

		IDENT	TTYLINE
	000000	PROGRAM LENGTH	
		BLOCKS	
000000	001347	ABSOLUTE*	ABSOLUTE

```
*
*
*
LIST      X
OPNAMES  XTEXT
0000000  C.SELF    EQU      0      CAPABILITY FOR THIS C LIST      OPNAMES .1
0000001  C.ALLOC   EQU      1      ALLOCATION BLOCK C LIST INDEX      OPNAMES .1
0000002  C.INTFIL   EQU      2      OPNAMES .1
0000003  C.RFILE    EQU     2+1     READ ON FILE      OPNAMES .1
0000004  C.WFILE    EQU     3+1     WRITE ON FILE     OPNAMES .1
0000005  C.SENDE    EQU     4+1     SEND EVENT      OPNAMES .1
0000006  C.GETE     EQU     5+1     GET EVENT OR HANG OPNAMES .1
0000007  C.CCLIST   EQU     6+1     CREATE C LIST OPERATION OPNAMES .1
0000010  C.CFILE     EQU     7+1     CREATE FILE      OPNAMES .1
0000011  C.CBLK      EQU     8+1     CREATE FILE BLOCK OPNAMES .1
0000012  C.CPROC    EQU     9+1     CREATE PROCESS   OPNAMES .1
0000013  C.CEVCH     EQU    10+1     CREATE EVENT CHANNEL OPNAMES .1
0000014  C.CSPROC   EQU    11+1     CREATE SUB PROCESS OPNAMES .1
0000015  C.CCC       EQU    12+1     CREATE CLASS CODE OPNAMES .1
0000016  C.SAVE      EQU    13+1     SAVE REGISTERS   OPNAMES .1
0000017  C.RESTOR    EQU    14+1     RESTORE REGISTERS OPNAMES .1
0000020  C.DSCAP     EQU      16      .. DISPLAY A CAPABILITY      OPNAMES .1
0000020  C.DSCAP     EQU    C.DSCAP   .. OLD NAME FOR C.DSCAP      OPNAMES .1
0000021  C.FSON      EQU    16+1     OPNAMES .1
0000022  C.MOVEC     EQU      18      .. MOVE A CAPABILITY WITHIN FULL CLIST OPNAMES .1
0000022  C.MOVEC     EQU    C.MOVEC   .. OLD NAME FOR C.MOVEC      OPNAMES .1
0000023  C.CAPIN     EQU    18+1     OPNAMES .1
0000024  C.CAPOU     EQU      20      .. COPY A CAPABILITY OUT OF FULL CLIST OPNAMES .1
0000024  C.CAPOU     EQU    C.CAPOU   .. OLD NAME FOR C.CAPOU      OPNAMES .1
0000025  C.ESMGEN    EQU      21      SET ANY ESM IN PROCESS      OPNAMES .1
0000026  C.ESMLOC    EQU      22      SET LOCAL ESM      OPNAMES .1
0000027  C.MKOPR     EQU      23      CREATE OPERATION(SUBP CALL) OPNAMES .1
0000030  C.RETURN     EQU      24      SUBPROCESS RETURN      OPNAMES .1
0000031  C.FRETURN    EQU      25      F-RETURN      OPNAMES .1
0000032  C.FIXC      EQU      26      FIX CAPABILITY PS      OPNAMES .1
0000033  C.FIXD      EQU      27      FIX DATUM PS      OPNAMES .1
0000034  C.UDAT      EQU      28      CHANGE ANY PS TO USER DATUM OPNAMES .1
0000035  C.UCAP      EQU      29      CHANGE ANY PS TO USER CAPABILITY OPNAMES .1
0000036  C.ACAP      EQU      30      CHANGE ANY PS TO ANY CAPABILITY OPNAMES .1
0000037  C.ADDOPT    EQU      31      ADD OPTION BITS TO PS      OPNAMES .1
0000040  C.COPYOP     EQU      32      . MAKE A COPY OF AN OPERATION OPNAMES .1
0000041  C.CKBLK     EQU      33      . CHECK FOR MISSING FILE BLOCKS OPNAMES .1
0000042  C.DELBLK    EQU      34      . DELETE A FILE BLOCK      OPNAMES .1
0000043  C.DELFTL    EQU      35      . DELETE A FILE      OPNAMES .1
0000044  C.REDSHP    EQU      36      . GET SHAPE NUMBERS OF A FILE OPNAMES .1
0000045  C.MAPZER    EQU      37      . ZERO A MAP ENTRY      OPNAMES .1
0000046  C.MPCHRO    EQU      38      . CHANGE A ZERO MAP ENTRY TO READ ONLY OPNAMES .1
0000047  C.MPCHRW    EQU      39      . CHANGE A ZERO MAP ENTRY TO RW      OPNAMES .1
0000050  C.MOVBLK    EQU      40      . MOVE A FILE BLOCK      OPNAMES .1
0000051  C.DISMAP    EQU      41      OPNAMES .1
0000052  C.JUMP      EQU      42      OPNAMES .1
0000053  C.NEMUN     EQU      43      .CHANGE UNIQUE NAME      OPNAMES .1
0000054  C.DISPST    EQU      44      .DISPLAY ENTIRE STACK      OPNAMES .1
```

0000055	C.DISSEN	EQU	45	.DISPLAY STACK ENTRY	OPNAMES .1
0000056	C.DSFMAP	EQU	46	DISPLAY FULL MAP ENTRY	OPNAMES .1
0000057	C.DELCL	EQU	47	DELETE C-LIST	OPNAMES .1
0000060	C.PINT	EQU	48	SEND PROCESS INTERRUPT	OPNAMES .1
0000061	C.ADDORD	EQU	49	.ADD AN ORDER TO AN OPERATION	OPNAMES .1
0000062	C.CCCLOA	EQU	50	CREATE COMPLETE CAPABILITY	OPNAMES .1
0000063	C.DONATE	EQU	51	TRANSFER BETWEEN ALLOC BKS	OPNAMES .1
0000064	C.CRALBK	EQU	52	.CREATE ALLOC BLOCK	OPNAMES .1
0000065	C.MODPC	EQU	53	.MODIFY P-COUNTER	OPNAMES .1
0000066	C.DLPROC	EQU	54	.DESTROY A PROCESS	OPNAMES .1
0000067	C.CHGORD	EQU	55		OPNAMES .1
0000070	C.CLPDAE	EQU	56	. CLEAR THE DIRECT ACCESS ECS ENTRY	OPNAMES .1
0000071	C.SETDAE	EQU	57	. SET THE DIRECT ACCESS ECS ENTRY	OPNAMES .1
0000072	C.DELSUB	EQU	58	DELETE SUP PROC	OPNAMES .1
0000073	C.SETIIB	EQU	55+4	.SET INTERRUPT INHIBIT BIT	OPNAMES .1
0000074	C.CLRIB	EQU	56+4	.CLEAR INTERRUPT-INHIBIT BIT	OPNAMES .1
0000075	C.GETEVF	EQU	57+4	.GET EVENT OR FRETURN	OPNAMES .1
0000076	C.DELAB	EQU	62	.DESTROY ALLOCATION BLOCK	OPNAMES .1
0000077	C.MGETH	EQU	63	GET EVENT FROM MULTIPLE CHANNELS OR	HOPNAMES .1
					OPNAMES .1
0000100	C.MGETF	EQU	64	GET EVENT FROM MULTIPLE CHANNELS OR	FOPNAMES .1
					OPNAMES .1
0000101	C.DESECH	EQU	65	DESTROY EVENT CHANNEL	OPNAMES .1
0000102	C.DSPCLX	EQU	66	DISPLAY CLOCKS IN USER CORE	OPNAMES .1
0000003	C.READ	EQU	C.RFILE		OPNAMES .1
0000004	C.WRITE	EQU	C.WFILE		OPNAMES .1
0000006	C.HANG	EQU	C.GETE		OPNAMES .1
0000041	C.PROBE	EQU	C.CHKBLK		OPNAMES .1
0000103	C.NKTMP	EQU	67	SET TEMPORARY PART OF CLASS CODE	OPNAMES .1
0000104	C.DSDAB	EQU	68	DISPLAY ALLOCATION BLOCK	OPNAMES .1
0000105	C.RDAT	EQU	69	. CHANGE ANY TO BLOCK DATA PARAMETER	OPNAMES .1
0000106	C.BLKCAP	EQU	70	. CHANGE ANY TO BLOCK CAPABILITY PARAM	OPNAMES .1
0000107	C.DISPOP	EQU	71	. DISPLAY OPERATION	OPNAMES .1
0000110	C.USPER	EQU	72	. USER INITIATED ERROR	OPNAMES .1
0000111	C.RETPAR	EQU	73	. RETURN WITH PARAMETERS	OPNAMES .1
0000112	C.TIMDT	EQU	74	. RETURN DATE AND TIME	OPNAMES .1
0000113	C.CAGEN	EQU	75	. MAKE CAPABILITY CREATING AUTHORIZATION	OPNAMES .1
0000114	C.CGEN	EQU	76	. MAKE CAPABILITY OF AUTHORIZED TYPE	OPNAMES .1
0000115	C.DSPSP	EQU	77	. DISPLAY SUBPROCESS DESCRIPTOR	OPNAMES .1
0000116	C.TROB	EQU	78	. TEST AND RESET DIRTY BIT	OPNAMES .1
0000117	C.SETLIM	EQU	79	. SET ALLOCATION BLOCK SPACE LIMIT	OPNAMES .1
0000120	C.DSPOB	EQU	80	. DISPLAY OBJECT	OPNAMES .1
0000121	C.DSPALC	EQU	81	. DISPLAY ALLOCATOR CONSTANTS	OPNAMES .1
0000122	C.CHMPRW	EQU	82	. CHANGE A READ-WRITE MAP ENTRY	OPNAMES .1
0000123	C.CHMPRO	EQU	83	. CHANGE A READ ONLY MAP ENTRY	OPNAMES .1
0000047	C.MKMPRW	EQU	C.MPCHRW	. MORE REASONABLE NAME FOR C.MPCHRW	OPNAMES .1
0000046	C.MKMPRO	EQU	C.MPCHRO	. MORE REASONABLE NAME FOR C.MPCHRO	OPNAMES .1
0000124	C.DSCLX	EQU	84	. DISPLAY SYSTEM CLOCKS IN USER CORE	OPNAMES .1
0000125	C.SPRET	EQU	85	.. SPECIAL RETURN (DECREMENT P-COUNTER)	OPNAMES .1
0000126	C.CPZRO	EQU	86	.. ZERO A CAPABILITY	OPNAMES .1

```

*
*
*
XJ      MACRO      LOC
+      VFD      12/0130B,18/LOC,30/1
        SR7      **1
        JD       FRR
        ENUM
*
*
*
XJR      MACRO      LOC,RTNAUTH
+      VFD      12/0130B,18/LOC,12/1,18/2
        VFD      60/RTNAUTH
        SR7      **1
        JD       FRR
        ENUM
*
*
*
XJF      MACRO      LOC,FGO
+      VFD      12/0130B,18/LOC,30/1
        JD       FGO
        ENUM
*
*
*
CALL     MACRO      LOC
+      SR7      **1
        JD       LOC
        ENUM
*
*
*
MCAP     MACRO      NAME
        BSS      0
N.NAME   EQU        *
        VFD      1/1,29/C.NAME,30/CX,MAST
        ENUM
*
*
*
MXCAP    MACRO      NAME
+      VFD      1/1,29/C.NAME,30/CX,MAST
        ENUM
*
*
*
ITEMS    MACRO      A,B,C,D,E,F,G,H
        VFD      60/A
        IFC      NE,$$B$
        VFD      60/B
        IFC      NE,$$C$
        VFD      60/C
        IFC      NE,$$D$
        VFD      60/D
        IFC      NE,$$E$

```


MACROS

```
VFD      60/E
IFC      NE,$$F$
VFD      60/F
IFC      NE,$$G$
VFD      60/G
IFC      NE,$$H$
VFD      60/H
ENDIF
ENDM
```

*

*

*

```
MAP      MACRO      NAME,X,FLAD,CMAD,LASTP1,R0
+        VFD        60/OLNAME
+        VFD        30/X,30/FLAD
+        VFD        1/R0,29/CMAD,30/LASTP1
+        ENDM
```

*

*

*

*

```
PTNCAP   MACRO      NAME
+        DATA      0
+        RMT
+        DATA      OLNAME
+        RMT
+        ENDM
```

*

*

*

*

*

```
PAPCAP   MACRO      NAME
+        DATA      OLNAME
+        ENDM
```

SUB PROCESS DESCRIPTOR

056

DATA 1

DATA 0

DATA ALLINECLASS

DATA 0LEADCLASS

DATA ALL INFE INIT

DATA OLLINECLST

DATA 0LLINESCRF

DATA 2

DATA 1

ITEMS	F
-------	---

ITEMS	MAIN
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

ITEMS CLSTSZ

ITEMS SCRSZ

MAP LINE SCRF,0,0,0,SCRSZ,0

MAP LINECODE,1,SCnSZ,SCRsz,FL,1

DATA

LAC 0

CX.CODEF	PARCAD	LINECODE
000000	000000	000000
000001	000001	000001
000002	000002	000002
000003	000003	000003
000004	000004	000004
000005	000005	000005
000006	000006	000006
000007	000007	000007
000008	000008	000008
000009	000009	000009
000010	000010	000010
000011	000011	000011
000012	000012	000012
000013	000013	000013
000014	000014	000014
000015	000015	000015
000016	000016	000016
000017	000017	000017
000018	000018	000018
000019	000019	000019
000020	000020	000020
000021	000021	000021
000022	000022	000022
000023	000023	000023
000024	000024	000024
000025	000025	000025
000026	000026	000026
000027	000027	000027
000028	000028	000028
000029	000029	000029
000030	000030	000030
000031	000031	000031
000032	000032	000032
000033	000033	000033
000034	000034	000034
000035	000035	000035
000036	000036	000036
000037	000037	000037
000038	000038	000038
000039	000039	000039
000040	000040	000040
000041	000041	000041
000042	000042	000042
000043	000043	000043
000044	000044	000044
000045	000045	000045
000046	000046	000046
000047	000047	000047
000048	000048	000048
000049	000049	000049
000050	000050	000050
000051	000051	000051
000052	000052	000052
000053	000053	000053
000054	000054	000054
000055	000055	000055
000056	000056	000056
000057	000057	000057
000058	000058	000058
000059	000059	000059
000060	000060	000060
000061	000061	000061
000062	000062	000062
000063	000063	000063
000064	000064	000064
000065	000065	000065
000066	000066	000066
000067	000067	000067
000068	000068	000068
000069	000069	000069
000070	000070	000070
000071	000071	000071
000072	000072	000072
000073	000073	000073
000074	000074	000074
000075	000075	000075
000076	000076	000076
000077	000077	000077
000078	000078	000078
000079	000079	000079
000080	000080	000080
000081	000081	000081
000082	000082	000082
000083	000083	000083
000084	000084	000084
000085	000085	000085
000086	000086	000086
000087	000087	000087
000088	000088	000088
000089	000089	000089
000090	000090	000090
000091	000091	000091
000092	000092	000092
000093	000093	000093
0		

CX,TTYFL PARCAB TTYFILE

PARCAD TTYREQ

PANCAP TTYHESP

CX. MAST PARCAD I. MASTER

CX. BEAD PARCAB BEAD

CX. READ	PARCAD	T. READ
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24
25	25	25
26	26	26
27	27	27
28	28	28
29	29	29
30	30	30
31	31	31
32	32	32
33	33	33
34	34	34
35	35	35
36	36	36
37	37	37
38	38	38
39	39	39
40	40	40
41	41	41
42	42	42
43	43	43
44	44	44
45	45	45
46	46	46
47	47	47
48	48	48
49	49	49
50	50	50
51	51	51
52	52	52
53	53	53
54	54	54
55	55	55
56	56	56
57	57	57
58	58	58
59	59	59
60	60	60
61	61	61
62	62	62
63	63	63
64	64	64
65	65	65
66	66	66
67	67	67
68	68	68
69	69	69
70	70	70
71	71	71
72	72	72
73	73	73
74	74	74
75	75	75
76	76	76
77	77	77
78	78	78
79	79	79
80	80	80
81	81	81
82	82	82
83	83	83
84	84	84
85	85	85
86	86	86
87	87	87
88	88	88
89	89	89
90	90	90
91	91	91
92	92	92
93	93	93
94	94	94
95	95	95
96	96	96
97	97	97
98	98	98
99	99	99
100	100	100

CX. WHITE PARCAB I. WHITE

CX. SENDE PARCAP I. SENDE

CX. GETE	PARCAP	I. GETE
CX. R. 22	R. 22	R. 22

CX. BRCH	PARCAP	HEADCALLG
CX. BRCH	PARCAP	HEADCALLG

CX. BRCS	PARCAP	BEADCALLS
CX. L. C. C.	PARCAP	BEADCALLS

CO.	LNCLS	PARCAB	LINECLASS
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10
11	11	11	11
12	12	12	12
13	13	13	13
14	14	14	14
15	15	15	15
16	16	16	16
17	17	17	17
18	18	18	18
19	19	19	19
20	20	20	20
21	21	21	21
22	22	22	22
23	23	23	23
24	24	24	24
25	25	25	25
26	26	26	26
27	27	27	27
28	28	28	28
29	29	29	29
30	30	30	30
31	31	31	31
32	32	32	32
33	33	33	33
34	34	34	34
35	35	35	35
36	36	36	36
37	37	37	37
38	38	38	38
39	39	39	39
40	40	40	40
41	41	41	41
42	42	42	42
43	43	43	43
44	44	44	44
45	45	45	45
46	46	46	46
47	47	47	47
48	48	48	48
49	49	49	49
50	50	50	50
51	51	51	51
52	52	52	52
53	53	53	53
54	54	54	54
55	55	55	55
56	56	56	56
57	57	57	57
58	58	58	58
59	59	59	59
60	60	60	60
61	61	61	61
62	62	62	62
63	63	63	63
64	64	64	64
65	65	65	65
66	66	66	66
67	67	67	67
68	68	68	68
69	69	69	69
70	70	70	70
71	71	71	71
72	72	72	72
73	73	73	73
74	74	74	74
75	75	75	75
76	76	76	76
77	77	77	77
78	78	78	78
79	79	79	79
80	80	80	80
81	81	81	81
82	82	82	82
83	83	83	83
84	84	84	84
85	85	85	85
86	86	86	86
87	87	87	87
88	88	88	88
89	89	89	89
90	90	90	90
91	91	91	91
92	92	92	92
93	93	93	93
94	94	94	94
95	95	95	95
96	96	96	96
97	97	97	97
98	98	98	98
99	99	99	99
100	100	100	100

CLSTSZ BES 0

DATA

LCC

```

0000017  PARAM2SZ  EQU 15
*
*
* AREA TO RECIEVE PARAMETERS ON CALL
*
000042  ORG1      BSS 0
*
000006  ORG      6
*
000006  PARAM0    BSS 1      FIXED PARAM TO CONTROL MODE
000007  PARAM1    BSS 1      TYPE OF CALL
000010  BSS 1      COUNT OF PARAM 2
000011  PARAM2    BSS PARAM2SZ  USUALLY CONTAINS SYSTEXT
*
000030  ORG2      BSS 0
*
*
*
000042  IFGT      ORG1,ORG2
        ODB      ORG1
        ENDIF
        IFLE      ORG1,ORG2
        ENDIF

```

五

GENERAL DATA AREA

000042

TTYBLFF

RES7

100

(USED BY GRAYCODE)

•

2

000206

REGAREA

BSSZ

208

(HOLDS USERS REGISTERS DURING CALL)

✿

000224

ITEMS

PARAM2+1

000227

FAKED ESC

RESZ

1

45

✿

DATA ERROR DURING ERROR CALL HANDLING

000230

FREGS

BSSZ

20B

REGISTER SAVE AREA DURING ERROR CALL

000250

STKBIIF

8557

457

TOP OF STACK DURING ERROR CALL

000253

```
*
*
*      END OF SCRATCH AREA
*
*      SCRSZ      BSS      0
```

000253
000254
000255

```
*
*      FIXED IP LISTS
*
*      RDSEI F1      MYCAP      READ
*                      ITEMS      CX.CODEF
*                      ITEMS      0,0,REGAREA
```

000260
000261
000262

```
*
*      RDSEI F2      MYCAP      READ
*                      ITEMS      CX.CODEF
*                      ITEMS      REGAREA+20B,REGAREA+20B,SCRSZ-REGAREA-20B
```

000265

```
*
*      RETURNOP      MYCAP      RETURN
```

000266
000267
000270
000271

00000000140000000011
00000000000000000000

```
*
*      SRETURN      MYCAP      RETPAR
*                      VFD      30/12,30/PARAM2
*                      VFD      30/0,30/0
```

000271

00000000000000000012

```
*
*      CREAD      VFD      40/CX.BDCG      GEAD START UP CALL
```

MAIN CODE

THIS IS MY INTERFAE TO JIM GRAYS GRAYCDE

THE CALLS ON GRAYCDE WERE CONSTRUCTED
TO MIMIC THE OLD ASCII ATEXT FILE PROVIDED
BY JIM GRAY

THE EDIT CALL WAS MODELED ON CODE IN THE OLD BEAD

000272		RSSZ	E	ALTERNATE ENTRY POINTS
000277	0200000405	JP	ERRC	ERROR CALL ENTRY POINT
000300		MAIN	XJ	SAVE
000302			XJ	SETEMSK
000304	5110000006	S01	PARAM0	CHECK HIDDEN PARAM
	63110	S01	X1	
000305	6120000002	S02	SWTCH1CN	
	0612000311	GF	B1,B2,FAIL	
000306	0710000311	LT	B1,B0,FAIL	
	0210000307	JP	SWTCH1+B1	
000307	0200000312	SWTCH1	JP	INITIAL INITIALIZING CALL FROM BUILDER
000310	0200000326		JP	ASCII FM ASCII INTERFACE CALL
000311				
	0000002	RSS	0	
		SWTCH1CN	EAU	*-SWTCH1
000311		FAIL	CALL	FPR

000312

000314

000316 6110000042

6120000001

000317 7170000320

0200000506

000320

*
*
*

INITIALIZING CALL FROM BUILDER

INITIAL

X,I

RDSELF1

X,I

RDSELF2

SR1

TTYBUFF

SR2

CX.TTYFL

SR*RETURN

#+1

JP

.TTY.ON

X,I

CBEAD

START UP BEAD

*
*
*
*
*
*

THIS CODE USED FOR EXIT WITH NO RETURNED PARAMS

000322

000324

FINI

X,I

RESTORE

X,I

RETURNOP

000326 5110000007
63110
000327 6120000005
06120000340
000330 67100000336
02100000331

ASCII INTERFACE CALL

ASCII F M S A I
S=1 X1
S=2 SWITCH2CN
GF R1,B2,E.2.1
LT R1,B0,E.2.0
JD SWITCH2+B1

000331 02000000322
000332 02000000350
000333 02000000364
000334 02000000367
000335 02000000372

SWTCH2 JP FINI1 0 NO OP
JD TYPELIN 1 INPUT A LINE
JD TYPEOUT 2 OUTPUT A LINE
JD TYPECOUT 3 OUTPUT A CHARACTER
JD TTYENT 4 EDIT A LINE

000336
0000005

B=5 0
SWTCH2CN EQU *-SWTCH2

000336
000340

E.2.0 X1 E.2.0.X
E.2.1 X1 E.2.1.X

000342
000343 000000000000000000002
000344 00000000000001000000
000345
000345
000346 000000000000000000002
000347 000000000000010000001

E.2.0.X MYCAP USRER
VED 60/2
VED 42/1,18/0
E.2.1.X MYCAP USRER
VED 60/2
VED 42/1,18/1

MAIN CODE

```

*
*
*
*
000350 76600 5160000011 TYPELIN SXB R0
000351 6160000015 SA6 PARAM2
SA6 PARAM2SZ-2
*
000352 5066000001 TYPELIN1 SA6 A6+1 ZERO OUT BUFFER
6166777776 SR6 R6-1
000353 06600000352 GF R6,B0,TYPELIN1
*
000354 5160000143 7160000012 SXB PARAM2+1 MAKE JIM GREY STORE LINE IN MY BUFFER
SA6 TTYBUFF+NEW
SR•TTY TTYBUFF
000355 7170000356 6110000042 + SX•RETURN **1
0400001057 ED MORE.
*
000356 5110000144 10611 SA1 TTYBUFF+NEW+1 GET COUNT
BY6 X1
000357 5160000011 SA6 PARAM2
*
XJ PESTORE
XJ SRETURN
000362

```

*
*
*
*

THIS CODE HANDLES SENDING A LINE TO TTY

000364 6110000042
5110000011
000365 10611
5160000227
54460
000366 7170000322
0400001035

TYPE: OUT SR: TTY TTYBUFF
SA1 PARAM2
BYB X1
SAB FAKEDESC
SA:LENGTH A6
SY:RETURN FINI1
EO DUTL

*
*
*
*

THIS CODE SENDS A SINGLE CHAR TO TTY

000367 5110000011

10111

000370 6110000042

6170000322

000371 0400000637

TYPEOUT

SA1

PARAM2

BY CHAR

X1

SR TTY

TTYBUFF

SR RETURN

FINI1

EQ

PUTCTTYT

THIS CODE ADAPTED FROM THE OLD EDIT CODE
(PROBABLY WRITTEN BY JIM GRAY)

THE FOLLOWING COMMENTS ARE QUOTED FROM THE
HEADER OF THE EDIT CODE IN THE OLD BEAD

THE LINE IS 1ST CHECKED FOR VALIDITY
IT IS TRUNCATED AT 1ST NON GRAPHIC
CHARACTER OR AT 88 CHARACTERS, WHICH EVER
COMES FIRST.

UNHAPPILY IT DOESN'T DO BLANK COMPRESSION

THE FOLLOWING COMMENT WAS ALSO THERE, BUT I DON'T
KNOW ITS SIGNIFICANCE

UNLIKE GETLINE, IT UPDATES THE STRING
DESCRIPTOR IN THE CALLERS SPACE SO THAT
IT IS CORRECT.

000372	5110000012	TTYENT	SA1	PARAM2+1
	10611		BV6	X1
000373	5160000146		SA6	TTYBUFF+OLD+3+3
	6160000001		SR6	1
000374	6130000012		SD3	10
				..SET B.STEP
000375	54116	*	SA1	A1+B6
	10611		BV6	X1
	54666		SA6	A6+B6
	67336		SD3	R3-B6
000376	0703000375		GT	R3, #-1
	5140000141	*	SA4	GET READY TO CALL GETC7
000377	76400		SX4	TTYBUFF+OLD+1 SET A.LENGTH
	6130000402		SD3	R0 NOTE THE FINAL PUT OF A CR WILL SET LENGTH
000400	6170000401	*	SR7	TOOLONG SET B.ERROR
	0200000627		JP	#+1 SET B.RETURN
000401	7211777637	*	SX1	GETC7 GET A CHARACTER
	0331000627		NG	X1-96 IS IT GRAPHIC
				X1,GETC7 IF SO, GET ANOTHER
000402	7244777776	*	SX4	LINE TOO LONG OR NON GRAPHIC ENCOUNTERED
	7110000155	TOOLONG	SX1	X4-1 STEP BACK ONE
000403	6170000404		SR7	CR PASS A CR
	0200000615		JP	#+1 RETURN BELOW
				PUTC7 PUR THE CR AND SET LENGTH
000404	0200000350	*	JP	TYPELIN

```
*
*
* ERROR CALL AREA
*
0000014 E.PANIC EQU 12
0000006 ERRCLASS EQU 6
0000007 ERRNUM EQU ERRCLASS+1
*
000405 ERRC XJ ESAVE SAVE REGISTERS
000407 XJ SETEMSK RE SET ERROR SELECTION MASK
000411 5110000006 7211777763 SAl ERRCLASS CHECK ERROR CLASS FOR PANIC
000412 0301000434 ZR X1-E.PANIC
XJ X1-INTERUPT
000415 XJ PDSTK READ TOP OF STACK ( IN CASE UNWANTED ERROR)
000417 XJ FRESTOR RESTORE REGISTERS
XJ FRTN NOW CONVERT ERROR TO F RETURN
*
000421 ESAVE MYCAP SAVE
000422 ITEMS EREGS
*
000423 FRESTOR MYCAP RESTOR
000424 ITEMS EREGS
*
000425 SETEMSK MYCAP FSMLOC
000426 ITEMS ++1
000427 7777777777777777 DATA -0
*
000430 PDSTK MYCAP DISSEN
000431 ITEMS STKBUF
000432 00000000000000000000 DATA 1
*
000433 FRTN MYCAP FRETUR
*
* WE HAVE BEEN INTERRUPTED
*
000434 INTERRUPT XJ FIXPC SETS P COUNTER TO INTERRUPT CODE
000436 XJ FRESTOR
000440 XJ RETURNOP RETURN TO INTERRUPTED VERSION
*
000442 5110000007 INTCODE SAl ERRNUM
0301000445 ZR X1-INTCODE1 MILD PANIC
```

TTYLINE TTY LINE COLLECTOR
ERROR CALL HANDLING

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000443	XJ	HEADS	MAJOR PANIC
000445	INTCODE1 XJ	INTERR	MILD PANIC
000447	FIXPC	MXCAP	MODPC
000450		ITEMS	CX.LNCLS
000451		ITEMS	1
000452		ITEMS	INTCODE
000453	INTERR	MXCAP	USRER (MILD PANIC)
000454		ITEMS	E.PANIC
000455		ITEMS	0
000456	HEADS	ITEMS	CX.BDCS (MAJOR PANIC)

```

*
*
*
000457 ERR XJ SAVE
000461 6160000004 SRB 4
XJF READ,STOP
JP DIE
*
*
*
000465 DEBUG XJ SAVE
000467 6160000004 SRB 4
XJF READ,STOP
XJ RESTORE
JP R7
*
*
000475 RESTORE MYCAP RESTOR
000476 ITEMS REGAREA
*
*
000477 BEAD ITEMS CX,BEAD
*
000500 SAVE MYCAP SAVE
000501 ITEMS REGAREA
*
*
000502 DIE XJ RETURNOP
*
*
000504 0000000000 STOP Ps

```

WHAT FOLLOWS IS COPIED VIA THE EDITOR FROM
GRAYCDE,XTEXT ON OCT 22, 1970

FIRST WE FIX UP XJ FOR GRAYCDE

3

XJ

MACRO

LOC

VED

12/01308,18/LOC

ENDM

	0000000	PRINT	EQU	0
	0000000	FUNY	EQU	0
	0000000	LOOK	EQU	0
	0000001	TTY	EQU	1
	0000001	CHAR	EQU	1
	0000003	ERROR	EQU	3
	0000004	COUNT	EQU	4
	0000004	LENGTH	EQU	4
	0000005	SCRATCH	EQU	5
	0000006	STEP	EQU	6
	0000006	OUT	EQU	6
	0000007	RETURN	EQU	7
	0000021	RUFLN	EQU	17
	0000005	INLENGTH	EQU	5
	0000005	OUTLEN	EQU	5
000505			BSS	0
	0000000	DIFF	EQU	*0=#L
	0000505	BASEPT	EQU	*0
0000000			ORG	0
0000000		OUTFIRST	BSS	1
0000001		OUTGET	BSS	1
0000002		OUTLIM	BSS	0
0000002		INFIRST	BSS	1
0000003		INPUT	BSS	1
0000004		INLIM	BSS	1
0000005		OUTPUT	BSS	1
0000006		INGET	BSS	1
0000007			BSS	OUTLEN
000014			BSS	INLENGTH
000021		SOFTCHO	BSS	1
000022		NEEDFOM	BSS	1
000023		FORCE	BSS	1
000024		SENDVENT	BSS	2
000026		ACTUAL	BSS	1
000027		HANGIN	BSS	2
000031		RINPIT	BSS	5
000036		WRITEIN	BSS	5
000043		RINBUF	BSS	5
000050		WRITEOUT	BSS	3
000053		OUTBASE	BSS	1
000054		OUTCOUNT	BSS	1
000055		WOUTPUT	BSS	5
000062		ROUTGET	BSS	5
000067		BREAKTAB	BSS	3
000072			BSS	1
000073		ICFLAG	BSS	1
000074		TABS	BSS	2
000076		OLD	BSS	3
000101		NEW	BSS	3
		IF		-ABS,BASEPT,1
		IF		ABS,BASEPT,1
000505			ORG	BASEPT
000505			LOC	*0-DIFF

0000127	MAX	EQU	87
0000000	BLANK	EQU	0
0000004	SKIPCHAR	EQU	48
0000006	ESCCHAR	EQU	68
0000034	LEFTTRA	EQU	348
0000036	RIGHTRA	EQU	368
0000077	RACKCHAR	EQU	778
0000147	RELLCHAR	EQU	1478
0000152	LF	EQU	1528
0000155	CR	EQU	1558
0000173	ESCC	EQU	1738
0000173	ESCC	EQU	1738

0000003	ONE	EQU	3	
0000006	READ	EQU	CX.READ	• MODIFIED
0000007	WRITE	EQU	CX.WRITE	• FROM
0000010	SEND	EQU	CX.SENDE	• GRAYCDE
0000011	HANG	EQU	CX.GETE	• ABSOLUTE

*****TTYFILE CAPABILITY INDEX COMES IN IN B2				
***** THE INDEX OF THE CP TO PP EVENT CHANEL IS B2+1				
***** THE INDEX OF THE PP TO CP CHANEL IS B2+2				

0010000	MOREOUT	EQU	10000B	MORE OUTPUT
0020000	MOREIN	EQU	20000B	MOREINPUT
0020000	PURGE	EQU	20000B	
0030000	RESUME	EQU	30000B	RESUME HARD ECHO
0040000	TABLF0	EQU	40000B	NO STEAK
0040001	TABLF1	EQU	40001B	ALL BREAK
0040002	TABLF2	EQU	40002B	BREAK ON NON GRAPHIC
0040003	TABLF3	EQU	40003B	BREAK ON NON ALPHA MERIC
0040004	TABLF4	EQU	40004B	BREAK ON NON NEUMERIC
0060000	MOREROOM	EQU	60000B	MORE ROOM IN INPUT BUFFER
	SYSCALL	MACRO	ARG	
	+	SB,SCRATCH	B.TTY+ARG	
	+	XJ	-SCRATCH	
	-	VFN	30/1,60/0	
		ENOM	SYSCALL	
	SENDVENT	MACRO	PARAM	
		SX.OUT	PARAM	
		SA.OUT	B.TTY+ACTUAL	
		SYSCALL	SENDVENT	
		ENOM	SENDVENT	

SIGNALS THE CP SENDS TO THE PP

0004001	FOM	SET	4001B	END OF WORD AND OF MESSAGE
0004002	FOW	SET	4002B	SET OUTPUT ACTIVE OFF IF PO END OF WORD, NEXT CHARACTER IS IN NEXT WORD

SIGNALS THE PP SENDS THE CP

0004003	DEFERRED	SET	4003B	ECHOS DEFERRED BEYOND THIS
0004004	NULLC	SET	4004B	NULL CHARACTER
0004005	LOST	SET	4005B	LOST SOME CHARACTERS HERE
0004006	WENTIN	SET	4006B	REENTERED HARD ECHO ON REQU
0004007	WENTOUT	SET	4007B	WENT OUT OF ECHO MODE ON RE
0004010	PURGED	SET	4010B	PURGED CM INPUT BUFFER HERE

000505	40020010004002001000	VFD	60/40020010004002001000B
000506	6130000001	.TTY.ON SB. ONE	1
	76630	SX. OUT	B. ONE
000507	5161000021	SA. OUT	B1+SOFTECHO
	76600	SX. OUT	B0
000510	5161000054	SA. OUT	B1+OUTCOUNT INITIALIZE OUT COUNT
	5161000022	SA. OUT	B1+NEEDEOM
000511	5161000067	SA. OUT	R1+BREAKTAB
	5161000073	SA. OUT	B1+ICFLAG
000512	76630	SX. OUT	R. ONE
	5161000023	SA. OUT	B1+FORCE
000513	5161000035	SA. OUT	B1+RINPUT+4
	5161000042	SA. OUT	B1+WRITEIN+4
000514	5161000064	SA. OUT	B1+ROUTGET+2
	5161000066	SA. OUT	B1+ROUTGET+4
000515	5161000061	SA. OUT	WOUTPUT+B1+4
	5161000077	SA. OUT	B1+OLD+1
000516	5161000100	SA. OUT	B1+OLD+2
	5150000505	SA. SCRATCH	.TTY.ON=1
000517	10655	RX. OUT	X. SCRATCH
	5161000074	SA. OUT	R1+TABS
	54663	SA. OUT	A. OUT+B. ONE
000520	7161000104	SX. OUT	B1+OLD+3+3
	5161000076	SA. OUT	B1+OLD
000521	73070	SX0	X7
	7170000155	SX. 7	CR
	20761	LX7	49
000522	53760	SA7	X6
	73700	SX7	X0
	7161000117	SX. OUT	B1+NEW+3+11
000523	5161000101	SA. OUT	B1+NEW
	7160000126	SX. OUT	86
000524	55673	SA. OUT	A7=B. ONE
	43644	MX. OUT	36
	14660	BX. OUT	=X. OUT
000525	5161000070	SA. OUT	B1+BREAKTAB+1
	43674	MX. OUT	60
	54663	SA. OUT	A. OUT+B. ONE
000526	7160000006	SX. OUT	READ
	5161000031	SA. OUT	B1+RINPUT
000527	5161000043	SA. OUT	B1+RINBUF
	5161000062	SA. OUT	B1+ROUTGET
000530	7160000007	SX. OUT	WRITE
	5161000036	SA. OUT	B1+WRITEIN
000531	5161000050	SA. OUT	B1+WRITEOUT
	5161000055	SA. OUT	B1+WOUTPUT
000532	76620	SX. OUT	B2
	5161000032	SA. OUT	B1+RINPUT+1
000533	5066000005	SA. OUT	A. OUT+5
	5066000005	SA. OUT	A. OUT+5
000534	5066000005	SA. OUT	A. OUT+5
	5066000005	SA. OUT	A. OUT+5
000535	5066000005	SA. OUT	A. OUT+5

000536 5161000033 7160000003
73661 54663
000537 5066000005 7160000006
000540 5161000040 7160000014
000541 5161000045 73661 54663
000542 7160000005 5066000001
000543 7160000005 5161000057
000544 73661 54663 7160000001
000545 5161000064 73661 54663
000546 7160000010 5161000024
000547 7162000001 54663
000550 7160000011 5161000027
000551 7162000002 54663
000552 7160000006 56610 76620
000553 5161000001 76600
000554 5161000002 76610
000555 5161000003 7160000021
000556 5161000004
000557 0000000001
000561
000565
000571
000574 5151000003 10655
000575 5161000006
000602
000606 6170000607 0200000721
000607 5151000005 43674

SX.OUT INPUT
SA.OUT B1+RINPUT+2
SX.OUT X.OUT+B1
SA.OUT A.OUT+B.ONE
SA.OUT A.OUT+5
SX.OUT INGET
SA.OUT B1+WRITEIN+2
SX.OUT 7+OUTLEN
SA.OUT B1+RINBUF+2
SX.OUT X.OUT+B1
SA.OUT A.OUT+B.ONE
SX.OUT INLENGTH
SA.OUT A.OUT+1
SX.OUT OUTPUT
SA.OUT B1+WOUTPUT+2
SX.OUT X.OUT+B1
SA.OUT A.OUT+B.ONE
SX.OUT OUTGET
SA.OUT B1+ROUTGET+2
SX.OUT B1+X.OUT
SA.OUT A.OUT+B.ONE
SX.OUT SEND
SA.OUT B1+SENDVENT
SX.OUT B2+1
SA.OUT A.OUT+B.ONE
SX.OUT HANG
SA.OUT B1+HANGIN
SX.OUT B2+2
SA.OUT A.OUT+B.ONE
SX.OUT READ
SA.OUT R1
SX.OUT B.2
SA.OUT R1+1
SX.OUT B0
SA.OUT B1+2
SX.OUT B1
SA.OUT B1+3
SX.OUT 17
SA.OUT B1+4
XJ -1
VFN 30/1.60/0
SENDVENT PURGE TURN TTY ON
SENDVENT TABLE2
SYSCALI WRITEIN
SA+SCRATCH B.TTY+INPUT
BX+OUT X.SCRATCH
SA+OUT R.TTY+INGET
SENDVENT MOREROOM
SENDVENT RESUME
SB.RETURN **1
JP FLUSH3
SA.SCRATCH B.TTY+OUTPUT
MX.OUT 60

THROW AWAY JUNK
IN INPUT BUFFER

TTYLINE TTY LINE COLLECTOR
INITIALIZER

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000610 73650 53651
5161000052
73661
000611 5161000053
0200000612

SA.OUT
SX.OUT
SA.OUT
SX.OUT
SA.OUT
JP

POP

X.SCRATCH+B.TTY
X.SCRATCH
B.TTY+OUTBASE-1
X.OUT+B.TTY
B.TTY+OUTBASE
RETURN

	PUSH	MACRO	ARG	PUSH ARG INT CONTROL STACK
		LX.RETURN	18	
		SX.SCRATCH	B.RETURN	
		BX.RETURN	X.RETURN+X.SCRATCH	
		SB.RETURN	ARG	
		ENDM	PUSH	
000612 63770	POP	SB.RETURN	X.RETURN	
		AX.RETURN	18	
	EXIT	IP	B.RETURN	RETURN
000613 0270000000	FAULT	JP	B.ERROR	
000614 0230000000				

PUTS A 7 BIT CHARACTER ON THE END OF A STR!

```

000615 7244000001 73640 54640
000616 7254777776 7160000007
000617 11665 21503 63550
000620 5054777776 53555
000621 6256000061 20603 14666
000622 63565 7160000177 22656
000623 15656 22551 12665 54650
000624 0270000000

```

```

*
*
*
*
*
*
*
*

```

PUTC7

```

SX.LENGTH
SX.OUT
SA.OUT
SX.SCRATCH
SX.OUT
BX.OUT
AX.SCRATCH
SB.SCRATCH
SA.SCRATCH
SA.SCRATCH
SB.SCRATCH
LX.OUT
BX.OUT
SB.SCRATCH
SX.OUT
LX.OUT
BX.OUT
LX.SCRATCH
BX.OUT
SA.OUT
JP

```

```

CONCATENATES THE 7 BIT CHARACTER FOUNG
CONCATENATES THE 7 BIT CHARACTER IN X.CHAR
STRING STARTING AT C(A.LENGTH-1) AT THE X.L
POSITION (COUNTING FROM ZERO)
THE DESCRIPTOR IS UPDATED IN THE PROCESS TO
TO THE CONCATENATED CHARACTER
RETURNS THRU B.RETURN
UPDATES STRING DESCRIPTOR: X.LENGTH,B.COUNT
CLOBBERS X.SCRATCH,B.SCRATCH,A.SCRATCH,A.OU

```

```

X.LENGTH+1
X.LENGTH
A.LENGTH
X.LENGTH-1
7
X.OUT*X.SCRATCH
3
X.SCRATCH
A.LENGTH-1
X.SCRATCH+B.SCRATCH
X.OUT+49
3
-X.OUT
B.SCRATCH+X.OUT
177B
X.OUT,B.SCRATCH
-X.OUT*X.SCRATCH
X.CHAR,B.SCRATCH
X.OUT+X.SCRATCH
A.SCRATCH
B.RETURN

```

000625 66446
73446
7214777776
000626 0200000632
000627 73446
66446
7214777776
000630 0331000614
7254777650
000631 0325000614
000632 5054777776
7160000007
000633 11616
21103
63510
53555
000634 6256777764
67505
20603
000635 63565
22555
7110000177
000636 11115
0270000000

GETC7.

GETC7

GETC71

SB.COUNT
SX.LENGTH
SX.CHAR
JP
SX.LENGTH
SB.COUNT
SX.CHAR
NG
SX.SCRATCH
PL
SA.SCRATCH
SX.OUT
BX.OUT
AX.CHAR
SB.SCRATCH
SA.SCRATCH
SB.SCRATCH
SB.SCRATCH
LX.OUT
SB.SCRATCH
LX.SCRATCH
SX.CHAR
BX.CHAR
JP

GETS THE X.LENGTH-1 CHARACTER FROM THE STRI
STARTING AT C(A.LENGTH-1) AND RETURNS IT RI
ADJUSTED WITH LEADING ZEROS IN X.CHAR
INCREMENTS B.COUNT AND X.LENGTH BY B.STEP
RETURNS THRU B.RETURN
IF X.LENGTH IS GREATER THAN MAX OR LESS THA
THEN RETURN IS THRU B.ERROR AND NO CHARACTE
IS RETURNED
UPDATES X.CHAR X.LENGTHB.COUNT
DESTROYS X.SCRATCH.A.SCRATCH.B.SCRATCHA.OUT

B.COUNT+B.STEP
X.LENGTH+B.STEP
X.LENGTH-1
GETC71
X.LENGTH+B.STEP
B.COUNT+B.STEP
X.LENGTH-1
X.CHAR,FAULT
X.LENGTH-MAX
X.SCRATCH,FAULT
A.LENGTH-1
7
X.CHAR*X.OUT
3
X.CHAR
X.SCRATCH+B.SCRATCH
X.OUT-11
-B.SCRATCH
3
X.OUT+B.SCRATCH
X.SCRATCH,B.SCRATCH
177B
X.CHAR*X.SCRATCH
B.RETURN

X.CHAR THE 8 BIT RIGHT ADJUSTED CHARACTER TO BE
B.TTY A POINTER TO THE BASE OF THE TTY BUFFER

PUT HANGS WHEN THE BUFFER IS FULL
PUT WAKES UP THE PPU IF THE BUFFER WAS FORMERLY EMPTY
ALL THIS IS ACTUALLY DONE BY FLUSH WHICH IS AN INTEGR
OF PUT
FOUR OUT OF FIVE TIMES PUT TAKES TEN MICROSECONDS
UNLESS FLUSHING IS REQUIRED PUT TAKES 33 MICROSECONDS
PUT THE LAST CHARACTER OF EACH BUFFER WORD
IF FLUSHING IS REQUIRED IT MAY TAKE FOR EVER

```
PUT DESTROYS      X.SCRATCH X.OUT
                  A.SCRATCH A.OUT
```

THE ONLY BIT PATTERN THAT CANNOT BE SENT IS 77778
INITIALIZATION AND FLUSHING MUST FORCE THE IMAGE OF T
PUT POINTER TO -0=77777777777777777777

PUTCTTY RETURNS THRU B. RETURN

Address	Hex Data	Assembly Code	Comments
000637	43665	PUTCTTY	TRANSLATE FROM INTERNAL TO
	5161000022	MX.OUT	
000640	7251000040	SA.OUT	
	15656	SX.SCRATCH	
	47566	BX.OUT	
000641	20573	CX.SCRATCH	
000642	0325000643	LX.SCRATCH	
	7266000200	PL	
000643	43560	SX.OUT	
	12665	MX.SCRATCH	
	0200000645	BX.OUT	
000644	43660	JP	
	5161000022	PUTCTTY	
	12616	MX.OUT	
000645	5151000005	SA.OUT	
	53551	BX.OUT	
	20514	SA.SCRATCH	
000646	11656	SA.SCRATCH	
	54650	LX.SCRATCH	
	20601	BX.OUT	
000647	0336000613	SA.OUT	
	5151000054	LX.OUT	
000650	7265000001	NG	
	54650	SA.SCRATCH	
000651	5151000005	SX.OUT	
	7265000001	SA.OUT	
000652	5151000002	SA.SCRATCH	
	37565	SX.OUT	
000653	0335000663	SA.SCRATCH	
		LX.SCRATCH	
000657	7160000000	NG	
	5161000054	SYSCALI	
000660	5151000000	SX.OUT	
	73651	SA.OUT	
		SA.SCRATCH	
		SX.OUT	

PUT A CHARACTER INTO THE TTY BUFFER

000661	5161000053		SA.OUT	B.TTY+OUTBASE
		10655	BY.OUT	X.SCRATCH
000662	5161000052		SA.OUT	B.TTY+OUTBASE-1
000663	5161000005		SA.OUT	B.TTY+OUTPUT
		53661	SA.OUT	X.OUT+B.TTY
		43674	MX.OUT	60
000664	54660		SA.OUT	A.OUT
		5151000005	SA.SCRATCH	B.TTY+OUTPUT
000665	7265000001		SX.OUT	X.SCRATCH+1
		5151000002	SA.SCRATCH	B.TTY+OUTLIM
000666	37565		TX.SCRATCH	X.OUT-X.SCRATCH
		0335000670	NG	X.SCRATCH.SKIPB
000667	5151000000		SA.SCRATCH	B.TTY+OUTFIRST
		10655	PA.OUT	X.SCRATCH
000670	5151000001		SA.SCRATCH	B.TTY+OUTGET
		37556	TX.SCRATCH	X.SCRATCH-X.OUT
000671	0315000613		NZ	X.SCRATCH.EXIT
		0200000700	JP	FLUSH2

```

*
* CLEAR OUT THE OUTPUT BUFFER
* ENTERED WITH B.TTY POINTING TO THE BASE OF A VIRTUAL
* TTY BUFFER, RETURNS THRU B.RETURN
* DESTROYS X.SCRATCH,A.SCRATCH,B.SCRATCH,A.OUT,X.OUT,X.
000672 7110004001 FLUSH SX.CHAD EOM
                                PUSH FLUSH1
                                JP PUTCTTY
000674 0200000644
000675 5151000005 FLUSH1 SA.SCRATCH B.TTY+OUTPUT
                                SA.SCRATCH X.SCRATCH+B.TTY
000676 0315000644 NZ X.SCRATCH,PUTCTTY
                                76600 SX.OUT B0
000677 5161000022 SA.OUT B.TTY+NEED EOM
                                63770 SB.RETURN X.RETURN
                                21722 AX.RETURN 18
                                0000700 EQU *
*
* WRITE USING OUTCOUNT
* SEND MORE OUTPUT EVENT
* READ OUTGET
* FULL YES BLOCK THEN READ
* NO
* RESET SWAP COUNT
* RETURN
000700 SYSCALL WRITEOUT
000703 SYSCALL WOUTPUT
000706 SENDVENT MOREOUT
000712 76600 SX.OUT B0
                                5161000054 SA.OUT B.TTY+OUTCOUNT
000713 5151000005 SA.SCRATCH B.TTY+OUTPUT
                                10655 BX.OUT X.SCRATCH
000714 5161000052 SA.OUT B.TTY+OUTBASE-1
                                73651 SX.OUT X.SCRATCH+B.TTY
000715 5161000053 SA.OUT B.TTY+OUTBASE
                                5151000005 SA.SCRATCH B.TTY+OUTPUT
000716 7265000001 SX.OUT X.SCRATCH+1
                                5151000001 SA.SCRATCH B.TTY+OUTGET
000717 37665 IX.OUT X.OUT-X.SCRATCH
                                0306000721 ZR X.OUT,FLUSH3
000720 7266777772 SX.OUT X.OUT-OUTLEN
                                03160000613 NZ X.OUT,EXIT
000721 FLUSH3 SYSCALL ROUTGET
000724 5151000005 SA.SCRATCH B.TTY+OUTPUT
                                7265000001 SX.OUT X.SCRATCH+1
000725 5151000002 SA.SCRATCH B.TTY+OUTLEN
                                37565 IX.SCRATCH X.OUT-X.SCRATCH
000726 0315000727 * NZ X.SCRATCH,**+1
                                7266777772 SX.OUT X.OUT-OUTLEN
000727 5151000001 SA.SCRATCH B.TTY+OUTGET
                                37565 IX.SCRATCH X.OUT-X.SCRATCH
000730 0305000732 ZR X.SCRATCH,FLUSH4
                                7255777772 SX.SCRATCH X.SCRATCH-OUTLEN
000731 0315000613 NZ X.SCRATCH,EXIT
000732 10577 FLUSH4 BX.SCRATCH X.RETURN
                                SYSCALL HANGIN

```

TTYLINE TTY LINE COLLECTOR
FLUSH THE OUTPUT BUFFER

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000736 10755

0200000721

BX.RETURN
JP

X.SCRATCH
FLUSH3

Address	Offset	Instruction	Comment
000737	5111000006	GETCTTY	SHOULD I CALL INFORCER AND
000740	37551	SA.CHAR	
	0315000776	SA.SCRATCH	
		IX.SCRATCH	
		NZ	
			FORCE THE PP BACK INTO HARD ECHO
			FLUSH OUTPUT
			READ INPUT
			AND RETURN THRU B.RETURN
000742	5151000022	PUSH	INFORC2
	0315000672	SA.SCRATCH	B.TTY+NEEDROOM
000743	63770	NZ	X.SCRATCH.FLUSH
	21722	SB.RETURN	X.RETURN
000744		AX.RETURN	18
		SYSCALI	RINPUT GET A NON-EMPTY INPUT
000747	5151000006	SA.SCRATCH	B.TTY+INGET
	10655	BX.OUT	X.SCRATCH
000750	5151000003	SA.SCRATCH	B.TTY+INPUT
	37556	IX.SCRATCH	X.SCRATCH=X.OUT
000751	0315000764	NZ	X.SCRATCH.READIN?
	5151000021	SA.SCRATCH	B.TTY+SOFT ECHO
000752	0305000757	ZD	X.SCRATCH.READIN1
		SENDVENT RESUME	
000757	10577	READIN1	BX.SCRATCH X.RETURN
		SYSCALI	HANGIN
000763	10755	BX.RETURN	X.SCRATCH
	0200000744	JP	READIN
000764		SYSCALI	RINBUF
000767		SYSCALI	WRITEIN
000772		SENDVENT	MOREROOM
000776	5111000006	GETCTTY1	B.TTY+INGET
	53511	SA.SCRATCH	X.CHAR+B.TTY
	20514	IX.SCRATCH	12
000777	7160007777	IX.OUT	7777B
	11156	BX.CHAR	X.SCRATCH+X.OUT
	12656	BX.OUT	X.SCRATCH+X.OUT
			REPLACE CHARACTER IN ACTIVE
			7777B
001000	54650	SA.OUT	A.SCRATCH
	0316001006	NZ	X.OUT.GETOUT
			RESTORE ACTIVE WORD
			UNLESS THE ACTIVE WORD IS

001001	0326001004		DL	X.OUT.GETOUT	IF EMPTY RETURN
	5151000006		SA.SCRATCH	B.TTY+INGET	INCREMENT THE IN GET POINTER
001002	7265000001		SA.OUT	X.SCRATCH+1	
	5151000004		SA.SCRATCH	B.TTY+INLIM	
001003	37565		TA.SCRATCH	X.OUT-X.SCRATCH	
	0335001005		NG	X.SCRATCH,SKIP10	STEP TTY INGET POINTER
001004	5151000002		SA.SCRATCH	B.TTY+INFIRST	
	10655		Bx.OUT	X.SCRATCH	
001005	5161000006	SKIP10	SA.OUT	B.TTY+INGET	NOW THE POINTER IS UPDATED
001006		GETOUT	RSSZ	0	
001006	6251773775		SB.SCRATCH	X.CHAR-EOW	
	0705001011		GT	B.SCRATCH,SIGNAL	INTERPERT SIGNALS
001007	7150000177		SX.SCRATCH	177B	
	11115		BX.CHAR	X.CHAR*X.SCRATCH	
001010	0200000613		JP	EXIT	

THE SWITCHING TABLE TO HANDLE SIGNALS

001011	0250001011	SIGNAL	JP	**B.SCRATCH	
001012	7160000001		SA.OUT	1	IF FORCED OUT OF ECHO MODE
	0200001020		JP	SETSOFT	SET SOFT ECHO ON
001013	0200000737		JP	GETCTTY	IGNORE NULL CHARACTERS
001014	7160000001		SA.OUT	1	IF LOST CHARACTERS TURN ON
	0200001020		JP	SETSOFT	SOFT ECHO
001015	7160000000		SA.OUT	0	IF WENT INTO ECHO MODE ON R
	0200001020		JP	SETSOFT	TURN OFF SOFTECHO
001016	7160000001		SX.OUT	1	CRYPTIC
	0200001020		JP	SETSOFT	REMARK
001017	0200000737		JP	GETCTTY	IGNORE PURGES
001020	5161000021	SETSOFT	SA.OUT	SOFTECHO+B.TTY	
	0200000737		JP	GETCTTY	

* GETS COLLECTS CHARACTERS FROM A TELETYPE UP TO AND
* INCLUDING THE NEXT BREAK CHARACTER AND CONCATENATES T
* THE STRING STARTING AT C(A.LENGTH-1) AND OF LENGTH
* C(A.LENGTH)
*
* GETS TRYs TO KEEP THE PP HAPPY. IT READS AND INTERPER
* PP SIGNALS, ECHOS CHARACTERS WHEN NECESSARY AND WHENE
* POSSABLE IT TRYs TO FORCE THE PP BACK INTO ECHO MODE.
*
* GET IS ENTERED WITH B.TTY POINTING TO THE BASE OF A V
* TTY BUFFER. A.LENGTH POINTING TO THE SECOND WORD OF A
* DESCRIPTOR
* IT UPDATES X.LENGTH, AND RETURNS THE LAST CHARACTER O
* IN X.CHAR. IF THE STRING OVERFLOWS (IE X.LENGTH REACH
* BEFOR A BREAK IS FOUND GETS RETURNS THE COMPLEMENT OF
* LAST CHARACTER IN X.CHAR
* GETS RETURNS THRU X.RETURN
* GETS DESTROYS A.CHAR,X.CHAR,B.SCRATCH,A.SCRATCH,X.SCRATCH,A.OUT
* B.COUNT AND B.STEP

* ECHO STRATAGY..
* ECHO ANY NONBREAK CHARACTER WHEN SOFT ECHO IS ON
* NEVER ECHO A BREAK CHARACTER
* THE CALLING PROGRAM MAY ECHO A BREAK CHARACTER OR ECH
* A TRANSLITERATION OF IT.
* IN ANY CASE BEFOR GETTING A CHARACTER SEE IF THE TTY
* BUFFER IS EMPTY. IF SO AND IF THE SOFTECHO FLAG IS UP
* CALL THE INFORCER.
* THE INFORCER DOES THE FOLLOWING THINGS
* (A) IF NEEDEDOM THEN PUTCTTY(EOM)
* (B) IF TTYOUT NONEMPTY THEN FLUSH
* (C) SEND A RESUME ECHO EVENT OT THE PP
* (D) RETURN

* ENTERED THRU X.RETURN WITH A.LENGTH SET

001021	6170001024	GETS	SB.RETURN	BREAK0
	6140000000		SB.COUNT	0
001022	7254777650	LOOP	SX.SCRATCH	X.LENGTH=MAX
	0325001034		PL	X.SCRATCH,GETS1
001023	6170001024		SB.RETURN	BREAK01
	0200000737		JP	GETCTTY
001024	43665	BREAK01	MX.OUT	53
	7211000140		SY.CHAR	X.CHAR+140B
	15116		BX.CHAR	-X.OUT*X.CHAR
001025	6170001024		SB.RETURN	BREAK0
	0200000615		JP	PUTC7
001026	63510	BREAK0	SB.SCRATCH	X.CHAR
	5151000066		SA.SCRATCH	B.TTY+BREAKTAB-1
001027	5055000001	BREAK1	SA.SCRATCH	A.SCRATCH+1
	22555		LX.SCRATCH	X.SCRATCH,B.SCRATCH
001030	6155777703		SB.SCRATCH	B.SCRATCH-60
	0650001027		GE	B.SCRATCH,BREAK1
001031	0335000612		NG	X.SCRATCH,POP

001032	5151000021	6144000001	SR.COUNT	B.COUNT+1	
		0305001022	SA.SCRATCH	B.TTY+SOFTECHO	IF SOFTECHO IS ON ECHO IT
001033	6170001022		7R	X.SCRATCH,LOOP	
		0200000637	SB.RETURN	LOOP	
001034	14111	GETS1	JP	PUTCTTYT	
	0200000612		BX.CHAR	-X.CHAR	
			JP	POP	

```

*      PUT THE STRING WITH DESCRIPTOR C(A,LENGTH-1) C(A,LENGTH) TO THE
*      POINTED TO BY B.TTY IF THE STRING ENDS IN A CR THE AD
*      LF. IF THE LENGTH OF THE STRING EXCEEDS MAX TRUNCATE
*      AT THAT POINT.. PUTL FLUSHES THE OUTPUT BUFFER
*      RETURNS THRU X.RETURN
*      CLOBBERS A.CHAR,X.CHAR,X.LENGTH,B.SCRATCH,A.SCRATCH,X
*      B.ERROR,B.COUNT,A.OUT,B.OUT
*      PUT HANDLES BOTH SQUOZE AND UNSQUOZE TEXT
*      IF FORCE NON-ZERO THEN LINE IS FLUSHED

001035 7100000000      PUTL  SX.FUNY      0
                                SB.COUNT      X.LENGTH
                                SB.COUNT      -B.COUNT
                                SX.LENGTH      0
                                SB.STEP        1
001036 7140000000      PUTL1 SX.CHAR      0
                                SX.OUT        X.CHAR-CR
                                NZ            X.OUT,PUTL3
                                SX.CHAR      LF
                                SB.RETURN     PUTL4
                                JP            PUTCTTYT
001037 7110000000      PUTL3 SB.RETURN     PUTL2
                                LT            B.COUNT,GFTC7.
001040 7261777622      PUTL2 NZ            X.FUNY,SPECIAL
                                SX.SCRATCH     X.CHAR-ESCC
                                ZR            X.SCRATCH.ESCAP
                                SB.RETURN     PUTL1
                                JP            PUTCTTYT
001041 7110000152      PUTL4 SB.RETURN     X.RETURN
                                AX.RETURN     18
                                SA.SCRATCH     B.TTY+FORCE
                                NZ            X.SCRATCH.FLUSH
                                JP            B.RETURN
001042 0200000637      SPECIAL SX.FUNY      0
001043 6170001045      *****DO BUTLERS FUNNTIES HERE
                                *****NOW IT ONLY HANDLES BLANK COMPRESSION
                                SX.CHAR      2408      BLANK WITH PARITY
                                SB.RETURN     BLANKS
001044 0200001050      BLANKS SX.FUNY      X.FUNY-1
                                PL            X.FUNY,PUTCTTY
001045 0310001052      SX.FUNY      B0
                                JP            PUTL1
001046 0305001056      ESCAP SX.FUNY      1
                                JP            PUTL1
                                21722
                                5151000023
001047 0200000637
001050 63770
001051 0315000672
001052 7100000000
001053 7110000240
001054 7200777776
001055 76000
001056 7100000001
                                0200001040
                                0200001040

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	0000003	LINK	EQU	3
001057	10377	MORE.	BX.LINK	X.RETURN
001060	5151000077	MORE.1	SA.SCRATCH	B.TTY+OLD+1
	73650		SX.OUT	X.SCRATCH
001061	5161000100		SA.OUT	B.TTY+OLD+2
	76600		SX.OUT	R0
	54650		SA.OUT	A.SCRATCH
001062	5161000102		SA.OUT	B.TTY+NEW+1
	7160000001		SX.OUT	1
001063	5161000073		SA.OUT	B.TTY+ICFLAG
001064		MORE	BSZ	0
001064	6160000001		SB.STEP	1
	5141000102		SA.LENGTH	B.TTY+NEW+1
001065	7170001067		SX.RETURN	BROKEN
	6130001322		SB.ERROR	BELL
001066	0200001021		JP	GETS
001067	0331001075	BROKEN	NG	X.CHAR+NOROOM
	7264777776		SX.OUT	X.LENGTH-1
001070	54640		SA.OUT	A.LENGTH
	5151000073		SA.SCRATCH	B.TTY+ICFLAG
001071	0335001073		NG	X.SCRATCH.BROKE
	5151000077		SA.SCRATCH	B.TTY+OLD+1
001072	73654		SX.OUT	X.SCRATCH+B.COUNT
	54650		SA.OUT	A.SCRATCH
	7100000000		SX.PRINT	0
001073	6251777637	BROKE	SB.SCRATCH	X.CHAR-1408
	66400		SB.COUNT	R0
001074	5141000077		SA.LENGTH	B.TTY+OLD+1
	0250001076		JP	B.SCRATCH+SWITCH-1
001075	7160000126	NOROOM	SX.OUT	MAX-1
	54640		SA.OUT	A.LENGTH
001076	0200001322		JP	BELL
001077	6140000001	SWITCH	SB.COUNT	1
	0200001256		JP	COPY
001100	7170001274	+	SX.RETURN	SKIP
	0200001213		JP	TAB
001101	7170001274	+	SX.RETURN	SKIP
	0200001227		JP	RIGHTUNI
001102	7170001256	+	SX.RETURN	COPY
	0200001227		JP	RIGHTUNI
001103	6140000001	+	SR.COUNT	1
	0200001230		JP	LEFTUI
001104	7170001256	+	SX.RETURN	COPY
	0200001234		JP	SCAN
001105	7170001256	+	SX.RETURN	COPY
	0200001213		JP	TAB
001106	6170001256	+	SB.RETURN	COPY
	0200001232		JP	REDGE
001107	7170001202	+	SX.RETURN	TABB
	0200001213		JP	TAB
001110	0200001322		JP	BELL
001111	0200001172		JP	TABCHG
001112	5151000073	+	SA.SCRATCH	B.TTY+ICFLAG

PUT A STRING TO THE TELETYPE

001113	5151000102	0200001253	JP	ICSWITCH	
			SA,SCRATCH	B.TTY+NEW+1	
001114	6170001274	0200001137	JP	ACCEPT	
			SB,RETURN	SKIP	
		0200001232	JP	REDGE	
001115	0200001140		JP	CONCAT	
001116	7100000001		SX,PRINT	1	
		0200001140	JP	CONCAT	
001117	6140777776		SB,COUNT	-1	
		0200001325	JP	BACK	
001120	0200001230		JP	LEFTUI	
001121	7170001256		SX,RETURN	COPY	
		0200001304	JP	WORD	
001122	7170001325		SX,RETURN	BACK	
		0200001212	JP	TABL	
001123	0200001322		JP	BELL	
001124	7170001274		SX,RETURN	SKIP	
		0200001234	JP	SCAN	
001125	7170001325		SX,RETURN	BACK	
		0200001302	JP	LWORD	
001126	7170001274		SX,RETURN	SKIP	
		0200001304	JP	WORD	
001127	0200001324		JP	LEDGE	
001130	6140000001		SB,COUNT	1	
		0200001274	JP	SKIP	
001131	0200001160		JP	TYPSTAT	
001132	7100000003		SX,PRINT	3	
		0200001140	JP	CONCAT	
001133	0200001322		JP	BELL	CONTROL SHIFT M 358
001134	0200001322		JP	BELL	CONTROL SHIFT N 368
001135	0200001322		JP	BELL	CONTROL SHIFT O 378
001136	5151000102		ACCEPT	SA,SCRATCH	B.TTY+NEW+1
001137	73656		ACCEPT	SX,OUT	X.SCRATCH+B.STEP
	54650			SA,OUT	A.SCRATCH
		0200001145	JP	FINE	
001140	14000		CONCAT	BX,PRINT	-X.PRINT
	54546			SA,SCRATCH	A.LENGTH+R.STEP
	37554			IX,SCRATCH	X.SCRATCH=X.LENGTH
001141	6245777776			SB,COUNT	X.SCRATCH-1
	6130001143			SB,ERROR	CONCAT1
001142	0704001256		GT		B.COUNT,COPY
001143			CONCAT1	BSS	0
001143	5141000102			SA,LENGTH	B.TTY+NEW+1
	6170001145			SB,RETURN	FINE
001144	7110000155			SX,CHAR	CR
	0200000615			JP	PUTC7
001145	5111000102		FINE	SA,CHAR	B.TTY+NEW+1
	7261000000			SX,OUT	X.CHAR+0
001146	5161000077			SA,OUT	B.TTY+OLD+1
	21103			AX,CHAR	3
	63510			SB,SCRATCH	X.CHAR
001147	5111000101			SA,CHAR	B.TTY+NEW
	5141000076			SA,LENGTH	B.TTY+OLD

001150	53515		FINEI	SA.SCRATCH	X.CHAR+B.SCRATCH
	10655			BX.OUT	X.SCRATCH
	53645			SA.OUT	X.LENGTH+B.SCRATCH
	67556			SB.SCRATCH	B.SCRATCH-B.STEP
001151	0650001150			GE	B.SCRATCH.FINEI
	5140001344			SA.LENGTH	NEWLINE+1
001152	7170001060			SX.RETURN	MORE.1
	7200000002			SX.PRINT	X.PRINT+2
001153	0330001035			NG	X.PRINT,PUTL
	7200777776			SY.PRINT	X.PRINT-1
001154	10733			BX.RETURN	X.LINK
	0330001057			NG	X.PRINT,MORE.
001155	0323001035			PL	X.LINK,PUTL
	14777			BY.RETURN	-X.RETURN
	63570			SB.SCRATCH	X.RETURN
001156	21722			AX.RETURN	18
	0317001035			NZ	X.RETURN,PUTL
	76750			SX.RETURN	B.SCRATCH
001157	0200001035			JP	PUTL
001160	5140001344		TYPSTAT	SA.LENGTH	NEWLINE+1
	7170001162			SY.RETURN	TYPSTAT1
001161	0200001035			JP	PUTL
001162	6140777607		TYPSTAT1	SR.COUNT	=120
	5141000077			SA.LENGTH	B.TTY+OLD+1
001163	7110000040			SY.CHAR	40B
	6170001054			SB.RETURN	BLANKS
001164	7170001170			SX.RETURN	TYPST
	5151000102			SA.SCRATCH	B.TTY+NEW+1
001165	73050			SX.FUNY	X.SCRATCH
	5151000100			SA.SCRATCH	B.TTY+OLD+2
	37645			IX.OUT	X.LENGTH-X.SCRATCH
001166	0336001054			NG	X.OUT,BLANKS
	7245777776			SX.LENGTH	X.SCRATCH-1
001167	76000			SX.FUNY	B0
	0200001040			JP	PUTL1
001170	5141000102		TYPST1	SA.LENGTH	B.TTY+NEW+1
	7170001064			SX.RETURN	MORE
001171	0200001035			JP	PUTL
001172	5141000102		TABCHG	SA.LENGTH	B.TTY+NEW+1
	0304001322			ZR	X.LENGTH,BELL
001173	7254777650			SX.SCRATCH	X.LENGTH=MAX
	0325001322			PL	X.SCRATCH,BELL
001174	6244777703			SB.COUNT	X.LENGTH=60
	5151000074			SA.SCRATCH	B.TTY+TABS
001175	0740001177			LT	B.COUNT,#+2
001176	5151000075		+	SA.SCRATCH	B.TTY+TABS+1
	6144777703			SB.COUNT	B.COUNT=60
001177	6154000074		+	SB.SCRATCH	B.COUNT+60
	22655			LX.OUT	X.SCRATCH,B.SCRATCH
	43501			MX.SCRATCH	1
001200	13665			BX.OUT	X.OUT-X.SCRATCH
	67504			SR.SCRATCH	-B.COUNT
	22656			LX.OUT	X.OUT,B.SCRATCH

PREVENT ERASING TABS AT END OF LI

	54650		SA. OUT	A. SCRATCH
001201	0200001064		JP	MORE
001202	5141000102	TABB	SA. LENGTH	B. TTY+NEW+1
	73644		SX. OUT	X. LENGTH+B. COUNT
001203	7266777650		SX. OUT	X. OUT-MAX
	0326001322		PL	X. OUT, BELL
001204	5151000073		SA. SCRATCH	B. TTY+ICFLAG
	0335001206		NG	X. SCRATCH. TABB1
001205	5151000077		SA. SCRATCH	B. TTY+OLD+1
	73654		SX. OUT	X. SCRATCH+B. COUNT
	54650		SA. OUT	A. SCRATCH
001206	7110000000	TABB1	SX. CHAR	BLANK
	0440001064		ZR	B. COUNT, MORE
001207	6170001211		SB. RETURN	TABB2
	6144777776		SB. COUNT	B. COUNT-1
001210	0200000615		JP	PUTC7
001211	6170001206	TABB2	SB. RETURN	TABB1
	0200000637		JP	PUTCTTYT
001212	6160777776	TARL	SB. STEP	-1
001213	5141000102	TAR	SA. LENGTH	B. TTY+NEW+1
	73446		SX. LENGTH	X. LENGTH+B. STEP
	66460		SB. COUNT	B. STEP
001214	5151000073		SA. SCRATCH	B. TTY+TABS-1
	63540		SB. SCRATCH	X. LENGTH
001215	6155777703		SB. SCRATCH	B. SCRATCH-60
	5055000001		SA. SCRATCH	A. SCRATCH+1
001216	0650001215		GE	B. SCRATCH, *-1
	6155000074		SB. SCRATCH	B. SCRATCH+60
001217	22555		LX. SCRATCH	X. SCRATCH. B. SCRATCH
	6176000074		SB. RETURN	B. STEP+60
001220	0760001222		LT	B. STEP, TAR1
	67505		SB. SCRATCH	-B. SCRATCH
001221	6155000074		SB. SCRATCH	B. SCRATCH+60
001222	0335000612	TAR1	NG	X. SCRATCH. POP
	66446		SB. COUNT	B. COUNT+B. STEP
	22575		LX. SCRATCH	X. SCRATCH. B. RETURN
001223	6155777776		SB. SCRATCH	B. SCRATCH-1
	0705001222		GT	B. SCRATCH, TAB1
001224	6150000074		SB. SCRATCH	60
	54556		SA. SCRATCH	A. SCRATCH+B. STEP
001225	0660001222		GE	B. STEP, TAR1
	22575		LX. SCRATCH	X. SCRATCH. B. RETURN
001226	0200001222		JP	TAB1
001227	6140777776	RIGHTUNI	SB. COUNT	-1
	0200001234		JP	SCAN
001230	6160777776	LEFTUI	SB. STEP	-1
	5141000102		SA. LENGTH	B. TTY+NEW+1
001231	7170001325		SX. RETURN	BACK
	0200001234		JP	SCAN
001232	5151000100	REDGE	SA. SCRATCH	B. TTY+OLD+2
	37554		IX. SCRATCH	X. SCRATCH-X. LENGTH
001233	6245777776		SB. COUNT	X. SCRATCH-1
	0270000000		JP	B. RETURN

001234	6170001243	SCAN	SB.RETURN	SCAN.
001241	0706000737		SENDVENT	TABLE1
	7244000001		GT	B.STEP,GETCTTY
001242	0200000737		SX.LENGTH	X.LENGTH+1
001243		SCAN.	JP	GETCTTY
001247	7211000140		SENDVENT	TABLE2
	43665		SX.CHAR	X.CHAR+1408
	15016		MX.OUT	53
001250	6170001251		BX.LOOK	-X.OUT*X.CHAR
	0200000627		SB.RETURN	SCAN2
001251	37501	SCAN2	JP	GETC7
	0315000627		IX.SCRATCH	X.LOOK-X.CHAR
	76000		NZ	X.SCRATCH.GETC7
001252	0200000612		SX.FUNY	B0
001253	14655	ICSWITCH	JP	POP
	54650		BX.OUT	-X.SCRATCH
	7110000034		SA.OUT	A.SCRATCH
001254	0336001323		SX.CHAR	LEFTBRA
	7110000036		NG	X.OUT,ECHO
001255	0200001323		SX.CHAR	RIGHTRA
001256	0604001322	COPY	JP	ECHO
	5151000102		LE	B.COUNT,BELL
001257	73654		SA.SCRATCH	B.TTY+NEW+1
	7256777651		SX.OUT	X.SCRATCH+B.COUNT
001260	0325000614		SX.SCRATCH	X.OUT-MAX+1
	5141000077		PL	X.SCRATCH.FAULT
001261	73444		SA.LENGTH	B.TTY+OLD+1
	5151000100		SX.LENGTH	X.LENGTH+B.COUNT
	37545		SA.SCRATCH	B.TTY+OLD+2
001262	0325000614		IX.SCRATCH	X.LENGTH-X.SCRATCH
	73640		PL	X.SCRATCH.FAULT
	54640		SX.OUT	X.LENGTH
001263	67404		SA.OUT	A.LENGTH
001264	0640001273	COPY1	SB.COUNT	-B.COUNT
	5141000077		GE	B.COUNT,COPY4
001265	73444		SA.LENGTH	B.TTY+OLD+1
	6170001267		SX.LENGTH	X.LENGTH+B.COUNT
001266	0200000627		SB.RETURN	COPY2
001267	6170001271	COPY2	JP	GETC7
	5141000102		SB.RETURN	COPY3
001270	0200000615		SA.LENGTH	B.TTY+NEW+1
001271	6170001264	COPY3	JP	PUTC7
	0310001264		SB.RETURN	COPY1
001272	0200000637		NZ	X.PRINT,COPY1
001273	0320001064	COPY4	JP	PUTCTTYT
	0200001143		PL	X.PRINT,MORE
001274	0604001322	SKIP	JP	CONCAT1
	5141000077		LE	B.COUNT,BELL
001275	73644		SA.LENGTH	B.TTY+OLD+1
	5151000100		SX.OUT	X.LENGTH+B.COUNT
	37556		SA.SCRATCH	B.TTY+OLD+2
001276	0335001322		IX.SCRATCH	X.SCRATCH-X.OUT
			NG	X.SCRATCH,BELL

001277	7110000004		SA. OUT	A. LENGTH	
	6170001300		SX. CHAR	SKIPCHAR	
001300	0604001064	SKIP1	SB. RETURN	SKIP1	
	6144777776		LE	B. COUNT, MORE	
001301	0200000637		SB. COUNT	B. COUNT-1	
001302	5141000102	LWORD	JP	PUTCTTYT	
	7244000001		SA. LENGTH	R. TTY+NEW+1	
001303	6160777776		SX. LENGTH	X. LENGTH+1	
001304	6170001305	WORD	SB. STEP	-1	
	0200000627		SB. RETURN	WORD1	
001305	6251777760	WORD1	JP	GETC7	
	7251777622		SR. SCRATCH	X. CHAR-17B	
001306	0305001322		SX. SCRATCH	X. CHAR-155B	
	7251777704		Z0	X. SCRATCH, BELL	SENSE CARRAGE RETURN
001307	0325000627		SX. SCRATCH	X. CHAR-73B	
	5150001321		PL	X. SCRATCH, GETC7	SENSE SPECIAL CHAR
001310	22555		SA. SCRATCH	WORDBRK	GET BREAK WORD
	0335000627		LX. SCRATCH	X. SCRATCH, B. SCRATCH	
			NG	X. SCRATCH, GETC7	
001311	6170001312		SB. RETURN	WORD2	
001312	7254777776	WORD2	SX. SCRATCH	X. LENGTH-1	
001313	0660001314	+	PL	B. STEP, **1	SKIP TEST IF FORWARD SCAN
	0305000612		Z0	X. SCRATCH, POP	SENSE BEGINNING OF LINE
001314	6251777760		SR. SCRATCH	X. CHAR-17B	
	7251777704		SX. SCRATCH	X. CHAR-73B	
001315	0325001317		PL	X. SCRATCH, WORD3	
	5150001321		SA. SCRATCH	WORDBRK	
001316	22555		LX. SCRATCH	X. SCRATCH, B. SCRATCH	
	0325000627		PL	X. SCRATCH, GETC7	
001317	67446	WORD3	SR. COUNT	R. COUNT-B. STEP	
	77106		SX. CHAR	-B. STEP	
	36441		IX. LENGTH	X. LENGTH+X. CHAR	
001320	0200000612		JP	POP	
001321	+	WORDBRK	VFD	1/1	FOR CHARS <LT. 20B IN WORD ALGORITHM
	000012		DUP	10,1	10 DIGITS
	000007		VFD	1/0	
	000032		DUP	7,1	7 INTERMEDIATE
	000020		VFD	1/1	
			DUP	26,1	26 LETTERS
			VFD	1/0	
			DUP	16,1	REST OF CHARACTERS
			VFD	1/1	
001322	7110000147	BELL	SX. CHAR	BELLCHAR	
001323	6170001064	ECHO	SB. RETURN	MORE	
	0200000637		JP	PUTCTTYT	
001324	5151000102	LEDGE	SA. SCRATCH	R. TTY+NEW+1	
	63450		SB. COUNT	X. SCRATCH	
	67404		SB. COUNT	-B. COUNT	
001325	5151000102	BACK	SA. SCRATCH	R. TTY+NEW+1	
	73654		SX. OUT	X. SCRATCH+B. COUNT	
001326	0336001322		NG	X. OUT, BELL	
	5151000102		SA. OUT	R. TTY+NEW+1	
001327	5151000073		SA. SCRATCH	B. TTY+ICF1 AG	

001330	5151000077	0335001332	73654	54650	NG	X.SCRATCH, BACK1
001331	0326001332	76600	54650	SA.SCRATCH	R.TTY+OLD+1	
001332	5151000102	0315001340	BACK1	SX.OUT	X.SCRATCH+B.COUNT	
001333	76600	5161000077		SA.OUT	A.SCRATCH	
001334	5161000073	5140001337		PL	X.OUT, BACK1	
001335	7170001064	0200001035		SX.OUT	R0	
001336	01755500000000001336	FRESH		SA.OUT	A.SCRATCH	
001337	00000000000000000002			SA.SCRATCH	R.TTY+NEW+1	
001340	7110000077	BACK2		N7	X.SCRATCH, BACK2	
001341	0640001323			BACK TO THE BEGINNING		
001342	0200001323			RESET ICFLAG		
001343	0332000000000000001343	NEWLINE		RESET NEW LENGTH		
001344	000000000000000000001			RESET OLD LENGTH		
				SX.OUT	R0	
				SA.OUT	R.TTY+OLD+1	
				SA.OUT	B.TTY+ICFLAG	
				SA.LENGTH	FRESH+1	
				SX.RETURN	MORE	
				JP	PUTL	
				VFD	4/0,7/76B,7/CR,42/*	
				DATA	2	
				SX.CHAR	BACKCHAR	
				SR.COUNT	B.COUNT+1	
				GF	B.COUNT,ECHO	
				SX.CHAR	74B	
				JP	ECHO	
				VFD	4/0,7/CR,49/*	
				VFD	60/1	

001345 000000000000000000001
001346 000000000000000000001

*
*
FL DATA 1
DATA 1

000000

END

2391 STATEMENTS 339 SYMBOLS

NO FATAL, 1 NON-FATAL ERRORS IN TTYLINE

ERROR DIRECTORY

3. TYPE ERROR
OCCURRED ON PAGES

DUPLICATE MACRO DEFINITION. NEW ONE OVERRIDES
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ASCIIFM	0000326	10-00310
BACK	0001325	41-01117, 41-01122, 41-01125, 43-01231
BACKCHAR	0000077	46-01340
BACK1	0001332	46-01327, 46-01331
BACK2	0001340	46-01332
BASEPT	0000505	21-00104
BEAD	0000477	19-00462, 19-00470
BEADS	0000456	18-00443
BELL	0001322	40-01065, 40-01070, 40-01110, 41-01123, 41-01133, 41-01134, 41-01135, 42-01172, 42-01173, 43-01203, 44-01250, 44-01274, 44-01276, 45-01306, 45-01326
BELLCHAR	0000147	45-01322
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BREAK01	0001024	37-01023
BREAK1	0001027	37-01030
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BROKEN	0001067	40-01065
CBEAD	0000271	11-00320
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CX.BDCS	0000013	18-00456
CX.READ	0000005	19-00477
CX.CODEF	0000000	9-00254, 9-00261
CX.GETE	0000011	23-00505
CX.LNCLS	0000014	18-00450
CX.MAST	0000004	9-00253, 9-00260, 9-00265, 9-00266, 12-00342, 12-00345, 17-00421, 17-00423, 17-00425, 17-00430, 17-00433, 18-00447, 18-00453, 19-00475, 19-00500

TTYLINE TTY LINE COLLECTOR
SYMBOLIC REFERENCE TABLE (PAGE-LOCATION)

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CX.SENDE	0000010	23-00505
CX.TTYFL	0000001	11-00316
CX.WRITE	0000007	23-00505
C.CAPOU	0000024	2-00000
C.CHKBLK	0000041	3-00000
C.DISSEN	0000055	17-00430
C.DSCAP	0000020	2-00000
C.ESMLOC	0000026	17-00425
C.FRETUR	0000031	17-00433
C.GETE	0000006	3-00000
C.MODPC	0000065	18-00447
C.MOVEC	0000022	2-00000
C.MPCHRO	0000046	3-00000
C.MPCHRW	0000047	3-00000
C.READ	0000003	9-00253, 9-00260
C.RESTOR	0000017	17-00423, 19-00475
C.RETPAR	0000111	9-00266
C.RETURN	0000030	9-00265
C.RFILE	0000003	3-00000
C.SAVE	0000016	17-00421, 19-00500
C.USRER	0000110	12-00342, 12-00345, 18-00453
C.WFILE	0000004	3-00000
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ESCAP	0001056	39-01046
ESCC	0000173	39-01045
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E.2.1	0000340	12-00327
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FAKEDESC	0000227	14-00365
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ORGL	0000042	7-00030
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RDSELF2	0000260	11-00314
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SENDVENT 0000024

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SETSOFT 0001020

SIGNAL 0001011

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SKIPB 0000670

SKIPCHAR 0000004

SKIP1 0001300

SKIP10 0001005

SOFTCHD 0000021

SPECIAL 0001052

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SWTCH2	0000331	12-00330, 12-00336
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TYPELIN1	0000352	12-00333
TYPELOUT	0000364	41-01131
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TYPSTAT1	0001162	42-01164
TYP51	0001170	41-01121, 41-01126
WORD	0001304	45-01307, 45-01315
WORDARK	0001321	45-01304
WORD1	0001305	45-01311
WORD2	0001312	45-01315
WORD3	0001317	25-00515, 25-00531, 26-00543, 33-00703
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WRITEIN	0000036	

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