040	AEQLC	WCL,1,,FENTR5	4012																
FENTR5	4042	APDSP	PROTSP,RPRNSP	4040																
FGOND	5691	DESCR	0,0,0	1026	1042	1072														
FGOTYP	0297	EQU	3	1016	5433															
FIELD	3735	PROC	,	5545	5895															
FIELDS	4544	PROC	ARG	5831																
FIELD1	3742	MOVV	DT1CL,XPTR	3740																
FINDEX	0524	PROC	,	1183	3050	3281	3347	3543	3560	3928	4917	4917+								
				4941	4963															
FLDCL	5545	DESCR	FIELD,0,1	3562	3584															
FLDSFN	5831	DESCR	FIELDS,0,2	5958																
FLDSSP	6196	STRING	'FIELD'	5959																
FLITYP	0299	EQU	6																	
FNC	----			0458	0542	0800	1208	1522	1585	1606	1617	1646								
				1707	1731	1765	1788	2100	2120	2258	2484	3114								
				3694	4212	4216	4363	4397	5371+	5371+	5371+	5461								
				5462	5463	5464	5465	5466	5467	5468	5469	5470								
				5471	5472	5473	5474	5475	5476	5477	5478	5479								
				5480	5481	5482	5483	5484	5485	5486	5487	5488								
				5489	5490	5491	5492	5493	5494	5495	5496	5536								
				5543	5544	5546	5548	5625	5627	5629	5631	5633								
				5785	5841	5912	5914	5916	5918	5920	5922	5924								
				5926	5928	5930	5932	5934	5936	5937+	5940	5942								
				5944	5946	5948	5950	5952	5954	5956	5958	5960								
				5962	5964	5966	5968	5970	5972	5974	5976	5978								
				5980	5982	5984	5986	5988	5990	5992	5994	5996								
				5998	6000	6002	6004	6006	6008	6010	6012	6014								
				6016	6018	6020	6022	6024	6032	6035	6038	6041								
				6044	6047	6074	6078	6090	6094	6098	6105	6322								
				6327	6330	6335	6338	6341	6346	6349	6352	6355								
				6360	6363	6368	6371	6374	6379	6384	6389	6395								
				6399	6402	6408														
				6155																
FNCE	2883	PROC	,	6155																
FNCEF	6155	DESCR	FNCE,0,2	6384																
FNCEK	5319	DESCR	FNCESP,0,0	0362																
FNCEPT	6383	DESCR	FNCEPT,TTL+MARK,...	5318	6383															
FNCESP	6195	STRING	'FENCE'	5319																
FNCFCL	5475	DESCR	FNCFN,FNC,2	2887																
FNCFN	6156	DESCR	RTNUL3,0,2	5475																
FNCLKY	5341	DESCR	FNCLSP,0,0	3187	3216															
FNCLSP	6197	STRING	'FNCLEVEL'	5341																
FNCPAT	5318	DESCR	FNCEPT,0,P	0362																
FNCP	5621	DESCR	FNLIST,0,0	0526	0535	0535	4518	4553												
FNCPLE	6027	LHERE	,	5911																
FNCTYP	0300	EQU	5																	
FNEXTR	4174	PROC	VALTR	6112																
FNEXT1	4178	APDSP	TRACSP,TRLVSP	4136																
FNEXT2	4196	PROC	VALTR	3201																
FNLIST	5911	DESCR	FNLIST,TTL+MARK,...	5621	5901	5911	5911	6282												
FNME	2914	PROC	NME	6138																
FNMECL	5476	DESCR	FNMEFN,FNC,2	2904																
FNMEFN	6138	DESCR	FNME,0,2	5476																
FNME1	2916	AEQLC	LENFCL,0,TSALT,T...	2960																
FNTRFN	6111	DESCR	FENTR,0,2	5629																
FNTRLP	4011	INCRA	WCL,1	4038																
FNVLCL	5414	DESCR	0,0,0	4063	4073	4077	4090	4126	4136	4175	4197									
FORBLK	1361	PROC	FORWRD	0862	0914	0928														
FOREOS	1358	MOVD	BRTYPE,EOSCL	1348																
FORJRN	1345	MOVD	BRTYPE,STYPE	1362																
FORMND	5692	DESCR	0,0,0	0952	0959	0965	4690	4692												
FORRUN	1348	AEQLC	UNIT,0,,FOREOS	1343	1356	1362														
FORRUR	1351	STREAD	INBFSP,UNIT,FORR...	1349	1351															
FORWRD	1342	PROC	,	0868	0972	0995	1006	1029	1060	1356	1361	1482								
FRDSC	5745	DESCR	4*DESCR,0,0	4748																
FRETCL	5704	DESCR	0,0,0	1534	3238	3250	4187	6268												
FRETSP	6198	STRING	'FRETURN'	6267																
FRNCL	5693	DESCR	0,0,0	0920	0969	0987	1010	1038	1068											
FRSGPT	5766	DESCR	0,PTR,0	0556	0558	0559	0559	0561	0569	0600	0602	0603								
				0603	0605	0623	0648	0653	0654	0654	0655	0656								
				0657	0658	0658+	0672	0674	0713	0718	0762	0795								
				0799	0800	0801														
				1567	1587	3162	3222	4103	4113											
FRTNCL	5519	DESCR	0,0,0	1343	1405	1418														
FRWDTB	----			1343	1405	1418														
FTABLE	5779	DESCR	FTABLE,TTL+MARK,...	5779	5779	6283														
FTBLND	5897	LHERE	,	5779																

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																		
FTERBR	5255	SELBRA	SCERCL, (TSALF, FA...	5249	5249	5251																
FTERST	5246	ACOMPC	ERRLCL, 0,, FTLEND...	5192	5243																	
FTLCF	6529+	FORMAT	' (6H1ERROR, I3, 13...	5076+																		
FTLEND	5076+	OUTPUT	OUTPUT, FTLCF, (ER...	5144	5147	5152	5158	5162	5167	5170	5176	5179										
				5198	5210	5228	5246	5246														
FTLEN1	5094	AEQLC	DMPCL, 0,, END1	5090																		
FTLEN2	5085	ISTACK	,	5076	5136																	
FTLEN4	5092	MSTIME	XCL	5086																		
FTLTST	5245	SETAC	SCERCL, 2	5141	5155	5173	5182	5185	5188	5195	5201	5204										
				5207	5213	5231	5234	5237	5240													
FTOTYP	0298	EQU	6	1021																		
FTRCSP	6199	STRING	'PTRACE'	5298																		
FULLCL	5295	DESCR	0, 0, I	2407	2414	2466	2495	2534	2589	2640	2692	2711										
				2767	2786	2826	2834	2867														
FULLSP	6200	STRING	'FULLSCAN'	5296																		
FUNTCL	5707	DESCR	0, 0, 0	3949	3982	6270																
FUNTSP	6201	STRING	'FUNCTION'	6269																		
FXOVR	4055	OUTPUT	OUTPUT, PRTOVF	4006	4006	4021	4021	4032	4032													
FXTRFN	6112	DESCR	FNEXTR, 0, 2	5631																		
F1PTR	5641	DESCR	0, 0, 0	0525	0526	0535	0538															
F2PTR	5642	DESCR	0, 0, 0	0526	0528	0528	0529	0534	0535	0537	0538											
GC	0681	PROC	,	0570	0624	0662	4599															
GCBA1	0693	ACOMP	BKPTR, OBEND, GCLAD	0698																		
GCBA2	0696	GETAC	ST1PTR, ST1PTR, LN...	0699	0702	0705																
GCBA4	0704	PUTDC	GCBLK, DESCR, ST1PTR	0701																		
GCBB1	0725	SETAC	BKPTR, OBLIST-DESCR	0713	0718																	
GCBB2	0727	ACOMP	BKPTR, OBEND, GCLAP	0741																		
GCBB3	0730	MOVD	ST2PTR, ST1PTR	0737																		
GCBB4	0731	GETAC	ST1PTR, ST1PTR, LN...	0734																		
GCBB5	0739	PUTAC	ST2PTR, LNKFLD, ZE...	0733																		
GCBLK	5746	DESCR	GCXTTL, 0, 0	0704	0705																	
GCGOT	5750	DESCR	0, 0, I	0801	0802	0803	0804	0805														
GCLAD	0707	MOVD	CPYCL, HDSGPT	0693																		
GCLAD0	0709	BKSIZE	BKDX, TTLCL	0713																		
GCLAD4	0717	SUM	TTLCL, TTLCL, BKDX	0720	0723																	
GCLAD7	0716	MOVD	MVSGPT, TTLCL	0710																		
GCLAM0	0779	BKSIZE	BKDXU, TTLCL	0795																		
GCLAM4	0794	SUM	TTLCL, TTLCL, BKDXU	0785	0789																	
GCLAM5	0787	MOVA	BKDX, BKDXU	0780	0780																	
GCLAP	0743	MOVD	TTLCL, HDSGPT	0727																		
GCLAP0	0744	BKSIZE	BKDXU, TTLCL	0762																		
GCLAP1	0749	SETAC	BKDX, 3*DESCR	0745																		
GCLAP2	0750	TESTFI	TTLCL, MARK, GCLAP5	0747																		
GCLAP3	0752	GETD	DESCR, TTLCL, BKDX	0760																		
GCLAP4	0759	DECRA	BKDX, DESCR	0753	0754																	
GCLAP5	0761	SUM	TTLCL, TTLCL, BKDXU	0750																		
GCLAT1	0764	GETD	TTLCL, PRMPTR, BKDXU	0777																		
GCLAT2	0767	GETD	DESCR, TTLCL, BKDX	0775																		
GCLAT3	0774	DECRA	BKDX, DESCR	0768	0769																	
GCLAT4	0776	DECRA	BKDXU, DESCR	0765																		
GCM	0811	PROC	,	0689	0705																	
GCMA1	0814	GETSIZ	BKDX, BK1CL	0833																		
GCMA2	0815	GETD	DESCR, BK1CL, BKDX	0821	0825	0835																
GCMA3	0820	DECRA	BKDX, DESCR	0816	0817																	
GCMA4	0827	DECRA	BKDX, DESCR	0819																		
GCMA9	0831	MOVD	BK1CL, TOPCL	0828																		
GCMPTP	5748	DESCR	0, 0, 0	0687	0688	0689																
GCNO	5747	DESCR	0, 0, 0	0796	5118																	
GCREQ	5749	DESCR	0, 0, 0	0682	0804																	
GCT	0687	GETD	GCMPTP, PRMPTR, BKDXU	0691																		
GCTDWN	0690	DECRA	BKDXU, DESCR	0688																		
GCXTTL	5769	DESCR	GCXTTL, TTL+MARK, ...	5746	5769																	
GE	1837	PROC	ADD	5833																		
GEFN	5833	DESCR	GE, 0, 2	5960																		
GENVAR	0577	PROC	,	0344	0351	0399	0631	0641	0669	0908	1144	1168										
				1181	1224	1755	2244	2247	2296	2300	2335	2342										
				2974	3048	3062	3070	3079	3086	3280	3288	3297										
				3303	3396	3541	3558	4271	4275	4290	4294	4418										
				4740+	5065																	
GENVIX	5068	RCALL	XPTR, GNVARI, XPTR...	1745	1775	3243	4350															
GENVRZ	5065	RCALL	ZPTR, GENVAR, ZSPP...	3427	4718	4798	5028															
GENVSZ	5062	RCALL	ZPTR, GNVARS, XCL, ...	4315	4900	4996																
GESP	6202	STRING	'GE'	5961																		
GNVARI	0631	PROC	GENVAR	2030	2233	2240	2289	2292	2521	3381	3741	4709										
				5068																		
GNVARS	0669	PROC	GENVAR	2381	3881	5062																

CROSS REFERENCE

symbol	defn	type	value	references															
GOBRCL	5432	DESCR	0,0,0	0979	0983	0989	1000	1018	1023	1027	1051	1056							
				1058															
GOGOCL	5520	DESCR	0,0,0	0978	0982	0992	1003	1017	1022	1040	1070								
GOTG	1508	PROC	.	6113															
GOTGCL	5477	DESCR	GOTGFN,FNC,1	0898	0982	1022	1055	1466											
GOTGFN	6113	DESCR	GOTG,0,1	5477															
GOTL	1519	PROC	.	6114															
GOTLC	1545	RCALL	XPTR,INVOKE,XPTR...	1522															
GOTLCL	5478	DESCR	GOTLFN,FNC,1	0978	1017	1050													
GOTLFN	6114	DESCR	GOTL,0,1	5478															
GOTLV	1523	ACOMPC	TRAPCL,0,,GOTLV1...	1547															
GOTLV1	1531	DEQL	XPTR,RETCL,GOTL1	1523	1523	1525													
GOTL1	1534	DEQL	XPTR,FRETCL,GOTL2	1531															
GOTL2	1537	DEQL	XPTR,NRETCL,GOTL3	1534															
GOTL3	1540	GETDC	OCBSCL,XPTR,ATTRIB	1537															
GOTO	1553	PROC	.	6115															
GOTOCL	5479	DESCR	GOTOFN,FNC,1	1033															
GOTOFN	6115	DESCR	GOTO,0,1	5479															
GOTOND	5694	DESCR	0,0,0	0988	0994														
GOTOTB	-----			0976	1014	1047													
GT	1841	PROC	ADD	5835															
GTFN	5835	DESCR	GT,0,2	5962															
GTOCL	5433	DESCR	FGOTYP,0,0	0980															
GTSP	6203	STRING	'GT'	5963															
HDSGPT	5767	DESCR	0,PTR,0	0707	0708	0743	0778												
HEADSP	5712	SPEC	0,0,0,0,0	1639	1661	2304	2310	2311	2317	2321	2323	2334							
				2337	2370	2378	2421	2437	2750	2755	2989	2995							
I	0321	EQU	6	1688	1719	1745	1775	1968	1980	1999	2029	2057							
				2327	2518+	2604	2738	2822	2864	3243	3740	3893							
				4016	4146	4260	4279	4350	4600	4610	4839	5006							
				5017	5262	5283	5285	5287	5289	5291	5293	5295							
				5297	5299	5301	5303	5305	5307	5312	5328	5330							
				5334	5338	5340	5353	5355	5358	5359	5382	5382							
				5383	5384	5385	5386	5389	5396	5402	5430	5750							
				6392															
IBLKT	-----			0392	0405	1362													
ICLBLK	5616	DESCR	ICLBLK,TTL+MARK,...	5616	5616	6284													
ICLEND	5731	LHERE	.	5616															
IDENFN	5837	DESCR	IDENT,0,2	5964															
IDENSP	6204	STRING	'IDENT'	5965															
IDENT	4466	PROC	.	5837															
IIDTP	5382	DESCR	I,0,I	1866															
ILCHAR	6515	STRING	'ILLEGAL CHARACT. ...	1245															
ILITYP	0301	EQU	2																
ILLBIN	6516	STRING	'BINARY OPERATOR. ...	0870															
ILLBRK	6517	STRING	'ERRONEOUS OR MI. ...	1084	1258														
ILLDEC	6518	STRING	'ERRONEOUS REAL ...	1255															
ILLEOS	6519	STRING	'IMPROPERLY TERM. ...	0876	1087	1335													
ILLINT	6520	STRING	'ERRONEOUS INTEGER'	1252															
INATL	5622	DESCR	INLIST,0,0	1619	1649	1709	1733	1767	1790	2260	3116	3696							
				3769	3774	3774	3852	4218											
INBFSP	5568	SPEC	INBUF,0,0,STNOSZ...	0379	1122	1351													
INBUF	5614	BUFFER	CARDSZ+DSTSZ+1	5568	5569	5570	5571	5572											
INCGCF	6531	FORMAT	'(33H1INCOMPLETE. ...	5102															
INCL	5521	DESCR	0,0,0	1601	1602	1603	1604	3107	3109	3358	3360	3606							
				3688	3690	3736	4512	4520	4521	4522									
				3757	3790	3851	3912	3966	4127	6082									
IND	4346	PROC	.																
INDFN	6082	DESCR	IND,0,1																
INDV	4353	AEQLC	XPTR,0,RTXNAM,NO...	4348															
INIT	1562	PROC	.	6116															
INITB	5497	DESCR	ABNDB,0,0	0350	0352	0354	0355												
INITCL	5480	DESCR	INITFN,FNC,1	0917															
INITD1	0350	GETDC	XPTR,INITB,0	0355															
INITE	5498	DESCR	DTEND+DESCR,0,0	0355															
INITFN	6116	DESCR	INIT,0,1	5480															
INITLS	5899	DESCR	INITLS,TTL+MARK,...	0339	0340	5899													
INLIST	5344	DESCR	INLIST,TTL+MARK,...	5344	5622	5902	6289												
INPUT	5358	DESCR	UNITI,0,I	0369	5345														
INSATL	5357	DESCR	INSATL,TTL+MARK,...	3767	5357	6291													
INSP	6205	STRING	'INPUT'	5294	5346	5967													
INSW	5293	DESCR	I,0,I	1618	1648	1708	1732	1766	1789	2259	3115	3695							
				4217															
INTERP	1582	PROC	.	0422	1585	1586	1586	1589	1589	1591	1594	3192							
INTGER	1966	PROC	.	5839															
INTGFN	5839	DESCR	INTGER,0,1	5968															
INTGSP	6206	STRING	'INTEGER'	5263	5969														

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																	
INTIME	6532	FORMAT	'(1H0,I15,19H MS...	5110																	
INTR1	5172	SETAC	ERRTYP,1	1690	1715	1720	1747	1775	1874	1881	1886	1891									
				1894	1904	1909	1982	1989	2001	2005	2029	2059									
				2061	2073	2122	2171	2222	2278	2329	3379	3384									
				3392	3400	3744	4262	4281	4301	4351	4437	4609									
				4610	4611	4612	4613	4614	4615	4631											
INTR10	5149	LHERE	,	0460	1695	3128	3153	3172	3172	3201	3226										
				3226	3494	3665+	3665+	3707	3951	3951	3984	4012									
				4066	4676	5099	5099														
				2499	2783	2932	4408														
INTR13	5150	LHERE	,	3545																	
INTR27	5184	SETAC	ERRTYP,13	3949	3982	4553	4559	4916													
INTR30	5187	SETAC	ERRTYP,10	2423	2435	2457	2837	2885	2902	2935	3001	3018									
INTR31	5190	SETAC	ERRTYP,16	1511	1541	1547															
INTR4	5175	SETAC	ERRTYP,24	1509	1545																
INTR5	5178	SETAC	ERRTYP,19	2374	3871	4309	4415	4892+	4894												
INTR8	5181	SETAC	ERRTYP,15	1720																	
INTV	1714	LOCSP	XSP,XPTR	3505	3507	3617	3759	3761	3792	3832	4247	4549									
INTVAL	1704	PROC	,	4597	4820	4888	4911														
INTVC	1722	RCALL	XPTR,INVOKE,(XPT...	1707																	
INTV1	1708	AEQLC	INSW,0,,INTV3	1722																	
INTV2	1719	VEQLC	XPTR,I,,RTXNAM	1722																	
INTV3	1718	GETDC	XPTR,XPTR,DESCR	1708	1709																
INVK1	1604	BRANIC	INCL,0	1606																	
INVK2	1606	TESTF	XPTR,FNC,ARGNER,...	1603																	
INVOKE	1600	PROC	,	1545	1586	1624	1670	1722	1739	1777	1803	2101									
				2125	2280	3254	3724	4110+	4236	4239	4374	4398									
				4522																	
IOBSZ	5434	DESCR	2*DESCR,0,B	3777	3809																
IOKEY	5522	DESCR	0,0,0	0378	0389	1108	1109	1116	1117	1129	1350	3899									
				4048	4086	4165	4855	4877	5084												
				3823	3827																
IOOP	3831	PUSH	SCL	3874	3876	3879	3879	3880	3895	3898	3899	3903									
IOSP	5713	SPEC	0,0,0,0,0	3867	3868	3869	3869	3871	3872	3880	3881	3881									
IO1PTR	5644	DESCR	0,0,0	3883	3884	3891	3899														
				3867	3883	3891	3892	3893	3894	3894	3895	3898									
IO2PTR	5643	DESCR	0,0,0	3903																	
				3868	3876																
IO3PTR	5647	DESCR	0,0,0	3872	3874																
IO4PTR	5648	DESCR	0,0,0	2222	2278																
IPDTP	5383	DESCR	I,0,P	1871	3377	4641															
IRDTP	5384	DESCR	I,0,R	5841	6105																
ITEM	3605	PROC	,	1227																	
ITEMCL	5481	DESCR	AREFN,FNC,0	5970																	
ITEMFN	5841	DESCR	ITEM,FNC,1	5971																	
ITEMSP	6207	STRING	'ITEM'	1867	2219	2275	3375	4636													
IVDTP	5385	DESCR	I,0,S	2973	3245	4213	4351	4366	4417	4613	5274	6443									
K	0322	EQU	10	4363																	
KEYC	4374	RCALL	XPTR,INVOKE,(XPT...	4374	4379																
KEYFN	6084	DESCR	KEYWRD,0,1	4066																	
KEYN	4364	LOCAPV	XPTR,KNATL,XPTR,...	5633																	
KEYT	4377	PROC	KEYWRD	4089	6117																
KEYTFN	6117	DESCR	KEYTR,0,2	4094																	
KEYTR	4062	PROC	,	4073																	
KEYTR3	4068	SETLC	PROTSP,0	4077																	
KEYTR4	4075	APDSP	PROTSP,XSP	4364																	
KEYTR5	4080	APDSP	PROTSP,YSP	4377	6084																
KEYV	4369	LOCAPV	ATPTR,KVATL,XPTR...	4364																	
KEYWRD	4360	PROC	,	4364																	
KNATL	5560	DESCR	KNLIST,0,0	5282																	
KNEND	5309	LHERE	,	4866	4867	4869	5282	5282	5560	5903	6285										
KNLIST	5282	DESCR	KNLIST,TTL+MARK,...	4369																	
KVATL	5561	DESCR	KVLIST,0,0	5311																	
KVEND	5342	LHERE	,	5311	5311	5561	5904	6286													
KVLIST	5311	DESCR	KVLIST,TTL+MARK,...	3425																	
L	0323	EQU	12	5627																	
LABTFN	6118	DESCR	LABTR,0,2	6118																	
LABTR	4089	PROC	KEYTR	5074																	
LASTSF	6533	FORMAT	'(28H LAST STATE...	0397	0887																
LBLTB	----			1408	1421																
LBLXTB	----			0593	0600	0601	0607	0608	0608	0609	0610	0612									
LCPTR	5751	DESCR	0,0,0	0613	0614	0617	0618	0619	0621	0623											
				5843																	
LE	1845	PROC	ADD	5974																	
LEFN	5843	DESCR	LE,0,2	1423																	
LEFTSP	5597	STRING	'LEFT'	5845																	
LEN	2036	PROC	ANY																		

CROSS REFERENCE

symbol	defn	type	value	references															
LENERR	5194	SETAC	ERRTYP,14	2061+	3509	3512	3765	4598											
LENFCL	5415	DESCR	0,0,0	1637	1663	2425	2430	2442	2449	2464	2472	2476							
				2487	2496	2701	2715	2749	2756	2790	2843	2856							
				2891	2893	2908	2911	2916	2942	2944	2988	2997							
				3024	3026														
LENFN	5845	DESCR	LEN,0,1	5972															
LENSP	6211	STRING	'LEN'	5973															
LESP	6212	STRING	'LE'	5975															
LGT	4475	PROC	.	5847															
LGTFN	5847	DESCR	LGT,0,2	5976															
LGTSF	6213	STRING	'LGT'	5977															
LISTCL	5416	DESCR	1,0,0	0377	0388	0418	1098	1128	1349	1372	1385	1393							
				1412	1417	1433													
LISTSP	5598	STRING	'LIST'	1415															
LIT	4385	PROC	.	6119															
LITCL	5482	DESCR	LITFN,FNC,0	1147	1214	1328													
LITFN	6119	DESCR	LIT,0,1	5482															
LLIST	5417	DESCR	0,0,0	1376	1395	1425	1428												
LNBFSP	5569	SPEC	INBUF,0,0,0,CARD...	0378	0389	1108	1129	1350											
LNKFLD	0259	EQU	3*DESCR	0585	0588	0617	0618	0619	0696	0731	0736	0739							
				4587	4827	6307													
LNKFNC	3357	PROC	.	5546															
LNKF1	3364	PUSH	(XCL,ZCL,TCL,YPT...	3405															
LNKF4	3408	ACOMP	WCL,WPTR,LNKF9,L...	3405	3416														
LNKF5	3418	GETSIZ	WCL,ZCL	3408															
LNKF6	3402	INCRA	TCL,DESCR	3370	3371	3381	3384	3388	3392	3396	3399								
LNKF7	3369	GETD	ZPTR,ZCL,TCL	3412															
LNKF9	3414	POP	ZPTR	3408															
LNKIR	3387	INTRL	XPTR,XPTR	3377	3391														
LNKIV	3381	RCALL	XPTR,GNVARI,XPTR...	3375															
LNKRJ	3384	R'LINT	XPTR,XPTR,INTR1,...	3376	3400														
LNKRJ	3395	REALST	XSP,XPTR	3378															
LNKVI	3398	LOCSP	XSP,XPTR	3374															
LNKVR	3390	LOCSP	XSP,XPTR	3379															
LNODSZ	5435	DESCR	NODESZ+DESCR,0,P	2030+	2076	2103	2133	2139	2176	2181	2199	2338							
				2345	4319	4337													
LNOSP	5571	SPEC	INBUF,0,0,0,STNOSZ	1381	1382	1386	1388	1400	1401										
LNTH	2598	PROC	.	2654	2658	2662	2666	6139											
LNTHCL	5483	DESCR	LNTHFN,FNC,3	2037	2061+														
LNTHFN	6139	DESCR	LNTH,0,3	5483															
LOAD	3270	PROC	.	5849															
LOADFN	5849	DESCR	LOAD,0,2	5978															
LOADSP	6214	STRING	'LOAD'	5979															
LOAD1	3332	PUSH	ZEROCL	3284															
LOAD10	3293	INCRA	YCL,1	3330															
LOAD11	3338	PUSH	ZEROCL	3298															
LOAD12	3317	DECRA	XPTR,DESCR	3321															
LOAD13	3302	FSHRTN	XSP,1	3336	3339														
LOAD4	3283	FSHRTN	XSP,1	3294	3336	3336													
LOAD6	3296	INCRA	YCL,1	3286															
LOAD7	3326	PUSH	ZEROCL	3304															
LOAD8	3308	SETVA	LODCL,YCL	3327															
LOAD9	3329	PUSH	ZEROCL	3289															
LOCAL	4539	PROC	ARG	5851															
LOCA1	0582	VARID	EQUVCL,SPECR1	0635	0675														
LOCA2	0584	MOVD	LSTPTR,BUKPTR	0588	0591	0591													
LOCA4	0623	MOVA	FRSGPT,LCPTR	0605															
LOCA5	0596	GETLG	AXPTR,SPECR1	0587	0588														
LOCA6	0617	PUTVC	LCPTR,LNKFLD,EQUVCL	0611															
LOCA7	0600	MOVD	LCPTR,FRSGPT	0624															
LOCFN	5851	DESCR	LOCAL,0,2	5980															
LOCRET	0621	RRTURN	LCPTR,1	0594															
LOCSP	6215	STRING	'LOCAL'	5981															
LODCL	5546	DESCR	LNKFNC,FNC,0	3308	3314														
LPRNSP	5599	STRING	'('	0487	0501	4009	4926+	4933+											
LPRRT	2600	INCRA	PATICL,DESCR	2656	2660	2664	2668												
LPRRTE	2605+	RCALL	XPTR,EXPVAL,XPTR...	2605															
LPRRTI	2612	POP	SCL	2604															
LPRRTV	2610	LOCSP	ZSP,XPTR	2605+															
LPRRTI	2604	VEQLC	XPTR,I,,LPRRTI	2605+															
LPRTND	2054	RCALL	XPTR,ARGVAL,,FAIL	2038	2042	2046	2050												
LPRTNI	2061+	ACOMP	XPTR,0,,,LENERR	2057															
LPTR	5645	DESCR	0,0,0	0413	0908	0909	0912	0913	1463	1464	4674								
LPTYP	0302	EQU	1	3047	3279	3540													
LSON	0262	EQU	2*DESCR	1448	1449														
LSTNCL	5330	DESCR	0,0,I	1563	4103	4113													

CROSS REFERENCE

symbol	defn	type	value	references
LSTNSP	6210	STRING	'LASTNO'	5331
LSTPTR	5727	DESCR	0,PTR,S	0584 0619
LT	1849	PROC	ADD	5853
LTFN	5853	DESCR	LT,0,2	5982
LTSP	6216	STRING	'LT'	5983
LVLCL	5340	DESCR	0,0,I	3184 3213 4001 4179 5072 5076+ 5134
MAIN1	5197	SETAC	ERRTYP,18	0422 0422 0422
MARK	----			0699 0710 0720 0734 0750 0784 0789 0792 0819
				0832 5259 5282 5311 5344 5347 5352 5357 5361
				5371+ 5616 5769 5779 5899 5911 6028 6280 6304
				6311 6316 6321 6326 6334 6345 6359 6367 6378
				6383 6388 6394 6407 6422 6425 6428 6431 6434
				6438
MAXLEN	5523	DESCR	0,0,0	1637 1663 2405 2408 2415 2418 2467 2535 2536+
				2590 2616 2623 2642 2650 2719 2749 2756 2777
				2776 2831 2845 2847 2850 2854 2872 2873 2875
				2988 2997
MAXLSP	6217	STRING	'MAXLNTH'	5292
MDATA	----			5775
MLENCL	5291	DESCR	5000,0,I	2374 2971 3871 4309 4415 4894
MLINK	----			0253
MNS	1978	PROC	,	6086
MNSFN	6086	DESCR	MNS,0,1	
MNSM	1984	MNSINT	ZPTR,XPTR,AERROR...	1980 1988
MNSR	1990	MNREAL	ZPTR,XPTR	1982
MNSV	1987	LOCSP	XSP,XPTR	1981
MP	1918	MULT	ZPTR,XPTR,YPTR,A...	1877
MPY	1825	PROC	ADD	6062
MPYFN	6062	DESCR	MPY,0,2	
MR	1940	MFREAL	ZPTR,XPTR,YPTR,A...	1894
MSG1	6480	STRING	'ILLEGAL DATA TYPE'	6449
MSG10	6489	STRING	'ILLEGAL ARGUMEN...	6458
MSG11	6490	STRING	'READING ERROR'	6459
MSG12	6491	STRING	'ILLEGAL I/O UNIT'	6460
MSG13	6492	STRING	'LIMIT ON DEFINE...	6461
MSG14	6493	STRING	'NEGATIVE NUMBER...	6462
MSG15	6494	STRING	'STRING OVERFLOW'	6463
MSG16	6495	STRING	'OVERFLOW DURING...	6464
MSG17	6496	STRING	'ERROR IN SNOBOL...	6465
MSG18	6497	STRING	'RETURN FROM LEV...	6466
MSG19	6498	STRING	'FAILURE DURING ...	6467
MSG2	6481	STRING	'ERROR IN ARITHM...	6450
MSG20	6499	STRING	'INSUFFICIENT ST...	6468
MSG21	6500	STRING	'STACK OVERFLOW'	6469
MSG22	6501	STRING	'LIMIT ON STATEM...	6470
MSG23	6502	STRING	'OBJECT EXCEEDS ...	6471
MSG24	6503	STRING	'UNDEFINED OR ER...	6472
MSG25	6504	STRING	'INCORRECT NUMBE...	6473
MSG26	6505	STRING	'LIMIT ON COMPIL...	6474
MSG27	6506	STRING	'ERRONEOUS END S...	6475
MSG28	6507	STRING	'EXECUTION OF ST...	6476
MSG3	6482	STRING	'ERRONEOUS ARRAY...	6451
MSG4	6483	STRING	'NULL STRING IN ...	6452
MSG5	6484	STRING	'UNDEFINED FUNCT...	6453
MSG6	6485	STRING	'ERRONEOUS PROTO...	6454
MSG7	6486	STRING	'UNKNOWN KEYWORD'	6455
MSG8	6487	STRING	'VARIABLE NOT PR...	6456
MSG9	6488	STRING	'ENTRY POINT OF ...	6457
MVSGPT	5752	DESCR	0,0,0	0716 0754 0769 0780
N	0324	EQU	9	3244 3652 3748 4349 4612 5272 6441
NAM	2111	PROC	,	2115 6065
NAMC2	2124	PUSH	XPTR	2120
NAME	4394	PROC	,	6080
NAMESP	6218	STRING	'NAME'	5273 5275
NAMEXN	4439	RCALL	TVAL,EXPEVL,TVAL...	4416
NAMFN	6065	DESCR	NAM,0,2	
NAMGCL	5418	DESCR	0,0,0	2285 2315 2318
NAMICL	5525	DESCR	0,0,0	1637 1644 1663 2412 2749 2752 2756 2927 2931
				2932 2955 2956 2988 2992 2997 4408 4429 4430
				4433
NAMLSZ	0275	EQU	20	2948 5527
NAMP	2136	RCALL	TPTR,BLOCK,SNODSZ	2122
NAMV	2131	LOCSP	TSP,XPTR	2121
NAM3	2121	VEQLC	XPTR,S,,NAMV	2129

CROSS REFERENCE

symbol	defn	type	value	references															
NAM4	2128	POP	XPTR	2125															
NAM5	2117	RCALL	XPTR, PATVAL, , FAIL	2113															
NBSPTR	5672	DESCR	0,0,0	0367	2927	2950	2951	2956	4410										
NBTYP	0303	EQU	1	0396	0863	0921	0929	0975	1013	1046	1407	1420							
				1484															
NE	1853	PROC	ADD	5855															
NEFN	5855	DESCR	NE,0,2	5984															
NEG	4491	PROC	,	6088															
NEGFN	6088	DESCR	NEG,0,1																
NEMO	5200	SETAC	ERRTYP,8	1545	2102	2127	2280	4236	4374	4398	4439								
NESP	6219	STRING	'NE'	5985															
NEWCRD	1369	PROC	,	0383	1127	1356													
NEWTYP	0304	EQU	1																
NEXFCL	5518	DESCR	FBLKSZ,0,0	0531	0532	0534	0544												
NEXTSP	5570	SPEC	INBUF,0,0,STNOSZ...	0380	1124	1353													
NHEDCL	5526	DESCR	0,0,0	1637	1644	1663	2412	2749	2752	2756	2988	2992							
				2997	4407	4429	4430	4433											
				2238	2319														
NMD	4406	PROC	,	2238	2319														
NMDIC	4437	SPCINT	VVAL, TSP, INTR1, NMD4	4417															
NMD1	4408	ACOMP	TCL, NAMICL, INTR1...	4435															
NMD2	4434	INCRA	TCL, DESCR+SPEC	4426	4426	4427	4439												
NMD3	4426	ACOMP	TRAPCL,0,,NMD2,NMD2	4421	4422														
NMD4	4420	PUTDC	TVAL, DESCR, VVAL	4437															
NMD5	4417	VEQLC	TVAL, K,, NMDIC	4439															
NME	2900	PROC	,	2914	2919	2954	2957	2962	6140										
NMECL	5484	DESCR	NMEFN, FNC, 2	2137															
NMEFN	6140	DESCR	NME, 0, 2	5484															
NMOVER	5527	DESCR	NAMLSZ*SPDR,0,B	0367	2932	2947	2948	2949											
NNYC	2557	PROC	ANYC	6141															
NNYCCL	5485	DESCR	NNYCFN, FNC, ?	2019	2562	2568													
NNYCFN	6141	DESCR	NNYC, 0, 3	5485															
NNYC2	2564	CLERTB	SNABTB, STOP	2561															
NNYSP	6220	STRING	'NOTANY'	5987															
NNYV	2561	DEQL	XPTR, TBLCS, NNYC2	2523															
NODESZ	0276	EQU	3*DESCR	5423	5435	5436	5443	5531											
NODMPF	6534	FORMAT	'(28H1TERMINAL D...	5103															
NODPCL	5753	DESCR	0,0,0	0726	0797	5095													
NODSIZ	5436	DESCR	NODESZ,0,P	2087	2087	2144	2151	2151	2153										
NOGEN	----			0001+															
NONAME	5203	SETAC	ERRTYP,4	2030+	3245	3247	3738	4353	4913										
NONARY	5206	SETAC	ERRTYP,3	3597	3612														
NOTAFN	5857	DESCR	NOTANY,0,1	5986															
NOTANY	2018	PROC	ANY	5857															
NRETCL	5705	DESCR	0,0,0	1537	3239	3262	6272												
NRETSP	6221	STRING	'NRETURN'	6271															
NRMEND	6535	FORMAT	'(28H1NORMAL TER...	5072															
NSTTYP	0305	EQU	4																
NULVCL	5528	DESCR	0,0,S	0612	0657	0701	1216	1330	2030+	3051	3111	3132							
				3159	3410	3513+	3711	3738	3920	3927	3970	4256							
				4257	4589	4725	4752+	4830	5033	5038									
				3443+	3449														
NUMBTB	----			2622	2624	2629	2630	2631	2632	2636	2637	2638							
NVAL	5646	DESCR	0,0,0	2639	2641	2642	2642	2643	2648	2649	2712	2716							
				2718	2737	2738	2739	2744	2768	2771	2773	2787							
				2827	2830	2831	2831	2832	2835	2847	2868	2871							
				2872	2872	2875	2922	2923	2925	2965	2966	2968							
NVARF	6536	FORMAT	'(18HONATURAL VA...	5098															
OBARY	0278	EQU	OBSIZ+3	6304															
OBEND	5437	DESCR	OBLIST+DESCR*OBO...	0693	0727	4584	4824												
OBLIST	6307	EQU	OBSTRT-LNKFLD	0692	0725	4583	4823	5437	5754										
OBLOCK	6304	DESCR	OBLOCK, TTL+MARK, ...	6304															
OBOFF	0283	EQU	OBSIZ-2	5437															
OBPTR	5754	DESCR	OBLIST, PTR, S	0583															
OBSIZ	0277	EQU	256	0278	0283	6306													
OBSTRT	6306	ARRAY	OBSIZ	6307															
OCALIM	5439	DESCR	OCASIZ+DESCR,0,C	0336	0371	4650+	4650+	4653	4653	4654	4655	4656							
				4657															
OCASIZ	0279	EQU	1500	5439															
OCBSCL	5674	DESCR	0,0,0	0370	0401	0402	0457	1500	1500	1509	1511	1521							
				1540	1541	1555	1565	1584	1616	1636	1641	1645							
				1664	1706	1730	1764	1787	2099	2119	2257	3113							
				3162	3164+	3180	3183	3222	3693	4103	4105	4108							
				4113	4211	4215	4362	4387	4396	4447	4492	4494							
				5166															
OCICL	5529	DESCR	0,0,0	0456	0457	1500	1501	1512	1520	1521	1542	1554							
				1555	1555	1564	1565	1583	1584	1587	1615	1616							



CROSS REFERENCE

symbol	defn	type	value	references
				1636 1642 1645 1664 1705 1706 1729 1730 1763
				1764 1786 1787 2098 2099 2118 2119 2256 2257
				3112 3113 3162 3191 3222 3692 3693 4103 4107
				4108 4113 4210 4211 4214 4215 4361 4362 4386
				4387 4395 4396 4447 4492 4494 5165 5166
OCLIM	5675	DESCR	0,0,0	0371 0372 0414 0895 0902 0903 1447 1473 1474
				4657 4658 4673
OCSVCL	5676	DESCR	0,0,0	0337
OFSET	5755	DESCR	0,0,0	0756 0757 0771 0772 0818
OFSP	5600	STRING	' OF '	4186
ONAR	2691	PROC	ARBN	6142
ONARFN	6142	DESCR	ONAR,0,2	6327
ONAR1	2699	PUSH	TVAL	2708
ONAR2	2701	AEQLC	LENFCL,0,TSALT	2681
ONECL	5440	DESCR	1,0,0	2304 2500 2536+ 2721 3441 3461 3513+ 4448 4495
				4531 4536 4540 4771+
ONRF	2704	PROC	ARBN	6143
ONRFFN	6143	DESCR	ONRF,0,2	6330
OPNLIT	6521	STRING	'UNCLOSED LITERAL'	1249
OPPD	4921	MOVDIC	XPTR,0,YPTR,0	4939 4960 4971
OPSNP	6222	STRING	'OPSYN'	5989
OPSYFN	5859	DESCR	OPSYN,0,3	5988
OPSYN	4906	PROC	,	5859
OPTBL	6028	DESCR	OPTBL,TTL+MARK,O...	6028 6028 6287
OPTBND	6102	LHERE	,	6028
OR	2161	PROC	,	6068
ORFN	6068	DESCR	OR,0,2	
ORPP	2184	GETSIZ	XSIZ,XPTR	2171 2202
ORPV	2179	LOCSP	YSP,YPTR	2170
ORVP	2197	LOCSP	XSP,XPTR	2169
ORVV	2174	LOCSP	XSP,XPTR	2168
OTLIST	5347	DESCR	OTLIST,TTL+MARK,...	5347 5623 5905 6290
OTSATL	5352	DESCR	OTSATL,TTL+MARK,...	3798 5352 5906 6292
OUTATL	5623	DESCR	OTLIST,0,0	2384 2741 2978 3800 3805 3805 3856 4226 4422
OUTBLK	5441	DESCR	OUTPUT-DESCR,0,0	0378 0389 1108 1109 1116 1117 1129 1350 4048
				4086 4165 4855 4877 5084
OUTPSP	6254	STRING	'(1X,132A1)'	5354
OUTPUT	5353	DESCR	UNITO,0,I	0333 0334 0408 0411 1434 4055 4201 4861 4865
				5072 5074 5076+ 5097 5098 5102 5103 5107 5108
				5110 5112 5114 5116 5118 5120 5122 5131 5134
				5348 5441
OUTSP	6223	STRING	'OUTPUT'	5290 5349 5991
OUTSW	5289	DESCR	1,0,I	2383 2740 2977 4225 4421
OVER	5209	SETAC	ERRTYP,21	
P	0325	EQU	3	1743 2072 2080 2122 2147 2187 2326 2353 2821
				2863 4259 4278 4325 5264 5314 5316 5318 5320
				5322 5324 5326 5383 5386 5387 5387 5388 5390
				5397 5435 5436 5443 5444 5454 5455 5456 5457
PARMS	----			0254
PATBCL	5677	DESCR	0,0,0	1636 1664 2447 2451 2453 2455 2504 2514 2601
				2735 2748 2757 2798 2814 2818 2845 2850 2854
				2861 2873 2921 2964 2986 2999
PATICL	5530	DESCR	0,0,0	1636 1664 2448 2450 2451 2452 2453 2454 2455
				2481 2482 2484 2485 2491 2492 2513 2514 2600
				2601 2734 2735 2748 2757 2797 2798 2813 2814
				2818 2845 2850 2854 2860 2861 2873 2920 2921
				2963 2964 2986 2999
PATND	5695	DESCR	0,0,0	0939 0946 0964
PATNOD	2030+	DEQL	XPTR,NULVCL,,NONAME	2027 2028 2058 2061+ 2064
PATSP	6224	STRING	'PATTERN'	5265
PATVAL	1728	PROC	,	2071 2117 2162 2164 2212 2268
PATVC	1739	RCALL	XPTR,INVOKE,(XPT...	1731
PATVR	1754	REALST	XSP,XPTR	1746
PATV1	1732	AEQLC	INSW,0,,PATV2	1739
PATV2	1742	GETDC	XPTR,XPTR,DESCR	1732 1733
PATV3	1743	VEQLC	XPTR,P,,RTXNAM	1739
PCHFST	5356	DESCR	CRDFSP,0,0	
PDFN	6090	DESCR	UNDF,FNC,0	
PDLBLK	6311	DESCR	PDLBLK,TTL+MARK,...	5531 5533 5547 6311
PDLEND	5531	DESCR	PDLBLK+SPDLDR-NO...	2423 2435 2457 2837 2885 2902 2935 3001 3018
PDLHED	5547	DESCR	PDLBLK,0,0	1637 1643 1663 2411 2749 2751 2756 2783 2988
				2991 2997
PDLPTR	5533	DESCR	PDLBLK,0,0	1637 1643 1663 2411 2422 2423 2426 2428 2430
				2434 2435 2438 2440 2442 2456 2457 2459 2462
				2464 2476 2478 2479 2480 2685 2687 2688 2694

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																
				2700	2706	2723	2726	2749	2751	2756	2779	2782								
				2783	2836	2837	2839	2841	2843	2884	2885	2887								
				2889	2891	2901	2902	2904	2906	2908	2934	2935								
				2937	2940	2942	2988	2991	2997	3000	3001	3003								
				3017	3018	3020	3022	3024	3030	3031										
PIDTP	5386	DESCR	P,0,I																	
PKEYF	6537	FORMAT	'(21HOUNPROTECTE...	4865																
PLS	1997	PROC	,	6092																
PLSFN	6092	DESCR	PLS,0,1																	
PLSV	2003	LOCSP	XSP,ZPTR	2000																
PNCHSP	6227	STRING	'PUNCH'	5351																
POS	2040	PROC	ANY	5861																
POSFN	5861	DESCR	POS,0,1	5992																
POSI	2654	PROC	LNTH	6144																
POSICL	5486	DESCR	POSIFN,FNC,3	2041																
POSIFN	6144	DESCR	POSI,0,3	5486																
POSI	2621	ACOMPC	XPTR,0,,,SCLENR	2613																
POSSP	6225	STRING	'POS'	5993																
PPDTP	5387	DESCR	P,0,P	2171	4301															
PRFN	6094	DESCR	UNDF,FNC,0																	
PRINFN	5863	DESCR	PRINT,0,3	5990																
PRINT	3789	PROC	,	5863																
PRINT1	3805	RCALL	OUTATL,AUGATL,(O...	3800																
PRINT2	3809	RCALL	TPTR,BLOCK,IOBLSZ	3797																
PRINT3	3800	LOCAPV	ZPTR,OUTATL,XPTR...	3812																
PRINT4	3808	MOVD	ZPTR,DFLFST	3798																
PRINT5	3814	SETAC	YPTR,UNITO	3796																
PRINT6	3797	AEQLC	ZPTR,0,PRINT2	3815																
PRMDX	5756	DESCR	PRMSIZ,0,0	6686	0763															
PRMPTR	5757	DESCR	PRMTBL,0,0	0687	0764															
PRMSIZ	6300	EQU	PRMTRM-PRM...-DESCR	5756	6280															
PRMTBL	6280	DESCR	PRMTBL,TTL+MARK,...	5757	6280	6300														
PRMTRM	6299	LHERE	,	6300																
PROTER	5212	SETAC	ERRTYP,6																	
				3045	3045	3047	3057	3057	3059	3075	3077	3277								
				3277	3279	3284	3286	3443+	3446	3449	3450	3451								
				3454	3454	3462	3465	3471	3475	3538	3538	3540								
				3554	3554	3556	3573	3573+												
PROTFN	5865	DESCR	PROTO,0,1	5994																
PROTO	3595	PROC	,	5865																
PROTSP	5583	SPEC	ANYSP,0,0,0,0	3995	3996	3998	3999	4000	4002	4003	4008	4009								
				4023	4034	4035	4036	4037	4041	4042	4046	4047								
				4048	4068	4069	4071	4072	4074	4075	4076	4079								
				4080	4084	4085	4086	4734	4735	4736	4739	4740								
				4926+	4933+	4945+	4953+													
PRTOVF	6538	FORMAT	'(29H ***PRINT R...	4055	4201	4861														
PRTSP	6226	STRING	'PROTOTYPE'	5995																
PTR	----			0338	0753	0768	0803	0816	5726	5727	5739	5754								
				5758	5759	5760	5766	5767	5768											
PUNCH	5355	DESCR	UNITP,0,I	5350																
PUTI	3903	INTSPC	IOSP,IO2PTR	3893																
PUTIN	3866	PROC	,	1622	1652	1712	1736	1770	1792	2263	3120	3700								
				4221																
PUTIN1	3881	RCALL	IO1PTR,GNVARS,IO...	3878																
PUTOUT	3890	PROC	,	2387	2744	2981	4229	4425												
PUTV	3898	LOCSP	IOSP,IO2PTR	3892																
PUTVU	3899	STPRNT	IOKEY,IO1PTR,IOSP	3896	3904															
PVDTP	5388	DESCR	P,0,S	2170	4300															
QLITYP	0306	EQU	1	1248																
QTSP	5584	SPEC	QTSTR,0,0,0,1	0488	0490	1105	4034	4036	4157	4159	4852	4854								
QTSTR	----			5584																
QUES	4502	PROC	,	6096																
QUESFN	6096	DESCR	QUES,0,1																	
R	0326	EQU	7	0477	1689	1746	1982	2001	2328	4261	4280	4611								
				5268	5384	5389	5390	5391	5391	5392	5398									
RBTP	0307	EQU	7	0983	1023	1056	1240													
READ	3756	PROC	,	5871																
READFN	5871	DESCR	READ,0,3	5966																
READNO	6539	FORMAT	'(1H0,I15,16H RE...	5120																
READ1	3774	RCALL	INATL,AUGATL,(IN...	3769																
READ2	3777	RCALL	TPTR,BLOCK,IOBLSZ	3765																
READ3	3769	LOCAPV	ZPTR,INATL,XPTR,...	3780																
READ4	3776	MOVD	ZPTR,DFLSIZ	3767																
READ5	3782	SETAC	YPTR,UNITI	3763																
READ6	3765	ACOMPC	ZPTR,0,READ2,,LE...	3783																
REALBF	5615	BUFFER	36	5585																



CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																					
RTXNAM	5045	RRTURN	XPTR,2	1372	1379	1383	1586	2388	2388	2389+	2389														
				1319	1333	1484+	1622	1624	1627	1666	1715	1719													
				1736	1743	1744	1752	1755	1770	1774	3244	3245													
				3247	3653	3749	4349	4351	4353	4367	4524	5068													
RTXPTR	5047	RRTURN	XPTR,3	1688	1689	1691+	1692	1693	4257	4984															
RTYPSP	6236	STRING	'RTNTYPE'	5333																					
RTYPTR	5049	RRTURN	YPTR,3	4256																					
RTZPTR	5052	RRTURN	ZPTR,3	0866	0874	1157	1666	2034	2091	2105	2155	2195													
				3239	3425	3498	3513+	3599	3721	4333	4372	4388													
				4397	4398	4450	4522	4575	4601	4620	4644+	4676													
				4700	4704	4706	4709	4713	4761+	4771+	5007	5018													
				5062	5065																				
RT1NUL	5033	RRTURN	NULVCL,1	0581	0643	0671																			
RVDTP	5392	DESCR	R,0,S	1874	2220	2276	3378																		
S	0327	EQU	1	0601	1547	1690	1720	1744	1774	1969	1981	2000													
				2027	2059	2073	2121	2325	2515+	2605+	2820	2862													
				3242	3892	4015	4137	4145	4258	4277	4348	4609													
				4644+	4838	5260	5332	5385	5388	5392	5394	5395													
				5396	5397	5398	5399	5399	5528	5726	5727	5739													
				5754	5758	5759	6439																		
SALF	2471	PROC	SCNR	2702	2857	5056	6147																		
SALFFN	6147	DESCR	SALF,0,2	6379																					
SALF1	2472	SETAC	LENFCL,0	2488																					
SALT	2475	PROC	SCNR	2626	2727	5058																			
SALT1	2476	GETDC	LENFCL,PDLPTR,3*...	2467	2487																				
SALT2	2478	GETDC	XCL,PDLPTR,DESCR	2473																					
SALT3	2487	AEQLC	LENFCL,0,SALT1	2482	2505																				
SB	1920	SUBTRT	ZPTR,XPTR,YPTR,A...	1877																					
SCAN	2209	PROC	.	6120																					
SCANCL	5489	DESCR	SCANFN,FNC.	0943																					
SCANFN	6120	DESCR	SCAN,0,2	5489																					
SCANIP	2240	RCALL	XPTR,GNVARI,XPTR	2222																					
SCANIV	2233	RCALL	XPTR,GNVARI,XPTR	2219																					
SCANNO	6540	FORMAT	'(1H0,I15,26H PA...	5116																					
SCANRP	2246	REALST	XSP,XPTR	2221																					
SCANRV	2243	REALST	XSP,XPTR	2220																					
SCANVB	2227	SUBSP	TSP,YSP,XSP,FAIL	2231																					
SCANVP	2236	LOCSP	XSP,XPTR	2218	2241	2247																			
SCANVV	2225	LOCSP	XSP,XPTR	2217	2234	2244																			
SCBSCL	5678	DESCR	0,0,0	0336	0337	0338	0368																		
SCDTER	5215	SETAC	ERRTYP,1	2518+	2605+	2611	2822	2864	3006																
SCERCL	5419	DESCR	0,0,0	5191	5242	5245	5251+	5251+	5255																
SCERST	5242	SETAC	SCERCL,1	5216	5219	5222	5225+	5225																	
SCFLCL	5490	DESCR	SCFLFN,FNC,2	2438	2839																				
SCFLFN	6148	DESCR	FAIL,0,2	5490																					
SCIN	2446	PROC	SCNR	2848																					
SCIN1	2447	MOVD	PATBCL,YPTR	2432	2444																				
SCIN2	2449	SETAC	LENFCL,1	2492																					
SCIN3	2450	INCRA	PATICL,DESCR	2484																					
SCIN4	2469	BRANIC	ZCL,0	2466																					
SCL	5534	DESCR	0,0,0	1634	1647	1656	1659	1660	1666	1669	1672	1673													
				1674	1678	1682	1697	1785	1794	1795	1802	1805													
				1808	1814	1818	1822	1826	1830	1834	1838	1842													
				1846	1850	1854	1858	1861	1863	1877	1894	2512													
				2515	2518+	2518+	2522	2523	2544	2558	2572	2599													
				2602	2605+	2605+	2612	2613	2655	2659	2663	2667													
				3822	3826	3830	3831	3835	3836	4019	4020	4030													
				4031	4153	4154	4649	4662	4666	4676	4679	4687													
				4695																					
SCLENR	5218	SETAC	ERRTYP,14	2615	2621	2628	2635	2647																	
SCLNOR	5221	SETAC	ERRTYP,15	2971																					
SCNAME	5224	SETAC	ERRTYP,4	2522+																					
SCNCL	5404	DESCR	0,0,0	2216	2272	5116																			
SCNEMO	5225+	SETAC	ERRTYP,8	2758+	3006+																				
SCNR	2404	PROC	.	2237	2284	2446	2471	2475	2490	2494	2503	2541													
				2592	2619	2626	2645	2652	2677	2689	2702	2724													
				2727	2758	2780	2806	2852	2857	2912	2945	5056													
				5058	5060																				
SCNR1	2409	SETSP	TXSP,XSP	2407																					
SCNR2	2420	PUSH	(YPTR,YSIZ)	2501																					
SCNR3	2434	INCRA	PDLPTR,3*DESCR	2413																					
SCNR4	2418	SUBTRT	YSIZ,MAXLEN,YSIZ	2414																					
SCNR5	2419	SUM	YSIZ,YSIZ,CHARCL	2416																					
SCOK	2490	PROC	SCNR	2541	2592	2619	2645	2652	2677	2689	2724	2758													
				2780	2806	2852	2912	2945	5060	6149															
SCOKCL	5491	DESCR	SCOKFN,FNC,2	2894	3027																				

CROSS REFERENCE

symbol	defn	type	value	references															
SCOKFN	6149	DESCR	SCOK,0,2	5491	6335	6338	6346	6349	6363	6368	6399								
SCON	2494	PROC	SCNR	6150															
SCONCL	5492	DESCR	SCONFN,FNC,2	2426															
SCONFN	6150	DESCR	SCON,0,2	5492															
SCON1	2497	POP	(YSIZ,YPTR)	2495															
SEQSIZ	0269	EQU	8	5513	5567	5570	5613												
SGOND	5696	DESCR	0,0,0	0999	1005	1057	1066												
SGOTYP	0309	EQU	2	1049															
SIZE	5002	PROC	,	5879															
SIZEFN	5879	DESCR	SIZE,0,1	6006															
SIZERR	5227	SETAC	ERRTYP,23	0554	0554	0598	0646												
SIZESP	6237	STRING	'SIZE'	6007															
SIZLIM	-----			5442															
SIZLMT	5442	DESCR	SIZLIM,0,0	0554	0598	0646													
SJSR	2255	PROC	,	6121															
SJSRCL	5493	DESCR	SJSRFN,FNC,3	0961															
SJSRC1	2280	RCALL	WPTR,INVOKE,(WPT...	2258															
SJSRFN	6121	DESCR	SJSR,0,3	5493															
SJSRI	2394	INTSPC	ZSP,ZPTR	2327															
SJSRP	2334	SETSP	XSP,HEADSP	2326															
SJSRR	2397	REALST	ZSP,ZPTR	2328															
SJSRS	2369	GETLG	XPTR,TAILSP	2395	2398														
SJSRV	2368	LOCSP	ZSP,ZPTR	2325															
SJSRV1	2382	PUTDC	WPTR,DESCR,ZPTR	2324	2366														
SJSRV2	2388	ACOMPC	TRAPCL,0,,RTN3,RTN3	2383	2384														
SJSR1	2259	AEQLC	INSW,0,,SJSR1A	2280															
SJSR1A	2266	GETDC	XPTR,WPTR,DESCR	2259	2260														
SJSR1B	2267	PUSH	(WPTR,XPTR)	2263															
SJSSDT	2325	VEQLC	ZPTR,S,,SJSRV	2323															
SJSS1P	2289	RCALL	XPTR,GNVARI,XPTR	2278															
SJSSIV	2292	RCALL	XPTR,GNVARI,XPTR	2275															
SJSSRP	2299	REALST	XSP,XPTR	2277															
SJSSRV	2295	REALST	XSP,XPTR	2276															
SJSSVP	2283	LOCSP	XSP,XPTR	2274	2290	2300													
SJSSV	2308	LOCSP	XSP,XPTR	2273	2293	2296													
SJSSV2	2312	SUBSP	TSP,YSP,XSP,FAIL	2306															
SJSS1	2317	SPUSH	(TAILSP,HEADSP)	2287															
SJSS1A	2320	RCALL	ZPTR,ARGVAL,,FAIL	2318															
SJVON	2303	AEQLC	ANCCL,0,FAIL	2313	2313														
SLHFN	6098	DESCR	UNDF,FNC,0																
SNABTB	-----			2528	2530	2538	2550	2552	2564	2566	2578	2580							
				2586															
SNODSZ	5443	DESCR	NODESZ,0,P	2136															
SOURCEF	6541	FORMAT	'(42HOBELL TELEP...	0334															
SPAN	2022	PROC	ANY	5881															
SPANFN	5881	DESCR	SPAN,0,1	6008															
SPANS	6238	STRING	'SPAN'	6009															
SPCNVT	0340	GETD	XPTR,INITLS,YCL	0349															
SPCNV1	0342	GETD	ZPTR,XPTR,XCL	0347															
SPCNV2	0346	DECRA	XCL,2*DESCR	0343															
SPDLDR	0284	EQU	SPDLSZ*DESCR	5531															
SPDLSZ	0280	EQU	1000	0284	6311	6312													
SPDR	0282	EQU	SPEC*DESCR	2948	5527														
SPEC	-----			0282	2929	2931	2934	2955	4412	4434									
SPECR1	5729	SPEC	0,0,0,0,0	0580	0581	0582	0591	0596	0616	0634	0672	0673							
SPECR2	5730	SPEC	0,0,0,0,0	0590	0591	0614	0615	0616											
SPLIT	0840	PROC	,	0417	1471	4672													
SPNC	2571	PROC	ANYC	6151															
SPNCCL	5494	DESCR	SPNCFN,FNC,3	2023	2576	2582													
SPNCFN	6151	DESCR	SPNC,0,3	5494															
SPNC2	2578	CLERTB	SNABTB,STOPSH	2575															
SPNC3	2583	LCOMP	XSP,TXSP,,TSALT,...	2576															
SPNC5	2591	ADDLG	TXSP,XPTR	2589															
SPNV	2575	DEQL	XPTR,TBLCS,SPNC2	2523															
SR	1942	SBREAL	ZPTR,XPTR,YPTR,A...	1894															
SRNCL	5679	DESCR	0,0,0	1036	1043														
STACK	6316	DESCR	STACK,TTL*MARK,S...	5535	6288	6316													
STAR	2812	PROC	CHR	6152															
STARFN	6152	DESCR	STAR,0,3	6395															
STARP	2826	AEQLC	FULLCL,0,,STARP1	2821															
STARPT	6394	DESCR	STARPT,TTL*MARK,...	5457	6394														
STARP1	2830	SETAV	NVAL,YCL	2826															
STARP2	2850	POP	(YCL,XCL,PATICL,...	2876															
STARP3	2856	AEQLC	LENFCL,0,TSALT	2862	2864														
STARP4	2831	SUBTRT	NVAL,MAXLEN,NVAL	2828															
STARP5	2854	POP	(YCL,XCL,PATICL,...	2848	2876														

CROSS REFERENCE

symbol	defn	type	value	references															
STARP6	2836	INCRA	PDLPTR,3*DESCR	2834															
STARSP	5602	STRING	'***'	1114															
STARSZ	5444	DESCR	11*DESCR,0,P	1748	1749	2330	2331	4263	4264	4282	4283								
STAR2	2815	RCALL	YPTR,EXPVAL,YPTR...	2817															
STATHD	6542	FORMAT	'(28H1SNOBOL4 ST...	5107															
STCTKY	5339	DESCR	STCTSP,0,0	1573															
STCTSP	6239	STRING	'STCOUNT'	5339															
STDMP	6543	FORMAT	'(33H1DUMP OF VA...	5097															
STFCSP	6240	STRING	'STFCOUNT'	5329															
STGENO	6544	FORMAT	'(1H0,I15,33H RE...	5118															
STKPTR	5535	DESCR	STACK,0,0	0684	0685														
STLMSP	6241	STRING	'STLIMIT'	5288															
STNOCL	5334	DESCR	0,0,I	1563	1566	3162	3222	3997	4070	4103	4113	4133							
				5074	5076+	5134	5166												
STNOSP	6243	STRING	'STNO'	5335															
STNOSZ	0270	EQU	8	0271	5513	5566	5567	5568	5570	5571	5572	5572							
				5611	5613														
STOP	----			2530	2564														
STOPSH	----			2552	2578														
STOPTP	3975	PROC	STOPTR	3984	3987														
STOPTR	3965	PROC	,	3975	5883														
STOPT1	3982	DEQL	YPTR,FUNTCL,INTR30	3972															
STOPT2	3972	LOCAPV	YPTR,TRATL,YPTR,...	3970															
STOTYP	0310	EQU	5	1054															
STPTFN	5883	DESCR	STOPTR,0,2	6010															
STPTSP	6242	STRING	'STOPTR'	6011															
STR	4446	PROC	,	6100															
STRFN	6100	DESCR	STR,0,1																
STRPAT	5457	DESCR	STARPT,0,P	1749	2331	4264	4283												
STSIZE	0281	EQU	1000	6316	6317														
STTL	----			0609	0655	0745	0833												
STYPE	5536	DESCR	0,FNC,0	0390	0394	0396	0403	0865	0980	0984	1016	1021							
				1049	1054	1140	1248	1345	1370	1407	1420	1488							
				3047	3059	3077	3279	3286	3447	3451	3540	3556							
				4931	4938	4951	4959												
ST1PTR	5758	DESCR	0,PTR,S	0695	0696	0696	0698	0699	0700	0702	0704	0729							
				0730	0731	0731	0733	0734	0735										
				0700	0701	0730	0736	0739											
ST2PTR	5759	DESCR	0,PTR,S	6071															
SUB	1829	PROC	ADD																
SUBFN	6071	DESCR	SUB,0,2																
SUBJND	5697	DESCR	0,0,0	0926	0933	0945	0956	0963											
SUCCESS	6545	FORMAT	'(37H0NO ERRORS ...	0411															
SUCKY	5327	DESCR	SUCCESS,0,0	0364															
SUCCPT	6407	DESCR	SUCCPT,TTL+MARK,...	5326	6407														
SUCCESSP	6245	STRING	'SUCCEED'	5327															
SUCE	3016	PROC	,	3029															
SUCE1	3017	INCRA	PDLPTR,3*DESCR	3032															
SUCF	3029	PROC	SUCE	6157															
SUCFCL	5495	DESCR	SUCFFN,FNC,2	3020															
SUCFFN	6157	DESCR	SUCF,0,2	5495	6408														
SUCPAT	5326	DESCR	SUCCPT,0,P	0364															
SYSCMT	6545+	FORMAT	'(27H0CUT BY SYS...	5134															
SYSCUT	5134	OUTPUT	OUTPUT,SYSCMT,(S...																
T	0328	EQU	5	0476	3513+	3612	4615	4771+	5278	5381	5393								
TAB	2052	PROC	ANY	5885															
TABFN	5885	DESCR	TAB,0,1	6012															
TABSP	6246	STRING	'TAB'	6013															
TADTP	5393	DESCR	T,0,A	4644															
TAILSP	5714	SPEC	0,0,0,0,0	2286	2316	2317	2321	2324	2341	2344	2369	2380							
TB	2666	PROC	LNTH	6153															
TBCL	5496	DESCR	TBFN,FNC,3	2053															
TBFN	6153	DESCR	TB,0,3	5496															
TBI	2647	ACOMPC	XPTR,0,,,SCLLENR	2613															
TBLCS	5649	DESCR	0,0,0	2525	2531	2547	2553	2561	2567	2575	2581								
TBLFNC	5537	DESCR	0,0,0	2526	2532	2548	2554	2562	2568	2576	2582								
TCL	5652	DESCR	0,0,0	1636	1664	3363	3364	3367	3369	3402	3564	3565							
				3587	3588	3665+	3665+	3665+	3665+	3665+	3665+	3665+							
				3665+	4005	4006	4020	4020	4021	4031	4031	4032							
				4139	4140	4154	4154	4155	4190	4191	4407	4408							
				4410	4429	4433	4434	4752+	4752+	4752+	4771+	4771+							
				4771+															
TEMPCL	5760	DESCR	0,PTR,0	0648	0650	0651													
TEXTSP	5715	SPEC	0,0,0,0,0	0380	0381	0392	0397	0405	0864	0887	0976	1014							
				1047	1102	1120	1124	1125	1138	1343	1353	1354							
				1362	1392	1404	1405	1408	1418	1421	1484+	4650							
				4650+	4663	4680+	4691												

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																		
TFENPL	6428	DESCR	TFENPL,TTL+MARK,...	5628	6293	6428																
TFENTL	5628	DESCR	TFENPL,0,0	3178	5366																	
TFEXPL	6431	DESCR	TFEXPL,TTL+MARK,...	5630	6294	6431																
TFEXTL	5630	DESCR	TFEXPL,0,0	3207	5368																	
TFNCLP	5366	DESCR	TFENTL,0,0	3950	3983																	
TFNRLP	5368	DESCR	TFEXTL,0,0	3953	3986																	
TIME	5013	PROC	.	5887																		
TIMECL	5406	DESCR	0,0,0	0335	0420	0420	5088	5088	5108													
TIMEPS	6547	FORMAT	'(1H0,F15.2,35H ...	5131																		
TIMFN	5887	DESCR	TIME,0,1	6016																		
TIMSP	6247	STRING	'TIME'	6017																		
TITLEF	6547+	FORMAT	'(37H1SNOBOL4 (V...	0333																		
TKEYL	5632	DESCR	TKEYPL,0,0	1573	1591	3187	3216	5251	5370													
TKEYPL	6434	DESCR	TKEYPL,TTL+MARK,...	5632	6295	6434																
TLABL	5626	DESCR	TLABPL,0,0	1525	5364																	
TLABPL	6425	DESCR	TLABPL,TTL+MARK,...	5626	6296	6425																
TLSGP1	5768	DESCR	0,PTR,0	0561	0605	0651	0801															
TMVAL	5650	DESCR	0,0,0	2075	2077	2132	2134	2175	2177	2180	2182	2198										
				2200	2337	2339	2344	2346	2427	2428	2439	2440										
				2460	2461	2462	2675	2676	2680	2684	2685	2686										
				2687	2696	2697	2840	2841	2888	2889	2905	2906										
				2910	2938	2939	2940	3021	3022	4318	4320	4336										
				4338																		
TOPCL	5761	DESCR	0,0,0	0756	0757	0771	0772	0782	0783	0784	0790	0791										
				0792	0793	0798	0799	0818	0819	0831												
TPTR	5651	DESCR	0,0,0	1748	1749	1750	1751	2030+	2032	2076	2077	2081										
				2082	2084	2086	2088	2090	2103	2104	2133	2134										
				2136	2137	2139	2141	2148	2149	2151	2153	2154										
				2176	2177	2181	2182	2188	2189	2190	2192	2199										
				2200	2330	2331	2332	2333	2338	2339	2345	2346										
				2354	2355	2357	2361	2363	2927	2928	2929	2949										
				2950	2951	2956	3148	3151	3157	3158	3437	3492										
				3636	3640	3646	3647	3767	3771	3774	3777	3778										
				3779	3798	3802	3805	3809	3810	3811	3926	3928										
				3933	3934	3937	3938	3939	3939	3941	3944	3944										
				3946	3956	3957	3958	4263	4264	4265	4266	4282										
				4283	4284	4285	4319	4320	4326	4327	4329	4331										
				4337	4338	4410	4411	4412	4740+	4746+	4752+	4752										
				4760																		
TRACE	3911	PROC	.	3925	5889																	
TRACEP	3925	PROC	TRACE	3951	3954																	
TRACL	5297	DESCR	0,0,I	3167	3169	3196	3198	4103	4110	4113												
TRACSP	5586	SPEC	ANYSP,0,0,0,0	4131	4132	4134	4135	4142	4143	4149	4157	4158										
				4159	4163	4164	4165	4178	4182	4183	4185	4186										
				4193																		
TRAC1	3949	DEQL	YPTR,FUNTCL,INTR30	3922																		
TRAC2	3928+	SETAC	XSIZ,5*DESCR	3927																		
TRAC3	3944	RCALL	TPTR,AUGATL,(TPT...	3939																		
TRAC4	3956	RCALL	TPTR,BLOCK,TWOCL	3938																		
TRAC5	3922	LOCAPV	YPTR,TRATL,YPTR,...	3920																		
TRAC6	3946	PUTDC	YPTR,0,TPTR	3959																		
TRAPCL	5285	DESCR	0,0,I	1523	1571	1589	2388	2745	2982	3175	3185	3204										
				3214	4102	4103	4109	4113	4230	4426	5249											
				3922	3972																	
TRATL	5562	DESCR	TRLIST,0,0	3922	3972																	
TRCBLK	5371+	DESCR	TRCBLK,TTL+MARK,...	3931+	5371+																	
TRCFEN	5889	DESCR	TRACE,0,4	6018																		
TRCESP	6248	STRING	'TRACE'	5286	6019																	
TRCLSP	5603	STRING	'CALL OF '	4003																		
TREPUB	1441	PROC	.	0933	0945	0946	0956	0963	0964	0965	0994	1005										
				1042	1066	1072	4692															
TREPU1	1443	GETDC	XPTR,YPTR,CODE	1450	1454																	
TREPU2	1452	AEQLIC	YPTR,RSIB,0,,TREPU3	1448	1458																	
TREPU3	1456	AEQLIC	YPTR,FATHER,0,,RTN1	1452																		
TREPU4	1448	AEQLIC	YPTR,LSO,0,,TREPU2	1475																		
TREPU5	1460	SUM	ZPTR,CMOFCL,CODELT	1447																		
TREPU6	1465	MOVBLK	XCL,CMBSCL,CMOFCL	1463																		
TRFRSP	6173	STRING	'CALL'	5367																		
TRI	4168	INTSPC	XSP,YPTR	4146																		
TRIM	5024	PROC	.	5891																		
TRIMCL	5283	DESCR	0,0,I	3878																		
TRIMFN	5891	DESCR	TRIM,0,1	6020																		
TRI2	4149	APDSP	TRACSP,XSP	4169																		
TRKYSP	6208	STRING	'KEYWORD'	5371																		
TRLASP	6209	STRING	'LABEL'	5365																		
TRLIST	5361	DESCR	TRLIST,TTL+MARK,...	5361	5562	5907	6297															
TRLVSP	5604	STRING	'LEVEL '	4000	4178																	

CROSS REFERENCE

symbol	defn	type	value	references
TRMSP	6249	STRING	'TRIM'	5284 6021
TRPHND	4100	PROC	,	1527+ 1573+ 1591+ 2389+ 2752+ 2992+ 3180+ 3187+ 3209+
				3218+ 4232+ 4430+ 5251+
TRPRT	4160	MSTIME	YPTR	4150 4194
TRSTSP	5605	STRING	' STATEMENT '	3996 4069 4132
TRV	4152	LOCSP	XSP, YPTR	4145
TSALF	5056	BRANCH	SALF, SCNR	2518+ 2538 2586 2587 2605+ 2624 2632 2758+ 2783
				2783 2802 2802 2815 2916 3006+ 5255
TSALT	5058	BRANCH	SALT, SCNR	2536 2538 2583 2583 2590 2616 2623 2632 2639
				2643 2649 2650 2701 2801 2832 2835 2856 2916
TSCOK	5060	BRANCH	SCOK, SCNR	2624 2632 2692 2697 2697 2745 2746
TSIZ	5653	DESCR	0,0,0	2079 2080 2081 2083 2084 2085 2086 2087 2088
				2089 2090 2090 2145 2146 2154 2186 2187 2188
				2351 2352 2352 2353 2354 2360 2361 2363 2833
				2835 4324 4325 4326
TSP	5716	SPEC	0,0,0,0,0	1112 1115 1375 1378 1382 1394 1397 1401 1639
				1661 2074 2075 2131 2132 2227 2228 2312 2313
				2316 2376 2377 2378 2379 2380 2750 2755 2799
				2801 2802 2804 2823 2924 2925 2926 2926 2928
				2967 2968 2969 2969 2970 2989 2995 3006 3333
				3334 3336 4070 4071 4311 4312 4313 4314 4317
				4318 4335 4336 4411 4414 4437 4896 4897 4898
				4926+ 4933+ 4945+ 4953+ 4992 4993 4994 4995 5083
				5084 5556
TSPPTR	5556	DESCR	TSP,0,0	2974 4418
TTL	----			0565 0609 0655 0852 5259 5282 5311 5344 5347
				5352 5357 5361 5371+ 5616 5769 5779 5899 5911
				6028 6280 6304 6311 6316 6321 6326 6334 6345
				6359 6367 6378 6383 6388 6394 6407 6422 6425
				6428 6431 6434 6438
TTLCL	5762	DESCR	0,0,0	0708 0709 0710 0712 0712 0713 0716 0717 0717
				0718 0719 0720 0721 0743 0744 0745 0750 0752
				0758 0761 0761 0762 0764 0765 0766 0767 0773
				0778 0779 0780 0782 0783 0789 0790 0791 0793
				0794 0794 0795
TVAL	5654	DESCR	0,0,0	2140 2141 2150 2151 2356 2357 2359 2361 2630
				2632 2637 2639 2643 2644 2693 2694 2697 2699
				2705 2706 2717 2718 2718 2719 2722 2723 2772
				2773 2773 2774 2776 2776 2777 2778 2779 2915
				4328 4329 4412 4416 4417 4420 4422 4427 4439
				4439
TVALL	5624	DESCR	TVALPL,0,0	2389 2746 2984 4232 4427 5362
TVALPL	6422	DESCR	TVALPL,TTL+MARK,...	5624 6298 6422
TWOCL	5763	DESCR	2*DESCR,0,B	0834 3585 3956
TXSP	5717	SPEC	0,0,0,0,0	1639 1661 2286 2409 2410 2421 2427 2439 2460
				2467 2483 2500 2536 2537 2540 2583 2585 2590
				2591 2616 2618 2622 2631 2638 2644 2648 2651
				2675 2686 2696 2717 2721 2722 2737 2750 2755
				2772 2777 2778 2800 2805 2840 2888 2905 2924
				2926 2938 2967 2969 2989 2995 3021
UGOTYP	0311	EQU	1	
UNAF	4941	RCALL	XPTR, FINDEX, XPTR	4926+ 4926+ 4926
UNBF	4917+	RCALL	YPTR, FINDEX, YPTR	4933+ 4933 4933+ 4969 4969
UNCF	4932	LOCSP	YSP, YPTR	4942
UNDF	5230	SETAC	ERRTYP, 5	4518 5548 6032 6035 6038 6041 6044 6047 6074
				6078 6090 6094 6098
UNDFCL	5548	DESCR	UNDF, FNC, 0	0537 3348
UNDFFE	5233	SETAC	ERRTYP, 9	3164+
UNIT	5538	DESCR	0,0,0	0369 0379 0412 1117+ 1122 1348 1351
UNITI	----			3782 5358
UNITO	----			3814 5353
UNITP	----			5355
UNKNKW	5236	SETAC	ERRTYP, 7	4369
UNLDFN	5893	DESCR	UNLOAD, 0, 1	6022
UNLDSP	6250	STRING	'UNLOAD'	6023
UNLOAD	3345	PROC	,	5893
UNLSP	5606	STRING	'UNLIST'	1410
UNOP	1481	PROC	,	1137
UNOPA	1484+	STREAM	XSP, TEXTSP, UNOPT...	1492
UNOPB	1491	MOVD	XPTR, YPTR	1489
UNOPTB	----			1484+ 4926+ 4933+
UNSC	2503	PROC	SCNR	2876
UNTERR	5239	SETAC	ERRTYP, 12	3763 3796 3833 3833
UNYOP	4925	LOCSP	XSP, XPTR	4914
UTOTYP	0312	EQU	4	
VALBLK	6438	DESCR	VALBLK, TTL+MARK, ...	5896 6438





CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>																
XLAEND	0407	AEQLC	ESAICL,0,,XLATSC	0390	0392	0394	0403													
XLATND	0412	SETAC	UNIT,0	0409																
XLATNX	0384	RCALL	,CMPLE,,(COMP3,...	0384																
XLATP	0390	AEQLC	STYPE,EOSTYP,,XL...	0388																
XLATRD	0377	AEQLC	LISTCL,0,,XLATRN	0383																
XLATRN	0379	STREAD	INBFSP,UNIT,XLAT...	0373	0377	0379														
XLATSC	0411	OUTPUT	OUTPUT,SUCCF	0407																
XPTR	5659	DESCR	0,0,0	0340	0341	0342	0345	0350	0351	0399	0401	1144								
				1149	1162	1165	1168	1171	1181	1183	1224	1232								
				1289	1290	1290	1291	1307	1308	1308	1309	1314								
				1318	1319	1321	1321	1332	1443	1445	1483	1489								
				1490	1491	1521	1522	1525	1527	1530	1531	1534								
				1537	1540	1545	1545	1547	1584	1585	1586	1586								
				1602	1603	1606	1616	1617	1619	1622	1622	1624								
				1624	1626	1626	1635	1641	1645	1646	1649	1652								
				1652	1655	1655	1670	1670	1675	1686	1687	1688								
				1689	1690	1691	1692	1693	1694	1695	1706	1707								
				1709	1712	1712	1714	1715	1718	1718	1719	1720								
				1722	1722	1730	1731	1733	1736	1736	1739	1739								
				1742	1742	1743	1744	1745	1746	1747	1750	1751								
				1754	1755	1764	1765	1767	1770	1770	1773	1773								
				1774	1775	1777	1777	1796	1802	1805	1808	1864								
				1879	1880	1881	1889	1890	1891	1896	1896	1902								
				1903	1904	1912	1914	1916	1918	1920	1922	1924								
				1926	1928	1930	1932	1934	1936	1938	1940	1942								
				1944	1946	1948	1950	1952	1954	1956	1959	1967								
				1968	1969	1970	1971	1979	1980	1981	1982	1984								
				1987	1988	1989	1990	2025	2027	2028	2029	2030								
				2030+	2030	2032	2054	2057	2058	2059	2060	2061+								
				2061	2063	2071	2072	2073	2074	2077	2077	2078								
				2086	2117	2121	2122	2124	2128	2131	2134	2134								
				2143	2150	2153	2162	2163	2165	2166	2174	2177								
				2177	2184	2190	2197	2200	2200	2210	2211	2213								
				2214	2225	2233	2233	2236	2240	2240	2243	2244								
				2246	2247	2263	2266	2267	2269	2270	2283	2289								
				2289	2292	2292	2295	2296	2299	2300	2308	2335								
				2339	2339	2348	2357	2369	2372	2372	2373	2373								
				2374	2375	2381	2514	2515+	2518+	2518	2518+	2518+								
				2521	2521	2522+	2525	2529	2531	2539	2540	2547								
				2551	2553	2561	2565	2567	2575	2579	2581	2588								
				2590	2591	2601	2604	2605+	2605+	2605+	2605	2610								
				2611	2615	2616	2618	2621	2623	2624	2628	2630								
				2635	2637	2647	2649	2650	2651	2735	2736	2739								
				2741	2746	2758+	2758+	2818	2819	3040	3041	3043								
				3044	3048	3050	3052	3055	3062	3064	3070	3072								
				3079	3081	3086	3087	3092	3094	3095	3095	3096								
				3098	3113	3114	3116	3120	3120	3125	3125	3126								
				3141	3145	3147	3154	3155	3156	3233	3235	3241								
				3242	3243	3244	3245	3247	3254	3254	3271	3272								
				3275	3276	3280	3281	3288	3289	3289	3291	3291								
				3292	3297	3298	3298	3300	3300	3301	3303	3304								
				3304	3306	3306	3307	3313	3315	3316	3316	3317								
				3319	3323	3346	3347	3349	3366	3371	3372	3381								
				3381	3384	3384	3387	3387	3390	3391	3392	3395								
				3396	3398	3399	3400	3403	3410	3419	3420	3435								
				3436	3438	3442	3443	3483	3484	3486	3487	3489								
				3492	3493	3494	3505	3506	3508	3509	3510+	3510								
				3510+	3510+	3513+	3513+	3513+	3513+	3513+	3513+	3513+								
				3513+	3535	3537	3541	3543	3548	3551	3558	3559								
				3560	3596	3597	3598	3617	3619	3637	3638	3638								
				3639	3640	3641	3641	3647	3650	3650	3651	3651								
				3652	3657+	3657+	3661	3663	3663+	3665+	3665+	3665+								
				3665+	3665+	3665+	3665+	3665+	3665+	3693	3694	3696								
				3700	3700	3704	3704	3705	3724	3724	3737	3738								
				3740	3741	3741	3742	3747	3747	3748	3757	3758								
				3762	3769	3774	3790	3791	3795	3800	3805	3851								
				3852	3856	3912	3913	3919	3935	3939	3944	3957								
				3966	3967	3969	3977	4108	4110+	4127	4128	4130								
				4137	4138	4144	4147	4148	4189	4198	4211	4212								
				4213	4224	4226	4232	4236	4236	4238	4240	4243								
				4246	4256	4258	4259	4260	4261	4262	4265	4266								
				4269	4271	4274	4275	4296	4304	4317	4320	4320								
				4322	4329	4347	4348	4349	4350	4351	4353	4362								
				4363	4364	4364	4366	4369	4374	4374	4378	4459								
				4468	4476	4477	4479	4480	4482	4516	4518	4518								
				4520	4523	4535	4547	4548	4552	4553	4553	4555								

CROSS REFERENCE

symbol	defn	type	value	references
				4555 4556 4557 4557 4569 4574 4597 4598 4599
				4608 4609 4610 4611 4612 4613 4614 4615 4616
				4617 4619 4631 4633 4633 4635 4644+ 4644+ 4716
				4717 4771+ 4771+ 4771 4771+ 4771+ 4771+ 4771+ 4786
				4820 4821 4829 4830 4838 4839 4840 4848 4858
				4867 4871 4886 4887 4889 4891 4907 4908 4912
				4913 4917 4917 4921 4922 4925 4931 4941 4941
				4944 4951 4963 4963 4966 4978 4979 4983 4984
				4989 5003 5004 5025 5026 5045 5047 5068 5068
XSIZ	5660	DESCR	0,0,0	2078 2079 2085 2086 2143 2144 2153 2184 2186
				2190 2192 2194 2348 2351 2357 2357 2360 2361
				3928+ 3930 3931 3931+ 4322 4324 4329 4329 4331
XSP	5719	SPEC	0,0,0,0,0	0381 0392 0397 0405 0864 0887 0889 0976 1014
				1047 1120 1125 1138 1142 1143 1162 1165 1180
				1223 1343 1354 1362 1405 1408 1410 1415 1418
				1421 1423 1431 1484+ 1639 1661 1691+ 1691 1692
				1693 1714 1715 1754 1879 1880 1881 1889 1890
				1891 1902 1903 1904 1970 1971 1987 1988 1989
				2003 2004 2005 2174 2175 2197 2198 2225 2227
				2230 2236 2243 2246 2283 2286 2295 2299 2305
				2308 2310 2312 2316 2334 2405 2409 2533 2536+
				2583 2585 2629 2636 2750 2755 2800 2989 2995
				3044 3045 3056 3057 3074 3075 3276 3277 3283
				3284 3302 3333 3349 3350 3390 3391 3392 3395
				3398 3399 3400 3442 3443+ 3448 3449 3467 3537
				3538 3552 3554 3573 3997 3998 4001 4002 4004
				4005 4008 4018 4019 4023 4026 4029 4030 4035
				4045 4047 4065 4075 4083 4085 4093 4133 4134
				4138 4139 4142 4148 4149 4152 4153 4158 4162
				4164 4168 4171 4181 4182 4184 4185 4189 4190
				4193 4270 4304 4306 4313 4482 4484 4738 4739
				4740 4871 4874 4891 4892 4898 4925 4926+ 4926
				4944 4945+ 4945 4962 4989 4990 4994 5004 5005
				5553
XSPPTR	5553	DESCR	XSP,0,0	0399 0908 1144 1168 1181 1224 1755 2244 2247
				2296 2300 2335 3303 3396 4271 4740+
				1862 4255 4458 4467
XYARGS	1784	PROC	,	1788
XYC	1802	PUSH	(SCL,XPTR)	1797
XYN	1786	INCRA	OCICL,DESCR	1809
XY1	1789	AEQLC	INSW,0,,XY2	1789 1790
XY2	1799	GETDC	YPTR,YPTR,DESCR	1800 1806
XY3	1794	AEQLC	SCL,0,RTN2	1803
XY4	1808	POP	(XPTR,SCL)	0339 0340 0348 0349 0455 0459 0460 0463 0464
YCL	5661	DESCR	0,0,0	0465 0466 1099 1103 1103 1104 1110 1207 1208
				1210 1210 1211 1636 1664 2026 2032 2055 2061+
				2455 2461 2467 2479 2483 2641 2716 2748 2757
				2771 2830 2845 2850 2854 2871 2873 2923 2939
				2958 2966 2986 2999 3031 3054 3065 3069 3073
				3082 3088 3089 3090 3099 3100 3109 3119 3122
				3129 3140 3253 3256 3259 3282 3293 3296 3308
				3309 3310 3320 3321 3335 3360 3361 3364 3367
				3406 3446 3454 3456 3457 3460 3463 3464 3471
				3547 3564 3567 3573+ 3574 3576 3576 3577 3578
				3579 3580 3587 3609 3611 3612 3616 3618 3624
				3626 3634 3635 3644 3645 3656 3690 3699 3701
				3708 3715 3723 3725 3728 3739 3743 4066 4078
				4307 4308 4556 4559 4562 4562 4563 4563 4565
				4566 4572 4718+ 4726 4731 4732 4733 4747 4750
				4750 4752 4771+ 4771+ 4771+ 4771+ 4771+ 4771+ 4771+
				4771+ 4833 4834 4843 4843 4844 4850 4850 4851
				5081 5082 5082 5083
				0351 0353 1442 1443 1448 1449 1449 1452 1453
YPTR	5662	DESCR	0,0,0	1453 1456 1457 1457 1487 1488 1490 1491 1787
				1788 1790 1792 1792 1796 1799 1799 1803 1803
				1865 1884 1885 1886 1899 1899 1907 1908 1909
				1912 1914 1916 1918 1920 1922 1924 1926 1928
				1930 1932 1934 1936 1938 1940 1942 1944 1946
				1948 1950 1952 1954 1956 1958 2099 2100 2101
				2101 2102 2104 2119 2120 2125 2125 2127 2141
				2141 2145 2154 2164 2167 2179 2182 2182 2185
				2192 2212 2215 2226 2268 2271 2309 2342 2346
				2346 2349 2359 2363 2370 2372 2384 2386 2386
				2387 2406 2420 2447 2497 2504 2798 2799 2804
				2805 2814 2815 2815 2817 2819 2820 2821 2822
				2823 2833 2861 2862 2863 2864 2921 2929 2964

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>
				2972 2973 2976 2978 2984 3006+ 3006+ 3042 3051
				3052 3053 3097 3098 3110 3119 3122 3146 3149
				3151 3229 3230 3231 3234 3235 3253 3256 3259
				3318 3319 3322 3323 3362 3364 3367 3422 3423
				3488 3489 3496 3497 3625 3626 3626 3627 3651
				3657 3657+ 3663+ 3665+ 3665+ 3665+ 3691 3699 3701
				3719 3720 3723 3725 3728 3743 3744 3759 3760
				3762 3763 3767 3778 3782 3792 3793 3795 3796
				3798 3810 3814 3914 3915 3915 3919 3920 3921 3922
				3922 3924 3924 3926 3937 3946 3949 3950 3953
				3968 3970 3971 3972 3972 3974 3974 3976 3976
				3977 3977 3978 3979 3982 3983 3986 4081 4082
				4082 4083 4091 4092 4144 4145 4146 4147 4152
				4160 4161 4161 4162 4168 4215 4216 4218 4221
				4221 4223 4223 4224 4229 4239 4239 4247 4257
				4277 4278 4279 4280 4281 4284 4285 4288 4290
				4293 4294 4297 4305 4323 4328 4331 4335 4338
				4338 4459 4468 4478 4481 4483 4586 4587 4587
				4588 4589 4629 4631 4718+ 4718+ 4718+ 4729+ 4729+
				4729+ 4749 4751 4752 4756 4759 4765 4771+ 4771+
				4771+ 4788 4826 4827 4827 4828 4829 4832 4869
				4870 4888 4890 4892+ 4899 4900 4909 4910 4912
				4917+ 4917+ 4921 4922 4932 4938 4952 4959 4970
				4980 4981 4983 4985 4988 5049
YSIZ	5663	DESCR	0,0,0	2144 2146 2153 2154 2185 2186 2192 2349 2352
				2363 2406 2408 2415 2418 2418 2419 2419 2420
YSP	5720	SPEC	0,0,0,0,0	2497 2498 2499 4323 4324 4331
				1884 1885 1886 1907 1908 1909 2179 2180 2226
				2227 2228 2309 2312 2313 2341 2529 2530 2537
				2538 2551 2552 2565 2566 2579 2580 2585 2586
				3045 3057 3061 3068 3075 3078 3085 3277 3322
				3443+ 3446 3471 3538 3554 3557 4078 4080 4092
				4289 4305 4307 4314 4483 4484 4733 4735 4832
				4833 4836 4841 4842 4845 4848 4849 4853 4858
				4870 4876 4932 4933 4933+ 4952 4953+ 4953 4969
				4985 4987 4995 5554
YSPPTR	5554	DESCR	YSP,0,0	2342 3048 3062 3070 3079 3086 3280 3541 3558
				4290
ZCL	5664	DESCR	0,0,0	2026 2032 2056 2063 2451 2469 2970 2971 3050
				3093 3094 3136 3140 3141 3142 3143 3162 3162
				3164 3170 3171 3174 3177 3180 3183 3195 3199
				3200 3203 3206 3209 3212 3218 3221 3222 3224
				3228 3229 3237 3281 3314 3315 3347 3348 3361
				3364 3367 3369 3418 3419 3421 3421 3423 3450
				3456 3460 3460 3461 3461 3462 3463 3465 3475
				3478 3479 3480 3480 3481 3482 3484 3543 3575
				3581 3624 3625 3628 3642 3643 3744 3746 3746
				3747 4558 4559 4566 4569 4573 4718+ 4729+ 4743
ZEROCL	5445	DESCR	0,0,0	0432 0607 0613 0653 0658 0739 0813 0850 2015
				2032 2056 2077 2084 2084 2084 2086 2088 2088
				2090 2104 2104 2134 2137 2137 2141 2141 2151
				2153 2154 2154 2177 2182 2190 2190 2190 2192
				2192 2200 2339 2346 2357 2363 2363 2536+ 2688
				2693 2705 3006+ 3006+ 3054 3282 3326 3329 3332
				3338 3440 3547 3623 3630 3661 3854 3855 3858
				3859 3978 3979 4320 4329 4331 4331 4338 4540
				4545 4545 4550 4718+ 4736+ 5125
ZPTR	5665	DESCR	0,0,0	0342 0343 0344 0344 0345 0352 0353 0865 0873
				1152 1156 1157 1159 1159 1446 1447 1460 1461
				1462 1473 1619 1621 1621 1622 1649 1651 1651
				1652 1675 1694 1709 1711 1711 1712 1733 1735
				1735 1736 1767 1769 1769 1770 1790 1791 1791
				1792 1912 1914 1916 1916 1918 1920 1934 1936 1938
				1940 1942 1956 1958 1959 1984 1990 1998 1999
				2000 2001 2003 2004 2005 2032 2082 2104 2149
				2189 2194 2260 2262 2262 2263 2320 2325 2326
				2327 2328 2329 2332 2333 2350 2356 2361 2365
				2368 2371 2373 2375 2376 2381 2382 2387 2394
				2397 2741 2743 2743 2744 2978 2980 2980 2981
				3116 3118 3118 3120 3147 3148 3150 3156 3157
				3159 3231 3232 3232 3241 3369 3370 3371 3373
				3414 3420 3423 3425 3426 3482 3483 3485 3497
				3513+ 3513+ 3513+ 3513+ 3563 3565 3565 3566 3579
				3580 3581 3585 3586 3588 3598 3623 3641 3647
				3665+ 3665+ 3665+ 3665+ 3665+ 3665+ 3665+ 3665+ 3696
				3698 3698 3700 3718 3720 3761 3765 3769 3771

CROSS REFERENCE

<u>symbol</u>	<u>defn</u>	<u>type</u>	<u>value</u>	<u>references</u>
				3776 3779 3794 3797 3800 3802 3808 3811 3852
				3854 3855 3856 3858 3859 3918 3927 3928 4012
				4014 4014 4015 4016 4017 4026 4029 4043 4044
				4044 4045 4129 4171 4218 4220 4220 4221 4226
				4228 4228 4229 4310 4311 4327 4371 4387 4396
				4397 4398 4398 4422 4424 4424 4425 4447 4449
				4522 4523 4574 4599 4600 4618 4619 4627 4628
				4630 4634 4644+ 4650 4669 4683 4692+ 4694 4698
				4699 4700 4703 4703 4706 4706 4709 4709 4712
				4713 4714 4716 4718+ 4731+ 4745 4746 4748 4749
				4764 4765 4767 4769 4771+ 4771+ 4895 4896 4911
				4914 4915 4916 4982 4986 4991 4992 5005 5006
				5015 5016 5016 5017 5052 5062 5065
ZSIZ	5666	DESCR	0,0,0	2085 2086 2088 2089 2089 2090 2146 2147 2148
				2350 2351 2360 2361
ZSP	5721	SPEC	0,0,0,0,0	0482 0483 0489 0498 0502 0503+ 0507 2060 2061
				2368 2371 2379 2394 2397 2538 2539 2586 2587
				2588 2610 2611 3284 3426 3449 3450 3475 4274
				4293 4698 4699 4700 4712 4713 4714 4717 4797
				4926+ 4926+ 4926+ 4926+ 4926+ 4933+ 4933+ 4933+ 4933+
				4933+ 4945+ 4945+ 4945+ 4945+ 4945+ 4945+ 4953+ 4953+
				4953+ 4953+ 4953+ 4953+ 4986 4987 4995 5026 5027
				5027 5555
ZSPPTR	5555	DESCR	ZSP,0,0	3288 3297 4275 4294 5065

