

VGT17

EXTERNAL SYMBOL DICTIONARY

PAGE 1

SYMBOL	TYPE	ID	ADDR	LENGTH	LD ID
VGT	SD	0001	000000	004100	

ASM H V 05 18.55 09/03/76

TL

SSL

MANDALA

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 18.55 09/03/76
				1	PRINT OFF SUPPRESS LISTING OF MACROS	0.04
				1036	PRINT ON,GEN,NODATA	0.044
				1037	GBLA 8@ (256)	0.046
000000				1038	VGT CSECT	0.9
				1039	*INCLUDE #VGTDEFNS USER VGT GRO CG ON CAT	1.
				1040	*****	1.001
				1041	*	1.002
				1042	THE VGT - VIDEO GRAPHICS TERMINAL	1.003
				1043	*	1.004
				1044	**** HARDWARE DEFINITIONS ****	1.005
				1045	*	1.006
				1046	*	1.007
				1047	*****	1.008
				1048	* UPDATE LIST 23 MAY 76 LJS	1.009
				1049	* 3 AUG 76 MRD	1.01
				1050	* 5 AUG 76 LJS	1.011
				1051	* 30 AUG 76 EHF (ADDED MODESET2)	1.012
				1052	*	1.013
				1053	MEMORY MAP	1.014
				1054	*	1.015
00400				1055	K EQU 1024	1.016
00000				1057	RDM EQU 0*K ROMS	1.017
02000				1059	CPURAM EQU 8*K CPU SCRATCHPAD RAM	1.018
00400				1061	CPURAMSZ EQU 1*K SIZE OF IT	1.019
02800				1063	CHGENROM EQU 10*K STANDARD CHARACTER GENERATOR	1.02
03000				1065	CHGENRAM EQU 12*K WRITABLE CHARACTER GENERATOR	1.021
04000				1067	RAM EQU 16*K VIDED RAM	1.022
04400				1069	WRAPADDR EQU 17*K WHERE DISPLAY HARDWARE WRAPS TO	1.023
				1071	*	1.024
				1072	*	1.025
				1073	I/O SYMBOLS MARKED '(PORT)' ARE I/O PORTS,	1.026
				1074	*	1.027
				1075	*	1.028
				1076	*	1.029
				1077	INPUT PORTS	1.03
				1078	*	1.031
00084				1079	KEYBOARD EQU X'84' (PORT) KEYBOARD CHARACTER, X'80' IS STROBE	1.032
00085				1081	STATBITS EQU X'85' (PORT) STATUS BITS:	1.033
00010				1083	K0NEWCHR EQU X'10' NEW KB CHAR (IE STROBE CHANGED)	1.034
00008				1085	FRAMECNT EQU X'08' EVEN/ODD FRAME BIT	1.035
00004				1087	FRAMEINT EQU X'04' END-OF-FRAME INTERRUPT	1.036
00002				1089	KBATTN EQU X'02' KEYBOARD 'ATTN' KEY PRESSED	1.037
00001				1091	KBRPT EQU X'01' KEYBOARD 'REPEAT' KEY PRESSED	1.038
00041				1093	URTSTAT EQU X'41' (PORT) USART STATUS	1.039
00001				1095	URTTXRDY EQU X'01' XMIT READY BIT	1.04
00002				1097	URTRXRDY EQU X'02' RCVR CHAR READY	1.041
00038				1099	URTRERR EQU B'00111000' RECVR ERRORS. PUNT.	1.042
00020				1101	URTREVBK EQU B'00100000' REVERSE BREAK RECIEVED	1.043
00001				1103	URTRCV EQU X'01' (PORT) USART RECEIVED CHARACTER	1.044
00086				1105	ATODVAL EQU X'86' (PORT) VALUE OF LAST A/D CONVERSION	1.045
00087				1107	PARIN EQU X'87' (PORT) PARALLEL DATA INPUT	1.046
00001				1109	PRTREADY EQU X'01' VERSATEC PRINTER READY BIT	1.047
00083				1111	SCRWHEEL EQU X'83' (PORT) SCROLLING WHEEL POSITION	1.048

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 18.55 09/03/76
				1114 *		1.05
				1115 *	OUTPUT PORTS	1.051
				1116 *		1.052
00082				1117 RSFRMINT EQU	X'82' (PORT) RESET FRAME INTERRUPT	1.053
00083				1119 RSURTINT EQU	X'83' (PORT) RESET USART INTERRUPT	1.054
00084				1121 DISADDRH EQU	X'84' (PORT) HIGH-ORDER DISPLAY ADDRESS	1.055
00085				1123 DISADDRL EQU	X'85' (PORT) LOW-ORDER DISPLAY ADDRESS	1.056
00086				1125 BELL EQU	X'86' (PORT) BEEPER	1.057
00087				1127 CHLINE1 EQU	X'87' (PORT) 1ST LINE OF ROW 1 TO DISPLAY	1.058
00080				1129 MODESET EQU	X'80' (PORT) CONTROL BITS:	1.059
00080				1131 REVRVID EQU	X'80' REVERSE VIDEO CONTROL	1.06
00040				1133 SCRNBANK EQU	X'40' SCREEN BLANKING CONTROL	1.061
00020				1135 NOROMCHR EQU	X'20' NO ROM CHARS (RAM ONLY) IN TEXT MODE	1.062
0000C				1137 URTCLOCK EQU	X'0C' USART EXTERNAL/INTERNAL CLOCK CONTRL	1.063
00010				1139 GRAPHMD EQU	X'10' GRAPH MODE	1.064
00002				1141 QUICKMD EQU	X'02' QUICK MODE FOR RAM ACCESS	1.065
00001				1143 SIXTNMD EQU	X'01' 16 RASTERS/ROW MODE	1.066
000A6				1145 MODESET2 EQU	X'A6' (PORT) MORE MODEBITS	1.067
00080				1147 HIGHWRAP EQU	X'80' WRAP TO X'7600'	1.068
00040				1149 ATODSTR EQU	X'40' START A/D CONVERSION (20 USEC.)	1.069
00041				1151 URTCTL EQU	X'41' (PORT) USART CONTROL BITS:	1.07
00057				1153 URTINTRS EQU	B'01010111' INTERNAL RESET (TO SET MODE)	1.071
0007A				1155 URTMODE EQU	B'01111010' ASYNC, EVEN PARITY, 7BITS, 15XCLK	1.072
00079				1157 URTX1MD EQU	B'01111001' ASYNC, EVEN PARITY, 7BITS, 1XCLK--	1.073
0000F				1159 URTBREAK EQU	B'00001111' SEND BREAK	1.074
00007				1161 URTRSRK EQU	B'00000111' RESET BREAK	1.075
00017				1163 URTRSERR EQU	B'00010111' RESET RCV ERR, RCV ENB, DTR, XMT ENB	1.076
00001				1165 URTXMT EQU	X'01' (PORT) USART TRANSMITTED CHARACTER	1.077
0008E				1167 URTSPEED EQU	X'8E' (PORT) USART BAUD RATE; 4 BITS RCV, 4 XMIT	1.078
00096				1169 KBRESET EQU	X'96' (PORT) RESET KB STROBE FF (IE 'KBNEWCHR')	1.079
0009E				1171 ATODSEL EQU	X'9E' (PORT) SELECT ANALOG SOURCE BY 1 OF A3-A0	1.08
000AE				1173 KBCLICK EQU	X'AE' (PORT) KEYBOARD CLICK	1.081
000B6				1175 PAROUT EQU	X'B6' (PORT) PARALLEL DATA OUT	1.082
000BE				1177 PARRESET EQU	X'BE' (PORT) PARALLEL OUTPUT RESET	1.083
				1179 *INCLUDE	VGTRAMAP USER VGT GRD CG ON CAT	1.2
00080				1180 CMDKEY EQU	X'80'	1.201

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 18.55 09/03/76
1183					*****	1.203
1184					* HERE ARE THE COROUTINE MACRO DEFINITIONS	1.204
1185					*****	1.205
1186					MACRO	1.206
1187	&L				CCB &STACKSZ=32	1.207
1188					GCLA &CCBLEN	1.208
1189					AIF (K'&L GT 6).ERR LENGTH OF NAME<7	1.209
1190	&L				DS 0X	1.21
1191	&L.SP				DS 2 THIS STACKPTR IS 2 BECAUSE WE DO A	1.211
1192	.*				DOUBLE STORE OF HL TO &L.SP BELOW	1.212
1193	&L.CS				DS 1 POINTER TO CHARACTER SOURCE CCB	1.213
1194	&L.CP				DS 1 POINTER TO CHARACTER PROC. CCB	1.214
1195					DS &STACKSZ HERE IS THE STACK	1.215
1196	&L.ST				DS 0 THE END OF IT	1.216
1197	&CCBLEN				SETA &CCBLEN+&STACKSZ+4 INCREMENT COUNTER	1.217
1198					AIF (&CCBLEN LT 255).OK AND MAKE SURE WE STAY ON ONE PAGE	1.218
1199					MNOTE 8,'***ERROR*** CONTROL BLOCKS EXCEED 255'	1.219
1200	.OK				MEXIT	1.22
1201	.ERR				MNOTE 8,'***ERROR*** COROUTINE NAME TOO LONG'	1.221
1202					MEND	1.222
1204					MACRO	1.224
1205	&LABEL				CCBSET &CCB,&EP=,&CS=,&CP=	1.225
1206					AIF ('&LABEL' EQ '').SKIP	1.226
1207	&LABEL				EQU *	1.227
1208	.SKIP				ANOP	1.228
1209					AIF ('&EP' EQ '').A1	1.229
1210					LODI A,&CCB.ST-6.> SET THE INITIAL ENTRY POINT	1.23
1211					ST A,&CCB.SP PUT IT IN THE STACK POINTER	1.231
1212					LODI HL,&EP SET THE INITIAL ENTRY POINT	1.232
1213					ST HL,&CCB.ST-2	1.233
1214	.A1				AIF ('&CS' EQ '').A2	1.234
1215					LODI A,&CS.SP,>	1.235
1216					ST A,&CCB.CS STORE CHARACTER SOURCE CCB LOCATION	1.236
1217	.A2				AIF ('&CP' EQ '').A3	1.237
1218					LODI A,&CP.SP,>	1.238
1219					ST A,&CCB.CP SIMILARLY FOR CHARACTER PROC.	1.239
1220	.A3				ANOP	1.24
1221					MEND	1.241
1223					MACRO	1.243
1224	&LABEL				RESUME &CURTASK,&NEWTASK	1.244
1225	&LABEL				LODI HL,-6	1.245
1226					ADD HL,SP PREPARE TO STORE BC,DE	1.246
1227					ST HL,&CURTASK.SP	1.247
1228					LODI L,&CURTASK.&NEWTASK,> HL NOW POINTS AT &CCB.CP OR CS	1.248
1229					CALL RESUMER CALL GLOBAL ROUTINE	1.249
1230					MEND	1.25
1232					MACRO	1.252
1233	&LABEL				CALL@ &TASK THIS IS FOR CALL INDIRECTS	1.253
1234	&LABEL				LD HL,&TASK GET THE ROUTINE ADDRESS	1.254
1235					CALL JUMPER AND CALL GLOBAL ROUTINE	1.255
1236					MEND	1.256

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 18.55 09/03/76
				1238	*****	1.258
				1239	*	1.259
				1240	*	1.26
				1241	ASSEMBLY CONSTANTS AND RAM LOCATIONS	1.261
				1242	*****	1.262
				1243	*	1.263
	04400			1244	ITEXT EQU X'4400'	1.264
	00051			1246	LINESIZE EQU 81	1.265
	00025			1248	NLINES EQU 37	1.266
	00BB5			1250	SCRNSIZE EQU LINESIZE*NLINES	1.267
	058F0			1252	GRAPHEVN EQU X'10000'-(512+15+1)*LINESIZE	1.268
	0AA41			1254	GRAPHODD EQU GRAPHEVN+257*LINESIZE	1.269
	004BF			1256	TOPOFF EQU 15*LINESIZE	1.27
	0000D			1258	CHARHITE EQU 13	1.271
	0BC00			1260	ITXTSIZE EQU X'10000'-ITEXT	1.272
	0000E			1262	IWASTED EQU ITXTSIZE-ITXTSIZE/LINESIZE*LINESIZE	1.273
				1264	*	1.274
000000		02000		1265	ORG CPURAM	1.275
				1267	*	1.276
002000				1268	DISPL CCB	1.277
002000				1270	DISPLAY COROUTINE	
002002				1271		
002003				1272		
002004				1273		
		02024		1274		
002024				1275	LOADER CCB	1.278
002024				1277	PATCHING COROUTINE	
002026				1278		
002027				1279		
002028				1280		
		02048		1281		
002048				1282	HEXER CCB	1.279
002048				1284	PROCESSES ADDRESSES	
00204A				1285		
00204B				1286		
00204C				1287		
		0206C		1288		
00206C				1289	GETCHR CCB	1.28
00206C				1291	COROUTINE TO GET NEW CHAR	
00206E				1292		
00206F				1293		
002070				1294		
		02090		1295		
				1296	*	1.281
		00070		1297	ALIGN 0,256,FILL=	1.282
				1299		
002100				1300	CURSLOC DS 2	1.283
002102				1302	CURSX DS 1	1.284
002103				1304	CURSCTR DS 1	1.285
002104				1306	CURSCHAR DS 1	1.286
002105				1308	PREVCHAR DS 1	1.287
				1310	*	1.288
002106				1311	ESCCHAR DS 1	1.289
002107				1313	PRVCCHAR DS 1	1.29
002108				1315	KEYCTR DS 1	1.291

002109		1317 KEYSAVED DS	1	CHAR TO BE REPEATED	1.292
00210A		1319 NXTCHL1 DS	2	ADDR OF NEXT CHL1TAB ENTRY TO USE	1.293
00210C		1321 NXTDISA DS	2	NEXT DISPLAY ADDR TO BE LOADED	1.294
00210E		1323 SAVDISA DS	2	SAVED DISPLAY ADDRESS AT "HOME" TIME	1.295
002110		1325 SCRCTR DS	1	SCROLL COUNTER	1.296
002111		1327 BRKSTATE DS	1	IS BREAK BEING ISSUED	1.297
002112		1329 TIME DS	4	HHMSSTT, IN DECIMAL	1.298
002116		1331 TIMELOC DS	2	LOCATION OF TIME MSG	1.299
002118		1333 CLRFLG DS	1	MSB=1 FOR CLR NEEDED, LSB FOR BANNER	1.3
		1335 *		X'C0' FOR CLR TO ZERO, NOT BLANK	1.301
002119		1336 FLAGS DS	1	MISCELLANEOUS FLAGS	1.302
	00080	1338 FULLDUPL EQU	X'80'	FULL DUPLEX MODE	1.303
	00001	1340 TABREF EQU	X'01'	HAVE TABS BEEN CLEAR?	1.304
		1342 *			1.305
		1343 * COROUTINE CONTROL BLOCKS...			1.306
		1344 *			1.307
		1345 *			1.308
00211A		1346 SOURCE DS	2	CURRENT CHARACTER SOURCE	1.309
00211C		1348 PATSTAT DS	1	PATCHING STATUS	1.31
	00080	1350 LOUSYPAR EQU	X'80'	PARITY NO GOOD	1.311
		1352 NOTHEX EQU	X'40'	NONHEX CHAR RECVD	1.312

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM H V 05 18.55 09/03/76
			00040	1353			
			00020	1354	TYPERR	EQU X'20'	BAD PATCH TYPE 1.313
			00010	1356	CKSMERR	EQU X'10'	CHECKSUM BAD 1.314
			00008	1358	PATFAIL	EQU X'08'	PATCH DID NOT STICK 1.315
			00001	1360	PATCHING	EQU X'01'	INDICATES PATCHING BEING DONE 1.316
00211D				1362	PATCKSM	DS 1	CHECKSUM 1.317
00211E				1364	PATCNT	DS 1	COUNTER 1.318
				1366	*		1.319
00211F				1367	MODEBITS	DS 1	CURRENT MODE BITS (SEE "MODESET") 1.32
002120				1369	PUTPTR	DS 2	NEXT FREE BUFFER LOCATIN 1.321
002122				1371	GETPTR	DS 2	NEXT BUFFERED CHAR TO PRCESS 1.322
002124				1373	LCLMODE	DS 1	SEND TO COMPUTER=0,NOT=ANYTHING 1.323
		00004		1375	NORCV	EQU X'04'	1.324
		00002		1377	NOSEND	EQU X'02'	1.325
		00020		1379	PATFLAG	EQU X'20'	1.326
002125				1381	SAVSTK	DS 2	1.327
002127				1383	POINTER	DS 2	CURRENT CHARACTER TO BE SENT 1.328
002129				1385	HEXADDR	DS 2	1.329
00212B				1387	INTROUT	DS 2	ADDRESS OF INTERRUPT HANDLER 1.33
00212D				1389	FOGADDR	DS 2	HANDLER FOR UNDEF. COMMANDS 1.331
00212F				1391	PREVSCRL	DS 1	PREVIOUS SCROLLING POSITION 1.332
				1393	*		TO GETCHAR IF GETBUF IS NOT SOURCE 1.333
002130				1394	CRLFOVR	DS 1	1.334
002131				1396	CNTLOMD	DS 1	IS COPY OF FLAGS FOR FULLDPLX FAKE 1.335
002132				1398	ALLOWGMD	DS 1	0=ALLOW GRAPH MODE, NZ = NO GMODE 1.336
				1400	*		1.337
002133				1401	XMITSTAT	DS 1	1 IF XMITBUF IS FULL, 0 OTHERWISE 1.338
002134				1403	XMITTYPE	DS 1	1.339
002135				1405	XMITGET	DS 2	1.34
002137				1407	XMITPUT	DS 2	ADD OF WHERE TO GET CHAR TO SND 1.341
002139				1409	XMITSAV	DS 2	ADD OF WHERE TO PUT CHAR IN BUF 1.342
00213B				1411	CRCNT	DS 1	SAVED XMIT POINTER 1.343
00213C				1413	DC1CNT	DS 1	NUMBER OF <CR> IN XMIT BUF 1.344
				1415	*		WHETHER OR NOT DC1 HAS BEEN SENT 1.345
				1416	*		(I.E. CLEAR TO SEND) 1.346
00213D				1417	SHIFTMD	DS 1	MUST FOLLOW CRCNT 1.347
00213E				1419	XMITHAN	DS 2	WHICH CHAR SET TO USE 1.348
002140				1421	HTABTAB	DS 10	ADD OF XMITING ROUTINE 1.349
				1423	*****		TABTABLE 1.35
				1424	*		1.351
				1425	*		1.352
				1426	*	GRAPH MODE CONSTANTS IN RAM	1.353
				1427	*		1.354
				1428	*****		1.355
00214A				1429	TEKXXX	DS 0X	STORGE FOR 5-BIT COORD ADDRESSES 1.356
00214A				1431	TEKXHI	DS 1X	(ORDER-DEPENDENT) 1.357
00214B				1433	TEKXLW	DS 1X	1.358
00214C				1435	TEKYHI	DS 1X	1.359
00214D				1437	TEKYLW	DS 1X	1.36
				1439	*		1.361
00214E				1440	GRAPHPOS	DS 4X	CURRENT BEAM POSITION (10 BIT NOS.) 1.362
				1442	*		1.363
002152				1443	#QUADS	DS X	# OF QUADRANTS FOR THE VECTOR 1.364
				1445	*		1.365
002153				1446	VECTEMP	DS 5X	TEMP SAVE FOR VECTOR RTN 1.366

002158		1448	GRAPTEM	DS	4X	TEMP SAVE FOR GRAPH RTN	1.367
		1450	*				1.368
00215C		1451	CHARPOS	DS	2X		1.369
00215E		1453	DIREC1	DS	1X		1.37
00215F		1455	DIREC2	DS	1X		1.371
002160		1457	TYPE	DS	1X		1.372
	02102	1459	XOFF	EQU	CURSX		1.373
		1461		DS	1X		1.374
002161		1463	*				1.375
	058F0	1464	EVENADD	EQU	GRAPHEVN		1.376
	0AA41	1466	ODDADD	EQU	GRAPHODD		1.377

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM H V 05 18.55 09/03/76	
			05151	1468	NEXT	EQU	ODDADD-EVENADD	1.378
002162				1470	EVENODD	DS	1X	1.379
			02800	1472	ROMGEN	EQU	CHGENROM	1.38
				1474	*			1.381
002163				1475	XMASK	DS	1X	1.382
002164				1477	MARGIN	DS	1X	1.383
			02104	1479	GRPOLDC	EQU	CURSCHAR	1.384
				1481	GRPCSET	DS	2X	1.385
002165				1483	TEXT	DS	2	1.386
002167				1485	MTEXT	DS	2	1.387
002169				1487	TEXTTOP	DS	2	1.388
00216B				1489	TEXTBOT	DS	2	1.389
00216D				1491	WASTED	DS	2	1.39
00216F				1493	GRPDRAW	DS	3	1.391
002171				1495	*			1.392
			00008	1496	CURSTIME	EQU	8	1.393
			00014	1498	KEYRPTD	EQU	20	1.394
			00003	1500	KEYRPTR	EQU	3	1.395
			00004	1502	SCROTIME	EQU	4	1.396
			00006	1504	SCRSTIME	EQU	6	1.397
			00030	1506	SCRPTIME	EQU	48	1.398
				1508	*			1.399
			01C00	1509	HELPIFND	EQU	ROM+7*K	1.4
				1511	*			1.401
				1512	*			1.402
			023FF	1513	STACK	EQU	CPURAM+CPURAMSZ-1	1.403
				1515	*			1.404
				1516	*			1.405
002174			04000	1517	XMITBUF	ORG	RAM	1.406
004000				1519	XMITBUF	DS	256	1.407
			04100	1521	XMITEND	EQU	*	1.408
				1523	*			1.409
				1524	*			1.41
			04100	1525	BUFFER	EQU	*	1.411
				1527	*			1.412
			04400	1528	BUFEND	EQU	X'4400'	1.413
				1530	*			1.414

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM H V 05 18.55 09/03/76
1532						MACRO	1.416
1533	&LABEL					CMDEF &CHAR,&ROUTINE	1.417
1534	.*						1.418
1535	.*					DEFINE AN ENTRY IN THE COMMAND DEFINITION TABLE	1.419
1536	.*						1.42
1537						AIF ('&LABEL' EQ '').NOLABEL	1.421
1538	&LABEL					EQU *-2	1.422
1539	.*NOLABEL					ANOP	1.423
1540						DC X'&CHAR',AL2(&ROUTINE-VGT)	1.424
1541						MEND	1.425
1543						MACRO	1.427
1544	.*						1.428
1545	.*					MULTIPLY	1.429
1546	.*						1.43
1547	&NAME					MULT &A	1.431
1548	&NAME					DS 0X	1.432
1549						AIF ('&A' NE '80').CHK81	1.433
1550						ADD HL,HL	1.434
1551						ADD HL,HL	1.435
1552						ADD HL,HL *8	1.436
1553						ADD HL,HL *16	1.437
1554						LOD D,H	1.438
1555						LOD E,L SAVE IT	1.439
1556						ADD HL,HL	1.44
1557						ADD HL,HL *64	1.441
1558						ADD HL,DE	1.442
1559						MEXIT	1.443
1560	.*CHK81					AIF ('&A' NE '81').ERROR	1.444
1561						LOD DE,HL	1.445
1562						ADD HL,HL	1.446
1563						ADD HL,HL	1.447
1564						ADD HL,HL	1.448
1565						ADD HL,HL	1.449
1566						XCH HL,DE	1.45
1567						ADD HL,DE	1.451
1568						XCH HL,DE	1.452
1569						ADD HL,HL	1.453
1570						ADD HL,HL	1.454
1571						ADD HL,DE	1.455
1572						MEXIT	1.456
1573	.*ERROR					MNOTE 12,'NOT MULT BE 80 DR 81'	1.457
1574						MEND	1.458
1576						MACRO	1.46
1577	&LABEL					DSALFINE	1.461
1578	.*					THIS IS A HUMOROUS MACRO WHICH MERELY COUSES A SUBROUTINE	1.462
1579	.*					TO REPEAT ITSELF BEFORE RETURNING.	1.463
1580						AIF ('&LABEL' EQ '').NOLABEL	1.464
1581	&LABEL					EQU *	1.465
1582	.*NOLABEL					ANOP	1.466
1583						CALL *+3	1.467
1584						MEND	1.468
1585	.*INCLUDE					VGT17 USER VGT GRO CG ON CAT	2.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V	05 18.55 09/03/76
1587	*				*****		2.002
1588	*						2.003
1589	*						2.004
1590	*			TTTTTT	HH HH EEEEEEE	V V GGGGG	TTTTTT
1591	*			TT	HH HH EE	VV VV GG GG	TT
1592	*			TT	HH HH EE	V V GG	TT
1593	*			TT	HHHHHH EEEEE	VV VV GG	TT
1594	*			TT	HH HH EE	VVV GG GGG	TT
1595	*			TT	HH HH EE	VVV GG GG	TT
1596	*			TT	HH HH EEEEEEE	V GGGGGG	TT
1597	*						2.012
1598	*						2.013
1599	*						2.014
1600	*						2.015
1601	*						2.016
1602	*				THIS IS THE SOFTWARE FOR THE SLAC-STANFORD VIDEO GRAPHICS TERMINAL.		2.017
1603	*						2.018
1604	*				IT HAS BEEN WRITTEN (IN LATE 1975 AND 1976) BY :		2.019
1605	*				LEN SHUSTEK AND		2.02
1606	*				ED FRANK AND		2.021
1607	*				MARK DE LEMOS		2.022
1608	*				WITH SUGGESTIONS FROM OUR FRIENDS		2.023
1609	*						2.024
1610	*				IT SUPPORTS ALL SORTS OF NEAT THINGS		2.025
1611	*						2.026
1612	*						2.027
1613	*						2.028
1614	*				MAILING ADDRESS: COMPUTATION RESEARCH GROUP		2.029
1615	*				STANFORD LINEAR ACCELERATOR CENTER		2.03
1616	*				P.O. BOX 4349		2.031
1617	*				STANFORD, CALIFORNIA 94305		2.032
1618	*						2.033
1619	*						2.034
1620	*						2.035
1621	*				THIS SOFTWARE IS WRITTEN USING THE SLAC 8080 ASSEMBLY,		2.036
1622	*				WHICH IS A MACRO-ASSEMBLER BASED ON THE IBM 370 ASSEMBLER H.		2.037
1623	*				FOR DOCUMENTATION SEE COMPUTATION GROUP TECHNICAL MEMO #174,		2.038
1624	*				AVAILABLE FROM SLAC.		2.039
1625	*						2.04
1626	*				THE VGT IS A BEAST, WHOSE RESPONSIBILITY FOR EXISTENCE BELONGS		2.041
1627	*				TO:		2.042
1628	*						2.043
1629	*				LEN SHUSTEK AND		2.044
1630	*				FOREST BASKETT.		2.045
1631	*						2.046
1632	*				IF IT BYTES, BY ALL MEANS BYTE IT BACK.		2.047
1633	*						2.048
1634	*				FURTHER INFORMATION ABOUT THE INTERNAL STRUCTURE OF THE VGT IS		2.049
1635	*				IN COMPUTATION GROUP TECHNICAL MEMO #175, AVAILABLE FROM SLAC.		2.05
1636	*						2.051
1637	*				*****		2.052

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 18.55 09/03/76
				1639	*DEFINITIONS	2.054
		00000		1640	@SP EQU &@(' ')	2.056
				1642	ASCII , DEFINE ASCII CHARACTER SET	2.057
				1679	*INCLUDE VGTRAMAP USE VGT GRO CG ON CAT	2.058

LOC OBJECT CODE

ADDR1 ADDR2

STMT SOURCE STATEMENT

ASM H V 05 18.55 09/03/76

		7175		*PROGRAM BY LEE-CHIN WANG	1000.1	
		7176		*PROGRAM MODIFIED TO RUN ON VGT BY E. FRANK AND L. SHUSTEK.	1000.2	
		7177		*	1000.3	
		7178		*COPYRIGHT 1976	1000.4	
		7179		*	1000.5	
		7180		*****	1001.	
		7181		*	1002.	
		7182		THE ONE AND ONLY M A N D A L A	1003.	
		7183		*	1004.	
		7184		*****	1005.	
	00005	7185	STARTX EQU	X'005'	INITIAL X COORD	1006.
	001FF	7187	STARTY EQU	X'1FF'	INITIAL Y COORD	1007.
	00064	7189	PHASEDIF EQU	100	PHASE DIFF BETWEEN ADDER AND REMOVER	1008.
		7191	*		1009.	
001F83	02000	7192	ORG	DISPLSP	1010.	
002000		7194	MAN1	CCB	1011.	
002000		7196				
002002		7197				
002003		7198				
002004		7199				
	02024	7200				
002024	02024	7201	ORG	LOADERSP	1012.	
002024		7203	MAN2	CCB	1013.	
002024		7205				
002026		7206				
002027		7207				
002028		7208				
	02048	7209				
002048	02048	7210	ORG	HEXER	1014.	
002048		7212	MANC	CCB	1015.	
002048		7214				
00204A		7215				
00204B		7216				
00204C		7217				
	0206C	7218				
		7219	*		1016.	
00206C	02200	7220	ORG	X'2200'	THIS GOES IN LOCAL RAM	1017.
		7222	*		1018.	
	02200	7223	MANDALA	CCBSET MAN1,EP=MAN1EP,CP=MAN2	1019.	
		7225				
		7226				
		7227				
		7228				
		7229				
		7230				
		7231	CCBSET	MAN2,EP=MAN2EP,CP=MANC	1020.	
		7233				
		7234				
		7235				
		7236				
		7237				
		7238	CCBSET	MANC,CP=MAN1	1021.	
		7240				
		7241	*		1022.	
		7242	LODI	A,X'CO'	SCHEDULE A GRAPHMODE CLEAR	1023.
		7244	ST	A,CLRFLG	1024.	
		7246	LD	A,MODEBITS	SET GRAPH MODE	1025.
		7248	IORI	GRAPHMD	1026.	
002225	3EC0					
002227	321821					
00222A	3A1F21					
00222D	F610					

00222F 321F21
002232 D380
002234 210000
002237 220021
00223A F3
00223B 3E30
00223D CDB102
002240 FB
002241 21FAFF
002244 39
002245 224820
002248 2E4A
00224A CD0C06

7250
7252
7254
7256
7258
7260
7262
7264
7266
7268
7269
7270
7271
7272 *
7273 *

ST A,MODEBITS
OUT MODESET
LODI HL,0
ST HL,CURSLOC
DI
LODI A,'0'
CALL KEYSTORE
EI
RESUME MANC,CS

PUT CURSOR OFF SCREEN

A DUMMY CHAR TO GET LATER
PUT IT IN RCV BUFFER

GET A CHAR TO FORCE A CLEAR

1027.
1028.
1029.
1030.
1031.
1032.
1033.
1034.
1035.

1036.
1037.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 18.55 09/03/76
				7274 *	MANDALA CCNTR OL TASK	1038.
				7275 *		1039.
				7276 *	DE ALWAYS HAS THE ACCUMULATED HEX OPERAND FOR CMDS	1040.
				7277 *		1041.
00224D	0610			7278 MANCLP	LODI B,16	NUMBER OF CALLS BETWEEN BUFCHKS
00224F	21FAFF			7280 MANCLP1	RESUME MANC,CP	START CHAIN MAN1->MAN2->MANC (US)
002252	39			7282		1042.
002253	224820			7283		1043.
002256	2E4B			7284		
002258	CD0C06			7285		
00225B	05			7286	DEC B	1044.
00225C	C24F22			7288	JMP NZ,MANCLP1	1045.
				7290 *		1046.
				7291 *	CHECK BUFFER FOR COMMANDS	1047.
				7292 *		1048.
00225F	2A2221			7293 MANCCHK	LD HL,GETPTR	1049.
002262	3A2021			7295	LD A,PUTPTR	1050.
002265	BD			7297	CMP L	1051.
002266	CA4D22			7299	JMP Z,MANCLP	NO CHARS IN BUFFER - KEEP DRAWING
002269	21FAFF			7301	RESUME MANC,CS	GET THE CHAR
00226C	39			7303		1052.
00226D	224820			7304		1053.
002270	2E4A			7305		
002272	CD0C06			7306		
002275	CD1406			7307	CALL HEXIN	TRY TO CONVERT TO HEX
002278	DA8622			7309	JMP C,MANCCMD	NOT HEX - TRY FOR COMMAND
00227B	EB			7311	XCH HL,DE	INCORPORATE HEX DIGIT INTO DE
00227C	29			7313	ADD HL,HL	1054.
00227D	29			7315	ADD HL,HL	1055.
00227E	29			7317	ADD HL,HL	1056.
00227F	29			7319	ADD HL,HL	1057.
002280	85			7321	ADD L	1058.
002281	6F			7323	LOD L,A	1059.
002282	EB			7325	XCH HL,DE	1060.
002283	C35F22			7327	JMP MANCCHK	1061.
				7329 *		1062.
				7330 *	CHECK FOR MANDALA COMMANDS	1063.
				7331 *		1064.
002286	FE76			7332 MANCCMD	DS 0	1065.
002288	CC9D23			7334	CMPI 'V' (LOWER)	V - VERSATEC HARDCOPY
00228B	FE70			7336	CALL Z,VERSATEC	1066.
00228D	CAB422			7338	CMPI 'P' (LOWER)	P - CHANGE PHASE DIFFERENCE
002290	FE6D			7340	JMP Z,MANCHPHA	1067.
002292	CAAA22			7342	CMPI 'M' (LOWER)	M - CHANGE MANDALA MASK
002295	FE7A			7344	JMP Z,MANCMASK	1068.
002297	C24D22			7346	CMPI 'Z' (LOWER)	Z - END MANDALA
00229A	3E80			7348	JMP NZ,MANCLP	1069.
00229C	321821			7350	LODI A,X'80'	*** END *** CLEAR SCREEN
00229F	3A1F21			7352	ST A,CLRFLG	1070.
0022A2	E6EF			7354	LD A,MODEBITS	1071.
0022A4	321F21			7356	ANDI 255-GRAPHMD	SET TEXT MODE
0022A7	D380			7358	ST A,MODEBITS	1072.
0022A9	C9			7360	OUT MODESET	1073.
				7362	RET	1074.
				7364 *		1075.
						1076.
						1077.
						1078.
						1079.
						1080.
						1081.
						1082.
						1083.
						1084.

0022AA 7B
0022AB 320E23
0022AE 321C23

7365 MANCMASK LOD A,E
7367 ST A,DM1+1
7369 ST A,DM2+1

CHANGE MANDALA MASK

1085.
1086.
1087.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 18.55 09/03/76
0022B1	C34D22			7371	JMP MANCLP	1088.
				7373	*	1089.
0022B4	EB			7374	MANCHPHA XCH HL,DE	1090.
0022B5	22D422			7376	ST HL,MANPHASE	1091.
0022B8	C30022			7378	JMP MANDALA	1092.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 18.55 09/03/76
				7381 *		1094.
				7382 *		1095.
				7383 *	THE MANDALA POINT ADDER	1096.
				7384 *		1097.
0022BB	01FF01			7385 MAN1EP	LODI BC,STARTY	1098.
0022BE	110500			7387	LODI DE,STARTX	1099.
0022C1	CD0323			7389 MAN1LP	CALL MANDRAW	1100.
0022C4	21FAFF			7391	RESUME MAN1,CP	1101.
0022C7	39			7393		
0022C8	220020			7394		
0022CB	2E03			7395		
0022CD	CD0C06			7396		
0022D0	C3C122			7397	JMP MAN1LP	1102.
				7399 *		1103.
				7400 *		1104.
				7401 *	THE MANDALA POINT REMOVER	1105.
				7402 *		1106.
0022D3	016400			7403 MAN2EP	LODI BC,PHASEDIF	1107.
		022D4		7405 MANPHASE	EQU MAN2EP+1	1108.
0022D6	21FAFF			7407 MAN2LP1	RESUME MAN2,CP	1109.
0022D9	39			7409		
0022DA	222420			7410		
0022DD	2E27			7411		
0022DF	CD0C06			7412		
0022E2	21FFFF			7413	LODI HL,-1	1110.
0022E5	09			7415	ADD HL,BC	1111.
0022E6	444D			7417	LOD BC,HL	1112.
0022E8	DAD622			7419	JMP C,MAN2LP1	1113.
0022EB	01FF01			7421	LODI BC,STARTY	1114.
0022EE	110500			7423	LODI DE,STARTX	1115.
0022F1	CD0323			7425 MAN2LP2	CALL MANDRAW	1116.
0022F4	21FAFF			7427	RESUME MAN2,CP	1117.
0022F7	39			7429		
0022F8	222420			7430		
0022FB	2E27			7431		
0022FD	CD0C06			7432		
002300	C3F122			7433	JMP MAN2LP2	1118.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 18.55 09/03/76
				7436 *		1120.
				7437 *		1121.
				7438 *	THE MANDALA DRAWER	1122.
				7439 *		1123.
				7440 *		1124.
		02303		7441 MANDRAW	EQU *	1125.
002303	3E20			7443	LODI A,32	1126.
		02305		7445 MANLOOP	EQU *	1127.
002305	329823			7447	ST A,MANCNT	1128.
002308	78			7449	LOD A,B	1129.
002309	1F			7451	ROT RC	1130.
00230A	79			7453	LOD A,C	1131.
00230B	1F			7455	ROT RC	1132.
00230C	0F			7457	ROT R	1133.
00230D	E67F			7459 DM1	ANDI X'7F'	1134.
00230F	83			7461	ADD E	1135.
002310	5F			7463	LOD E,A	1136.
002311	7A			7465	LOD A,D	1137.
002312	CE00			7467	ADCI 0	1138.
002314	E601			7469	ANDI X'01'	1139.
002316	57			7471	LOD D,A	1140.
002317	1F			7473	ROT RC	1141.
002318	7B			7475	LOD A,E	1142.
002319	1F			7477	ROT RC	1143.
00231A	0F			7479	ROT R	1144.
00231B	E67F			7481 DM2	ANDI X'7F'	1145.
00231D	6F			7483	LOD L,A	1146.
00231E	79			7485	LOD A,C	1147.
00231F	95			7487	SUB L	1148.
002320	4F			7489	LOD C,A	1149.
002321	78			7491	LOD A,B	1150.
002322	DE00			7493	SBBI 0	1151.
002324	E601			7495	ANDI X'01'	1152.
002326	47			7497	LOD B,A	1153.
002327	3E9C			7499	LODI A,X'9C'	1154.
002329	81			7501	ADD C	1155.
00232A	329823			7503	ST A,LOWY	1156.
00232D	3E01			7505	LODI A,1	1157.
00232F	88			7507	ADC B	1158.
002330	CD4823			7509	CAL SPOT	1159.
002333	3E9C			7511	LODI A,X'9C'	1160.
002335	91			7513	SUB C	1161.
002336	329823			7515	ST A,LOWY	1162.
002339	3E01			7517	LODI A,1	1163.
00233B	98			7519	SBB B	1164.
00233C	CD4823			7521	CAL SPCT	1165.
00233F	3A9823			7523	LD A,MANCNT	1166.
002342	3D			7525	DEC A	1167.
002343	C20523			7527	JMP NZ,MANLOOP	1168.
002346	0C			7529	INC C	1169.
002347	C9			7531	RET .	1170.
				7533	*****	1171.
002348	329C23			7534 SPOT	ST A,HIY	1172.
00234B	7A			7536	LOD A,D	1173.
00234C	C602			7538	ADDI 2	1174.

00234E 329A23
002351 7B
002352 329923
002355 CD6723

7540
7542
7544
7546

ST A,HIX
LOD A,E
ST A,LOWX
CALL DISPLAY

1175.
1176.
1177.
1178.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM H V 05 18.55 09/03/76
002358	AF			7548		XOR A	1179.
002359	93			7550		SUB E	1180.
00235A	329923			7552		ST A,LOWX	1181.
00235D	3E02			7554		LODI A,2	1182.
00235F	9A			7556		SBB D	1183.
002360	329A23			7558		ST A,HIX	1184.
002363	CD6723			7560		CALL DISPLAY	1185.
002366	C9			7562		RET	1186.
				7564	*****		1187.
				7565	*****		1188.
		02367		7566	DISPLAY EQU *		1189.
				7568	*		1190.
				7569	*	ROUTINE TO INTERFACE TO VGT GRAPHILS ROUTINE	1191.
002367	F5			7570		PUSH AF	1192.
002368	D5			7572		PUSH DE	1193.
002369	C5			7574		PUSH BC	1194.
00236A	2A9923			7576		LD HL,XS	1195.
00236D	EB			7578		XCH HL,DE	1196.
00236E	CDF110			7580		CALL SHIFT	1197.
002371	424B			7582		LOD BC,DE	1198.
002373	2A9B23			7584		LD HL,YS	1199.
002376	113200			7586		LODI DE,+50	1200.
002379	19			7588		ADD HL,DE	1201.
00237A	EB			7590		XCH HL,DE	1202.
00237B	CDF110			7592		CALL SHIFT	1203.
00237E	CD0911			7594		CALL SCOPLOAD	1204.
002381	11F058			7596		LODI DE,GRAPHEVN	1205.
002384	3A6221			7598		LD A,DRAGEVOD	1206.
002387	B7			7600		IOR A	1207.
002388	F28E23			7602		JMP NS,MAND4	1208.
00238B	1141AA			7604		LODI DE,GRAPHODD	1209.
00238E	19			7606	MAND4	ADD HL,DE	1210.
00238F	3A6321			7608		LD A,XMASK	1211.
002392	AE			7610		XOR M	1212.
002393	77			7612		LOD M,A	1213.
				7614	*		1214.
				7615	*		1215.
002394	C1			7616		POP BC	1216.
002395	D1			7618		POP DE	1217.
002396	F1			7620		POP AF	1218.
002397	C9			7622		RET	1219.
				7624	*	AND GO HOME. THATS IT	1220.
				7625	*		1221.
002398				7626	MANCNT DS	1	1222.
				7628	*		1223.
		02399		7629	XS DS	0	1224.
002399				7631	LOWX DS	1	1225.
00239A				7633	HIX DS	1	1226.
		0239B		7635	YS DS	0	1227.
00239B				7637	LOWY DS	1	1228.
00239C				7639	HIY DS	1	1229.
				7641	*		1230.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 18.55 09/03/76
				7643 *		1232.
				7644 *	***** VERSATEC PRINTER ROUTINE *****	1233.
				7645 *		1234.
				7646 *		1235.
00239D	3A1F21			7647	VERSATEC LD A,MODEBITS LETS GO INTO QUICKMODE AND BLNK	1236.
0023A0	F642			7649	IORI SCRNBLENK+QUICKMD	1237.
0023A2	D380			7651	OUT MODESET AND SET THEM	1238.
0023A4	2141AA			7653	LODI HL,GRAPHODD PLACE TO START	1239.
0023A7	D38E			7655	OUT PARRESET RESET THE THING	1240.
0023A9	05FF			7657	LODI B,255 NUMBER OF LINES/2 TO DO	1241.
0023AB	0E46			7659	RELOAD LODI C,70 NUMBER OF BYTES TO PRINT	1242.
0023AD	DB87			7661	WAIT0 IN PARIN GET STATUS	1243.
0023AF	E601			7663	ANDI PRTREADY SEE IF READY	1244.
0023B1	CAAD23			7665	JMP Z,WAIT0 IF NOT THEN WAIT	1245.
				7667	*NOW WE DUMP THE ODD LINE THEN AN EVEN LINE	1246.
0023B4	7E			7668	ODDLINE LD A,(HL) GET THE BYTE	1247.
0023B5	D386			7670	OUT PAROUT PUT IT OUT	1248.
0023B7	23			7672	INC HL MOVE POINTER TO NEXT BYTE	1249.
0023B8	0D			7674	DEC C DECREASE BYTE COUNT	1250.
0023B9	C2B423			7676	JMP NZ,ODDLINE IF NOT ZERO KEEP ON GOING	1251.
0023BC	1169AE			7678	EVENLINE LODI DE,-(GRAPHODD-GRAPHEVN)-70 ZAP TO EVEN LINE	1252.
0023BF	19			7680	ADD HL,DE AN ADD IT IN	1253.
0023C0	0E46			7682	LODI C,70 NUMBER OF BYTES	1254.
0023C2	DB87			7684	WAIT1 IN PARIN GET STATUS	1255.
0023C4	E601			7686	ANDI PRTREADY SEE IF READY	1256.
0023C6	CAC223			7688	JMP Z,WAIT1 IF NOT THEN WAIT1	1257.
0023C9	7E			7690	EVENLOOP LD A,(HL) GET BYTE	1258.
0023CA	D386			7692	OUT PAROUT AND PUT IT THE THE BEAST	1259.
0023CC	23			7694	INC HL MOVE POINTER TO NEXT BYTE	1260.
0023CD	0D			7696	DEC C DECREASE BYTE COUNT	1261.
0023CE	C2C923			7698	JMP NZ,EVENLOOP IF NOT ZERO THEN NOT DONE	1262.
0023D1	05			7700	DEC B SEE IF DONE	1263.
0023D2	C2DB23			7702	JMP NZ,UPDATE	1264.
0023D5	3A1F21			7704	LD A,MODEBITS GO BACK TO NORMAL MODE	1265.
0023D8	D380			7706	OUT MODESET TELL THE HARDWARE	1266.
0023DA	C9			7708	RET , AND GO HOME	1267.
		023DB		7710	UPDATE EQU * HERE TO DO ODDFRAME	1268.
0023DB	115C51			7712	LODI DE,GRAPHODD-GRAPHEVN+LINESIZE-70 ZAP TO ODD ONE.	1269.
0023DE	19			7714	ADD HL,DE ADD IT TO CURRENT POSITION	1270.
0023DF	C3AB23			7716	JMP RELOAD AND GO BACK	1271.
				7718	END	1272.002

BUFINIT	00001	0008E8	4193	4013															
BYTEIN	00001	0009D2	4388	4266	4266	4266	4276	4276	4276	4286	4286	4286	4296	4296	4296	4312	4312	4312	
				4344	4344	4344													
CHARHITE	00001	0000000D	1259	1846	1846	1860	1860	1879	1879	1895	1895								
CHARPOS	00001	00215C	1452	5865	5865	5865	5880	5880	5880	5961	5961	5961	5995	5995	5995	5999	5999	5999	
				6003	6003	6003	6009	6009	6009	6041	6041	6041	6073	6073	6073	6093	6093	6093	
				6109	6109	6109	6119	6119	6119	6123	6123	6123	6136	6136	6136	6154	6154	6154	
				6168	6168	6168	6281	6281	6281	6321	6321	6321	6325	6325	6325	6355			
CHARPRDC	00001	0000024C	2342	3758	3758	3758	4157	4157	4157										
CHARSET	00001	0008FA	4209	4019															
CHGENRAM	00001	00003000	1066	4229	4229	4229	4245	4245	4245										
CHGENROM	00001	00002800	1064	1473	3901	3901	3901	4241	4241	4241									
CHGESC	00001	0000088F	4100	3990	3990	3990													
CHGUART	00001	00000899	4114	3994	3994	3994													
CHKATTN	00001	000127	2004	1988	1988	1988													
CHKKBRD	00001	0000FF	1966	1940	1940	1940	1954	1954	1954	1962	1962	1962							
CHLINE1	00001	00000087	1128	1780	1780														
CHL1TAB	00007	000498	2988	2921	2921	2925	2925	2935	2935	2962	2962	2966	2966	3913	3913	3913			
CIRCLEFN	00001	00077C	3830	3083	3083	3083	5062	5062	5062	5110	5110	5110	5308	5308	5308	5324	5324	5324	
CKSMERR	00001	00000010	1357	4356	4356														
CLEAR	00001	00000680	3540	4055	4055	4055													
CLEARIT	00001	00007689	3554	3549	3549	3549													
CLEARIT2	00001	0006A1	3582	3558	3558	3558													
CLEARLP	00001	000006DE	3649	3655	3655	3655													
CLEARLP2	00001	000006EE	3672	3680	3680	3680													
CLRATAB	00001	00000E88	5505	2574															
CLRBUFFS	00001	0000058D	3273	2602	3746	3746	3746												
CLRFLG	00001	002118	1334	1714	1714	1714	2701	2701	2701	2711	2711	2711	2731	2731	2731	2773	2773	2773	
				3697	3697	3697	4051	4051	4051	5705	5705	5705	7245	7245	7245	7353	7353	7353	
CLPGRPH	00001	0000038C	2707	2655	2655	2655	2693	2693	2693										
CLRPAG	00001	00000698	3570	3578	3578	3578													
CLRSCREEN	00001	000003A6	2682	2542															
CLRSTAB	00001	00000E80	5491	2572															
CLRTABLP	00001	00000E8E	5513	5521	5521	5521													
CMDDOIT	00001	000253	2358	2299	2299	2299													
CMDKEY	00001	00000080	1181	2352	2352														
CMDTAB	00001	000002E6	2527	2360	2360	2360													
CMDTAB2	00001	00000C51	4934	4926	4926	4926													
CMDTAB3	00001	00000C85	4981	4973	4973	4973													
CMDTAB4	00001	00000FE3	5926	5920	5920	5920													
CMPLODP	00001	00007C	1812	1813	1818	1818													
CNTLOMD	00001	002131	1397	2475	2475	2475	2812	2812	2812	3879	3879	3879	5419	5419	5419	5529	5529	5529	
COPY	00001	0005AA	3312	2558	2560	2562	2566												
CPURAM	00001	00002000	1060	1266	1514														
CPURAMSZ	00001	00000400	1062	1514															
CRCNT	00001	00213B	1412	2084	2084	2084	2120	2120	2120	2173	2173	2173	2456	2456	2456				
CRLFQVR	00001	002130	1395	4959	4959	4959	4965	4965	4965	5038	5038	5038							
CURCH1	00001	0000F4	1956	1950	1950	1950													
CURMDTSP	00001	000CAF	5018	4949	5204	5204	5204												
CURSCAR	00001	002104	1307	1480	1956	1956	1956	3691	3691	3691	4912	4912	4912	5166	5166	5166	5392	5392	
				5392	5861	5861	5861												
CURSCTR	00001	002103	1305	1936	1936	1936	5178	5178	5178										
CURSLOC	00002	002100	1301	1944	1944	1944	2697	2697	2697	2735	2735	2735	3055	3055	3055	3129	3129	3129	
				3754	3754	3754	4916	4916	4916	5052	5052	5052	5120	5120	5120	5192	5192	5192	
				5290	5290	5290	5302	5302	5302	5390	5390	5390	5400	5400	5400	5876	5876	5876	
				5890	5890	5890	6450	6450	6450	6456	6456	6456	7257	7257	7257				
CURSTIME	00001	00000008	1497	1942	1942	5176	5176												
CURSX	00001	002102	1303	1460	3061	3061	3061	3133	3133	3133	3695	3695	3695	5020	5020	5020	5024	5024	
				5024	5034	5034	5034	5130	5130	5130	5215	5215	5215	5229	5229	5229	5278	5278	
				5278	5282	5282	5282	5288	5288	5288	5355	5355	5355	5427	5427	5427	5548	5548	

SYMBOL	LEN	VALUE	DEFN	REFERENCES	ASM H V 05 18.55 09/03/76
CUSRET	00001	0008A8	4130	5548 5622 5622 5622 5634 5634 5634 5638 5638 5638 5660 5660 5660	
DATE	00010	00073E	3764	4138 4138 4138 4138 3729 3729 3728 3728	
DC1CNT	00001	00213C	1414	2130 2130 2130 2130 2175 2175 2175 2249 2249 2249 2261 2261 2261 3266 3266 3266	
DECX	00001	0000000C	6705	6723 6723 6723	
DECY	00001	00000003	6709	6745 6745 6745	
DIREC1	00001	00215E	1454	6865 6865 6865 6865 6918 6918 6918 6918	
DIREC2	00001	00215F	1456	6859 6859 6859 6859 6939 6939 6939 6939	
DISADDRH	00001	00000084	1122	1807 1807 1807	
DISADDRL	00001	00000085	1124	1803 1803 1803	
DISLOOP	00001	000AEC	4603	4627 4627 4627 4627	
DISPLAY	00001	00002367	7567	7547 7547 7547 7547 7561 7561 7561 7561	
DISPLCS	00001	002002	1271	3337 3337 3337 3337 3364 3364 3364 3364 3949 3949 3949 4376 4376 4376 4550 4550 4550	
DISPLSP	00002	002000	1270	5350 5350 5364 5364 5835 5835 5903 5903 6553 6553 3330 3330 3357 3357 3941 3941 3945 3945 3945 4372 4372 4552 4552 5349 5349	
DISPLST	00001	00002024	1274	5349 5363 5363 5363 5834 5834 5834 5902 5902 5902 6552 6552 6552 7193 7193 3944 3944 3947 3947	
DM1	00001	00230D	7460	7363 7368 7368 7368	
DM2	00001	00231B	7482	7370 7370 7370 7370	
DNPLT	00001	0012FF	6885	6879 6879 6879 6879	
DNTBREAK	00001	0000018C	2192	2008 2008 2008 2008	
DOBELL	00001	000F12	5689	5000 5000	
DODATE	00001	000721	3732	3742 3742 3742 3742	
DODAX	00001	00132D	6945	5429 5429 5429 5429 6295 6295 6295 6295	
DOHOSTCD	00001	000008R4	4140	3980 3980 3980 3980	
DOWNCHK	00001	00043C	2870	2831 2831 2831 2831 2929 2929 2929 2929	
DOWNLINE	00001	000C15	4858	4768 4768 4768 4768	
DRAGDOY	00001	001166	6377	6363 6363 6363 6363	
DRAGEVOD	00001	00002162	6353	6381 6381 6381 6381 6403 6403 6403 7599 7599 7599 7599	
DRAGSPOT	00001	001189	6405	6383 6383 6383 6383 6405 6405 6405 6405	
DRAGXY	00001	0000215C	6355	6359 6359 6359 6359 6405 6405 6405 6405	
DRAG1	00001	0011A1	6433	6367 6367 6367 6367	
DRAG2	00001	001165	6375	6371 6371 6371 6371 6435 6435 6435 6439 6439 6439 6439	
DRAG3	00001	00117D	6395	6385 6385 6385 6385	
DRAG4	00001	001196	6415	6411 6411 6411 6411	
DRAG5	00001	001186	6403	6389 6389 6389 6389 6397 6397 6397 6397	
DRAG6	00001	001185	6401	6393 6393 6393 6393	
ENDWHEEL	00001	000000CB	1911	1833 1833 1833 1833 1862 1862 1862 1872 1872 1872 1897 1897 1897 1897	
ENTERGRP	00001	000003EC	2778	2616 2616	
ENTGRPC	00001	000003E0	2757	2554 2554	
ESCCCHAR	00001	002106	1312	1732 1732 1732 1732 3976 3976 3976 4104 4104 4104 4104	
EVENADD	00001	000058F0	1465	1469 1469	
EVENLOOP	00001	0023C9	7691	7699 7699 7699 7699	
EVENODD	00001	002162	1471	6047 6047 6047 6047 6256 6256 6256 6353 6353 2483 2483 2483 2800 2800 2800 2806 2806 2806	
FLAGS	00001	002119	1337	2096 2096 2096 2096 2473 2473 2473 2483 2483 2483 2800 2800 2800 2806 2806 2806 5523 5523 5523 5523	
FCCADDR	00002	00212D	1390	2519 2519 2519 2519 3907 3907 3907 3907	
FOUNDTAB	00001	00000EED	5632	5606 5606 5606 5606	
FRAMECNT	00001	00000008	1086	1770 1770 1795 1795	
FRAMEINT	00001	00000004	1088	1761 1761	
FULLDUPL	00001	00000080	1339	2098 2098 2802 2802 2808 2808 5828 5828	
GCHARSET	00001	00092B	4247	4231 4231 4231 4231 4243 4243 4243 4243	
GENLOOP	00001	001074	6049	6067 6067 6067 6067	
GETBUF	00001	000866	4051	3951 3951 3951 3951 4193 4193 4193 4193	

KEYCURST	00001	000D56	5164	5330	5330	5330	5654	5654	5654											
KEYCURTM	00001	000D63	5176	5126	5126	5126														
KEYDECY	00001	000DC3	5290	5339	5339	5339														
KEYDEF	00001	000E3	2517	3905	3905	3905														
KEYDOIT	00001	000267	2385	2354	2354	2354	3489	3489	3489	3503	3503	3503	4177	4177	4177					
KEYDOIT2	00001	000265	2383	2328	2328	2328	2334	2334	2334											
KEYEND	00001	0002E4	2519	2634																
KEYHTAB	00001	0000D68	5185	4992																
KEYHYPER	00001	000EF7	5652	4994																
KEYINCY	00001	000CC7	5042	5260	5260	5260														
KEYNEWCH	00001	000245	2330	2314	2314	2314														
KEYRCVED	00001	00000215	2275	1970	1970	1970														
KEYRPTD	00001	00000014	1499	2320	2320	2320														
KEYRPTL	00001	000230	2308	2293	2293	2293	2670	2670	2670											
KEYRPTR	00001	00000003	1501	2324	2324	2324														
KEYSAVED	00001	002109	1318	2387	2387	2387														
KEYSTORE	00001	000002B1	2465	2271	2271	2271	2391	2391	2391	2659	2659	2659	2715	2715	2715	2752	2752	2752		
				2792	2792	2792	3318	3318	3318	3343	3343	3343	7263	7263	7263					
KEYSTOR2	00001	0002B0	2462	2100	2100	2100	2397	2397	2397											
KEYST1	00001	0002CE	2497	2493	2493	2493														
KEYST2	00001	0002DF	2513	2501	2501	2501	2507	2507	2507											
LCLMODE	00001	002124	1374	2237	2237	2237	2393	2393	2393	3200	3200	3200	3204	3204	3204	3213	3213	3213		
				3223	3223	3223	3366	3366	3366	3376	3376	3376	3885	3885	3885	4472	4472	4472		
				4482	4482	4482														
LEAVGRP	00001	000003C6	2723	2620																
LETTER	00001	000634	3429	3419	3419	3419														
LINEFEED	00001	0010C1	6134	5931	6089	6089	6089													
LINE SIZE	00001	00000051	1247	1251	1253	1255	1257	1263	1263	3057	3057	3057	3125	3125	3125	3707	3707	3707		
				3748	3748	3748	3770	3770	3770	3785	3785	3785	5026	5026	5060	5060	5060	5108		
				5108	5108	5132	5132	5144	5144	5256	5256	5256	5286	5286	5306	5306	5306	5322		
				5322	5322	5335	5335	5335	5550	5550	5620	5620	5668	5668	5670	5670	5670	5863		
				5863	5863	5987	5987	5987	5989	5989	6005	6005	6005	6083	6083	6083	6140	6140	6140	
				6150	6150	6150	6166	6166	6166	6166	6166	6166	6170	6170	6391	6391	6391	6399		
				6399	6399	7713	7713	7713												
LCADEND	00001	0009AB	4364	4270	4270	4270	4450	4450	4450											
LOADERCP	00001	002027	1279	3331	3331	3331	4307	4307	4369	4369	4385	4385	4393	4393	4417	4417				
LOADERCS	00001	002026	1278	3329	3329	3329	4399	4399	4423	4423										
LOADERSP	00002	002024	1277	3325	3325	3325	3333	3333	3336	3336	4306	4306	4306	4368	4368	4368	4384	4384		
				4384	4392	4392	4392	4398	4398	4398	4416	4416	4416	4422	4422	4422	7202			
LCADERST	00001	00002048	1281	3324	3324	3327	3327	3327												
LOADING	00001	000973	4312	4342	4342	4342														
LOADOK	00001	0009A9	4362	4352	4352	4352	4470	4470	4470											
LOADST	00001	000931	4258	3326	3326	3326														
LOCAL	00001	00039C	2664	2528	2546	2548	2550	2552	2556	2588										
LCOPI	00001	001304	6897	6924	6924	6924														
LOOPO	00001	0012F6	6873	6934	6934	6934														
LOWX	00001	002399	7632	7545	7545	7545	7553	7553	7553											
LOWY	00001	00239B	7638	7504	7504	7504	7516	7516	7516											
LVCLR	00001	000006F4	3683	3580	3580	3580														
MANCCHK	00001	00225F	7294	7328	7328	7328														
MANCCMD	00001	00002286	7333	7310	7310	7310														
MANCCP	00001	00204B	7216	7240	7240	7240	7284	7284												
MANCCS	00001	00204A	7215	7270	7270	7305	7305													
MANCHPHA	00001	0022B4	7375	7341	7341	7341														
MANCLP	00001	00224D	7279	7300	7300	7300	7349	7349	7349	7372	7372	7372								
MANCLP1	00001	00224F	7281	7289	7289	7289														
MANCMASK	00001	0022AA	7366	7345	7345	7345														
MANCNT	00001	002398	7627	7448	7448	7448	7524	7524	7524											
MANCSP	00002	002048	7214	7236	7236	7269	7269	7269	7283	7283	7304	7304	7304							

NCTZERO	00001	000ADB	4587	4583	4583	4583												
NOUPDATE	00001	000CD0	5052	5046	5046	5046												
NOUPDAT2	00001	000DD4	5304	5298	5298	5298												
NXTCHL1	00002	00210A	1320	1772	1772	1772	2915	2915	2915	2956	2956	2956	3915	3915	3915			
NXTDISA	00002	00210C	1322	1783	1783	1783	2695	2695	2695	2835	2835	2835	2839	2839	2839	2861	2861	2861
				2865	2865	2865	2870	2870	2870	2884	2884	2884	2995	2995	2995	3051	3051	3051
				3073	3073	3073	3091	3091	3091	3095	3095	3095	3101	3101	3101	3117	3117	3117
				3123	3123	3123	3560	3560	3560	3584	3584	3584	5078	5078	5078	5100	5100	5100
				5318	5318	5318	5396	5396	5396									
ODDADD	00001	0000AA41	1467	1469														
ODDLINE	00001	0023B4	7669	7677	7677	7677												
CNESPAC	00001	000BCF	4778	4758	4758	4758												
OUTSCOPE	00001	001314	6920	6941	6941	6941												
OUTTAB	00001	00000ED2	5596	5582	5582	5582	5618	5618	5618									
PARIN	00001	00000087	1108	7662	7662	7685	7685											
PAROUT	00001	00000086	1176	7671	7671	7693	7693											
PARRESET	00001	0000008E	1178	7656	7656													
PATCHING	00001	00000001	1361	4262	4262													
PATCHIT	00001	000848	4670	4619	4619	4619												
PATCHST	00001	000581	3320	2564														
PATCKSM	00001	00211D	1363	4274	4274	4274	4280	4280	4280	4284	4284	4284	4290	4290	4290	4294	4294	4294
				4324	4324	4324	4328	4328	4328	4348	4348	4348						
PATCNT	00001	00211E	1365	4272	4272	4272	4336	4336	4336	4340	4340	4340						
PATFAIL	00001	00000008	1359	4454	4454													
PATFLAG	00001	00000020	1380	3215	3215	3217	3217	3370	3370	3374	3374							
PATSTAT	00001	00211C	1349	4163	4163	4163	4169	4169	4169	4260	4260	4260	4264	4264	4264	4354	4354	4354
				4360	4360	4360	4438	4438	4438	4442	4442	4442	4452	4452	4452	4456	4456	4456
				4462	4462	4462	4466	4466	4466									
PGDDOIT	00001	000546	3182	3175	3175	3175												
PGDOWN	00001	0000053D	3169	2530														
PGUDOIT	00001	000531	3153	3146	3146	3146												
PGUP	00001	00000528	3140	2532														
PHASEDIF	00001	00000064	7190	7404	7404	7404												
POINTER	00002	002127	1384	4189	4189	4189	4199	4199	4199	4205	4205	4205						
POSLOOP	00001	000091	1846	1856	1856	1856												
PCSLP2	00001	0000A4	1866	1870	1870	1870												
POSTRATR	00001	0000009E	1858	1848	1848	1848												
PREVCHAR	00001	002105	1309	3289	3289	3289	3972	3972	3972	4036	4036	4036	4148	4148	4148	4645	4645	4645
				5040	5040	5040	5098	5098	5098	5122	5122	5122	5160	5160	5160	5238	5238	5238
PREVSCRL	00001	00212F	1392	1825	1825	1825	3899	3899	3899									
PRTREADY	00001	00000081	1110	7664	7664	7687	7687											
PRVCCHAR	00001	002107	1314	1976	1976	1976	2366	2366	2366	2372	2372	2372						
PUTPTR	00002	002120	1370	2144	2144	2144	2485	2485	2485	2513	2513	2513	4064	4064	4064	4070	4070	4070
				7296	7296	7296												
PUTREP	00001	000C00	4838	4676	4676	4676	4724	4724	4724	4784	4784	4784	4806	4806	4806	4826	4826	4826
				4860	4860	4860	4864	4864	4864	4882	4882	4882	4886	4886	4886			
PUTREP1	00001	000C02	4842	4852	4852	4852												
PUTTER	00001	0008F1	4199	4183	4183	4183												
QUICKMD	00001	00000002	1142	3591	3591	7650	7650											
RAM	00001	00004000	1068	1518														
RCVCLR	00001	00000195	2140	1704	1704	1704	3277	3277	3277									
RCVR0K	00001	000001E4	2235	2225	2225	2225												
READY	00001	00000A7B	4520	4502	4502	4502												
REDUCE	00001	0012C4	6806	6845	6845	6845												
RELOAD	00001	0023AB	7660	7717	7717	7717												
REMTDOIT	00001	000566	3223	3219	3219	3219												
RESETCL	00001	000712	3716	3722	3722	3722												
RESETII	00001	000790	3875	1734	1734	1734												
RESETTAB	00001	00000E49	5410	2576														
RESUMER	00001	00060C	3388	4032	4032	4032	4308	4308	4308	4370	4370	4370	4386	4386	4386	4394	4394	4394

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SYMBOL	LEN	VALUE	DEFN	REFERENCES														
UNHOME	00001	000512	3115	2536														
UPCHK	00001	00044A	2884	2857	2857	2857	2952	2952	2952									
UPDATE	00001	000023DB	7711	7703	7703	7703												
UPLINE	00001	000C29	4880	4772	4772	4772												
URTBREAK	00001	0000000F	1160	2012	2012													
URTCLOCK	00001	0000000C	1138	5766	5766	5781	5781											
URCTL	00001	00000041	1152	1698	1698	1702	1702	2014	2014	2204	2204	2231	2231	5796	5796	5800	5800	5812
				5812	5816	5816												
URTINTRS	00001	00000057	1154	5794	5794	5810	5810											
URTMODE	00001	0000007A	1156	5814	5814													
URTRCV	00001	00000001	1104	2241	2241													
URTRERR	00001	00000038	1100	2223	2223													
URTRSBRK	00001	00000007	1162	2202	2202													
URTRSERR	00001	00000017	1164	1700	1700	2229	2229											
URTRXRDY	00001	00000002	1098	2217	2217													
URTSPEED	00001	0000008E	1168	3893	3893	4128	4128											
URTSTAT	00001	00000041	1094	2020	2020	2213	2213											
URTTXRDY	00001	00000001	1096	2022	2022													
URTXMT	00001	00000001	1166	2070	2070													
URTX1MD	00001	00000079	1158	1696	1696	5798	5798											
VECTOR	00001	001287	6701	6525	6525	6525												
VERSATEC	00001	00239D	7648	7337	7337	7337												
VGT	00001	00000000	1038	1266	1298	1298	1518	1692	1704	1704	1704	1706	1706	1706	1710	1710	1710	1714
				1714	1714	1716	1716	1716	1718	1718	1718	1722	1722	1722	1724	1724	1724	1732
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SYMBOL	LEN	VALUE	DEFN	REFERENCES	ASM H V 05 18.55 09/03/76											
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6468	6470	6470	6470	6472	6472	6472	6474	6474	6474	6476	6476	6476	6478	6478
6478	6485	6485	6485	6487	6487	6487	6489	6489	6489	6491	6491	6491	6493	6493
6493	6525	6525	6525	6527	6527	6527	6529	6529	6529	6531	6531	6531	6533	6533
6533	6535	6535	6535	6540	6540	6540	6552	6552	6552	6553	6553	6554	6554	6554
6553	6558	6558	6562	6562	6562	6566	6566	6566	6566	6570	6570	6574	6574	6574
6573	6578	6578	6580	6580	6582	6582	6582	6586	6586	6590	6590	6590	6592	6592
6600	6600	6604	6604	6604	6610	6610	6610	6612	6612	6612	6618	6618	6618	6620
6620	6620	6648	6648	6648	6656	6656	6656	6660	6660	6660	6680	6680	6680	6682
6682	6682	6686	6686	6686	6688	6688	6688	6721	6721	6721	6741	6741	6741	6765
6765	6765	6767	6767	6767	6773	6773	6773	6810	6810	6810	6845	6845	6845	6859
6859	6859	6865	6865	6865	6867	6867	6867	6871	6871	6871	6879	6879	6879	6883
6883	6883	6905	6905	6905	6909	6909	6909	6918	6918	6918	6920	6920	6920	6924
6924	6924	6926	6926	6926	6932	6932	6932	6934	6934	6934	6939	6939	6939	6941
6941	6941	6960	7221	7225	7225	7225	7226	7226	7226	7227	7227	7228	7228	7228
7229	7229	7230	7230	7230	7232	7232	7233	7233	7233	7234	7234	7234	7235	7235
7235	7236	7236	7237	7237	7237	7239	7239	7240	7240	7240	7245	7245	7245	7247
7247	7247	7251	7251	7251	7257	7257	7257	7263	7263	7263	7269	7269	7269	7270
7270	7271	7271	7271	7283	7283	7283	7284	7284	7285	7285	7285	7289	7289	7289
7294	7294	7294	7296	7296	7296	7300	7300	7300	7304	7304	7304	7305	7305	7306
7306	7306	7308	7308	7308	7310	7310	7310	7328	7328	7328	7337	7337	7337	7341
7341	7341	7345	7345	7345	7349	7349	7349	7353	7353	7353	7355	7355	7355	7359
7359	7359	7368	7368	7368	7370	7370	7370	7372	7372	7372	7377	7377	7377	7379
7379	7379	7390	7390	7390	7394	7394	7394	7395	7395	7396	7396	7396	7398	7398
7398	7410	7410	7410	7411	7411	7412	7412	7412	7420	7420	7420	7426	7426	7426
7430	7430	7430	7431	7431	7432	7432	7432	7434	7434	7434	7448	7448	7448	7504
7504	7504	7510	7510	7510	7516	7516	7516	7522	7522	7522	7524	7524	7524	7528
7523	7528	7535	7535	7535	7541	7541	7541	7545	7545	7545	7547	7547	7547	7553
7553	7553	7559	7559	7559	7561	7561	7561	7577	7577	7577	7581	7581	7581	7585
7585	7585	7593	7593	7593	7595	7595	7595	7599	7599	7599	7603	7603	7603	7609
7609	7609	7648	7648	7648	7666	7666	7666	7677	7677	7677	7689	7689	7689	7699
7699	7699	7703	7703	7703	7705	7705	7705	7717	7717	7717				

VIDEO INV	00001	0000059D	3296	2608
WAIT	00001	000864	4047	4074
WAITO	00001	0023AD	7662	7666

ASM H V 05 18.55 09/03/76

NO STATEMENTS FLAGGED IN THIS ASSEMBLY

OVERRIDING PARAMETERS- TERM,LINECOUNT(115)

OPTIONS FOR THIS ASSEMBLY

NODECK, OBJECT, LIST, XREF(SHORT), NORENT, NOTEST, BATCH, ALIGN, ESD, RLD, TERM, LINECOUNT(15),

FLAG(0), SYSPARM()

NO OVERRIDING DD NAMES

3546 CARDS FROM SYSIN
8601 LINES OUTPUT1045 CARDS FROM SYSLIB
117 CARDS OUTPUT

ASP JOB NO. = 2602

FRIDAY SEPTEMBER 03, 1976 (76.247)

INPUT STATEMENTS (INCLUDING DD *) = 002769

//VGTCG025 JOB (VGT\$CG), CLASS=F,

ELAPSED TIME ON MAIN = SYA (A8) = 000.10, START TIME = 19.02.05

DDNAME = SYSPRINT	PRINTED ON PRT4	, LINES = 000001
DDNAME = SYSLIST	PRINTED ON PRT4	, LINES = 001647
LINES OUTPUT FOR THIS JOB = 001648		

CARDS FROM MAIN FOR THIS JOB = NONE
