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LL          JJ          SSSSSSSSSSSS          CCCCCCCCCCCC          GGGGGGGGGGGG          888888888888          999999999999          999999999999
LL          JJ          SSSSSSSSSSSSSSS          CCCCCCCCCCCCCCCC          GGGGGGGGGGGGGG          8888888888888888          9999999999999999          9999999999999999
LL          JJ          SS          SS          CC          CC          GG          GG          88          88          99          99          99          99
LL          JJ          SS          SS          CC          CC          GG          GG          88          88          99          99          99          99
LL          JJ          SS          SS          CC          CC          GG          GG          88          88          99          99          99          99
LL          JJ          SSSSSSSSSSSSS          CC          GG          888888888888          9999999999999999          9999999999999999
LL          JJ          SSSSSSSSSSSSS          CC          GG          GG          GGGG          888888888888          9999999999999999          9999999999999999
LL          JJ          JJ          JJ          SS          SS          CC          CC          GG          GG          88          88          99          99
LL          JJ          JJ          JJ          SS          SS          CC          CC          GG          GG          88          88          99          99
LLLLLLLLLLLLLLLL          JJJJJJJJJJJJJJ          SSSSSSSSSSSSS          CCCCCCCCCCCCCC          GGGGGGGGGGGGGG          88888888888888          9999999999999999          9999999999999999
LLLLLLLLLLLLLLLL          JJJJJJJJJJJJ          SSSSSSSSSSS          CCCCCCCCCCCC          GGGGGGGGGGGG          888888888888          9999999999999999          9999999999999999

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JJ          JJ          000000000000          EBBBBBBBEBBBBB          888888888888          999999999999          999999999999          00000000
JJ          JJ          000000000000          EBBBBBBBEBBBBB          88888888888888          99999999999999          99999999999999          0000000000
JJ          JJ          00          00          BB          BB          88          88          99          99          99          99          00          00
JJ          JJ          00          00          BB          BB          88          88          99          99          99          99          00          00
JJ          JJ          00          00          BB          BB          88          88          99          99          99          99          00          00
JJ          JJ          00          00          BB          BB          888888888888          99999999999999          99999999999999          00          00
JJ          JJ          00          00          BB          BB          888888888888          99999999999999          99999999999999          00          00
JJ          JJ          00          00          BB          BB          88          88          99          99          99          99          00          00
JJ          JJ          00          00          BB          BB          88          88          99          99          99          99          00          00
JJ          JJ          00          00          BB          BB          88          88          99          99          99          99          00          00
JJJJJJJJJJJJJJ          000000000000          EBBBBBBBEBBBBB          88888888888888          99999999999999          99999999999999          0000000000
JJJJJJJJJJJJ          000000000000          EBBBBBBBEBBBBB          888888888888          999999999999          999999999999          00000000

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BBBEBBEBBEBB          IIIIIIIIIIIII          NN          NN          00000000          33333333333          999999999999
BBBEBBEBBEBB          IIIIIIIIIIIII          NNN          NN          0000000000          333333333333          99999999999999
BB          BB          II          NN          NN          NN          00          00          33          33          99          99
BB          BB          II          NN          NN          NN          00          00          33          33          99          99
BB          BB          II          NN          NN          NN          00          00          33          33          99          99
BBBEBBEBBEBB          II          NN          NN          NN          00          00          333          333          999999999999
BBBEBBEBBEBB          II          NN          NN          NN          00          00          333          333          999999999999
BB          BB          II          NN          NN          NN          00          00          33          33          99          99
BB          BB          II          NN          NN          NN          00          00          33          33          99          99
BB          BB          II          NN          NN          NN          00          00          33          33          99          99
BB          BB          II          NN          NN          NN          00          00          33          33          99          99
BBBEBBEBBEBB          IIIIIIIIIIIII          NN          NNN          00000000          333333333333          99999999999999
BBBEBBEBBEBB          IIIIIIIIIIIII          NN          NN          00000000          33333333333          99999999999999

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PRINT STARTED AT 15:18:53 ON PRT2 , SATURDAY JUNE 19, 1976

SLAC CENTER, STANFORD CENTER FOR INFORMATION PROCESSING

VGT 14

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LL          JJ      SSSSSSSSSSSS  CCCCCCCCCCCC  GGGGGGGGGGGG  388888888888  999999999999  999999999999
LL          JJ      SSSSSSSSSSSSSS CCCCCCCCCCCCCC GGGGGGGGGGGGGG 88888888888888 99999999999999 99999999999999
LL          JJ      SS          SS  CC          CC  GG          GG  88          88  99          99  99          99
LL          JJ      SS          SS  CC          CC  GG          GG  88          88  99          99  99          99
LL          JJ      SS          SS  CC          CC  GG          GG  88          88  99          99  99          99
LL          JJ      SSSSSSSSSSSSSS CC          CC  GG          GG  888888888888 99999999999999 99999999999999
LL          JJ      SSSSSSSSSSSSSS CC          CC  GG          GG  888888888888 99999999999999 99999999999999
LL          JJ      SS          SS  CC          CC  GG          GG  88          88  99          99  99          99
LL          JJ      SS          SS  CC          CC  GG          GG  88          88  99          99  99          99
LL          JJ      SS          SS  CC          CC  GG          GG  88          88  99          99  99          99
LLLLLLLLLLLLLLLL JJJJJJJJJJJJJJ SSSSSSSSSSSSSS CCCCCCCCCCCCCC GGGGGGGGGGGGGG 88888888888888 99999999999999 99999999999999
LLLLLLLLLLLLLLLL JJJJJJJJJJJJJJ SSSSSSSSSSSSSS CCCCCCCCCCCCCC GGGGGGGGGGGGGG 88888888888888 99999999999999 99999999999999

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JJ          JJ      000000000000  BBBB BBBB BBBB  888888888888  999999999999  999999999999  00000000
JJ          JJ      00000000000000  BBBB BBBB BBBB  88888888888888 99999999999999 99999999999999 0000000000
JJ          JJ      00          00  BB          BB  88          88  99          99  99          99  00          00
JJ          JJ      00          00  BB          BB  88          88  99          99  99          99  00          00
JJ          JJ      00          00  BB          BB  88          88  99          99  99          99  00          00
JJ          JJ      00          00  BBBB BBBB BBBB  888888888888 99999999999999 99999999999999 00          00
JJ          JJ      00          00  BBBB BBBB BBBB  888888888888 99999999999999 99999999999999 00          00
JJ          JJ      00          00  BB          BB  88          88  99          99  99          99  00          00
JJ          JJ      00          00  BB          BB  88          88  99          99  99          99  00          00
JJ          JJ      00          00  BB          BB  88          88  99          99  99          99  00          00
JJJJJJJJJJJJJJ 00000000000000  BBBB BBBB BBBB  88888888888888 99999999999999 99999999999999 0000000000
JJJJJJJJJJJJJJ 000000000000  BBBB BBBB BBBB  88888888888888 99999999999999 99999999999999 00000000

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BBB BBBB BBBB  IIIIIIIIIIIII  NN          NN  00000000  333333333333  999999999999
BBB BBBB BBBB  IIIIIIIIIIIII  NNN          NN  0000000000  33333333333333 99999999999999
BB          BB  II          NN          NN  00          00  33          33  99          99
BB          BB  II          NN          NN  00          00  33          33  99          99
BB          BB  II          NN          NN  00          00  33          33  99          99
BBB BBBB BBBB  II          NN          NN  00          00  333          333 99999999999999
BBB BBBB BBBB  II          NN          NN  00          00  333          333 99999999999999
BB          BB  II          NN          NN  00          00  33          33  99          99
BB          BB  II          NN          NN  00          00  33          33  99          99
BB          BB  II          NN          NN  00          00  33          33  99          99
BB          BB  II          NN          NN  00          00  33          33  99          99
BBB BBBB BBBB  IIIIIIIIIIIII  NN          NNN  0000000000  33333333333333 99999999999999
BBB BBBB BBBB  IIIIIIIIIIIII  NN          NN  00000000  333333333333  99999999999999

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PRINT STARTED AT 15:18:53 ON PRT2 , SATURDAY JUNE 19, 1976

SLAC CENTER, STANFORD CENTER FOR INFORMATION PROCESSING

SYMBOL TYPE ID ADDR LENGTH LD ID

ASM H V 05 14.53 06/19/76

VGT SD 0001 000000 00FD00

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				2	PRINT OFF SUPPRESS LISTING OF MACROS	1,002
1037					PRINT ON,GEN,NODATA	1,006
1038					GBLA &@(256)	1,008
1039	*			*	*****	2.
1040	*			*		3.
1041	*			*		4.
1042	*	TTTTTT	HH HH	*	EEEEEEE V V GGGGG TTTTTT	5.
1043	*	TT	HH HH	*	EE VV VV GG GG TT	6.
1044	*	TT	HH HH	*	EE V V GG TT	7.
1045	*	TT	HHHHHH	*	EEEE VV VV GG TT	8.
1046	*	TT	HH HH	*	EE VVV GG GGG TT	9.
1047	*	TT	HH HH	*	EE VVV GG GG TT	10.
1048	*	TT	HH HH	*	EEEEEEE V GGGGG TT	11.
1049	*			*		12.
1050	*			*		13.
1051	*			*		14.
1052	*			*		15.
1053	*			*		16.
1054	*			*	THIS IS THE SOFTWARE FOR THE SLAC-STANFORD VIDEO GRAPHICS TERMINAL.	17.
1055	*			*		18.
1056	*			*	IT HAS BEEN WRITTEN (IN LATE 1975 AND EARLY 1976) BY :	19.
1057	*			*	LEN SHUSTEK AND	20.
1058	*			*	ED FRANK	21.
1059	*			*	WITH SUGGESTIONS FROM OUR FRIENDS	22.
1060	*			*		23.
1061	*			*	IT SUPPORTS ALL SORTS OF NEAT THINGS	24.
1062	*			*		25.
1063	*			*		26.
1064	*			*		27.
1065	*	MAILING ADDRESS:		*	COMPUTATION RESEARCH GROUP	28.
1066	*			*	STANFORD LINEAR ACCELERATOR CENTER	29.
1067	*			*	P.O. BOX 4349	30.
1068	*			*	STANFORD, CALIFORNIA 94305	31.
1069	*			*		32.
1070	*			*		33.
1071	*			*		34.
1072	*			*	THIS SOFTWARE IS WRITTEN USING THE SLAC 8080 ASSEMBLY,	35.
1073	*			*	WHICH IS A MACRO-ASSEMBLER BASED ON THE IBM 370 ASSEMBLER H.	36.
1074	*			*	FOR DOCUMENTATION SEE COMPUTATION GROUP TECHNICAL MEMO #174,	37.
1075	*			*	AVAILABLE FROM SLAC.	38.
1076	*			*		39.
1077	*			*	THE VGT IS A BEAST, WHOSE RESPONSIBILITY FOR EXISTENCE BELONGS	40.
1078	*			*	TO:	41.
1079	*			*		42.
1080	*			*	LEN SHUSTEK AND	43.
1081	*			*	FOREST BASKETT.	44.
1082	*			*		45.
1083	*			*	IF IT BYTES, BY ALL MEANS BYTE IT BACK.	46.
1084	*			*		47.
1085	*			*	FURTHER INFORMATION ABOUT THE INTERNAL STRUCTURE OF THE VGT IS	48.
1086	*			*	IN COMPUTATION GROUP TECHNICAL MEMO #175, AVAILABLE FROM SLAC.	49.
1087	*			*		50.
1088	*			*		51.
1089	*			*	*****	52.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				1091	*DEFINITIONS	54.
000000				1092	VGT CSECT	55.
				1093	ASCII , DEFINE ASCII CHARACTER SET	55.002
	00020			1130	@SP EQU @@('C')	56.
				1132	*INCLUDE #VGTDEFNS USER LJS GRO CG ON CAT	57.
				1133	*****	57.001
				1134	*	57.002
				1135	* THE VGT - VIDEO GRAPHICS TERMINAL	57.003
				1136	*	57.004
				1137	* **** HARDWARE DEFINITIONS ****	57.005
				1138	*	57.006
				1139	*	57.007
				1140	*****	57.008
				1141	* LAST UPDATE 23 MAY 76 LJS	57.009
				1142	*	57.01
				1143	* MEMORY MAP	57.011
				1144	*	57.012
00400				1145	K EQU 1024	57.013
00000				1147	ROM EQU 0*K ROMS	57.014
02000				1149	CPURAM EQU 8*K CPU SCRATCHPAD RAM	57.015
00080				1151	CPURAMSZ EQU 128 SIZE OF IT	57.016
02800				1153	CHGENROM EQU 10*K STANDARD CHARACTER GENERATOR	57.017
03000				1155	CHGENRAM EQU 12*K WRITABLE CHARACTER GENERATOR	57.018
04000				1157	RAM EQU 16*K VIDEO RAM	57.019
04400				1159	WRAPADDR EQU 17*K WHERE DISPLAY HARDWARE WRAPS TO	57.02
				1161	*	57.021
				1162	*	57.022
				1163	* I/O SYMBOLS MARKED '(PORT)' ARE I/O PORTS,	57.023
				1164	* OTHERS ARE BIT-WITHIN-PORT DEFINITIONS.	57.024
				1165	*	57.025
				1166	*	57.026
				1167	* INPUT PORTS	57.027
				1168	*	57.028
00084				1169	KEYBOARD EQU X'84' (PORT) KEYBOARD CHARACTER, X'80' IS STROBE	57.029
00085				1171	STATBITS EQU X'85' (PORT) STATUS BITS:	57.03
00010				1173	KBNEWCHR EQU X'10' NEW KB CHAR (IE STROBE CHANGED)	57.031
00008				1175	FRAMECNT EQU X'08' EVEN/ODD FRAME BIT	57.032
00004				1177	FRAMEINT EQU X'04' END-OF-FRAME INTERRUPT	57.033
00002				1179	KBATTN EQU X'02' KEYBOARD 'ATTN' KEY PRESSED	57.034
00001				1181	KBRPT EQU X'01' KEYBOARD 'REPEAT' KEY PRESSED	57.035
00041				1183	URTSTAT EQU X'41' (PORT) USART STATUS	57.036
00001				1185	URTTXRDY EQU X'01' XMIT READY BIT	57.037
00002				1187	URTRXRDY EQU X'02' RCVR CHAR READY	57.038
00038				1189	URTRERR EQU B'00111000' RECVR ERRORS. PUNT.	57.039
00001				1191	URTRCV EQU X'01' (PORT) USART RECEIVED CHARACTER	57.04
00086				1193	ATODVAL EQU X'86' (PORT) VALUE OF LAST A/D CONVERSION	57.041
00087				1195	PARIN EQU X'87' (PORT) PARALLEL DATA INPUT	57.042
00001				1197	PRTREADY EQU X'01' VERSATEC PRINTER READY BIT	57.043

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				1200 *		57.045
				1201 *	OUTPUT PORTS	57.046
				1202 *		57.047
00082		1203		RSFRMINT EQU	X'82' (PORT) RESET FRAME INTERRUPT	57.048
00083		1205		RSURTINT EQU	X'83' (PORT) RESET USART INTERRUPT	57.049
00084		1207		DISADDRH EQU	X'84' (PORT) HIGH-ORDER DISPLAY ADDRESS	57.05
00085		1209		DISADDRL EQU	X'85' (PORT) LOW-ORDER DISPLAY ADDRESS	57.051
00086		1211		BELL EQU	X'86' (PORT) BEEPER	57.052
00087		1213		CHLINE1 EQU	X'87' (PORT) 1ST LINE OF ROW 1 TO DISPLAY	57.053
00080		1215		MODESET EQU	X'80' (PORT) CONTROL BITS:	57.054
00080		1217		REVRVID EQU	X'80' REVERSE VIDEO CONTROL	57.055
00040		1219		SCRNBLNK EQU	X'40' SCREEN BLANKING CONTROL	57.056
00020		1221		NOROMCHR EQU	X'20' NO ROM CHARS (RAM ONLY) IN TEXT MODE	57.057
0000C		1223		URTCLOCK EQU	X'0C' USART EXTERNAL/INTERNAL CLOCK CONTRL	57.058
00010		1225		GRAPHMD EQU	X'10' GRAPH MODE	57.059
00002		1227		QUICKMD EQU	X'02' QUICK MODE FOR RAM ACCESS	57.06
00001		1229		SIXTNMD EQU	X'01' 16 RASTERS/ROW MODE	57.061
00041		1231		URTCTL EQU	X'41' (PORT) USART CONTROL BITS:	57.062
00057		1233		URTINTRS EQU	B'01010111' INTERNAL RESET (TO SET MODE)	57.063
0007A		1235		URTMODE EQU	B'01111010' ASYNC, EVEN PARITY, 7BITS, 16XCLK	57.064
00079		1237		URTX1MD EQU	B'01111001' ASYNC, EVEN PARITY, 7BITS, 1XCLK<--	57.065
0000F		1239		URTBREAK EQU	B'00001111' SEND BREAK	57.066
00007		1241		URTRSBRK EQU	B'00000111' RESET BREAK	57.067
00017		1243		URTRSERR EQU	B'00010111' RESET RCV ERR, RCV ENB, DTR, XMT ENB	57.068
00001		1245		URTXMT EQU	X'01' (PORT) USART TRANSMITTED CHARACTER	57.069
0008E		1247		URTSPEED EQU	X'8E' (PORT) USART BAUD RATE; 4 BITS RCV, 4 XMIT	57.07
00096		1249		KBRESET EQU	X'96' (PORT) RESET KB STROBE FF (IE 'KBNEWCHR')	57.071
0009E		1251		ATODSEL EQU	X'9E' (PORT) SELECT ANALOG SOURCE BY 1 OF A3-A0	57.072
000A6		1253		ATODSTRT EQU	X'A6' (PORT) START A/D CONVERSION (20 USEC.)	57.073
000AE		1255		KBCLICK EQU	X'AE' (PORT) KEYBOARD CLICK	57.074
000B6		1257		PAROUT EQU	X'B6' (PORT) PARALLEL DATA OUT	57.075
000BE		1259		PARRESET EQU	X'BE' (PORT) PARALLEL OUTPUT RESET	57.076
		1261		*		58.
00080		1262		CMDKEY EQU	X'80'	59.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				1265	*****	61.
				1266	*	62.
				1267	* ASSEMBLY CONSTANTS AND RAM LOCATIONS	63.
				1268	*	64.
				1269	*****	65.
				1270	*	66.
		04000		1271	TEXT EQU RAM (WILL BE WRAPADDR)	67.
		00051		1273	LINESIZE EQU 81 CHARACTERS PER LINE	68.
		00025		1275	NLINES EQU 37 LINES PER SCREEN	69.
		00BB5		1277	SCRNSIZE EQU LINESIZE*NLINES CHARACTERS PER SCREEN	70.
		0BBF2		1279	TEXTSIZE EQU 47*K/LINESIZE*LINESIZE	71.
		04000		1281	GRAPHEVN EQU TEXT LOCATION OF EVEN GRAPH LINES	72.
		09151		1283	GRAPHODD EQU TEXT+257*LINESIZE LOCATION OF ODD GRAPH LINES	73.
		004BF		1285	TDPOFF EQU 15*LINESIZE LOCATION TO START GRAPH DISPLAY AT	74.
				1287	*	75.
000000		02000		1288	ORG CPURAM	76.
				1290	*	77.
002000				1291	CURSLOC DS 2 LOCATION OF CURSOR	78.
002002				1293	CURSX DS 1 COLUMN NUMBER (ORIGIN 0)	79.
002003				1295	CURSCTR DS 1 COUNT FOR CURSOR BLINK	80.
002004				1297	CURSCCHAR DS 1 CHAR DISPLACED BY CURSOR	81.
002005				1299	PREVCHAR DS 1 PREVIOUS CHAR TYPED OR RECEIVED	82.
002006				1301	ESCCHAR DS 1 ESCAPE CHAR (MUST FOLLOW PREVCHAR)	83.
				1303	*	84.
002007				1304	PRVCCHAR DS 1 LAST <CMD>COMMAND	85.
002008				1306	KEYCTR DS 1 COUNT FOR CHAR REPEAT	86.
002009				1308	KEYSAVED DS 1 CHAR TO BE REPEATED	87.
00200A				1310	NXTCHL1 DS 2 ADDR OF NEXT CHL1TAB ENTRY TO USE	88.
00200C				1312	NXTDISA DS 2 NEXT DISPLAY ADDR TO BE LOADED	89.
00200E				1314	SAVDISA DS 2 SAVED DISPLAY ADDRESS AT "HOME" TIME	90.
002010				1316	SCRCTR DS 1 SCROLL COUNTER	91.
002011				1318	BRKSTATE DS 1 IS BREAK BEING ISSUED	92.
002012				1320	TIME DS 4 HHMMSSTT, IN DECIMAL	93.
002016				1322	TIMELOC DS 2 LOCATION OF TIME MSG	94.
002018				1324	CLRFLG DS 1 MSB=1 FOR CLR NEEDED, LSB FOR BANNER	95.
				1326	*	96.
002019				1327	FLAGS DS 1 MISCELLANEOUS FLAGS	97.
		00080		1329	FULLDUPL EQU X'80' FULL DUPLEX MODE	98.
		00001		1331	TABREF EQU X'01' HAVE TABS BEEN CLEAR?	99.
				1333	*	100.
00201A				1334	MODEBITS DS 1 CURRENT MODE BITS (SEE "MODESET")	101.
00201B				1336	PUTPTR DS 2 NEXT FREE BUFFER LOCATIN	102.
00201D				1338	GETPTR DS 2 NEXT BUFFERED CHAR TO PRCESS	103.
00201F				1340	LCLMODE DS 1 SEND TO COMPUTER=0,NOT=ANYTHING	104.
002020				1342	HELPPWHER DS 2 HELP INFO CURRENT LOCAION	105.
002022				1344	PUTMODE DS 1 PUTTING INTO BUFFER MODE	106.
002023				1346	CRLFOVR DS 1	107.
002024				1348	CNTLOMD DS 1 IS COPY OF FLAGS FOR FULLDPLX FAKE	108.
002025				1350	ALLOWGMD DS 1 0=ALLOW GRAPH MODE, NZ = NO GMODE	109.
				1352	*	110.
002026				1353	XMITTYPE DS 1	111.
002027				1355	XMITGET DS 2 ADD OF WHERE TO GET CHAR TO SND	112.
002029				1357	XMITPUT DS 2 ADD OF WHERE TO PUT CHAR IN BUF	113.
00202B				1359	CRCNT DS 1 NUMBER OF <CR> IN XMIT BUF	114.
00202C				1361	DC1CNT DS 1 WHETHER OR NOT DC1 HAS BEEN SENT	115.

00202D
00202F

	1363	*			(I.E. CLEAR TO SEND)	116.
	1364	*			MUST FOLLOW CRCNT	117.
	1365	XMITHAN	DS	2	ADD OF XMITING ROUTINE	118.
	1367	HTABTAB	DS	10	TABTABLE	119.
02039	1369	ENDLEN	EQU	*	THIS IS WHERE LENNY ENDS	120.
	1371	*				121.
	1372	*			MORE LOCAL RAM DEFINITIONS APPEAR AT THE START OF	122.
	1373	*			THE GRAPHMODE CODE.	123.
	1374	*				124.
00008	1375	CURSTIME	EQU	8	8/60 SECOND FOR CURSOR BLINK	125.
00014	1377	KEYRPTD	EQU	20	2/5 SECOND CHAR REPEAT DELAY	126.
	1379	KEYRPTR	EQU	3	20 REPETITIONS PER SECOND	127.



LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
			00003	1380		
			00004	1381	SCRQTIME EQU 4	SCROLL QUICKLY RATE (CHAR LINES) 128.
			00006	1383	SCRSTIME EQU 6	SCROLL SLOWLY RATE (RASTERS) 129.
			00030	1385	SCRPTIME EQU 48	PAGE SCROLLING RATE(ONCE AC SECOND) 130.
				1387	*	131.
	01C00		1388	HELPIFNO EQU	ROM+7*K	HELP IS IN 8TH ROM 132.
			1390	*		133.
			1391	*		134.
	0207F		1392	STACK EQU	CPURAM+CPURAMSZ-1	STACK IS WHATEVER IS LEFT OVER 135.
	02020		1394	SAVSTK EQU	HELPPWHER	136.
			1396	*		137.
			1397	*		138.
002039		0FC44	1398	ORG	TEXT+TEXTSIZE+LINESIZE+1	139.
00FC44			1400	XMITBUF DS	128	ATLEAST THAT BIG 140.
		0003C	1402	ALIGN	0,256,FILL=	141.
			1404			
00FCC4		0FD00	1405	XMITEND EQU	*	END OF XMITBUF 142.
			1407	*		143.
			1408	*		144.
		0FD00	1409	BUFFER EQU	*	A RATHER LARGE BUFFER 145.
			1411	*		WHICH MUST END ON A PAGE BNDRY-1 146.
		00000	1412	BUFEND EQU	X'00'	LAST PAGE+1 OF BUFFER 147.
			1414	*		148.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				1416	MACRO	150.
				1417	CMDEF &CHAR,&ROUTINE	151.
				1418	**	152.
				1419	**	153.
				1420	**	154.
				1421	DC X'&CHAR',AL2(&ROUTINE-VGT)	155.
				1422	MEND	156.
				1424	MACRO	158.
				1425	**	159.
				1426	**	160.
				1427	**	161.
				1428	&NAME MULT &A	162.
				1429	&NAME DS 0X	163.
				1430	AIF ('&A' NE '80').CHK81	164.
				1431	ADD HL,HL	165.
				1432	ADD HL,HL	166.
				1433	ADD HL,HL *8	167.
				1434	ADD HL,HL *16	168.
				1435	LOD D,H	169.
				1436	LOD E,L SAVE IT	170.
				1437	ADD HL,HL	171.
				1438	ADD HL,HL *64	172.
				1439	ADD HL,DE	173.
				1440	MEXIT	174.
				1441	*CHK81 AIF ('&A' NE '81').ERROR	175.
				1442	LOD DE,HL	176.
				1443	ADD HL,HL	177.
				1444	ADD HL,HL	178.
				1445	ADD HL,HL	179.
				1446	ADD HL,HL	180.
				1447	XCH HL,DE	181.
				1448	ADD HL,DE	182.
				1449	XCH HL,DE	183.
				1450	ADD HL,HL	184.
				1451	ADD HL,HL	185.
				1452	ADD HL,DE	186.
				1453	MEXIT	187.
				1454	*ERROR MNOTE 12,'NOT MULT BE 80 OR 81'	188.
				1455	MEND	189.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				1457	*****	191.
				1458	*	192.
				1459	* BASIC INTERRUPT PROCESSING	193.
				1460	*	194.
				1461	*****	195.
				1462	*	196.
				1463	* MASTER RESET INTERRUPT	197.
				1464	*	198.
				1465	* (THIS CODE MUST NOTE GO BEYOND LOCATION X'35')	199.
				1466	*	200.
00FD00		00000		1467	ORG 0	201.
000000	317F20			1469	POWERUP LODI SP,STACK	202.
000003	3E7A			1471	LODI A,URTMODE	203.
000005	D341			1473	OUT URTCTL	204.
000007	3E17			1475	LODI A,URTRSERR	205.
000009	D341			1477	OUT URTCTL	206.
00000B	CD4301			1479	CALL RCVCLR	207.
00000E	CD5201			1481	CALL XMITRCLR	208.
000011	211521			1483	LODI HL,X'2115'	209.
000014	221220			1485	ST HL,TIME	210.
000017	3E81			1487	LODI A,X'81'	211.
000019	321820			1489	ST A,CLRFLG	212.
00001C	212A01			1491	LODI HL,INTEND2	213.
00001F	222D20			1493	ST HL,XMITHAN	214.
000022	97			1495	SUB A	215.
000023	321A20			1497	ST A,MODEBITS	216.
000026	322620			1499	ST A,XMITTYPE	217.
000029	321F20			1501	ST A,LCLMODE	218.
00002C	D380			1503	OUT MODESET	219.
00002E	3E1B			1505	LODI A,@ESC	220.
000030	320620			1507	ST A,ESCCHAR	221.
000033	C38104			1509	JMP RESETII	222.
				1511	*	223.
				1512	* FRAME AND/OR USART INTERRUPT	224.
				1513	*	225.
000036		00038		1514	ORG 7*8	226.
000038	F5			1516	INTERRPT PUSH FA	227.
000039	E5			1518	PUSH HL	228.
00003A	D5			1520	PUSH DE	229.
00003B	DB85			1522	INP STATBITS	230.
00003D	E604			1524	ANDI FRAMEINT	231.
00003F	CA7701			1526	JMP Z,INTURT	232.
000042	D382			1528	OUT RSFRMINT	233.
				1530	*	234.
000044	DB85			1531	INP STATBITS	235.
000046	E608			1533	ANDI FRAMECNT	236.
000048	2A0A20			1535	LD HL,NXTCHL1	237.
00004B	7E			1537	LD A,(HL)	238.
00004C	C25300			1539	JMP NZ,SETCHL1	239.
00004F	07070707			1541	ROT L,4	240.
000053	D387			1543	SETCHL1 OUT CHLINE1	241.
				1545	*	242.
000055	2A0C20			1546	LD HL,NXTDISA	243.
000058	3A1A20			1548	LD A,MODEBITS	244.
00005B	E610			1550	ANDI GRAPHMD	245.

00005D CA6D00

1552

JMP Z,SENDISA

IF TEXT MODE, THEN (NXTDISA)

246.



LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000060	211096			1554	LODI HL,GRAPHODD+TOPOFF	247.
000063	DB85			1556	INP STATBITS	248.
000065	E608			1558	ANDI FRAMECNT	'GRAPHODD' OR 'GRAPHEVN'
000067	CA6D00			1560	JMP Z,SENDISA	DEPENDING ON FRAME COUNT BIT
00006A	21BF44			1562	LODI HL,GRAPHEVN+TOPOFF	250.
00006D	7D			1564	SENDISA LOD A,L	SEND OUT THE DISPLAY ADDRESS
00006E	D385			1566	OUT DISADDRL	251.
000070	7C			1568	LOD A,H	252.
000071	D384			1570	OUT DISADDRH	253.
				1572	*	254.
000073	211520			1573	LODI HL,TIME+3	UPDATE CLOCK TIME
000076	7E			1575	TICKTOCK LOD A,M	256.
000077	3C			1577	INC A	257.
000078	27			1579	DAA	258.
000079	77			1581	LOD M,A	259.
00007A	FE60			1583	CMPI X'60'	260.
00007C	FA8500			1585	JMP S,NOTICK	261.
00007F	3600			1587	LODI M,0	262.
000081	2B			1589	DEC HL	263.
000082	C37600			1591	JMP TICKTOCK	264.
		00085		1593	NOTICK EQU *	265.
				1595	*	266.
000085	210320			1596	LODI HL,CURSCTR	TIME TO CHANGE CURSOR?
000088	35			1598	DEC M	267.
000089	C2A700			1600	JMP NZ,CHKKBRD	NO...
00008C	3608			1602	LODI M,CURSTIME	YES - RESET COUNTER
00008E	2A0020			1604	LD HL,CURSLOC	CURRENT LOCATION
000091	7E			1606	LOD A,M	CURRENT CURSOR
000092	FE7F			1608	CMPI @DEL	BLOB?
000094	CA9C00			1610	JMP Z,CURCH1	YES...
000097	367F			1612	LODI M,@DEL	NO - MAKE IT A BLOB
000099	C3A700			1614	JMP CHKKBRD	271.
00009C	3A0420			1616	CURCH1 LD A,CURSCAR	CURSOR IS A BLOB,
00009F	FE7F			1618	CMPI @DEL	IS CHAR, TOO?
0000A1	77			1620	LOD M,A	SUPPOSE NOT, PUT IN CHAR
0000A2	C2A700			1622	JMP NZ,CHKKBRD	CORRECT...
0000A5	3620			1624	LODI M,' '	WRONG - MAKE CURSOR BLANK
0000A7	DB84			1626	CHKKBRD INP KEYBOARD	GET POSSIBLE KEYBOARD CHAR
0000A9	B7			1628	IDR A	272.
0000AA	FAA501			1630	JMP S,KEYRCVED	KEY DEPRESSED...
0000AD	3EFF			1632	LODI A,X'FF'	NOTHING - RESET KEYBRD REPEAT COUNT
0000AF	320820			1634	ST A,KEYCTR	273.
0000B2	320720			1636	ST A,PRVCCHAR	RESET PREVIOUS CMD KEY
0000B5	3E01			1638	LODI A,1	SET SCROLL TIMING
0000B7	321020			1640	ST A,SCRCTR	AND RESET IT
0000BA	217F03			1642	LODI HL,CHL1TAB	RESET PTR TO TABLE WHICH GIVES
0000BD	220A20			1644	ST HL,NXTCHL1	THE 1ST LINE OF 1ST CHAR ROW
0000C0	2A1620			1646	LD HL,TIMELOC	MUST WE ERASE THE TIME MSG?
				1648	LOD A,H	294.
						295.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
0000C3	7C			1649		
0000C4	B7			1650	IOR A	296.
0000C5	CAD500			1652	JMP Z,CHKATTN	297.
0000C8	3E0B			1654	LODI A,11	298.
0000CA	3620			1656	LODI M,' '	299.
0000CC	23			1658	INC HL	300.
0000CD	3D			1660	DEC A	301.
0000CE	C2CA00			1662	JMP NZ,TIMERASE	302.
0000D1	97			1664	SUB A	303.
0000D2	321720			1666	ST A,TIMELOC+1	304.
0000D5	DB85			1668	CHKATTN INP STATBITS	305.
0000D7	E602			1670	ANDI KBATTN	ATTN KEY PRESSED?
0000D9	CA6701			1672	JMP Z,DNTBREAK	GO SEE IF SHOULD TURN OFF BRK
0000DC	CD5201			1674	CALL XMITRCLR	
0000DF	3E0F			1676	LODI A,URTBREAK	SEND BREAK IF SO
0000E1	D341			1678	CTLBRK OUT URTCTL	
				1680	*	
		000E3		1681	INTEND EQU *	HERE TO CHECK FOR XMIT RDY
				1683	* CHK FOR SENDING CHARACTERS	
0000E3	DB41			1684	INP URTSTAT	
0000E5	E601			1686	ANDI URTTXRDY	CAN WE XMIT
0000E7	CA2A01			1688	JMP Z,INTEND2	NO WE CANT
0000EA	2A2D20			1690	LD HL,XMITHAN	YES WE CAN GET HANDLER ADD
				1692	* IF IN @TE1 MODE THIS IS JUST A BRANCH TO INTEND2	
0000ED	E9			1693	JMP (HL)	
				1695	*	
				1696	* WE COME HERE AFTER THE BRANCH FROM XMIT INTERRUPT.	
				1697	* @TCE1 IS A GENERAL PURPOSE ROUTINE USED TO TAKE CHARACTERS OUT	
				1698	* OF BUFFER	
				1699	*	
		000EE		1700	@TE1 EQU *	
0000EE	2A2720			1702	LD HL,XMITGET	GET PNT TO THINGS TO BE SNT
0000F1	3A2920			1704	LD A,XMITPUT	SEE IF ANYTHING THERE
0000F4	BD			1706	CMP L	
0000F5	C2FF00			1708	JMP NZ,XMITINFO	THERE IS
0000F8	3A2A20			1710	LD A,XMITPUT+1	GET HIGH PART OF PUT
0000FB	BC			1712	CMP H	SEE IF EQUAL
0000FC	CA2A01			1714	JMP Z,INTEND2	NOTHING TO SEND SO LEAVE
		000FF		1716	XMITINFO EQU *	HERE TO SEND SOMETHING
0000FF	23			1718	INC HL	MOVE POINTER UP
000100	3EFD			1720	LODI A,XMITEND,<	SEE IF WRAP AROUND
000102	BC			1722	CMP H	
000103	C20901			1724	JMP NZ,XMITNOWP	
000106	2144FC			1726	LODI HL,XMITBUF	
		00109		1728	XMITNOWP EQU *	
000109	222720			1730	ST HL,XMITGET	SAVE NEW POINTER
00010C	7E			1732	LD A,(HL)	GET CHARACTER
00010D	D301			1734	OUT URTXMT	SEND IT OFF TO HOST
00010F	FE04			1736	CMPI @EQT	SEE IF CNTL D ATTN
000111	CA1901			1738	JMP Z,SIMCR	YES THEN FAKE A <CR> FOR TYPE AHEAD
				1740	*	THIS IS USEFUL WAY OF DELETING A
				1741	*	LINE YOU JUST TYPED, BUT NOT CLRING
				1742	*	OUT ALL OF TYPEAHEAD BUFFER.
				1743	*	
000114	FE0D			1744	CMPI @CR	WAS IT <CR>

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM H V 05 14.53 06/19/76
000119	212B20			1748	SIMCR	LODI HL,CRCNT	351.
00011C	35			1750		DEC M	352.
00011D	23			1752		INC HL	353.
00011E	3600			1754		LODI M,0	354.
			00120	1756	XMITCALL	EQU *	355.
000120	57			1758		LD D,A	356.
000121	3A1920			1760		LD A,FLAGS	357.
000124	E680			1762		ANDI FULLDUPL	358.
000126	7A			1764		LD A,D	359.
000127	CC5802			1766		CALL Z,KEYSTORE	360.
				1768	*		361.
			0012A	1769	INTEND2	EQU *	362.
00012A	D1			1771		POP DE	363.
00012B	E1			1773		POP HL	364.
00012C	F1			1775		POP FA	365.
00012D	FB			1777		EI	366.
00012E	C9			1779		RET ,	367.
				1781	*		368.
				1782	*	* THIS ROUTINE DOES CHECKING FOR XMIT ON CR	369.
				1783	*		370.
00012F	3A2B20			1784	@TOCR	LD A,CRCNT	371.
000132	B7			1786		IOR A	372.
000133	CA2A01			1788		JMP Z,INTEND2	373.
000136	C3EE00			1790		JMP @TE1	374.
			00139	1792	@TODC1	EQU *	375.
000139	3A2C20			1794		LD A,DC1CNT	376.
00013C	B7			1796		IOR A	377.
00013D	CA2A01			1798		JMP Z,INTEND2	378.
000140	C3EE00			1800		JMP @TE1	379.
				1803	*		381.
			00143	1804	RCVCLR	EQU *	382.
000143	2100FD			1806		LODI HL,BUFFER	383.
000146	221B20			1808		ST HL,PUTPTR	384.
000149	221D20			1810		ST HL,GETPTR	385.
00014C	3E01			1812		LODI A,1	386.
00014E	321020			1814		ST A,SCRCTR	387.
000151	C9			1816		RET ,	388.
				1818	*		389.
				1819	*		390.
				1820	*		391.
				1821	*		392.
				1822	*		393.
				1823	*	* HERE FOR RESETTING XMITR	394.
				1824	*		395.
			00152	1825	XMITRCLR	EQU *	396.
000152	2144FC			1827		LODI HL,XMITBUF	397.
000155	222920			1829		ST HL,XMITPUT	398.
000158	222720			1831		ST HL,XMITGET	399.
00015B	97			1833		SUB A	400.
00015C	322B20			1835		ST A,CRCNT	401.
00015F	322C20			1837		ST A,DC1CNT	402.
000162	3D			1839		DEC A	403.
000163	321120			1841		ST A,BRKSTATE	404.

1843 * NOTE THE FOLLOWING RELATED TO TYPE AHEAD. IF YOU GO INTO
1844 * TYPEAHEAD WHILE COMPUTER IS TYPEING AND THEN START TYPING
1845 * TYPEAHEAD WILL NOT WORK UNTIL FIRST CARRAIGE RETURN

405.
406.
407.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				1846	* HOWEVER IF YOU HIT ATTN OR BUF RESET IT TYPE AHEAD WILL STILL WORK	408.
				1847	*	409.
				1848	*	410.
000166	C9			1849	RET , AND GO HOME	411.
				1851	*	412.
				1852	*	413.
				1853	*	414.
		00167		1854	DNTBREAK EQU * HERE TO TURN OFF BREAK (MAYBE)	415.
000167	211120			1856	LODI HL, BRKSTATE ADD OF INDICATOR	416.
00016A	34			1858	INC M -1 MEANS BREAK IS ON	417.
00016B	3600			1860	LODI M, 0 MAKE IT ZERO IN ANY CASE	418.
00016D	C2E300			1862	JMP NZ, INTEND POSITIVE MEANS NO BREAK SET	419.
000170	3E07			1864	LODI A, URTRSBRK DATA TO RESET BREAK	420.
000172	D341			1866	OUT URTCTL PUT OUT ON UART CTL LINES	421.
000174	C3E300			1868	JMP INTEND AND GO BACK	422.
				1870	*	423.
				1871	* USART INTERRUPT	424.
				1872	*	425.
000177	D383			1873	INTURT OUT RSURTINT RESET POSSIBLE INTERRUPT	426.
000179	DB41			1875	INP URTSTAT USART STATUS	427.
00017B	6F			1877	LOD L, A	428.
00017C	E602			1879	ANDI URTRXRDY RCV CHAR?	429.
00017E	CAE300			1881	JMP Z, INTEND NO...	430.
000181	7D			1883	LOD A, L GET BACK STATBITS	431.
000182	E638			1885	ANDI URTRERR	432.
000184	CA8D01			1887	JMP Z, RCVROK	433.
000187	D386			1889	OUT BELL	434.
000189	3E17			1891	LODI A, URTRSERR RESET ERROR	435.
00018B	D341			1893	OUT URTCTL AND PUT IT OUT	436.
		0018D		1895	RCVROK EQU * 437.	
00018D	3A1F20			1897	LD A, LCLMODE 438.	
000190	B7			1899	IOR A IS IT IN LOCAL MODE 439.	
000191	DB01			1901	INP URTRCV GET CHAR 440.	
000193	C2E300			1903	JMP NZ, INTEND YES THEN IGNORE RECIEVED STUFF 441.	
000196	FE11			1905	CMPI @DC1 442.	
000198	CADC01			1907	JMP Z, SETDC1 INDICATE GOT A DC1 443.	
00019B	B7			1909	IOR A 444.	
00019C	CAE300			1911	JMP Z, INTEND IGNORE NULL 445.	
00019F	CD5802			1913	CALL KEYSTORE GO SAVE THE CHARACTER IN BUFFER 446.	
0001A2	C3E300			1915	JMP INTEND 447.	
		001A5		1917	KEYRCVED EQU * 448.	
0001A5	E67F			1919	ANDI X'7F' REMOVE STROBE BIT 449.	
0001A7	6F			1921	LOD L, A 450.	
0001A8	DB85			1923	INP STATBITS 451.	
0001AA	E601			1925	ANDI KBRPT SEE IF REPEAT PRESS 452.	
0001AC	0F			1927	ROT R PUT IT IN RIGHT PLACE 453.	
0001AD	B5			1929	IOR L 454.	
0001AE	FAB801			1931	JMP S, KEYCMD 455.	
0001B1	57			1933	LOD D, A SAVE IT 456.	
0001B2	CDC001			1935	CALL KEYRPTL REG. CHAR. DO REPEAT 457.	
0001B5	C3E300			1937	JMP INTEND AND GO HOME 458.	
		001B8		1939	KEYCMD EQU * 459.	
0001B8	D396			1941	OUT KBRESET RESET 'NEWKB STROBE' BIT 460.	
0001BA	CDE901			1943	CALL CMDDOIT GO PROCESS <CMD> FUNCTION 461.	
				1945	JMP INTEND THEN GO HOME 462.	

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
0001BD	C3E300			1946		
				1947 *		463.
				1948 *	AUTOMATIC KEY REPEAT LOGIC	464.
				1949 *		465.
0001C0	210820			1950	KEYRPTL LODI HL,KEYCTR	LOOK AT REPEAT COUNTER
0001C3	DB85			1952	INP STATBITS	GET THE 'NEW KB STROBE' STATUS BIT
0001C5	E610			1954	ANDI KBNEWCHR	WHICH INDICATES A NEW CHARACTER
0001C7	C2D501			1956	JMP NZ,KEYNEWCH	YES, INDEED...
0001CA	34			1958	INC M	OLD CHAR - INCREMENT REPEAT WAIT CTR
0001CB	7E			1960	LOD A,M	
0001CC	FE14			1962	CMPI KEYRPTD	TIME FOR REPEAT?
0001CE	D8			1964	RET C	NO - DO NOTHING
0001CF	D603			1966	SUBI KEYRPTR	YES - DECR. FOR NEXT REPEAT
0001D1	77			1968	LOD M,A	
0001D2	C30802			1970	JMP KEYDOIT	AND GO DOIT
0001D5	D396			1972	KEYNEWCH OUT KBRESET	RESET 'NEW KB STROBE' STATUS BIT
0001D7	36FF			1974	LODI M,X'FF'	INITIALIZE REPEAT WAIT COUNTER
0001D9	C30802			1976	JMP KEYDOIT	AND PROCESS FIRST OCCURENCE OF CHAR
				1978 *		480.
				1979 *		481.
		001DC		1980	SETDC1 EQU *	HERE IF GOT A DC1
0001DC	322C20			1982	ST A,DC1CNT	SAVE IT AS INDICATOR
0001DF	C3E300			1984	JMP INTEND	AND LEAVE

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				1987 *		486.
				1988 *	KEYBOARD INTERRUPT PROCESSING	487.
				1989 *		488.
0001E2	57	001E2		1990	CHARPROC EQU * HERE TO PROCESS CHARACTERS	489.
				1992	LOD D,A SAVE THE CHAR	490.
				1994 *		491.
				1995 *		492.
				1996 *		493.
				1997 *		494.
				1998 *	CHECK FOR SPECIAL ESCAPE KEYS	495.
				1999 *		496.
0001E3	E680			2000	ANDI CMDKEY 'CMD' KEY?	497.
0001E5	CA0802			2002	JMP Z,KEYDOIT NO, NOT SPECIAL...	498.
0001E8	7A			2004	LOD A,D	499.
0001E9	E67F			2006	CMDDOIT ANDI X'7F'	500.
0001EB	57			2008	LOD D,A SAVE THE CHAR	501.
0001EC	214907			2010	LODI HL,CMDTAB	502.
0001EF	BE			2012	CMDDOIT CMP M SEE IF CHAR IS IN TABLE	503.
0001F0	D8			2014	RET C IF NEG IT ISNT	504.
0001F1	23			2016	INC HL BUMP TO ADD OF PROC. ROUTINE	505.
0001F2	CAFA01			2018	JMP Z,GOTCMD	506.
0001F5	23			2020	INC HL	507.
0001F6	23			2022	INC HL	508.
0001F7	C3EF01			2024	JMP CMDDOIT	509.
		001FA		2026	GOTCMD EQU * HERE IF WE GOT A MATCH	510.
0001FA	7E			2028	LOD A,M GET HIGH ADDRESS	511.
0001FB	5F			2030	LOD E,A AND SAVE IT	512.
0001FC	23			2032	INC HL	513.
0001FD	6E			2034	LOD L,M AND SAVE IT IN L	514.
0001FE	63			2036	LOD H,A GET HIGH PART	515.
0001FF	3A0720			2038	LD A,PRVCCHAR	516.
000202	5F			2040	LOD E,A SAVE LAST CMD CHAR	517.
000203	7A			2042	LOD A,D LOAD BACK CHAR	518.
000204	320720			2044	ST A,PRVCCHAR SAVE NEW ONE AS OLD	519.
000207	E9			2046	JMP (HL) AND GO TO ROUTINE	520.
				2048 *		521.
				2049 *		522.
				2050 *	END OF COMMAND LOOP	523.
				2051 *		524.
				2052 *		525.
				2053 *	TRANSMIT TO USART & BUFFER THE CHARACTER	526.
				2054 *	KEYDOIT <i>KEYDOIT OUT CHECK</i>	527.
000208	7A			2055	KEYDOIT LOD A,D THE CHAR	528.
000209	320920			2057	ST A,KEYSAVED SAVE IT FOR NEXT TIME	529.
00020C	B7			2059	IOR A SEE IF SPECIAL CURS MOTION	530.
00020D	FA5802			2061	JMP S,KEYSTORE IF SIGNED IT IS SO DON'T SEND	531.
000210	3A1F20			2063	LD A,LCLMODE SEE IF JUST LOCAL TXT ENTRY	532.
000213	B7			2065	IOR A	533.
000214	C25702			2067	JMP NZ,KEYSTOR2 IT IS GO AROUND XMIT STUFF	534.
000217	3A2620			2069	LD A,XMITTYPE	535.
00021A	B7			2071	IOR A	536.
00021B	CA4E02			2073	JMP Z,XMITNORM	537.
00021E	2A2920			2075	LD HL,XMITPUT PLACE TO STORE CHAR IN BUF	538.
000221	23			2077	INC HL BUMP IT	539.
000222	3EFD			2079	LODI A,XMITEND,< CHECK FOR WRAP AROUND	540.

000224 BC
000225 C22B02
000228 2144FC

2081
2083
2085

CMP H
JMP NZ,XMITCHK
LODI HL,XMITBUF

WE WRAPED

541.
542.
543.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
			0022B	2087	XMITCHK EQU *	544.
00023B	222920			2089	ST HL,XMITPUT	545.
00022E	3A2720			2091	LD A,XMITGET	546.
000231	BD			2093	CMP L	547.
000232	C23F02			2095	JMP NZ,XMITROOM	548.
000235	3A2820			2097	LD A,XMITGET+1	549.
000238	BC			2099	CMP H	550.
000239	C23F02			2101	JMP NZ,XMITROOM	551.
00023C	D386			2103	OUT BELL	552.
00023E	C9			2105	RET ,	553.
			0023F	2107	XMITROOM EQU *	554.
00023F	7A			2109	LOD A,D	555.
000240	77			2111	ST A,(HL)	556.
000241	FE04			2113	CMPI @EOT	557.
000243	CA4902			2115	JMP Z,SETSIMCR	558.
				2117	*	559.
000246	FE0D			2118	CMPI @CR	560.
				2120	* NOTE THIS CHECK MUST STAY	561.
				2121	* WANT TO SCREW UP CARRIAGE	562.
000248	C0			2122	RET NZ	563.
000249	212B20			2124	SETSIMCR LODI HL,CRCNT	564.
00024C	34			2126	INC M	565.
00024D	C9			2128	RET ,	566.
			0024E	2130	XMITNORM EQU *	567.
00024E	7A			2132	LOD A,D	568.
00024F	D301			2134	OUT URTXMT	569.
000251	3A1920			2136	LD A,FLAGS	570.
000254	E680			2138	ANDI FULLDUPL	571.
000256	C0			2140	RET NZ	572.
000257	7A			2142	KEYSTOR2 LOD A,D	573.
				2144	*	574.
			00258	2145	KEYSTORE EQU *	575.
000258	57			2147	LOD D,A	576.
000259	FE0D			2149	CMPI @CR	577.
00025B	C26802			2151	JMP NZ,NOTCRCHG	578.
00025E	3A1920			2153	LD A,FLAGS	579.
000261	212420			2155	LODI HL,CNTLOMD	580.
				2157	*	581.
				2158	*	582.
				2159	*	583.
				2160	*	584.
000264	A6			2161	AND M	585.
000265	321920			2163	ST A,FLAGS	586.
000268	2A1B20			2165	NDTCRCHG LD HL,PUTPTR	587.
00026B	23			2167	INC HL	588.
00026C	7C			2169	LOD A,H	589.
00026D	FE00			2171	CMPI BUFEND	590.
00026F	C27502			2173	JMP NZ,KEYST1	591.
000272	2100FD			2175	LODI HL,BUFFER	592.
000275	3A1D20			2177	KEYST1 LD A,GETPTR	593.
000278	BD			2179	CMP L	594.
000279	C28602			2181	JMP NZ,KEYST2	595.
00027C	3A1E20			2183	LD A,GETPTR+1	596.
00027F	BC			2185	CMP H	597.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000280	C28602			2187	JMP NZ,KEYST2	NO, AGAIN... 598.
000283	D386			2189	OUT BELL	YES - SQUAWK ABOUT IT 599.
000285	C9			2191	RET ,	AND IGNORE THIS INCOMING CHARACTER 600.
000286	221B20			2193	KEYST2 ST HL,PUTPTR	SAVE UPDATED PUTPTR 601.
000289	72			2195	LOD M,D	AND PUT IN THE NEW CHAR 602.
00028A	C9			2197	KEYEND RET ,	AND GO HOME 603.
				2200	*	605.
				2201	* LOCAL MODE WITH LAST COMMAND CHECK	606.
				2202	*	607.
		0028B		2203	HELPCHK EQU *	608.
00028B	3A2220			2205	LD A,PUTMODE	IF ZERO MEANS WE CAN DO HELP 609.
00028E	B7			2207	IOR A	SEE IF ZERO 610.
00023F	C0			2209	RET NZ	NO CAN DO HELP, ALREADY IN PUTMODE 611.
000290	3EBF			2211	LODI A,X'3F'+X'80'	PUT A ? MARK INTO BUFFER 612.
000292	C35802			2213	JMP KEYSTORE	AND PUT IT IN BUFFER 613.
				2215	*	614.
				2216	* LOCAL CURSOR MOTION	615.
				2217	*	616.
000295	F680			2218	LOCAL IORI X'80'	PUT IN HIGH ORDER BIT 617.
				2220	* HIGHORDER BIT INDICATES NO TRANSMIT TO HOST	618.
				2221	*	619.
000297	57			2222	LOD D,A	SAVE IN D 620.
000298	C3C001			2224	JMP KEYRPTL	AND GO CHECK FOR REPEAT 621.
				2226	*	622.
				2227	* LOCAL CHANGE OF GRAPHIC SCALLING	623.
				2228	*	624.
00029B	324F20			2229	STORSIZE ST A,TYPE	625.
00029E	C9			2231	RET ,	626.
				2233	*	627.
				2234	*	628.
				2235	*	629.
		0029F		2236	CLRSCREEN EQU *	CODE TO ERASE SCREEN 630.
				2238	*	NOT OFF ALL OF MEMEMORY THOUGH 631.
00023F	BB			2239	CMP E	WAS LAST SAME AS THIS 632.
0002A0	C8			2241	RET Z	YUP, THEN DON'T DO IT AGAIN 633.
0002A1	3A1A20			2243	LD A,MODEBITS	SEE IF IN GRAPH MODE 634.
0002A4	E610			2245	ANDI GRAPHMD	635.
0002A6	C2B502			2247	JMP NZ,CLRGRPH	DIFFERENT CLEAR 636.
0002A9	2A0C20			2249	LD HL,NXTDISA	JUST CLEAR CURRENT SCREEN 637.
0002AC	220020			2251	ST HL,CURSLOC	AND MAKE THAT NEWCURSOR LOC 638.
0002AF	3EA0			2253	LODI A,X'A0'	THING TO CLEAR ONE PAGE 639.
0002B1	321820			2255	ST A,CLRFLG	AND PUT IN BACKGROUND INDIIICATOR 640.
0002B4	C9			2257	RET ,	AND GO HOME 641.
				2259	*	642.
				2260	*	643.
		002B5		2261	CLRGRPH EQU *	CLEAR IN GRAPHMODE 644.
0002B5	3E00			2263	LODI A,X'CO'	FLAG TO CLEAR 645.
000237	321820			2265	ST A,CLRFLG	AND PUT IN BACKGROUND INDIC. 646.
0002BA	3E0C			2267	LODI A,@FF	INDICATES A CLEAR 647.
0002BC	C35802			2269	JMP KEYSTORE	AND PUT IN BUF 648.
				2271	* THE ABOVE IS A LITTLE KLUGGY IN THAT FF MAY BE OUT	649.
				2272	* OF SYNC WITH REST OF TEXT.	650.
				2273	* EHF	651.

		2274	*			652.	
		2275	*			653.	
		2276	*			654.	
00023F	BB	002BF 2277	LEAVGRP	EQU	*	CMD K- LEAVES GRPHMODE AND CLEAR	655.
0002C0	C8	2279		CMP	E		656.
0002C1	3E80	2281		RET	Z		657.
0002C3	321820	2283		LODI	A,X'80'	FLAG TO CLEAR	658.
		2285		ST	A,CLRFLG	NO MATTER WHAT	659.
		2287		LODI	HL,TEXT	PLACE TO PUT CURSOR	660.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
0002C6	210040			2288		
0002C9	220020			2289	ST HL,CURSLOC	AND PUT IT THERE 661.
0002CC	3A1A20			2291	LD A,MODEBITS	SEE IF IN GRAPHMODE 662.
0002CF	E610			2293	ANDI GRAPHMD	663.
0002D1	C8			2295	RET Z	NO, THEN JUST DO CLEAR 664.
				2297	*	665.
		002D2		2298	NORMODE EQU *	LEAVE GRAPH MODE 666.
0002D2	BB			2300	CMP E	667.
0002D3	C8			2302	RET Z	668.
0002D4	3EFE			2304	LODI A,X'FE'	FLAGE 0 LEAVE GRAPH MODE 669.
0002D6	C35802			2306	JMP KEYSTORE	AND PUT IN BUFFER 670.
				2308	*	671.
				2309	*	672.
				2310	*	673.
		002D9		2311	ENTGRPC EQU *	ENTER GRAPH MODE AND CLEAR 674.
0002D9	BB			2313	CMP E	675.
0002DA	C8			2315	RET Z	676.
				2317	*	NOW CHECK IF WE ARE ALLOWED 677.
				2318	*	TO ENTER GRAPH MODE 678.
0002DB	3A2520			2319	LD A,ALLOWGMD	679.
0002DE	B7			2321	IOR A	680.
0002DF	C0			2323	RET NZ	IF NOT ZERO THEN CAN'T ENTER 681.
0002E0	3EC0			2325	LODI A,X'C0'	FLAG TO CLEAR GRAPH 682.
0002E2	321820			2327	ST A,CLRFLG	SAVE IT 683.
				2329	*	684.
				2330	*	685.
				2331	*	686.
		002E5		2332	ENTERGRP EQU *	GO INTO GRAPH MODE (CMD G) 687.
0002E5	BB			2334	CMP E	IS IT SAME AS OLD 688.
0002E6	C8			2336	RET Z	YES DON'T DO ITHIS 689.
0002E7	3A2520			2338	LD A,ALLOWGMD	CHECK IF WE CAN ENTER 690.
0002EA	B7			2340	IOR A	691.
0002EB	C0			2342	RET NZ	IF NZ THEN WE CANT 692.
0002EC	3E9D			2344	LODI A,@GS+X'80'	PUT IN INDICATOR 693.
0002EE	C35802			2346	JMP KEYSTORE	AND PUT INTO BUFFER. 694.
				2348	*	695.
				2349	*	696.
				2351	*	698.
				2352	*	699.
				2353	*	700.
				2354	SETHALF LD A,FLAGS	701.
0002F1	3A1920			2356	ANDI 255-FULLDUPL	702.
0002F4	E67F			2358	JMP SETFULL2	703.
0002F6	C3FE02			2360	LD A,FLAGS	704.
0002F9	3A1920			2362	IORI FULLDUPL	705.
0002FC	F680			2364	SETFULL2 ST A,FLAGS	706.
0002FE	321920			2366	ST A,CNTLOMD	707.
000301	322420			2368	RET ,	SAVE COPY FOR CNTLSHIFT 0 FAKE 708.
000304	C9					

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				2371 *		710.
				2372 *	SCROLL DOWN QUICKLY	711.
				2373 *		712.
000305	211020			2374	SCRDOWNQ LODI HL,SCRCTR	713.
000308	35			2376	DEC M	714.
000309	C0			2378	RET NZ	715.
00030A	3604			2380	LODI M,SCRQTIME	716.
00030C	CD1303			2382	CAL SCRDOWN	717.
00030F	CD1303			2384	SCRDOWNQ1 CAL SCRDOWN	718.
000312	C9			2386	RET ,	719.
				2388 *		720.
000313	2A0C20			2389	SCRDOWN LD HL,NXTDISA	721.
000316	11FFBF			2391	LODI DE,-(TEXT+1)	722.
000319	19			2393	ADD HL,DE	723.
00031A	D22803			2395	JMP NC,SCRDOWN2	724.
00031D	2A0C20			2397	LD HL,NXTDISA	725.
000320	11AFFF			2399	LODI DE,-LINESIZE	726.
000323	19			2401	ADD HL,DE	727.
000324	220C20			2403	SCRDOWN1 ST HL,NXTDISA	728.
000327	C9			2405	RET ,	729.
000328	213DF0			2407	SCRDOWN2 LODI HL,TEXT+TEXTSIZE-SCRNSIZE	730.
00032B	C32403			2409	JMP SCRDOWN1	731.
				2411 *		732.
				2412 *	SCROLL UP QUICKLY	733.
				2413 *		734.
00032E	211020			2414	SCRUPQ LODI HL,SCRCTR	735.
000331	35			2416	DEC M	736.
000332	C0			2418	RET NZ	737.
000333	3604			2420	LODI M,SCRQTIME	738.
000335	CD3C03			2422	CAL SCRUP	739.
000338	CD3C03			2424	SCRUPQ1 CAL SCRUP	740.
00033B	C9			2426	RET ,	741.
				2428 *		742.
00033C	2A0C20			2429	SCRUP LD HL,NXTDISA	743.
00033F	11C40F			2431	LODI DE,-(TEXT+TEXTSIZE-SCRNSIZE-1)	744.
000342	19			2433	ADD HL,DE	745.
000343	DA5103			2435	JMP C,SCRUP2	746.
000346	2A0C20			2437	LD HL,NXTDISA	747.
000349	115100			2439	LODI DE,LINESIZE	748.
00034C	19			2441	ADD HL,DE	749.
00034D	220C20			2443	SCRUP1 ST HL,NXTDISA	750.
000350	C9			2445	RET ,	751.
000351	210040			2447	SCRUP2 LODI HL,TEXT	752.
000354	C34D03			2449	JMP SCRUP1	753.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				2452 *		755.
				2453 *	SCROLL DOWN SLOWLY	756.
				2454 *		757.
000357	211020			2455	SCRDWNS LODI HL,SCRCTR	758.
00035A	35			2457	DEC M	759.
00035B	C0			2459	RET NZ	760.
00035C	3606			2461	LODI M,SCRSTIME	761.
00035E	210A20			2463	LODI HL,NXTCHL1	762.
000361	35			2465	DEC M	763.
000362	7E			2467	LOD A,M	764.
000363	FE7F			2469	CMPI CHL1TAB,>	765.
000365	D0			2471	RET NC	766.
000366	368B			2473	LODI M,CHL1TAB+12,>	767.
000368	C30F03			2475	JMP SCRDOWNQ1	768.
				2477 *		769.
				2478 *	SCROLL UP SLOWLY	770.
				2479 *		771.
00036B	211020			2480	SCRUPS LODI HL,SCRCTR	772.
00036E	35			2482	DEC M	773.
00036F	C0			2484	RET NZ	774.
000370	3606			2486	LODI M,SCRSTIME	775.
000372	210A20			2488	LODI HL,NXTCHL1	776.
000375	34			2490	INC M	777.
000376	7E			2492	LOD A,M	778.
000377	FE8C			2494	CMPI CHL1TAB+13,>	779.
000379	D8			2496	RET C	780.
00037A	367F			2498	LODI M,CHL1TAB,>	781.
00037C	C33803			2500	JMP SCRUPQ1	782.
				2502 *		783.
				2503 *	THE FOLLOWING TABLE GIVES THE VALUES WHICH MUST BE OUTPUT	784.
				2504 *	TO THE CHARACTER LINE COUNTER ('OUT CHLINE1') TO DETERMINE	785.
				2505 *	WHICH LINE OF THE FIRST CHARACTER ROW IS THE FIRST TO BE	786.
				2506 *	DISPLAYED AT THE TOP OF THE SCREEN.	787.
				2507 *	THERE ARE 13 ENTRIES, ONE FOR EACH POSSIBLE CHARACTER LINE,	788.
				2508 *	AND THE FIRST IS THE 'NORMAL' ONE, IE THE ONE WHICH DISPLAYS	789.
				2509 *	A FULL ROW AT THE TOP SUCH THAT THE BOTTOM ROW OF 13 LINES	790.
				2510 *	IS FOLLOWED BY THE HALF RASTER FROM THE TOP LINE OF THE	791.
				2511 *	NEXT CHARACTER ROW. THAT IS DONE BY DISPLAYING 14 LINES	792.
				2512 *	FROM THE FIRST ROW, SINCE $1+37*13+.5=482.5$ DISPLAYED LINES.	793.
				2513 *	THE FIRST 4 BITS OF EACH ENTRY IS THE NUMBER TO BE OUTPUT	794.
				2514 *	FOR EVEN (FRAMECNT=0) FRAMES, AND THE SECOND 4 BITS IS	795.
				2515 *	FOR THE ODD (FRAMECNT=1) FRAMES.	796.
				2516 *	YOU CAN UNDERSTAND THESE NUMBERS ONLY BY LOOKING AT THE SMALL	797.
				2517 *	PORTION OF THE SCHEMATIC WHICH SHOWS THE CHARACTER LINE CNTER	798.
				2518 *	AND CPU LOAD MULTIPLEXER FOR IT. REMEMBER THAT 74158'S INVERT.	799.
				2519 *	GOOD LUCK. YOU SHOULD WORK AS HARD FOR THIS AS I DID. (LJS)	800.
				2520 *		801.
00037F	8009911AA22BB3			2521	CHL1TAB DC X'8009911AA22BB3'	802.
000386	3CC44DD55EE6			2522	DC X'3CC44DD55EE6'	803.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				2524 *		805.
				2525 **	DISPLAY CLOCK TIME IN UPPER RIGHT CORNER	806.
				2526 *		807.
00038C	2A0C20			2527 SHOWTIME	LD HL,NXTDISA	808.
00038F	119100			2529	LODI DE,80+65	809.
000392	19			2531	ADD HL,DE	810.
000393	221620			2533	ST HL,TIMELOC	811.
000396	111220			2535	LODI DE,TIME	812.
000399	1A			2537 SHOWTIM1	LD A,(DE)	813.
00039A	0F0F0F0F			2539	ROT R,4 HIGH-ORDER DECIMAL DIGIT	814.
00039E	E60F			2541	ANDI X'0F'	815.
0003A0	C630			2543	ADDI '0'	816.
0003A2	77			2545	ST A,(HL)	817.
0003A3	23			2547	INC HL	818.
0003A4	1A			2549	LD A,(DE)	819.
0003A5	E60F			2551	ANDI X'0F'	LOW-ORDER DECIMAL DIGIT
0003A7	C630			2553	ADDI '0'	820.
0003A9	77			2555	ST A,(HL)	821.
0003AA	23			2557	INC HL	822.
0003AB	13			2559	INC DE	823.
0003AC	7B			2561	LOD A,E	824.
0003AD	FE16			2563	CMPI TIME+4,>	DONE?
0003AF	C8			2565	RET Z	YES...
0003B0	363A			2567	LODI M,'::'	NO - INSERT '::'
0003B2	23			2569	INC HL	828.
0003B3	C39903			2571	JMP SHOWTIM1	829.
						830.
				2574 *		832.
				2575 **	HOME SCREEN TO PUT CURSOR AT BOTTOM	833.
				2576 *		834.
0003B6	BB	003B6		2577 HOME	EQU *	835.
0003B7	C8			2579	CMP E	WAS LAST CMD HOME?
0003B8	2A0C20			2581	RET Z	YES, IGNORE THIS ONE
0003BB	220E20			2583	LD HL,NXTDISA	SAVE CURRENT DISPLAY ADDRESS
0003BE	2A0020			2585	ST HL,SAVDISA	FOR SUBSEQUENT "UNHOME"
0003C1	119DF4			2587	LD HL,CURSLOC	CURSOR LOCATION
0003C4	19			2589	LODI DE,-(SCRNSIZE-LINESIZE)+1	
0003C5	3A0220			2591	ADD HL,DE	-(SCREENSIZE-LINESIZE)+1
0003C8	2F			2593	LD A,CURSX	
0003C9	85			2595	CMA	
0003CA	6F7C			2597	ADD L	-XLOC-1
0003CC	CEFF			2599	LOD LA,AH	
0003CE	67			2601	ADCI X'FF'	
0003CF	220C20			2603	LOD H,A	
0003D2	1100C0			2605	ST HL,NXTDISA	THAT RESULT IN NEW START OF SCREEN
0003D5	19			2607	LODI DE,-TEXT	UNLESS IT IS TOO HIGH
0003D6	D8			2609	ADD HL,DE	
0003D7	210040			2611	RET C	
0003DA	220C20			2613	LODI HL,TEXT	
0003DD	C9			2615	ST HL,NXTDISA	
				2617	RET ,	855.
				2620 *		857.
				2621 **	UNHOME: RETURN TO WHERE WE WERE WHEN "HOME" WAS DONE	858.

0003DE 2A0E20

2622 *
2623 UNHOME LD HL,SAVDISA
2625 ST HL,NXTDISA

859.
860.
861.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
0003E1	220C20			2626		
0003E4	C9			2627	RET ,	862.
		003E5		2629	MOVECURS EQU * MOVE CURSOR TO BOTTOM OF DISPLAY	863.
0003E5	2A0C20			2631	LD HL,NXTDISA	864.
0003E8	11640B			2633	LODI DE,SCRNSIZE-LINESIZE	865.
0003EB	19			2635	ADD HL,DE	866.
0003EC	220020			2637	ST HL,CURSLOC	867.
0003EF	97			2639	SUB A	868.
0003F0	320220			2641	ST A,CURSX RESET X POSITION	869.
0003F3	C9			2643	RET ,	870.
				2645	*	871.
				2646	* PAGE UP.	872.
				2647	*	873.
		003F4		2648	PGUP EQU * WAS LAST PAGE UP	874.
0003F4	BB			2650	CMP E	875.
0003F5	211020			2652	LODI HL,SCRCTR ADD OF SCROLLING TIME	876.
0003F8	C2FD03			2654	JMP NZ,PGUDOIT ITS FIRST TIME	877.
				2656	* ELSE SEE IF TIME TO SCROLL	878.
0003FB	35			2657	DEC M DECREMENT SCROLL COUNT	879.
0003FC	C0			2659	RET NZ IF NOT ZERO-->THEN NOT TIME	880.
0003FD	3630			2661	PGUDOIT LODI M,SCRPTIME RESET	881.
0003FF	2A0C20			2663	LD HL,NXTDISA GET ADD OF TOP OF DISPLAY	882.
000402	119E15			2665	LODI DE,-(TEXT+TEXTSIZE-SCRNSIZE-1-SCRNSIZE/2)	883.
000405	19			2667	ADD HL,DE SEE IF AT BOTTOOM:	884.
000406	D20D04			2669	JMP NC,NOPGOV1 NO WRAPAROUND TOP	885.
000409	CD5103			2671	CALL SCRUP2 GO TO TOP OF PAGE	886.
00040C	C9			2673	RET ,	887.
				2675	* CARRY MEANS WE WERE IN MIDDLE OF LAST PAGE IN MEMORY	888.
00040D	2A0C20			2676	NOPGOV1 LD HL,NXTDISA GET ADD AGAIN	889.
000410	11200A			2678	LODI DE,SCRNSIZE-5*LINESIZE AMOUNT TO PAGE BY	890.
		00413		2680	STORPAGE EQU * USED BY PGUP AND DOWN	891.
000413	19			2682	ADD HL,DE ADD OFFSET	892.
000414	220C20			2684	ST HL,NXTDISA AND SAVE	893.
000417	C9			2686	RET ,	894.
				2688	*	895.
				2689	*	896.
				2690	* PAGEDOWN.	897.
				2691	*	898.
		00418		2692	PGDOWN EQU * WAS LAST PAGE	899.
000418	BB			2694	CMP E	900.
000419	211020			2696	LODI HL,SCRCTR ADD OF SCROLLING TIME	901.
00041C	C22104			2698	JMP NZ,PGDDOIT ITS FIRST TIME	902.
				2700	* ELSE SEE IF TIME TO SCROLL	903.
00041F	35			2701	DEC M DECREMENT SCROLL COUNT	904.
000420	C0			2703	RET NZ IF NOT ZERO-->THEN NOT TIME	905.
000421	3630			2705	PGDDOIT LODI M,SCRPTIME RESET	906.
000423	2A0C20			2707	LD HL,NXTDISA GET CURRENT TOP PAGE ADD	907.
000426	114AB4			2709	LODI DE,-(TEXT+SCRNSIZE+1)	908.
000429	19			2711	ADD HL,DE	909.
00042A	DA3104			2713	JMP C,NOPGOV2 NO WRAPAROUND	910.
00042D	CD2803			2715	CALL SCRDOWN2 GO TO BOTTOM	911.
000430	C9			2717	RET ,	912.
000431	2A0C20			2719	NOPGOV2 LD HL,NXTDISA RESTORE CUR TOP	913.

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LJC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000434	11E0F5			2721	LODI DE,-SCRNSIZE+5*LINESIZE	914.
000437	C31304			2723	JMP STORPAGE AND SAVE IT	915.
				2725	*	916.
				2726	*	917.
				2727	* SET LOCAL	918.
				2728	*	919.
00043A	321F20	0043A		2729	SETLCL EQU *	920.
00043D	C9			2731	ST A,LCLMCDE	921.
				2733	RET ,	922.
				2735	*	923.
				2736	* SETREMOTE - SEND STUFF TO COMPUTER	924.
				2737	*	925.
00043E	97	0043E		2738	SETRMT EQU *	926.
00043F	321F20			2740	SUB A CLR FLAG	927.
000442	C9			2742	ST A,LCLMCDE	928.
				2744	RET ,	929.
				2746	*	930.
				2747	*	931.
				2748	* SETTING XMIT MODES	932.
				2749	*	933.
000443	212F01	00443		2750	S@TOCR EQU * XMIT ON KEYBOARD CARRIAGE RETURN	934.
000446	3E01			2752	LODI HL,@TOCR	935.
000448	C35704			2754	LODI A,1	936.
				2756	JMP STXMITTP	937.
				2758	*	938.
00044B	213901	0044B		2759	S@TODC1 EQU * XMIT ON HOST SENDING DC1	939.
00044E	3E02			2761	LODI HL,@TODC1	940.
000450	C35704			2763	LODI A,2	941.
				2765	JMP STXMITTP	942.
				2767	*	943.
000453	212A01	00453		2768	S@TE1 EQU * XMIT EVERY ONE	944.
				2770	* THIS IS NORMAL XMIT MODE	945.
000453	97			2771	LODI HL,INTEND2	946.
000456	97	00457		2773	SUB A	947.
				2775	STXMITTP EQU *	948.
000457	222D20			2777	ST HL,XMITHAN	949.
00045A	322620			2779	ST A,XMITTYPE	950.
00045D	CD5201			2781	CALL XMITRCLR CLR OUT XMIT BUF	951.
000460	3E11			2783	LODI A,@DC1 SET FOR NOT WAITING FOR DC1	952.
000462	322C20			2785	ST A,DC1CNT	953.
000465	C9			2787	RET , AND LEAVE	954.
				2789	*	955.
				2790	* CLEAR BUFFERS	956.
				2791	*	957.
000466	CD5201	00466		2792	CLRBUFS EQU * CLEARS XMIT AND RCV BUFS	958.
000469	CD4301			2794	CALL XMITRCLR CLEAR XMIT	959.
00046C	C9			2796	CALL RCVCLR CLEAR RECIVER BUF	960.
				2798	RET , AND RETURN	961.
				2800	*	962.
				2801	*	963.
00046D	7A	0046D		2802	STPRV EQU * SAVES CMD AS PREVIOUS TEXT CHAR	964.
00046E	F680			2804	LOD A,D GET COMMAND	965.
000470	320520			2806	IORI X'80' SHOW THAT IT WAS COMD	966.
000473	C9			2808	ST A,PREVCHAR SAVE IT	967.
				2810	RET ,	968.
				2812	*	969.

000474 BB

00474

2813 * INVERT VIDEO POLARITY
2814 *
2815 VIDEOINV EQU *
2817 CMP E

INVERT VIDEO
SEE IF SAME AS LAST TIME

970.
971.
972.
973.



LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000475	C8			2819	RET Z	YES, THEN DON'T INVERT 974.
000476	3A1A20			2821	LD A,MODEBITS	975.
000479	EE80			2823	XORI REVRVID	INVERT IT 976.
00047B	D380			2825	OUT MODESET	977.
00047D	321A20			2827	ST A,MODEBITS	AND SAVE IT 978.
000430	C9			2829	RET ,	979.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				2832 *		981.
				2833 *	RESET, PART II	982.
				2834 *		983.
000431	97			2835	RESETII SUB A	984.
000482	321920			2837	ST A,FLAGS	985.
000485	322420			2839	ST A,CNTLQMD INITIAL NOT FULLDUPLEX	986.
000488	322520			2841	ST A,ALLOWGMD INITIALLY ALLOW ENTRY INTO GRAPHMD	987.
00048B	322220			2843	ST A,PUTMODE SET FOR NOONE DOING PUTS INTO BUF.	988.
00048E	3EAA			2845	LODI A,B'10101010' INITIAL UART SPEED OF 2400(RCV&XMIT)	989.
000490	D38E			2847	OUT URTSPEED	990.
				2849	*****	991.
				2850 *		992.
				2851 *	THE ENABLED WAIT LOOP	993.
				2852 *		994.
				2853	*****	995.
				2854 *		996.
000492	FB			2855	WAIT EI	997.
000493	FF			2857	RST 7 HLT *** CHANGED *** WAIT FOR INTERRUPTS...	998.
		00494		2859	GETCHAR EQU * **** GRAPH MODE SUBROUTINE ENTRY	999.
000494	3A1820			2861	TSTCLR LD A,CLRFLG	1000.
000497	17			2863	ROT LC CLEAR WANTED?	1001.
000498	D22505			2865	JMP NC,BUFTEST NO - TEST FOR WAITING CHARS	1002.
				2867 *		1003.
				2868 *	CLEAR THE SCREEN	1004.
				2869 *		1005.
00049B	17			2870	ROT LC BIT X'40' MEANS ZERO IT	1006.
00049C	0620			2872	LODI B,' ' ELSE BLANK IT	1007.
00049E	D2A304			2874	JMP NC,CLEARIT	1008.
0004A1	0600			2876	LODI B,0	1009.
				2878 *		1010.
		004A3		2879	CLEARIT EQU *	1011.
0004A3	17			2881	ROT LC SEE IF JUST PAGE CLEAR	1012.
0004A4	D28B04			2883	JMP NC,CLEARIT2 NO, FULL MEMORY CLEAR	1013.
0004A7	2A0C20			2885	LD HL,NXTDISA PLACE TO CLEAR FROM	1014.
0004AA	EB			2887	XCH HL,DE	1015.
0004AB	21B50B			2889	LODI HL,SCRNSIZE AMOUNT TO CLEAR	1016.
0004AE	78			2891	LOD A,B THING TO CLEAR TO,	1017.
0004AF	01FFFF			2893	LODI BC,-1 THING TO DECREMTN BY	1018.
		004B2		2895	CLRPAG EQU *	1019.
000432	12			2897	ST A,(DE)	1020.
0004B3	13			2899	INC DE UPDATE THAT	1021.
0004B4	09			2901	ADD HL,BC UPDATE COUNT	1022.
0004B5	DAB204			2903	JMP C,CLRPAG NOT DONE YET	1023.
0004B8	C3EE04			2905	JMP LVCLR GO AND LEAVE	1024.
0004BB	210040			2907	CLEARIT2 LODI HL,TEXT	1025.
0004BE	220C20			2909	ST HL,NXTDISA	1026.
				2911 *	THIS IS THE SUPER FAST CLEAR LOOP, IT DOES DOUBLE STORES	1027.
				2912 *	USING THE STACK	1028.
				2913 *		1029.
0004C1	3A1A20			2914	LD A,MODEBITS SET QUICK-MODE ACCESS TO RAM	1030.
0004C4	F642			2916	IORI QUICKMD+SCRNBLNK SET QUICK MODE,AN TURN OFF SCREEN	1031.
0004C6	D380			2918	OUT MODESET	1032.
0004C8	210000			2920	LODI HL,0 FOR GETTING CURRENT STACK PNT	1033.
0004CB	39			2922	ADD HL,SP LOAD STACK PNT INTO HL	1034.
0004CC	222020			2924	ST HL,SAVSTK AND SAVE IT	1035.

0004CF 31F2FB
0004D2 48

2926 *
2927
2929

L0DI SP,TEXT+TEXTSIZE
L0D C,B

WHERE TO START
DOUBLE BYTE CLEAR

1036.
1037.
1038.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
0004D3	11FFFF			2931	LODI DE,-1	COUNT INCREMENT 1039.
0004D6	210000			2933	LODI HL,0 **CHANGED** (TEXTSIZE-20)/2	NUMBER OF WORDS 1040.
				2935	*	1041.
		004D9		2936	CLEARLP EQU *	1042.
0004D9	C5			2938	PUSH BC	CLEAR 1043.
0004DA	19			2940	ADD HL,DE	UPDATE COUNT 1044.
0004DB	DAD904			2942	JMP C,CLEARLP	AND THAT IS THE LOOP 1045.
				2944	*	1046.
0004DE	2A2020			2945	LD HL,SAVSTK	LOAD OLD STACK POINTER 1047.
0004E1	F9			2947	LOD SP,HL	AND PUT IT INC 1048.
				2949	*	1049.
				2950	*	1050.
0004E2	78			2951	LOD A,B	FOR LAST 20 LOCATIONS 1051.
0004E3	210040			2953	LODI HL,TEXT	1052.
0004E6	1E14			2955	LODI E,20	NUMBER OF BYTES 1053.
		004E8		2957	CLEARLP2 EQU *	1054.
0004E8	77			2959	ST A,(HL)	CLEAR 1055.
0004E9	1D			2961	DEC E	1056.
0004EA	23			2963	INC HL	1057.
0004EB	C2E804			2965	JMP NZ,CLEARLP2	1058.
				2967	*	1059.
		004EE		2968	LVCLR EQU *	1060.
0004EE	3A1A20			2970	LD A,MODEBITS	GET OUT OF QUICK MODE,TURN ON SCREEN 1061.
0004F1	D380			2972	OUT MODESET	1062.
0004F3	3E20			2974	LODI A,' '	BLANK OUT CURS CHAR 1063.
0004F5	320420			2976	ST A,CURSCAR	BLANK CURSOR CHAR 1064.
0004F8	97			2978	SUB A	1065.
0004F9	320220			2980	ST A,CURSX	XPOS=0 1066.
0004FC	211820			2982	LODI HL,CLRFLG	1067.
0004FF	7E			2984	LOD A,M	1068.
000500	3600			2986	LODI M,0	1069.
000502	1F			2988	ROT RC	BANNER WANTED? 1070.
000503	D22105			2990	JMP NC,RESETPUT	NO... 1071.
000506	214441			2992	LODI HL,TEXT+4*LINESIZE	1072.
				2994	* PRINT CHARACTER SET	1073.
000509	97			2995	SUB A	1074.
00050A	77			2997	LOD M,A	1075.
00050B	23			2999	INC HL	1076.
00050C	3C			3001	INC A	1077.
00050D	F20A05			3003	JMP NS,RESETCL	1078.
000510	F3			3005	DI	1079.
000511	CD6604			3007	CALL CLRBUFS	GO EMPTY RECIEVE AND XMIT BUFS 1080.
000514	21E641			3009	LODI HL,TEXT+6*LINESIZE	1081.
000517	220020			3011	ST HL,CURSLOC	1082.
00051A	3EBF			3013	LODI A,X'BF'	GET HELP='?'+X'80' 1083.
00051C	F3			3015	DI	NO INTS WHILE PUTTING CHAR IN BUF 1084.
00051D	CDE201			3017	CALL CHARPROC	1085.
000520	FB			3019	EI	RENABLE INTERRUPTS 1086.
				3021	*	FALL THROUGH TO BUFFER CHECK 1087.
				3022	*	1088.
				3023	*	1089.
000521	97			3024	RESETPUT SUB A	CLEAR PUTMODE 1090.
000522	322220			3026	ST A,PUTMODE	AND SAVVE 1091.
		00525		3028	BUFTEST EQU *	DISPLAY BUFFER ROUTINE 1092.
000525	3A2220			3030	LD A,PUTMODE	FIRST CHECK IF IN PUTMODE 1093.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM H V 05 14.53	06/19/76
000528	B7			3032		IOR A		1094.
000529	C0			3034		RET NZ	YES, THEN FIRST GO TO PUTTER	1095.
				3036	*			1096.
				3037	*			1097.
				3038	*	PUTMODE IS USED BY ROUTINES WHICH WANT		1098.
				3039	*	TO USE THE KEYBOARD PROCESSING ROUTINE,		1099.
				3040	*	TO PUT CHARACTERS INTO THE DISPLAY BUFFER.		1100.
				3041	*	IN ORDER THAT THESE CHARACTERS GET TAKEN OUT		1101.
				3042	*	OF THE BUFFER, THEY PUTMODE ROUTINES MUST		1102.
				3043	*	DO CALLS TO BUFTEST. (IN ADDITON TO KEYDOWN)		1103.
				3044	*	ACTUAL CALL IS 'CALL BUFTEST2'. ALL THE BUFFER		1104.
				3045	*	PROCESSING ROUTINE RETURN TO BUTEST, WHICH		1105.
				3046	*	RETURNS TO THE PUTMODE ROUTINE. RESETPUT CLEARS		1106.
				3047	*	PUTMODE FLAG		1107.
				3048	*			1108.
				3049	*	CHECK FOR BUFFERED CHARACTERS		1109.
00052A	F3			3050	BUFTEST2	DI ,	DISABLE WHILE CHECKING POINTERS	1110.
00052B	2A1D20			3052		LD HL,GETPTR		1111.
00052E	3A1B20			3054		LD A,PUTPTR	DOES GETPTR=PUTPTR (EMPTY BUFFER)?	1112.
000531	BD			3056		CMP L		1113.
000532	C23C05			3058		JMP NZ,BUFGET1	NO...	1114.
000535	3A1C20			3060		LD A,PUTPTR+1		1115.
000538	BC			3062		CMP H		1116.
000539	CA9204			3064		JMP Z,WAIT	YES - GO WAIT FOR INTERRUPT	1117.
00053C	23			3066	BUFGET1	INC HL	INCREMENT GETPTR CIRCULARLY	1118.
00053D	7C			3068		LDD A,H		1119.
00053E	FE00			3070		CMPI BUFEND		1120.
000540	C24605			3072		JMP NZ,BUFGET2		1121.
000543	2100FD			3074		LODI HL,BUFFER		1122.
000546	221D20			3076	BUFGET2	ST HL,GETPTR	STORE UPDATED POINTER	1123.
000549	7E			3078		LD A,(HL)	AND GET THE CHARACTER	1124.
00054A	FB			3080		EI ,	ENABLE WHILE WE...	1125.
				3082	*			1126.
				3083	*	PROCESS A CHARACTER		1127.
				3084	*			1128.
00054B	57			3085		LDD D,A		1129.
00054C	210520			3087		LODI HL,PREVCHAR		1130.
00054F	4E			3089		LDD C,M	GET CHAR	1131.
000550	3A0620			3091		LD A,ESCCHAR		1132.
000553	B9			3093		CMP C		1133.
000554	CA1307			3095		JMP Z,DOHOSTCD		1134.
000557	79			3097		LDD A,C	GET PREV CHAR	1135.
000558	FEA2			3099		CMPI X'22'+X'80'	SEE IF CHANGE ESCAPE	1136.
00055A	CADD08			3101		JMP Z,CHGESC		1137.
00053D	FED5			3103		CMPI X'55'+X'80'	SEE IF ITS CHANGE UART SPEED	1138.
00055F	CAE408			3105		JMP Z,CHGUART		1139.
000562	7A			3107		LDD A,D	GET BACKU CHARACTER	1140.
000563	FE0D			3109		CMPI @CR	IS THIS A CARRIAGE RETURN	1141.
000565	CA9505			3111		JMP Z,KEYPROC3	IF SO DON'T RESET CRLF0VR	1142.
00056B	3A2320			3113		LD A,CRLF0VR	GET THE FLAG	1143.
00056B	5F			3115		LDD E,A	AND SAVE IT	1144.
00056C	97			3117		SUB A	AND CLEAR IT	1145.
00056D	322320			3119		ST A,CRLF0VR	AND PUT IT BACK	1146.
000570	7A			3121		LDD A,D	GET CUR CHAR BACK	1147.
000571	FE0A			3123		CMPI @LF	IS THIS A LF?	1148.
000573	C28A05			3125		JMP NZ,KEYPROC1	NO...	1149.

000576 79

3127
3129

LDD A,C
CMPI @CR

PREVIOUS CHAR
CR-LF SEQUENCE?

1150.
1151.



LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000577	FE0D			3130		
000579	3E0A			3131	LODI A,@LF	1152.
00057B	C29505			3133	JMP NZ,KEYPROC3	1153.
00057E	7B			3135	LOD A,E	1154.
00057F	B7			3137	IOR A	1155.
000580	FA2505			3139	JMP S,BUFTEST	1156.
				3141	* MEANS LAST CRLF BY WRAPAROUND	1157.
					THEREFORE IGNORE THIS FIRST CRLF	1158.
000583	36FF			3142	LODI M,X'FF'	1158.
000585	3E0A			3144	LODI A,@LF	1159.
000587	C39705			3146	JMP KEYPROC2	1160.
		0058A		3148	KEYPROC1 EQU *	1161.
00058A	3A0620			3150	LD A,ESCCHAR	1162.
00058D	BA			3152	CMP D	1163.
00058E	C29505			3154	JMP NZ,KEYPROC3	1164.
				3156	****	1165.
000591	72			3157	SAVEPREV LOD M,D	1166.
000592	C32505			3159	JMP BUFTEST	1167.
				3161	****	1168.
				3162	****	1169.
				3163	****	1170.
000595	72			3164	KEYPROC3 LOD M,D	1171.
000596	7A			3166	LOD A,D	1172.
		00597		3168	KEYPROC2 EQU *	1173.
000597	FE07			3170	CMPI @BEL	1174.
000599	C2A105			3172	JMP NZ,KEYPROC5	1175.
00059C	D386			3174	OUT BELL	1176.
00059E	C32505			3176	JMP BUFTEST	1177.
		005A1		3178	KEYPROC5 EQU *	1178.
0005A1	210420			3180	LODI HL,CURSCHAR	1179.
0005A4	56			3182	LOD D,M	1180.
0005A5	2A0020			3184	LD HL,CURSLOC	1181.
0005A8	72			3186	LOD M,D	1182.
0005A9	FE9D			3188	CMPI @GS+X'80'	1183.
0005AB	CABD08			3190	JMP Z,GOGRAPH	1184.
0005AE	57			3192	LOD D,A	1185.
0005AF	3A1A20			3194	LD A,MODEBITS	1186.
0005B2	E610			3196	ANDI GRAPHMD	1187.
0005B4	7A			3198	LOD A,D	1188.
0005B5	C0			3200	RET NZ	1189.
0005B6	FEC7			3202	CMPI X'C7'	1190.
0005B8	CAFD1F			3204	JMP Z,X'1FFD'	1191.
0005BB	FEBF			3206	CMPI X'BF'	1192.
0005BD	CA2207			3208	JMP Z,HELPME	1193.
0005C0	FE88			3210	CMPI @BS+X'80'	1194.
0005C2	CABE06			3212	JMP Z,KEY@BSND	1195.
0005C5	FEA0			3214	CMPI @SP+X'80'	1196.
0005C7	CAF505			3216	JMP Z,CURMCTSP	1197.
0005CA	FE1D			3218	CMPI @GS	1198.
0005CC	CAAC08			3220	JMP Z,GOGRAPHC	1199.
0005CF	E67F			3222	ANDI X'7F'	1200.
0005D1	FE0D			3224	CMPI @CR	1201.
0005D3	CAA106			3226	JMP Z,KEY@CR	1202.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM H V 05 14.53	06/19/76
0005D6	FE0A			3228		CMPI @LF		1203.
0005D8	CAB306			3230		JMP Z,KEY@LF	LINEFEED	1204.
0005DB	FE08			3232		CMPI @BS		1205.
0005DD	CABA06			3234		JMP Z,KEY@BS	BACKSPACE	1206.
0005E0	FE0B			3236		CMPI @VT		1207.
0005E2	CA0C07			3238		JMP Z,KEY@VT	VERTICAL TAB (REVERSE LF)	1208.
0005E5	FE09			3240		CMPI @HT		1209.
0005E7	CA9206			3242		JMP Z,KEYHTAB	ITS A HORIZONTAL TAB	1210.
0005EA	FE14			3244		CMPI @DC4	ALIGNS CURSOR TO COL 41 OF LINE	1211.
0005EC	CA9708			3246		JMP Z,HYPERTAB		1212.
0005EF	FE1F			3248		CMPI @US	(CNTL SHIFT 0)	1213.
0005F1	CA3F09			3250		JMP Z,SETNECHO	FAKE FULLDUPLEX	1214.
				3252 *				1215.
				3253 *		THESE JUMPS SHOULD BE REPLACED WITH A TABLE SOON		1216.
				3254 *		- EHF 10/13/76		1217.
				3255 *		THAT DATE *CAN'T* BE RIGHT.		1218.
				3256 *		- LJS 6/1/76		1219.
				3257 *				1220.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				3259 *		1222.
				3260 *	STORE CHARACTER AND ADJUST CURSOR	1223.
				3261 *		1224.
0005F4	77			3262	LOD M,A STORE THE CHAR	1225.
0005F5	23			3264	CURMOTSP INC HL LOC=LOC+1	1226.
0005F6	3A0220			3266	LD A,CURSX X=X+1	1227.
0005F9	3C			3268	INC A	1228.
0005FA	320220			3270	ST A,CURSX	1229.
0005FD	FE51			3272	CMPI LINESIZE	1230.
0005FF	FA3806			3274	JMP S,KEYCUROK NOT X OVFL	1231.
		00602		3276	TABWRAP2 EQU * TAB COMES HERE ON OVERFLOW	1232.
000602	97			3278	SUB A	1233.
000603	320220			3280	ST A,CURSX X OVFL: X=0	1234.
000606	3D			3282	DEC A SET FLAG TO SIMULATE CR-LF	1235.
000607	322320			3284	ST A,CRLFQVR	1236.
00060A	320520			3286	ST A,PREVCHAR	1237.
00060D	220020			3288	KEYINCY ST HL,CURSLOC	1238.
000610	110E04			3290	LODI DE,-(TEXT+TEXTSIZE)	1239.
000613	19			3292	ADD HL,DE	1240.
000614	DA8206			3294	JMP C,KEYTOPSC AT BOTTOM - RESET TO TOP	1241.
000617	2A0C20			3296	LD HL,NXTDISA	1242.
00061A	3E4B			3298	LODI A,-NLINES*LINESIZE,>	1243.
00061C	95			3300	SUB L	1244.
00061D	5F			3302	LOD E,A	1245.
00061E	3EF4			3304	LODI A,-NLINES*LINESIZE,<	1246.
000620	9C			3306	SBB H	1247.
000621	57			3308	LOD D,A -ENDOFSCREENDISPLAYED IN DE	1248.
000622	2A0020			3310	LD HL,CURSLOC	1249.
000625	19			3312	ADD HL,DE	1250.
000626	D23506			3314	JMP NC,KEYCURLD ABOVE SCREEN BOTTOM - NO SCROLL	1251.
000629	21AFFF			3316	LODI HL,-(LINESIZE)	1252.
00062C	19			3318	ADD HL,DE	1253.
00062D	EB			3320	XCH HL,DE	1254.
00062E	2A0020			3322	LD HL,CURSLOC	1255.
000631	19			3324	ADD HL,DE	1256.
000632	D43C03			3326	CALL NC,SCRUP NOT BELOW LINE UNDER SCREEN - SCROLL	1257.
000635	2A0020			3328	KEYCURLD LD HL,CURSLOC	1258.
000638	220020			3330	KEYCUROK ST HL,CURSLOC STORE NEW CURSOR LOCATION	1259.
00063B	3A0520			3332	LD A,PREVCHAR WAS THIS CR-LF SEQUENCE?	1260.
00063E	3C			3334	INC A	1261.
00063F	C26D06			3336	JMP NZ,KEYCURST NO...	1262.
000642	3E51			3338	KEYCRLF LODI A,LINESIZE YES - BLANK A LINE	1263.
000644	3620			3340	KEYCRLF LODI M,' '	1264.
000646	23			3342	INC HL	1265.
000647	3D			3344	DEC A	1266.
000648	C24406			3346	JMP NZ,KEYCRLF	1267.
00064B	110E04			3348	LODI DE,-(TEXT+TEXTSIZE) SEE WHERE TO PUT UNDERSCORES	1268.
00064E	19			3350	ADD HL,DE	1269.
00064F	DA5806			3352	JMP C,ATTOP PUT DASHES ON FIRST LINE	1270.

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LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	
000652	2A0020			3354	LD HL,CURSLOC	GET BACK BLAC 1271.
000655	C35B06			3356	JMP DODASH	GO AND GOIT 1272.
000658	21AF3F			3358	ATTOP LODI HL,TEXT-81	1273.
00065B	115100			3360	DODASH LODI DE,81	1274.
00065E	19			3362	ADD HL,DE	MOVE THEM UP 1275.
00065F	3620			3364	DASH LODI M,' '	PUT IN BLANK 1276.
000661	23			3366	INC HL	1277.
000662	1D			3368	DEC E	1278.
000663	C25F06			3370	JMP NZ,DASH	1279.
000666	97			3372	SUB A	RESET CLEAR LINE INDICATOR 1280.
000667	320520			3374	ST A,PREVCHAR	AND SAVE 1281.
00066A	2A0020			3376	LD HL,CURSLOC	1282.
00066D	7E			3378	KEYCURST LOD A,M	SAV CHAR FM WHERE CURSOR WILL BE PUT 1283.
00066E	320420			3380	ST A,CURSCAR	1284.
000671	367F			3382	LODI M,@DEL	START CURSUR AS BLOB 1285.
000673	FE7F			3384	CMPI @DEL	UNLESS CHAR IS ALSO BLOB 1286.
000675	C27A06			3386	JMP NZ,KEYCURTM	1287.
000678	3620			3388	LODI M,' '	IN WHICH CASE CURSOR STARTS AS BLANK 1288.
00067A	3E08			3390	KEYCURTM LODI A,CURSTIME	RESTART ITS COUNTER 1289.
00067C	320320			3392	ST A,CURSCTR	1290.
00067F	C32505			3394	JMP BUFTST	1291.
				3396	*	1292.
000682	210040			3397	KEYTOPSC LODI HL,TEXT	RESET TO FIRST SCREENFUL 1293.
000685	220C20			3399	ST HL,NXTDISA	1294.
000688	110E44			3401	LODI DE,-TEXTSIZE	WRAP CURSOR UP THERE 1295.
00068B	2A0020			3403	LD HL,CURSLOC	1296.
00068E	19			3405	ADD HL,DE	1297.
00068F	C33806			3407	JMP KEYCURDK	1298.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				3410 *		1300.
				3411 *		1301.
		00692		3412	KEYHTAB EQU * HORIZONTAL TAB	1302.
				3414 *		1303.
000692	CD3008			3415	CALL HTAB GO TAB	1304.
000695	15			3417	DEC D CHECK RDSULTS	1305.
000696	CA0206			3419	JMP Z,TABWRAP2 WRAPAROUND	1306.
000699	FA3806			3421	JMP S,KEYCUROK EVERTING FINE	1307.
00069C	3620			3423	LODI M,' ' PUT A BLANK THER	1308.
00069E	C3F505			3425	JMP CURMOTSP NOT USING TABS	1309.
				3427 *		1310.
				3428 *	CARRIAGE RETURN	1311.
				3429 *		1312.
		006A1		3430	KEY@CR EQU * LOC=LOC-X	1313.
0006A1	547D			3432	LOD DA,HL	1314.
0006A3	210220			3434	LODI HL,CURSX	1315.
0006A6	96			3436	SUB M	1316.
0006A7	6F			3438	LOD L,A	1317.
0006A8	7A			3440	LOD A,D	1318.
0006A9	DE00			3442	SBBI 0	1319.
0006AB	67			3444	LOD H,A	1320.
0006AC	97			3446	SUB A X=0	1321.
0006AD	320220			3448	ST A,CURSX	1322.
000630	C33806			3450	JMP KEYCUROK	1323.
				3452 *		1324.
				3453 *	LINEFEED	1325.
				3454 *		1326.
0006B3	115100			3455	KEY@LF LODI DE,LINESIZE LOC=LOC+LINESIZE	1327.
0006B6	19			3457	ADD HL,DE	1328.
0006B7	C30D06			3459	JMP KEYINCY GO INCREMENT Y	1329.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				3462 *		1331.
				3463 *	BACKSPACE	1332.
				3464 *		1333.
00063A	2B			3465	KEY@BS DEC HL BACK UP A CHARACTER	1334.
0006BB	3620			3467	LODI M,' ' *** ENTRY FOR DESTRUCTIVE BS	1335.
0006BD	23			3469	INC HL INC, SO NEXT DEC IS REGHT	1336.
				3471 *	(SAVES A JMP) NOTE FOLLOWING PROBLEM:	1337.
				3472 *	(IF AT FIRST CHAR IN DISPLAY MEMORY-	1338.
				3473 *	(THEN DEST. BACKSPACE DOES A STORE INTO	1339.
				3474 *	(THE WRITABLE CHARACTER GENERATOR.	1340.
0006BE	2B			3475	KEY@BSND DEC HL *** ENTRY FOR NON-DESTRUCTIVE BS	1341.
0006BF	3A0220			3477	LD A,CURSX X=X-1	1342.
0006C2	D601			3479	SUBI 1	1343.
0006C4	320220			3481	ST A,CURSX	1344.
0006C7	F23806			3483	JMP NS,KEYCUROK NO X UNDFL	1345.
0006CA	3E50			3485	LODI A,LINESIZE-1	1346.
0006CC	320220			3487	ST A,CURSX X UNDFL: X=LINESIZE-1	1347.
0006CF	220020			3489	KEYDECY ST HL,CURSLOC	1348.
0006D2	1100C0			3491	LODI DE,-TEXT	1349.
0006D5	19			3493	ADD HL,DE	1350.
0006D6	2A0020			3495	LD HL,CURSLOC	1351.
0006D9	D2FC06			3497	JMP NC,KEYBOTSC ABOVE TOP - MOVE TO BOTTOM	1352.
0006DC	2A0C20			3499	LD HL,NXTDISA	1353.
0006DF	97			3501	SUB A	1354.
0006E0	95			3503	SUB L	1355.
0006E1	5F			3505	LOD E,A	1356.
0006E2	3E00			3507	LODI A,0	1357.
0006E4	9C			3509	SBB H	1358.
0006E5	57			3511	LOD D,A -NXTDISA IN DE	1359.
0006E6	2A0020			3513	LD HL,CURSLOC	1360.
0006E9	19			3515	ADD HL,DE	1361.
0006EA	DA3506			3517	JMP C,KEYCURLD BELOW SCREEN ALREADY	1362.
0006ED	215100			3519	LODI HL,LINESIZE	1363.
0006F0	19			3521	ADD HL,DE	1364.
0006F1	EB			3523	XCH HL,DE	1365.
0006F2	2A0020			3525	LD HL,CURSLOC	1366.
0006F5	19			3527	ADD HL,DE	1367.
0006F6	DC1303			3529	CALL C,SCRDOWN IN LINE ABOVE SCREEN - SCROLL DOWN	1368.
0006F9	C33506			3531	JMP KEYCURLD	1369.
				3533 *		1370.
0006FC	213DF0			3534	KEYBOTSC LODI HL,TEXT+TEXTSIZE-SCRNSIZE RESET TO LAST SCREENFUL	1371.
0006FF	220C20			3536	ST HL,NXTDISA	1372.
000702	11F2BB			3538	LODI DE,TEXTSIZE WRAP CURSOR DOWN THERE	1373.
000705	2A0020			3540	LD HL,CURSLOC	1374.
000708	19			3542	ADD HL,DE	1375.
000709	C33806			3544	JMP KEYCUROK	1376.
				3546 *		1377.
				3547 *	REVERSE LINEFEED	1378.
				3548 *		1379.
00070C	11AFFF			3549	KEY@VT LODI DE,-LINESIZE LOC=LOC-LINESIZE	1380.
00070F	19			3551	ADD HL,DE	1381.
000710	C3CF06			3553	JMP KEYDECY GO DECREMENT Y	1382.
				3555 *		1383.
				3556 *		1384.
				3557 *		1385.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				3558 *		1386.
		00713		3559	DOHOSTCD EQU *	1387.
				3561 *	THIS LETS THE HOST ISSUE LOCAL FUNCTIONS	1388.
				3562 *	THIS IS DONE BY DOING AN <ESC><FN>	1389.
				3563 *		1390.
				3564 *	WE DO IT BY SIMULATING A INTERRUPT.	1391.
000713	97			3565	SUB A CLEAR OT PREVCHAR	1392.
000714	320520			3567	ST A,PREVCHAR AND WE ARE REALLY DOING IT	1393.
				3569 *		1394.
000717	7A			3570	LOD A,D GET THE CHARACTER	1395.
000718	F680			3572	IORI X'80' AND MAKE IT COMMAND	1396.
00071A	F3			3574	DI , TURN OFF INTERRUPTS	1397.
00071B	CDE201			3576	CALL CHARPROC AND GO TO IT	1398.
00071E	FB			3578	EI , CHARPROC RUNS DISABLED	1399.
00071F	C32505			3580	JMP BUFTEST AND GO DO SOMEMORE	1400.
				3582 *		1401.
				3583 *		1402.
				3584 *	HELP - GIVE PERSON HELP	1403.
				3585 *		1404.
				3586 *	HELP USES PUTMODE STUFF	1405.
		00722		3587	HELPME EQU *	1406.
000722	21001C			3589	LODI HL,HELPIFNO ADD OF HELPIFNO	1407.
000725	3EEC			3591	LODI A,X'EC' GO INTO LOCAL MODE	1408.
000727	322220			3593	ST A,PUTMODE AND SAVE IN PUTMODE INFICATOR	1409.
		0072A		3595	HELPLEOP EQU *	1410.
00072A	222020			3597	ST HL,HELPPWHER CURRENT PLACE IN HELP TEXT	1411.
00072D	F3			3599	DI ,	1412.
00072E	CDE201			3601	CALL CHARPROC PUT CHARACTER IN DISPLAY BUF	1413.
000731	FB			3603	EI ,	1414.
000732	CD2A05			3605	CALL BUFTTEST2 AND GO TO BUFFERPROCESS	1415.
000735	2A2020			3607	LD HL,HELPPWHER	1416.
000738	7E			3609	LD A,(HL)	1417.
000739	FEFF			3611	CMPI X'FF' IS IT AN FF (INDICATES THE END	1418.
00073B	23			3613	INC HL	1419.
00073C	C22A07			3615	JMP NZ,HELPLEOP NO, THEN NOT DONE	1420.
00073F	3EF2			3617	LODI A,X'F2'	1421.
000741	F3			3619	DI ,	1422.
000742	CDE201			3621	CALL CHARPROC	1423.
000745	FB			3623	EI ,	1424.
000746	C32105			3625	JMP RESETPUT GO LEAVE	1425.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				3628	*****	1427.
				3629	***** LOCAL COMMAND TABLE	1428.
				3630	*****	1429.
		00749		3631	CMDTAB EQU *	1430.
000749	080295			3633	CMDEF 08,LOCAL BS	1431.
00074C	090295			3635	CMDEF 09,LOCAL HT	1432.
00074F	0A0295			3637	CMDEF 0A,LOCAL LF	1433.
000752	0B0295			3639	CMDEF 0B,LOCAL VT	1434.
000755	0C02D9			3641	CMDEF 0C,ENTGRPC FORMFEED ENTER GRAPH AND CLEAR	1435.
000758	0D0295			3643	CMDEF 0D,LOCAL CR	1436.
00075B	200295			3645	CMDEF 20,LOCAL SPACE	1437.
00075E	22046D			3647	CMDEF 22,STPRV ",CHANGE ESCAPE CHARACTER	1438.
000761	31080A			3649	CMDEF 31,SETTAB	1439.
000764	320810			3651	CMDEF 32,CLRSTAB 2,CLEAR SINGLE TAB	1440.
000767	330818			3653	CMDEF 33,CLRATAB 3,CLEAR ALLTABS AND ENABLE TABS	1441.
00076A	3407D9			3655	CMDEF 34,RESETTAB 4,TURN OFF TABS,SIMULATE 4013 TAB	1442.
00076D	3A0418			3657	CMDEF 3A,PGDOWN :-SCROLL PAGES DOWN	1443.
000770	3B03F4			3659	CMDEF 3B,PGUP PAGE UP (;)	1444.
000773	3F028B			3661	CMDEF 3F,HELPCHK ?-GIVE USER HELP	1445.
000776	40032E			3663	CMDEF 40,SCRUPQ @ SCROLL UP	1446.
000779	42029B			3665	CMDEF 42,STORSIZE BIG GRAPHS	1447.
00077C	430453			3667	CMDEF 43,S@TE1 SHIFT C-XMIT ON XR	1448.
00077F	450922			3669	CMDEF 45,BRGEXT SHIFT E = SET FOR EXTERNAL CLOCK	1449.
000782	4602F9			3671	CMDEF 46,SETFULL F-FULLDUPLES(REMOTE ECHO)	1450.
000785	470295			3673	CMDEF 47,LOCAL SPECIAL EXECUTION MODE	1451.
000788	4802F1			3675	CMDEF 48,SETHALF H-HALFDUPLEX	1452.
00078B	490917			3677	CMDEF 49,BRGINT SHIFT I = SET FOR INTERNAL CLOCK	1453.
00078E	4C0443			3679	CMDEF 4C,S@TOCR <CMD><SHIFT>L LINEMODE	1454.
000791	4D029B			3681	CMDEF 4D,STORSIZE <CMD><SHIFT>M NORMAL	1455.
000794	4E090E			3683	CMDEF 4E,NOGMODE SHIFT N = DON'T ALLOW ENTER GMODE	1456.
000797	51044B			3685	CMDEF 51,S@TODC1 CMD Q TYPE AHEAD	1457.
00079A	520466			3687	CMDEF 52,CLRBUFS SHIFT R, CLEAR XMIT,RCV BUFS	1458.
00079D	53029B			3689	CMDEF 53,STORSIZE <CMD>SHIFT S SMALL GRAPH	1459.
0007A0	55046D			3691	CMDEF 55,STPRV SHIFT U = SET UART SPEED(CHGUART)	1460.
0007A3	560474			3693	CMDEF 56,VIDEOINV SHIFT V = INVERT VIDEO	1461.
0007A6	57092D			3695	CMDEF 57,SETURTX1 SHIFT W = X 1 CLOCK FOR UART	1462.
0007A9	580936			3697	CMDEF 58,SETURTX6 SHIFT X = X 16 CLOCK FOR UART	1463.
0007AC	590912			3699	CMDEF 59,YESGMODE SHIFT Y = ALLOW ENTRY INTO GMODE	1464.
0007AF	5B03DE			3701	CMDEF 5B,UNHOME LEFT BRACKET RETURN	1465.
0007B2	5C0305			3703	CMDEF 5C,SCRDOWNQ REV SLASH -SCROLL DWN QUICK	1466.
0007B5	5D03B6			3705	CMDEF 5D,HOME RIGHT BRACKET HOME DISPLAY TO CURSOR	1467.
0007B8	63029F			3707	CMDEF 63,CLRSCREEN C-CLEAR SCREEN	1468.
0007BB	6702E5			3709	CMDEF 67,ENTERGRP G-ENTER GRAPHMODE	1469.
0007BE	6B02BF			3711	CMDEF 6B,LEAVGRP K CLEAR SCREEN AND LEAVE GMODE	1470.
0007C1	6C043A			3713	CMDEF 6C,SETLCL L-LOCAL MODE(NO XMIT TO HOST)	1471.
0007C4	6D03E5			3715	CMDEF 6D,MOVECURS M MOVE CURSOR TO BOTTOM OF PAGE	1472.
0007C7	6E02D2			3717	CMDEF 6E,NORMODE N LEAVE GRAPH MODE	1473.
0007CA	6F036B			3719	CMDEF 6F,SCRUPS O SCROLL UP SLOWLY	1474.
0007CD	700357			3721	CMDEF 70,SCRDWS P SCROLL DOWN SLOWLY	1475.
0007D0	72043E			3723	CMDEF 72,SETRMT R-REMOTE MODE(XMIT TO HOST)	1476.
0007D3	74038C			3725	CMDEF 74,SHOWTIME T SHOWTIME IN UPPER RIGHT	1477.
0007D6	FF028A			3727	CMDEF FF,KEYEND THAT'S ALL FOLKS	1478.
				3729	*	1479.
				3730	* END OF COMMAND DEFINITIONS. NOTE THE ABOVE	1480.
				3731	* TABLE MUST BE KEPT IN ALPHABETICAL (ASCENDING) ORDER	1481.

3732 * ELSE SEARCH WON'T WORK.
3733 *
3734 *

1482.
1483.
1484.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				3736	*****	1486.
				3737	* HORIZONTAL TAB SUPPORT	1487.
				3738	*****	1488.
				3739	*	1489.
				3740	*	1490.
		007D9		3741	RESETTAB EQU *	1491.
				3743	*	1492.
0007D9	3A1920			3744	LD A,FLAGS	1493.
0007DC	E6FE			3746	ANDI 255-TABREF	1494.
0007DE	321920			3748	ST A,FLAGS	1495.
0007E1	322420			3750	ST A,CNTLQMD	1496.
0007E4	C9			3752	RET ,	1497.
				3754	*	1498.
				3755	*	1499.
		007E5		3756	GETTBYTE EQU *	1500.
0007E5	3A0220			3758	LD A,CURSX	1501.
0007E8	11B40C			3760	LODI DE,DODAX	1502.
0007EB	47			3762	LOD B,A	1503.
0007EC	E607			3764	ANDI X'07'	1504.
0007EE	83			3766	ADD E	1505.
0007EF	5F			3768	LOD E,A	1506.
0007F0	3E00			3770	LODI A,0	1507.
0007F2	8A			3772	ADC D	1508.
0007F3	57			3774	LOD D,A	1509.
0007F4	CDF907			3776	CALL GETTAB	1510.
0007F7	1A			3778	LD A,(DE)	1511.
0007F8	C9			3780	RET ,	1512.
				3782	*	1513.
				3783	*	1514.
		007F9		3784	GETTAB EQU *	1515.
0007F9	212F20			3786	LODI HL,HTABTAB	1516.
0007FC	78			3788	LOD A,B	1517.
0007FD	E6F8			3790	ANDI X'F8'	1518.
0007FF	0F0F0F			3792	ROT R,3	1519.
000802	4F			3794	LOD C,A	1520.
000803	85			3796	ADD L	1521.
000804	6F			3798	LOD L,A	1522.
000805	3E00			3800	LODI A,0	1523.
000807	8C			3802	ADC H	1524.
000808	67			3804	LOD H,A	1525.
000809	C9			3806	RET ,	1526.
				3808	*	1527.
				3809	*	1528.
		0080A		3810	SETTAB EQU *	1529.
00080A	CDE507			3812	CALL GETTBYTE	1530.
00080D	B6			3814	IOR M	1531.
00080E	77			3816	ST A,(HL)	1532.
00080F	C9			3818	RET ,	1533.
				3820	*	1534.
				3821	*	1535.
		00810		3822	CLRSTAB EQU *	1536.
000810	CDE507			3824	CALL GETTBYTE	1537.
000813	EEFF			3826	XORI X'FF'	1538.
000815	A6			3828	AND M	1539.
000816	77			3830	ST A,(HL)	1540.

000817 C9	3832	RET	,	AND GO HOME	1541.
	3834	*			1542.
	3835	*			1543.
000818 212F20	00818 3836	CLRATAB	EQU	*	1544.
	3838	LODI	HL,HTABTAB	CLEARs ALL THE TABS	1545.
00081B 1E0A	3840	LODI	E,10	GET ADD OF TAB TABLE	1546.
00081D 97	3842	SUB	A	NUMBER OF BYTE S IN TABLE	1547.
				CHAR TO STORE	

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
		0081E	3844	CLRTABLP	EQU *	1548.
00081E	77		3846		ST A,(HL) CLEAR CHAR	1549.
00081F	1D		3848		DEC E DEC COUNT	1550.
000820	23		3850		INC HL UPDATE POINTER	1551.
000821	C21E08		3852		JMP NZ,CLRTABLP NO DONE? THEN CONTINUE	1552.
000824	3A1920		3854		LD A,FLAGS SET FOR TAB CLEAR DONE	1553.
000827	F601		3856		IORI TABREF	1554.
000829	321920		3853		ST A,FLAGS AND SAVE	1555.
00082C	322420		3860		ST A,CNTLOMD AND SAVE FOR CNTLSHIFT O FAKE	1556.
00082F	C9		3862		RET , ELSE-DONE THEN GO HOME	1557.
			3864	*		1558.
		00830	3865	HTAB	EQU *	1559.
			3867	*		1560.
			3868	*		1561.
000830	3A1920		3869		LD A,FLAGS SEE IF A CLEAR HAS BEEN DONE	1562.
000833	E601		3871		ANDI TABREF	1563.
000835	1602		3873		LODI D,2 SSET FOR NO TABS COMPLETION	1564.
000837	C8		3875		RET Z NO TABS HAVE BEEN SET- IGNORE	1565.
000838	3A0220		3877		LD A,CURSX GET CURRETN OFFSET	1566.
00083B	FE50		3879		CMPI LINESIZE-1	1567.
00083D	F27108		3881		JMP NS,TABWRAP	1568.
000840	3C		3883		INC A BUMP IT TO NEXT CHARACTER	1569.
000841	47		3885		LOD B,A SAVE THAT	1570.
000842	CDF907		3887		CALL GETTAB GET CURRENT WORD IN TAB TABLE	1571.
000845	79		3889		LOD A,C GET THAT NUMBER FROM C	1572.
000846	D60A		3891		SUBI 10 CHANGE TO DISTANT FROM END	1573.
000848	57		3893		LOD D,A SAVE THAT	1574.
000849	78		3895		LOD A,B GET XOFFSET	1575.
00084A	E607		3897		ANDI X'07' JUST WANT LOW THREE BITS	1576.
00084C	47		3899		LOD B,A SAVE DISTANTCE FROM BEG	1577.
00084D	D608		3901		SUBI 8 MAKE IT DISTANCE FROM END OF BYTE	1578.
00084F	5F		3903		LOD E,A SAVE THAT	1579.
000850	0E00		3905		LODI C,0 COUNT OF NUMBER CHARACTERS MOVED	1580.
000852	78		3907		LOD A,B GET DISTANCE FROM BEGGINING	1581.
000853	B7		3909		IOR A SEE IF ZERO	1582.
000854	CA6008		3911		JMP Z,OUTTAB YES, DONT SHIFT	1583.
000857	7E		3913		LD A,(HL) GET FIRST BYTE	1584.
		00858	3915	TABSHIFT	EQU *	1585.
000858	07		3917		ROT L SHIFT IT	1586.
000859	05		3919		DEC B SEE IF DONE	1587.
00085A	C25808		3921		JMP NZ,TABSHIFT	1588.
00085D	C36108		3923		JMP TABLOOP	1589.
		00860	3925	OUTTAB	EQU *	1590.
000860	7E		3927		LD A,(HL) LOD TAB TABLE BYTE	1591.
		00861	3929	TABLOOP	EQU *	1592.
000861	0C		3931		INC C INC NUMBER CHARACTERS TABED OVER	1593.
000862	07		3933		ROT L CHK FOR A TAB STOP	1594.
000863	DA8308		3935		JMP C,FOUNDTAB GOT THE TAB	1595.
000866	1C		3937		INC E CHK FOR END OF BYTE	1596.
000867	FA6108		3939		JMP S,TABLOOP GO TO NEXT CHAR	1597.
00086A	1EF8		3941		LODI E,-8 RESTORE POSITION COINT	1598.
00086C	14		3943		INC D CHECK FOR END OF TAB TABLE	1599.
00086D	23		3945		INC HL BUT BUMP POINTER ANYWAY	1600.
00086E	FA6008		3947		JMP S,OUTTAB NOT AT END OF TABLE	1601.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000871	1601			3949	TABWRAP LODI D,X'01'	INDICATES WRAPAROUND 1602.
000873	3E51			3951	LODI A,LINESIZE	1603.
000875	210220			3953	LODI HL,CURSX	1604.
000878	96			3955	SUB M	GET DISTANCE FROM END 1605.
000879	2A0020			3957	LD HL,CURSLOC	GET CURSOR LOCATION 1606.
00087C	85			3959	ADD L	ADD TO A 1607.
00087D	6F			3961	LOD L,A	1608.
00087E	3E00			3963	LODI A,0	FOR DOUBLE ADD 1609.
000830	8C			3965	ADC H	1610.
000831	67			3967	LOD H,A	1611.
000832	C9			3969	RET ,	GO HOME 1612.
		00883		3971	FOUNDTAB EQU *	WE GO A TAB 1613.
000833	3A0220			3973	LD A,CURSX	GET OLD X POSITION 1614.
000886	81			3975	ADD C	ADD IN AMOUNT MOVED 1615.
000887	320220			3977	ST A,CURSX	SAVE THAT 1616.
00088A	2A0020			3979	LD HL,CURSLOC	GET CURSOR LOCATION 1617.
00083D	79			3981	LD A,C	GET TAB MOVE 1618.
00088E	85			3983	ADD L	ADD THE TWO TOGETHER 1619.
00083F	6F			3985	LOD L,A	1620.
000890	3E00			3987	LODI A,0	1621.
000892	8C			3989	ADC H	1622.
000893	67			3991	LOD H,A	1623.
000894	1600			3993	LODI D,X'00'	INDICATES NO WRAPAROUND 1624.
000896	C9			3995	RET ,	AND GO BACK TO CALLER 1625.
				3997	*	1626.
				3998	*	1627.
				3999	*	1628.
				4000	* HYPERTAB- MOVES CURSOR TO COL 41 NO MATTER WHERE IT IS	1629.
				4001	* ON THE LINE. IS USEFUL FOR TWO COLUMN TEXT- MAYBE.	1630.
				4002	*	1631.
		00897		4003	HYPERTAB EQU *	1632.
000897	EB			4005	XCH HL,DE	SAVE CURSOR POSITION 1633.
000898	210220			4007	LODI HL,CURSX	X OFFSET 1634.
00089B	97			4009	SUB A	1635.
00089C	96			4011	SUB M	NEGATE CURSOR OFFSET 1636.
00089D	3629			4013	LODI M,LINESIZE/2+1	CENTER OF SCREEN 1637.
00089F	212900			4015	LODI HL,LINESIZE/2+1	1638.
0008A2	85			4017	ADD L	GET OFFSET FROM CENTER 1639.
0008A3	6F			4019	LOD L,A	1640.
0008A4	3EFF			4021	LODI A,X'FF'	1641.
0008A6	8C			4023	ADC H	1642.
0008A7	67			4025	LOD H,A	1643.
0008A8	19			4027	ADD HL,DE	ADD OFFSET TO CURSLOC 1644.
0008A9	C33806			4029	JMP KEYCURK	AND MOVE CUROSR 1645.
				4031	*	1646.
				4032	*	1647.
				4033	*	1648.
		008AC		4034	GOGRAPHIC EQU *	ENTER GMODE AND DOES A CLEAR 1649.
0008AC	3A2520			4036	LD A,ALLOWGMD	FIRST SEE IF WE IS ALLOWED TO ENTER 1650.
0008AF	B7			4038	IOR A	GMODE BOSS. IF NOT WE MUST NOT 1651.
0008B0	C22505			4040	JMP NZ,BUFTEST	DO IT LIKE THE MAN ASKED. 1652.
000833	3EC0			4042	LODI A,X'CO'	1653.
0008B5	321820			4044	ST A,CLRFLG	1654.
0008B8	061D			4046	LODI B,@GS	INDICATES TO GO DO GRAPH 1655.
0008BA	C3C708			4048	JMP GGRPH2	1656.

008BD 4050 *
4051 G0GRAPH EQU *
4053 LODI B,0

HERE TO ENTER GMODE
INDICATES DON'T GO DO GRAPHICS

1657.
1658.
1659.



LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
00083D	0600			4054		
0008BF	3A1A20			4055	LD A,MODEBITS	1660.
0008C2	E610			4057	ANDI GRAPHMD	SEE IF IN GRAPH MODE ALREADY
0008C4	3E0C			4059	LODI A,@FF	INDICATE A CLEAR
0008C6	C0			4061	RET NZ	YES THEN DON'T GO AGAIN
		008C7		4063	GOGRPH2 EQU *	
0008C7	3A1A20			4065	LD A,MODEBITS	GET OLD MODEBITS
0008CA	F610			4067	IORI GRAPHMD	MAKE SURE IT IS ON
0008CC	321A20			4069	ST A,MODEBITS	SAVE IT
0008CF	D380			4071	OUT MODESET	AND PU IT OUT
0008D1	CD4A09			4073	CALL ALPHA	AND GO DO GRAPHICS
				4075	* WHEN A <CMD>N IS ISSUED	CONTROL IS RETURNED HERE
				4076	*	
0008D4	97			4077	SUB A	FOR CLEARING CONTROL BITS
0008D5	D380			4079	OUT MODESET	AND PUT OUT
0008D7	321A20			4081	ST A,MODEBITS	AND SAVE (ASSUMES ONLY GRP INFO)
0008DA	C32505			4083	JMP BUFTST	AND GO BACK AND GET SOMMORE
				4085	*	
				4086	*	
		008DD		4087	CHGESC EQU *	CHANGE ESCAPE
				4089	LOD A,D	GET NW CHARACTER
				4091	ST A,ESCCHAR	SAVE IT
				4093	JMP SAVEPREV	
				4095	*	
				4096	*	
				4097	*	CHANGE USART SPEED
				4098	*	
		008E4		4099	CHGUART EQU *	CHG UART SPEED
0008E4	7A			4101	LOD A,D	
0008E5	FE30			4103	CMPI '0'	
0008E7	FA0909			4105	JMP S,SPDERR	SMALLER THEN 0
0008EA	FE3A			4107	CMPI ':'	:=9+1
0008EC	FAFB08			4109	JMP S,HEXIN3	
0008EF	FE61			4111	CMPI 'A'	
0008F1	FA0909			4113	JMP S,SPDERR	
0008F4	FE67			4115	CMPI 'G'	
0008F6	F20909			4117	JMP NS,SPDERR	
0008F9	C609			4119	ADDI 9	
0008FB	E60F			4121	HEXIN3 ANDI X'0F'	
0008FD	57			4123	LOD D,A	SAVE IT
0008FE	07070707			4125	ROT L,4	FOR XMITTER TO
000902	B2			4127	IOR D	OR IN RCVR SPEED
000903	D38E			4129	OUT URTSPEED	
000905	97			4131	CUSRET SUB A	CLR IT OUT
000906	C39105			4133	JMP SAVEPREV	AND GO HOME
000909	D386			4135	SPDERR OUT BELL	TELL THE USER
00090B	C30509			4137	JMP CUSRET	
				4139	*	
				4140	*	
		0090E		4141	NOGMODE EQU *	DON'T ALLOW ENTRY INTO GRAPHMODE
00090E	322520			4143	ST A,ALLOWGMD	
000911	C9			4145	RET ,	NZ=DON'T ALLOW GRAPH MOE
				4147	*	
				4148	*	
		00912		4149	YESGMODE EQU *	ALLOW ENTRY INTO GRAPHMODE

000912 97

4151
4153

SUB A
ST A.ALLOWGMD

Z= ALLOW

1714.
1715.



LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000913	322520			4154		
000916	C9			4155	RET ,	1716.
				4157	*	1717.
				4158	*	1718.
				4159	*	1719.
		00917		4160	BRGINT EQU *	1720.
000917	3A1A20			4162	LD A,MODEBITS	1721.
00091A	E6F3			4164	ANDI 255-URTCLOCK	1722.
00091C	D380			4166	OUT MODESET	1723.
00091E	321A20			4168	ST A,MODEBITS	1724.
000921	C9			4170	RET ,	1725.
				4172	*	1726.
				4173	*	1727.
				4174	*	1728.
		00922		4175	BRGEXT EQU *	1729.
000922	3A1A20			4177	LD A,MODEBITS	1730.
000925	F60C			4179	IORI URTCLOCK	1731.
000927	D380			4181	OUT MODESET	1732.
000929	321A20			4183	ST A,MODEBITS	1733.
00092C	C9			4185	RET ,	1734.
				4187	*	1735.
				4188	*	1736.
				4189	*	1737.
		0092D		4190	SETURTX1 EQU *	1738.
00092D	3E57			4192	LODI A,URTINTRS	1739.
00092F	D341			4194	OUT URTCTL	1740.
000931	3E79			4196	LODI A,URTX1MD	1741.
000933	D341			4198	OUT URTCTL	1742.
000935	C9			4200	RET ,	1743.
				4202	*	1744.
				4203	*	1745.
				4204	*	1746.
				4205	*	1747.
		00936		4206	SETURTX6 EQU *	1748.
000936	3E57			4208	LODI A,URTINTRS	1749.
000938	D341			4210	OUT URTCTL	1750.
00093A	3E7A			4212	LODI A,URTMODE	1751.
00093C	D341			4214	OUT URTCTL	1752.
00093E	C9			4216	RET ,	1753.
				4218	*	1754.
				4219	*	1755.
				4220	*	1756.
				4221	*	1757.
		0093F		4222	SETNECHO EQU *	1758.
00093F	3A1920			4224	LD A,FLAGS	1759.
000942	F680			4226	IORI FULLDUPL	1760.
000944	321920			4228	ST A,FLAGS	1761.
000947	C32505			4230	JMP BUFTST	1762.
				4232	*	1763.
				4233	*	1764.
				4234	*	1765.
				4235	*	1766.
		0094A		4236	ENDLENC D EQU *	1767.
				4238	*	1768.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				4240	*****	1770.
				4241	*****	1771.
				4242	* THIS IS IT	1772.
				4243	* WHAT YOU ASK?	1773.
				4244	* WHY, THE TEKTRONIX GRAPH SIMULATOR	1774.
				4245	*	1775.
				4246	*****	1776.
				4247	*****	1777.
				4248	*	1778.
				4249	*	1779.
				4250	* CONSTANTS IN RAM	1780.
				4251	*	1781.
				4252	*****	1782.
00094A		02039		4253	ORG ENDLIN	1783.
002039				4255	TEKXXX DS 0X STORGE FOR 5-BIT COORD ADDRESSES	1784.
002039	00			4257	TEKXHI DC X'00' (OORDER-DEPENDENT)	1785.
00203A	00			4258	TEKXLOW DC X'00'	1786.
00203B	00			4259	TEKYHI DC X'00'	1787.
00203C	00			4260	TEKYLOW DC X'00'	1788.
				4261	*	1789.
00203D				4262	GRAPHPOS DS 4X CURRENT BEAM POSITION (10 BIT NOS.)	1790.
				4264	*	1791.
002041				4265	#QUADS DS X # OF QUADRANTS FOR THE VECTOR	1792.
				4267	*	1793.
002042				4268	VECTEMP DS 5X TEMP SAVE FOR VECTOR RTN	1794.
002047				4270	GRAPHTEM DS 4X TEMP SAVE FOR GRAPH RTN	1795.
				4272	*	1796.
00204B				4273	CHARPOS DS 2X	1797.
00204D	00			4275	DIREC1 DC X'00'	1798.
00204E	00			4276	DIREC2 DC X'00'	1799.
00204F	00			4277	TYPE DC X'00'	1800.
002050				4278	XOFF DS 1X	1801.
002051	00			4280	DC X'00'	1802.
				4281	*	1803.
		04000		4282	EVENADD EQU GRAPHEVN	1804.
		09151		4284	ODDADD EQU GRAPHODD	1805.
		05151		4286	NEXT EQU ODDADD-EVENADD	1806.
002052	00			4288	EVENODD DC X'00'	1807.
		02800		4289	ROMGEN EQU CHGENRCM	1808.
				4291	*	1809.
002053				4292	XMASK DS 1X	1810.
002054				4294	MARGIN DS 1X	1811.
002055				4296	CHARPS2 DS 2X	1812.
		02004		4298	GRPOLDC EQU CURSCHAR	1813.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				4301	*****	1815.
				4302	*	1816.
				4303	* GRAPH MODE	1817.
				4304	*	1818.
				4305	*****	1819.
00094A		0094A		4306	ORG ENDLENC	1820.
00094A	210000			4308	ALPHA DS 0X	1821.
00094D	7D			4310	LODI HL,X'00'	1822.
00094E	325420			4312	LOD A,L	1823.
000951	225020			4314	ST A,MARGIN	1824.
000954	320420			4316	ST HL,XOFF	1825.
000957	21F606			4318	ST A,CURSCHAR CLEAR OUT CURSOR CHARACTER	1826.
00095A	224820			4320	LODI HL,TOPOFF+(7*LINESIZE) PLACE TO PUT CHARACTERS AT	1827.
00095D	78			4322	ST HL,CHARPOS	1828.
00095E	FE1D			4324	LOD A,B GET ENTRYFLAG	1829.
000960	CA440B			4326	CMPI @GS IS IT GRAPHIC SHIFT	1830.
				4328	JMP Z,GRAPH YES. GO DO GRAPHICS	1831.
				4330	*	1832.
000963	2A0020			4331	ALPHA2 DS 0X	1833.
000966	EB			4333	LD HL,CURSLOC GET OLD CURSOR LOC	1834.
000967	2A4820			4335	XCH HL,DE PUT INTO DE	1835.
00096A	010040			4337	LD HL,CHARPOS GET NEW CHARACTER POS	1836.
00096D	09			4339	LODI BC,GRAPHEVN OFFSET FOR CURSOR	1837.
00096E	7E			4341	ADD HL,BC ADD IN OFFSET	1838.
00096F	47			4343	LD A,(HL)	1839.
000970	220020			4345	LOD B,A	1840.
000973	3A0420			4347	ST HL,CURSLOC AND PUT IT CURSOR POSITON WORD	1841.
000976	12			4349	LD A,GRPOLD	1842.
000977	78			4351	ST A,(DE) PUT THE OLD CHAR THERE	1843.
000978	320420			4353	LOD A,B DONE HERE IN CASE OF INTERRUPT	1844.
00097B	CD9404			4355	ST A,GRPOLD	1845.
00097E	FE1D			4357	CALL GETCHAR	1846.
000980	CA440B			4359	ALPHACHK CMPI @GS	1847.
000983	FE0A			4361	JMP Z,GRAPH	1848.
000985	CA460A			4363	CMPI @LF	1849.
000988	FEFE			4365	JMP Z,LINEFEED	1850.
00098A	C8			4367	CMPI X'FE'	1851.
00098B	FE09			4369	RET Z	1852.
00098D	C29509			4371	CMPI @HT	1853.
000990	3E20			4373	JMP NZ,ALPHAR4	1854.
000992	C3EE09			4375	LODI A,' '	1855.
				4377	JMP GRPNRL	1856.
000995	FE1F		00995	4379	ALPHAR4 EQU *	1857.
000997	CA6309			4381	CMPI @US	1858.
00099A	FE01			4383	JMP Z,ALPHA2	1859.
00099C	CA6309			4385	CMPI @SOH (CNTL-A)	1860.
00099F	FE0D			4387	JMP Z,ALPHA2	1861.
0009A1	C2AA09			4389	CMPI @CR	1862.
0009A4	CD340A			4391	JMP NZ,GRPNCR	1863.
				4393	CALL GRPCR GO DO A CARRIAGE RET	1864.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
0009A7	C36309			4395	JMP ALPHA2	AND RETURN 1865.
0009AA				4397	GRPNCR DS 0X	1866.
0009AA	FE0C			4399	CMPI @FF	1867.
0009AC	CA4A09			4401	JMP Z,ALPHA	1868.
0009AF	FE08			4403	CMPI @BS	1869.
000931	C2D709			4405	JMP NZ,GRPNBS	ITS NOT A BACKSPACE 1870.
0009B4	11FFFF			4407	LODI DE,-1	1871.
0009B7	2A5020			4409	LD HL,XOFF	1872.
0009BA	23			4411	INC HL	1873.
0009BB	7C			4413	LOD A,H	1874.
0009BC	B7			4415	IOR A	1875.
0009BD	FACA09			4417	JMP S,GRPB5OK	1876.
0009C0	B5			4419	IOR L	1877.
0009C1	CACA09			4421	JMP Z,GRPB5OK	1878.
0009C4	2180FF			4423	LODI HL,-(LINESIZE-1)	1879.
0009C7	11C9FD			4425	LODI DE,-(7*LINESIZE)	1880.
0009CA				4427	GRPB5OK DS 0X	1881.
0009CA	225020			4429	ST HL,XOFF	1882.
0009CD	2A4B20			4431	LD HL,CHARPOS	1883.
0009D0	19			4433	ADD HL,DE	1884.
0009D1	224B20			4435	ST HL,CHARPOS	1885.
0009D4	C36309			4437	JMP ALPHA2	1886.
0009D7				4439	GRPNBS DS 0X	1887.
0009D7	FE0B			4441	CMPI @VT	1888.
0009D9	C2EE09			4443	JMP NZ,GRPNRL	1889.
0009DC	2A4B20			4445	LD HL,CHARPOS	DO A REVERSE LINEFEED 1890.
0009DF	11C9FD			4447	LODI DE,-(7*LINESIZE)	1891.
0009E2	19			4449	ADD HL,DE	MOVE BACK 1892.
0009E3	224B20			4451	ST HL,CHARPOS	PUT IN BACK 1893.
0009E6	7C			4453	LOD A,H	1894.
0009E7	B7			4455	IOR A	1895.
0009E8	F26309			4457	JMP NS,ALPHA2	NOT NEG, WE HAVENT GONE OVER 1896.
0009EB	C34A09			4459	JMP ALPHA	WE WENT OVER RESTART 1897.
0009EE				4461	GRPNRL DS 0X	1898.
0009EE	210E28			4463	LODI HL,ROMGEN+1+13	+13 ZAPS TO BOTTOM OF CHARACTER 1899.
0009F1	07070707			4465	ROT L,4	1900.
0009F5	57			4467	LOD D,A	1901.
0009F6	E6F0			4469	ANDI X'F0'	1902.
0009F8	B5			4471	IOR L	1903.
0009F9	4F			4473	LOD C,A	1904.
0009FA	7A			4475	LOD A,D	1905.
0009FB	E607			4477	ANDI X'07'	1906.
0009FD	B4			4479	IOR H	1907.
0009FE	47			4481	LOD B,A	1908.
0009FF	2A4B20			4483	LD HL,CHARPOS	1909.
000A02	E5			4485	PUSH HL	1910.
000A03	97			4487	SUB A	1911.
000A04	325220			4489	ST A,EVENODD	1912.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000A07				4491	GENLOOP DS 0X	1913.
000A07	0A			4493	LD A,(BC)	1914.
000A08	2F			4495	CMA , INVERT A	1915.
000A09	6F			4497	LOD L,A	1916.
000A0A	3E02			4499	LODI A,X'02'	1917.
000A0C	CDDE0A			4501	CALL XYPTINC ZAP UP ONE RASTER	1918.
000A0F	0B			4503	DEC BC	1919.
000A10	79			4505	LOD A,C	1920.
000A11	E60F			4507	ANDI X'0F'	1921.
000A13	C2070A			4509	JMP NZ,GENLOOP GO AND DO REST OF LINES	1922.
000A16	E1			4511	POP HL	1923.
000A17	23			4513	INC HL	1924.
000A18	224B20			4515	ST HL,CHARPOS	1925.
000A1B	3A5420			4517	LD A,MARGIN	1926.
000A1E	2A5020			4519	LD HL,XOFF	1927.
000A21	2B			4521	DEC HL	1928.
000A22	225020			4523	ST HL,XOFF	1929.
000A25	95			4525	SUB L	1930.
000A26	FE51			4527	CMPI LINESIZE	1931.
000A28	CA2E0A			4529	JMP Z,GRPARND	1932.
000A28	C36309			4531	JMP ALPHA2	1933.
		00A2E		4533	GRPARND EQU *	1934.
000A2E	CD340A			4535	CAL GRPCR	1935.
000A31	C3460A			4537	JMP LINEFEED	1936.
000A34				4539	GRPCR DS 0X	1937.
000A34	2A4B20			4541	LD HL,CHARPOS	1938.
000A37	EB			4543	XCH HL,DE	1939.
000A38	2A5020			4545	LD HL,XOFF	1940.
000A3B	19			4547	ADD HL,DE	1941.
000A3C	224B20			4549	ST HL,CHARPOS	1942.
000A3F	210000			4551	LODI HL,X'00'	1943.
000A42	225020			4553	ST HL,XOFF	1944.
000A45	C9			4555	RET ,	1945.
				4557	*	1946.
				4558	*	1947.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000A46				4560	LINEFEED DS 0X	1949.
000A46	2A4B20			4562	LD HL,CHARPOS	1950.
000A49	EB			4564	XCH HL,DE	1951.
000A4A	21D9B1			4566	LODI HL,-(247*LINESIZE)	1952.
000A4D	19			4568	ADD HL,DE	1953.
000A4E	7C			4570	LOD A,H	1954.
000A4F	B7			4572	IOR A	1955.
000A50	F25D0A			4574	JMP NS,SWITCH	1956.
000A53	213702			4576	LODI HL,(7*LINESIZE)	1957.
000A56	19			4578	ADD HL,DE	1958.
000A57	224B20			4580	ST HL,CHARPOS	1959.
000A5A	C36309			4582	JMP ALPHA2	1960.
000A5D				4584	SWITCH DS 0X	1961.
000A5D	3A5420			4586	LD A,MARGIN	1962.
000A60	B7			4588	IOR A	1963.
000A61	C24A09			4590	JMP NZ,ALPHA	1964.
000A64	21E704			4592	LODI HL,LINESIZE/2+TOPOFF	1965.
000A67	224B20			4594	ST HL,CHARPOS	1966.
000A6A	3E28			4596	LODI A,LINESIZE/2	1967.
000A6C	325420			4598	ST A,MARGIN	1968.
000A6F	210000			4600	LODI HL,0	1969.
000A72	225020			4602	ST HL,XOFF	1970.
000A75	C36309			4604	JMP ALPHA2	1971.
				4606	*****	1972.
				4607	*****	1973.
				4608	*****	1974.
000A78				4609	SHIFT DS 0X	1975.
000A78	97			4611	SUB A	1976.
000A79	7A			4613	LOD A,D	1977.
000A7A	1F			4615	ROT RC	1978.
000A7B	57			4617	LOD D,A	1979.
000A7C	7B			4619	LOD A,E	1980.
000A7D	1F			4621	ROT RC	1981.
000A7E	5F			4623	LOD E,A	1982.
000A7F	C9			4625	RET	1983.
				4627	*****	1984.
				4628	*****	1985.
				4629	*****	1986.
000A80				4630	BTOELoad DS 0X	1987.
000A80	46			4632	LOD B,M	1988.
000A81	23			4634	INC HL	1989.
000A82	4E			4636	LOD C,M	1990.
000A83	23			4638	INC HL	1991.
000A84	56			4640	LOD D,M	1992.
000A85	23			4642	INC HL	1993.
000A86	5E			4644	LOD E,M	1994.
000A87	C9			4646	RET	1995.
				4648	*****	1996.
				4649	*****	1997.
				4650	*****	1998.
000A88				4651	BTOESAVE DS 0X	1999.
000A88	70			4653	LOD M,B	2000.
000A89	23			4655	INC HL	2001.
000A8A	71			4657	LOD M,C	2002.
000A8B	23			4659	INC HL	2003.

000ABC 72

4661

LOD M,D

2004.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000A8D	23			4663	INC HL	2005.
000A8E	73			4665	LOD M,E	2006.
000A8F	C9			4667	RET ,	2007.
				4669	*****	2008.
				4670	*****	2009.
				4671	*****	2010.
000A90				4672	SCCPLOAD DS 0X	2011.
				4674	* BC HAS X	2012.
				4675	* DE HAS Y	2013.
000A90	7B			4676	LOD A,E	2014.
000A91	0F			4678	ROT R	2015.
000A92	E680			4680	ANDI X'80'	2016.
000A94	325220			4682	ST A,EVENODD	2017.
000A97	CD780A			4684	CALL SHIFT	2018.
000A9A	3EFF			4686	LODI A,255	2019.
000A9C	93			4688	SUB E	2020.
000A9D	6F			4690	LOD L,A	2021.
000A9E	2600			4692	LODI H,0	2022.
000AA0				4694	MULT B1	2023.
000AA0	545D			4696		
000AA2	29			4697		
000AA3	29			4698		
000AA4	29			4699		
000AA5	29			4700		
000AA6	EB			4701		
000AA7	19			4702		
000AA8	EB			4703		
000AA9	29			4704		
000AAA	29			4705		
000AAB	19			4706		
000AAC	224B20			4707	ST HL,CHARPOS	2024.
				4709	* NOW WE DO THE X PART	2025.
				4710	* NOW WE DO THE X PART	2026.
				4711	*	2027.
				4712	*	2028.
000AAF	50			4713	LOD D,B	2029.
000AB0	59			4715	LOD E,C	2030.
000AB1	7B			4717	OT02 LOD A,E	2031.
000AB2	E607			4719	ANDI X'07'	2032.
000AB4	21B40C			4721	LODI HL,DODAX	2033.
000AB7	85			4723	ADD L	2034.
000AB8	6F			4725	LOD L,A	2035.
000AB9	3E00			4727	LODI A,0	2036.
000ABB	8C			4729	ADC H	2037.
000ABC	67			4731	LOD H,A	2038.
000ABD	7E			4733	LOD A,M	2039.
000ABE	325320			4735	ST A,XMASK	2040.
000AC1	CD780A			4737	CALL SHIFT	2041.
000AC4	CD780A			4739	CALL SHIFT	2042.
000AC7	CD780A			4741	CALL SHIFT	2043.
000ACA	97			4743	SUB A	2044.
000ACB	93			4745	SUB E	2045.
000ACC	325020			4747	ST A,XOFF	2046.
000ACF	3E00			4749	LODI A,0	2047.
000AD1	57			4751	LOD D,A	2048.

000AD2	9A	4753	SBB	D		2049.
000AD3	325120	4755	ST	A,XOFF+1		2050.
000AD6	2A4B20	4757	LD	HL,CHARPOS	GET SUM OF X AND Y	2051.
000AD9	19	4759	ADD	HL,DE	NOTE D SHOULD BE ZERO SO ADD IN X	2052.
000ADA	224B20	4761	ST	HL,CHARPOS	AND SAVE IT	2053.
000ADD	C9	4763	RET	,	AND LEAVE	2054.
		4765	*****			2055.
		4766	*****			2056.
		4767	*****			2057.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000AJE				4768	XYPTINC DS OX	2058.
				4770	*****THIS IS THE REALLY IMPORTANT ROUTINE	2059.
				4771	***IT INCREMENTS AND DECREMENTS X AND Y	2060.
				4772	***** DEPENDING ON THE CONTENTS OF A	2061.
				4773	** 02 INC Y	2062.
				4774	** 03 DEC Y	2063.
				4775	** 08 INC X	2064.
				4776	** 0C DEC X	2065.
				4777	** YOU CAN DO BOTH X AND Y AT THE SAME TIME	2066.
				4778	*	2067.
000ADE	C5			4779	PUSH BC	2068.
000ADF	E5			4781	PUSH HL	2069.
000AE0	D5			4783	PUSH DE	2070.
000AE1	4F			4785	LOD C,A	2071.
000AE2	45			4787	LOD B,L	2072.
		02052		4789	DRAGEVOD EQU EVENODD	2073.
		0204B		4791	DRAGXY EQU CHARPOS	2074.
		02053		4793	DRAGBIT EQU XMASK	2075.
000AE3	2A4B20			4795	DRAGSGLP LD HL,DRAGXY	2076.
000AE6	79			4797	LOD A,C	2077.
000AE7	E608			4799	ANDI X'08'	2078.
000AE9	CAF90A			4801	JMP Z,DRAGDOY NOT DOING X...	2079.
000AEC	79			4803	LOD A,C	2080.
000AED	E604			4805	ANDI X'04'	2081.
000AEF	78			4807	LOD A,B	2082.
000AF0	C23C0B			4809	JMP NZ,DRAG1	2083.
000AF3	0F			4811	ROT R	2084.
000AF4	D2F80A			4813	JMP NC,DRAG2	2085.
000AF7	23			4815	INC HL	2086.
000AF8	47			4817	DRAG2 LOD B,A	2087.
000AF9	79			4819	DRAGDOY LOD A,C	2088.
000AFA	E602			4821	ANDI X'02'	2089.
000AFC	CA200B			4823	JMP Z,DRAGSPOT NOT DOING Y...	2090.
000AFF	79			4825	LOD A,C	2091.
000B00	E601			4827	ANDI X'01'	Y INC/DEC? 2092.
000B02	3A5220			4829	LD A,DRAGEVOD	2093.
000B05	CA140B			4831	JMP Z,DRAG3	DECR Y 2094.
000B08	EE80			4833	XORI X'80'	FLIP EVEN/ODD BIT 2095.
000B0A	F21D0B			4835	JMP NS,DRAG5	2096.
000B0D	115100			4837	LODI DE,LINESIZE	2097.
000B10	19			4839	ADD HL,DE	2098.
000B11	C31D0B			4841	JMP DRAG5	2099.
000B14	EE80			4843	DRAG3 XORI X'80'	FLIP EVEN/ODD 2100.
000B16	FA1D0B			4845	JMP S,DRAG5	2101.
000B19	11AFFF			4847	LODI DE,-LINESIZE	2102.
000B1C	19			4849	ADD HL,DE	2103.
000B1D	325220			4851	DRAG5 ST A,DRAGEVOD	2104.
000B20	224B20			4853	DRAGSPOT ST HL,DRAGXY	2105.
000B23	110040			4855	LODI DE,GRAPHEVN	2106.
000B26	3A5220			4857	LD A,DRAGEVOD	2107.
000B29	37			4859	IOR A	2108.
000B2A	F2300B			4861	JMP NS,DRAG4	2109.
000B2D	115191			4863	LODI DE,GRAPHODD	2110.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000B30	19			4865	DRAG4 ADD HL,DE	ADD APPROPRIATE FRAME ORIGIN 2111.
000B31	78			4867	LOD A,B	2112.
000B32	B6			4869	IOR M	2113.
000B33	77			4871	LOD M,A	2114.
000B34	225520			4873	ST HL,CHARPS2	2115.
000B37	D1			4875	POP DE	2116.
000B38	E1			4877	POP HL	2117.
000B39	68			4879	LOD L,B	2118.
000B3A	C1			4881	POP BC	2119.
000B3B	C9			4883	RET ,	AND LEAVE 2120.
000B3C	07			4885	DRAG1 ROT L	2121.
000B3D	D2F80A			4887	JMP NC,DRAG2	2122.
000B40	2B			4889	DEC HL	2123.
000B41	C3F80A			4891	JMP DRAG2	2124.
				4893	*	2125.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				4895	*****	2127.
				4896	*****	2128.
				4897	*****HERE IS THE GRAPHING STUFF	2129.
				4898	*****	2130.
				4899	*****	2131.
000B44				4900	GRAPH DS 0X	2132.
000B44	2A0020			4902	LD HL,CURSLOC	2133.
000B47	EB			4904	XCH HL,DE	2134.
000B48	210000			4906	LODI HL,0	2135.
000B4B	220020			4908	ST HL,CURSLOC	2136.
000B4E	7C			4910	LOD A,H	2137.
000B4F	325420			4912	ST A,MARGIN SET MARGIN A LEFT	2138.
000B52	3A0420			4914	LD A,GRPOLD	2139.
000B55	12			4916	ST A,(DE)	2140.
000B56	97			4918	SUB A	2141.
000B57	320420			4920	ST A,GRPOLD	2142.
000B5A	CD9C0B			4922	CAL GRAPHPT GET A POINT IN TEKXXX	2143.
000B5D	CDD20B			4924	CAL GRAPHCON CONVERT TO 10 BIT NOS. IN BCDE	2144.
000B60	213D20			4926	DLD HL,GRAPHPOS DRAW A DARK VECTOR (IE JUST SAVE	2145.
000B63	CD880A			4928	CALL BTOESAVE NEW COORDS)	2146.
000B66	CD900A			4930	CAL SCOPLOAD	2147.
				4932	*	2148.
				4933	*	2149.
				4934	* DRAW DARK VECTORS	2150.
000B69				4935	GRAPHLP DS 0X	2151.
000B69	CD9C0B			4937	CAL GRAPHPT GET NEXT POINT IN TEKXXX	2152.
000B6C	CDD20B			4939	CAL GRAPHCON CONVERT TO 10 BIT NOS. IN BCDE	2153.
000B6F	214720			4941	DLD HL,GRAPHTEM SAVE IN TEMPORAY	2154.
000B72	CD880A			4943	CALL BTOESAVE	2155.
000B75	214020			4945	DLD HL,GRAPHPOS+3 ADDRESS CURRENT POSITION	2156.
000B78	7B			4947	LOD A,E FORM DELTA X, DELTA Y	2157.
000B79	96			4949	SUB M	2158.
000B7A	5F			4951	LOD E,A	2159.
000B7B	7A			4953	LOD A,D *	2160.
000B7C	2D			4955	DEC L	2161.
000B7D	9E			4957	SBB M	2162.
000B7E	57			4959	LOD D,A	2163.
000B7F	79			4961	LOD A,C **	2164.
000B80	2D			4963	DEC L	2165.
000B81	96			4965	SUB M	2166.
000B82	4F			4967	LOD C,A	2167.
000B83	73			4969	LOD A,B *	2168.
000B84	2D			4971	DEC L	2169.
000B85	9E			4973	SBB M	2170.
000B86	47			4975	LOD B,A	2171.
000B87	CD0D0C			4977	CAL VECTOR NOW DRAW A REAL VECTOR	2172.
000B8A	214720			4979	DLD HL,GRAPHTEM RETRIEVE THE FINAL COORDS	2173.
000B8D	CD800A			4981	CALL BTOELOAD	2174.
000B90	213D20			4983	DLD HL,GRAPHPOS SAVE AS CURRENT POSITION	2175.
000B93	CD880A			4985	CALL BTOESAVE	2176.
000B96	CD900A			4987	CAL SCOPLOAD ALSO LOAD INTO HARDWARE	2177.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				4989	* THE ABOVE IS NOT STRICTLY NECESSARY, SINCE 'VECTOR' SHOULD HAVE	2178.
				4990	* CORRECTLY UPDATED THE HARDWARE REGISTERS. IT PAYS TO BE CAUTIOUS,	2179.
				4991	* HOWEVER, SINCE ANY ERROR IS CUMULATIVE.	2180.
000B99	C3690B			4992	JMP GRAPHLP CONTINUE UNTIL GRAPH MODE IS ENDED	2181.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				4995	*	2183.
				4996	* GRAPHPT: GET GRAPH POINT COORDS FROM BUFFER & PUT IN TEKXXX	2184.
				4997	*	2185.
000B9C	0E01			4998	GRAPHPT LODI C,1	2186.
000B9E				5000	GRAPHNEX DS 0X	2187.
000B9E	C5			5002	PUSH BC	2188.
000B9F	CD9404			5004	CALL GETCHAR	2189.
000BA2	C1			5006	POP BC	2190.
000BA3	FE20			5008	CMPI X'20'	2191.
000BA5	F2AC0B			5010	JMP P,NOTCTL	2192.
000BA8	E1			5012	POP HL	2193.
000BA9	C37E09			5014	JMP ALPHACHK	2194.
000BAC	47			5016	NOTCTL LOD B,A	2195.
000BAD	213B20			5018	DLD HL,TEKYHI	2196.
000BB0	1717			5020	ROT LC,2	2197.
000BB2	DABE0B			5022	JMP C,GRAPHLOW	2198.
000B35	0D			5024	DEC C	2199.
000BB6	CAC70B			5026	JMP Z,GRAPHST	2200.
000BB9	2E39			5028	LODI L,TEKXHI,>	2201.
000BBB	C3C70B			5030	JMP GRAPHST	2202.
000BBE	0D			5032	GRAPHLOW DEC C	2203.
000BBF	2E3A			5034	LODI L,TEKXLOW,>	2204.
000BC1	17			5036	ROT LC	2205.
000BC2	D2C70B			5038	JMP NC,GRAPHST	2206.
000BC5	2E3C			5040	LODI L,TEKYLOW,>	2207.
000BC7	78			5042	GRAPHST LOD A,B	2208.
000BC8	E61F			5044	ANDI X'1F'	2209.
000BCA	77			5046	LOD M,A	2210.
000BCB	3E3A			5048	LODI A,TEKXLOW,>	2211.
000BCD	95			5050	SUB L	2212.
000BCE	C29E0B			5052	JMP NZ,GRAPHNEX	2213.
000BD1	C9			5054	RET ,	2214.
				5056	*	2215.
				5057	*	2216.
				5058	* GRAPHCON: CONVERT 5 BIT COORDS AT TEKXXX TO 10 BIT IN BCDE	2217.
				5059	*	2218.
000BD2	213920			5060	GRAPHCON DLD HL,TEKXHI	2219.
000BD5	CDD80B			5062	CAL GRAPHCNV	2220.
000BD8	42			5064	LOD B,D	2221.
000BD9	4B			5066	LOD C,E	2222.
000BDA	2C			5068	INC L	2223.
000BDB	7E			5070	GRAPHCNV LOD A,M	2224.
000BDC	0F0F0F			5072	ROT R,3	2225.
000BDF	5F			5074	LOD E,A	2226.
000BE0	E603			5076	ANDI X'03'	2227.
000BE2	57			5078	LOD D,A	2228.
000BE3	2C			5080	INC L	2229.
000BE4	7B			5082	LOD A,E	2230.
000BE5	E6E0			5084	ANDI X'EO'	2231.
000BE7	86			5086	ADD M	2232.
000BE8	5F			5088	LOD E,A	2233.
000BE9	3A4F20			5090	LD A,TYPE	2234.
000BEC	FE42			5092	CMPI 'B'	2235.
000BEE	C8			5094	RET Z	2236.
000BEF	FE53			5096	CMPI 'S'	2237.

5098

JMP NZ,SCALNORM

IF NOT DC4 THE 5/8

2238.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000BF1	C2F90B			5099		
000BF4	13			5100	INC DE	FOR ROUNDING 2239.
000BF5	CD780A			5102	CALL SHIFT	SHIFT DE RIGHT ONE IBT 2240.
000BF8				5104	OTO DS 0X	2241.
000BF8	C9			5106	RET ,	ABOVE, OR TO CALLER 2242.
		00BF9		5108	SCALNORM EQU *	2243.
000BF9	62			5110	LOD H,D	GET HIGH PART 2244.
000BFA	6B			5112	LOD L,E	GET LOW PART 2245.
000BFB	29			5114	ADD HL,HL	2246.
000BFC	29			5116	ADD HL,HL	*4 2247.
000BFD	19			5118	ADD HL,DE	*5 2248.
000BFE	EB			5120	XCH HL,DE	PUT IN DE 2249.
000BFF	CD780A			5122	CALL SHIFT	2250.
000C02	CD780A			5124	CALL SHIFT	2251.
000C05	13			5126	INC DE	2252.
000C06	CD780A			5128	CALL SHIFT	DIVIDE BY EIGHT 2253.
000C09	213A20			5130	LODI HL,TEKXLOW	FOR SECOND TIM AROUND 2254.
000C0C	C9			5132	RET ,	2255.

LDC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				5136 *		2258.
				5137 *		2259.
				5138 *	VECTOR DRAW A VECTOR TO ANY POINT ON THE SCREEN.	2260.
				5139 *		2261.
				5140 *	SIGNED DELTA X (DX) IS IN BC	2262.
				5141 *	SIGNED DELTA Y (DY) IS IN DE	2263.
				5142 *		2264.
000C0D				5143	VECTOR DS 0X	2265.
	00008			5145	INCX EQU X'08'	INCREMENT X COORD 2266.
	0000C			5147	DECX EQU X'0C'	DECREMENT X COORD 2267.
	00002			5149	INCY EQU X'02'	INCREMENT Y COORD 2268.
	00003			5151	DECY EQU X'03'	DECREMENT Y COORD 2269.
				5153 *		2270.
				5154 *	FIRST MAKE BOTH DELTAS POSITIVE, AND INSURE DX GE DY	2271.
				5155 *	UPPER H WILL CONTAIN 'DY' CNTRL BITS, LOWER H 'DX'	2272.
				5156 *		2273.
000C0D	2628			5157	LODI H, INCX+16*INCY	ASSUME BOTH POSITIVE 2274.
000C0F	78			5159	LOD A,B	TEST SIGN OF X 2275.
000C10	B7			5161	IOR A	* 2276.
000C11	F21E0C			5163	JMP NS, TESTY	ALREADY POSITIVE 2277.
000C14	262C			5165	LODI H, DECX+16*INCY	NEGATIVE: RESET CTRL BITS 2278.
000C16	3E00			5167	LODI A,0	AND NEGATE X 2279.
000C18	91			5169	SUB C	2280.
000C19	4F			5171	LOD C,A	2281.
000C1A	3E00			5173	LODI A,0	2282.
000C1C	98			5175	SBB B	2283.
000C1D	47			5177	LOD B,A	2284.
000C1E	7A			5179	TESTY LOD A,D	TEST SIGN OF Y 2285.
000C1F	B7			5181	IOR A	2286.
000C20	F22F0C			5183	JMP NS, TESTBIG	ALREADY POSITIVE... 2287.
000C23	7C			5185	LOD A,H	CHANGE CTRL BITS TO DEC Y 2288.
000C24	F630			5187	IORI 16*DECY	2289.
000C26	67			5189	LOD H,A	2290.
000C27	3E00			5191	LODI A,0	AND NEGATE Y 2291.
000C29	93			5193	SUB E	2292.
000C2A	5F			5195	LOD E,A	2293.
000C2B	3E00			5197	LODI A,0	2294.
000C2D	9A			5199	SBB D	2295.
000C2E	57			5201	LOD D,A	2296.
000C2F	78			5203	TESTBIG LOD A,B	IS Y GT X? 2297.
000C30	92			5205	SUB D	2298.
000C31	DA3C0C			5207	JMP C, YBIG	YES... 2299.
000C34	C2480C			5209	JMP NZ, XBIG	NO... 2300.
000C37	79			5211	LOD A,C	TEST FURTHER: 2301.
000C38	93			5213	SUB E	2302.
000C39	D2480C			5215	JMP NC, XBIG	NO... 2303.
000C3C	7C			5217	YBIG LOD A,H	EXCHANGE CTRL BITS FOR 'DX', 'DY' 2304.
000C3D	0F0F0F0F			5219	ROT R,4	2305.
000C41	67			5221	LOD H,A	2306.
000C42	78			5223	LOD A,B	EXCHANGE HIGH-ORDER DELTAS 2307.
000C43	42			5225	LOD B,D	2308.
000C44	57			5227	LOD D,A	2309.

000C45 79	5229	LOD	A,C	EXCHANGE LOW-ORDER DELTAS	2310.
000C46 4B	5231	LOD	C,E		2311.
000C47 5F	5233	LOD	E,A		2312.
000C48	5235	DS	OX		2313.
	5237 *				2314.
	5238 *				2315.
	5239 *				2316.
	5240 *				2317.
	5241 *				2318.
	5242 *				2319.
	5243 *				2320.
	5244 *				2321.
	5245 *				2322.

DIVIDE THE INTERVAL INTO HALVES OR QUARTERS SO THAT BOTH DELTAS ARE LT 256.
(NOTE: THIS IMPLIES THAT FOR EXACT RESULTS, DELTAS OVER 511 SHOULD BE DIVISIBLE BY 4, AND THOSE OVER 255 SHOULD BE DIVISIBLE BY 2. IF THIS STRICTURE IS IGNORED, HOWEVER, THIS MAXIMUM TOTAL ERROR PER VECTOR IS ONLY 3 UNITS OVER THE FULL LENGTH.



LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000C48	2E01			5246	LODI L,1	TENTATIVELY SET FOR 1 SEGMENT
000C4A	78			5248	REDUCE LOD A,B	IS DX GT 255?
000C4B	B7			5250	IOR A	(ALSO CLR CARRY FOR LATER)
000C4C	CA620C			5252	JMP Z,NOTOOBIG	NO - FNE
				5254	* PRECEEDING	CODE INSURED DX GE DY, SO DY GT 255 NEEDN'T BE CHECKED.
000C4F	78			5255	LOD A,B	SHIFT DX (BC) RIGHT 1 BIT
000C50	1F			5257	ROT RC	(CARRY MUST BE CLEAR)
000C51	47			5259	LOD B,A	
000C52	79			5261	LOD A,C	
000C53	1F			5263	ROT RC	
000C54	4F			5265	LOD C,A	
000C55	AF			5267	XOR A	SHIFT DY (DE) RIGHT 1 BIT
000C56	7A			5269	LOD A,D	
000C57	1F			5271	ROT RC	
000C58	57			5273	LOD D,A	
000C59	7B			5275	LOD A,E	
000C5A	1F			5277	ROT RC	
000C5B	5F			5279	LOD E,A	
000C5C	7D			5281	LOD A,L	DOUBLE THE SEGMENT(REPEAT) COUNT
000C5D	07			5283	ROT L	
000C5E	6F			5285	LOD L,A	
000C5F	C34A0C			5287	JMP REDUCE	TRY AGAIN (MAX OF 2 TIMES)
000C62	45			5289	NOTOOBIG LOD B,L	SAVE REPEAT COUNT IN B
000C63	7C			5291	LOD A,H	GET CTRL BITS
000C64	0F0F0F0F			5293	ROT R,4	SAVE X-Y EXCHANGED COPY
000C68	57			5295	LOD D,A	
000C69	7C			5297	LOD A,H	GET 'X' CTRL BITS
000C6A	E60F			5299	ANDI X'0F'	*
000C6C	324E20			5301	ST A,DIREC2	*
000C6F	B2			5303	IOR D	GET X+Y CTRL BITS
000C70	E60F			5305	ANDI X'0F'	*
000C72	324D20			5307	ST A,DIREC1	
000C75	214120			5309	LODI HL,#QUADS	
000C78	70			5311	LOD M,B	
000C79	2A5320			5313	LD HL,XMASK	
000C7C				5315	LOOP0 DS 0X	
000C7C	AF			5317	XOR A	SET HL = -X/2
000C7D	91			5319	SUB C	
000C7E	C2860C			5321	JMP NZ,DNPLT	IF ZERO, DX=DY=0; ONLY DRAW A POINT
000C81	97			5323	SUB A	
000C82	CDDE0A			5325	CALL XYPTINC	
000C85	C9			5327	RET	
000C86	1F			5329	DNPLT ROT RC	
000C87	57			5331	LOD D,A	
000C88	06FF			5333	LODI B,255	
000C8A	61			5335	LOD H,C	H = DX (LOOP COUNT)
				5337	*	
				5338	*	ALL THE DISTASTEFUL INITIALIZATION IS OVER, NOW
				5339	*	DO THE ZIPPY LOOP TO DRAW THE LINE
				5340	*	
000C8B				5341	LOOP1 DS 0X	
000C8B	7A			5343	LOD A,D	BD=BD+DY (HERE C=DX, E=DY)
000C8C	83			5345	ADD E	
000C3D	57			5347	LOD D,A	
000C8E	D2AE0C			5349	JMP NC,STILLNEG	

000C91 04

5351

INC B

(INCREMENT HIGH-ORDER PART)

2378.



LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
000C92	C2AE0C			5353	JMP NZ,STILLNEG	DIDN'T GO POSITIVE 2379.
000C95	91			5355	SUB C	HL=HL-DX 2380.
000C96	57			5357	LOD D,A	2381.
000C97	05			5359	DEC B	(SET B=255 FOR HIGH-ORDER PART) 2382.
				5361	* INCREMENT(DECUREMENT) X(Y) AND Y(X) BOTH.	2383.
000C98	3A4D20			5362	LD A,DIREC1	2384.
000C9B	CDDE0A			5364	OUTSCOPE CALL XYPTINC	2385.
000C9E	25			5366	DEC H	LOOP FOR DX TIMES 2386.
000C9F	C28B0C			5368	JMP NZ,LOOP1	2387.
000CA2	3A4120			5370	LD A,#QUADS	2388.
000CA5	D601			5372	SUBI 1	2389.
000CA7	C8			5374	RET Z	RETURN IF ALL WERE DONE 2390.
000CA8	324120			5376	ST A,#QUADS	2391.
000CAB	C37C0C			5378	JMP LOOP0	NO - DO NEXT 2392.
				5380	* INCREMENT(DECUREMENT) X(Y) ONLY	2393.
000CAE				5381	STILLNEG DS 0X	2394.
000CAE	3A4E20			5383	LD A,DIREC2	2395.
000CB1	C39B0C			5385	JMP OUTSCOPE	(COULD SAVE JMP BY DUPL. INSTRS.) 2396.
				5387	*	2397.
				5388	* HERE IS WHERE ROM CONSTANTS GO	2398.
000CB4				5389	DODAX DS 0X	2399.
000CB4	80			5391	DC X'80'	2400.
000CB5	40			5392	DC X'40'	2401.
000C36	20			5393	DC X'20'	2402.
000CB7	10			5394	DC X'10'	2403.
000CB8	08			5395	DC X'08'	2404.
000CB9	04			5396	DC X'04'	2405.
000CBA	02			5397	DC X'02'	2406.
000CBB	01			5398	DC X'01'	2407.
				5399	* END OF ROM CONSTANTS	2408.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
				5401 *		2410.
				5402 *	'HELP' TEXT FOR THE VGT	2411.
				5403 *		2412.
000C3C			01C00	5404	ORG X'1C00'	2413.
001C00	0D0A			5406	CHAR @CR,@LF	2414.
001C02	FF			5408	DC X'FF' **CHANGED**	2414.1
001C03	2A2A2A205374616E			5409	CHAR '*** STANFORD - SLAC VIDEO GRAPHICS TERMINAL (V14) ***'	2415.
001C0B	666F7264202D2053			5411		
001C13	4C41432020566964			5412		
001C1B	656F204772617068			5413		
001C23	696373205465726D			5414		
001C2B	696E616C20285631			5415		
001C33	3429202A2A			5416		
001C39	0D0A0D0A			5417	CHAR @CR,@LF,@CR,@LF	2416.
001C3D	436F6D6D616E6473			5419	CHAR 'COMMANDS ARE <CMD> PRESSED WITH:',@CR,@LF	2417.
001C45	20617265203C434D			5421		
001C4D	443E207072657373			5422		
001C55	656420776974683A			5423		
001C5D	0D0A			5424		
001C5F	0D0A			5425	CHAR @CR,@LF	2418.
001C61	3C42533E2C3C4C46			5427	CHAR '<BS>,<LF>,<HT>,<SP>,<VT>,<CR> - LOCAL CURSOR MOTION'	2419.
001C69	3E2C3C48543E2C3C			5429		
001C71	53503E2C3C56543E			5430		
001C79	2C3C43523E202D20			5431		
001C81	6C6F63616C206375			5432		
001C89	72736F72206D6F74			5433		
001C91	696F6E			5434		
001C94	0D0A			5435	CHAR @CR,@LF	2420.
001C96	5D202D20686F6D65			5437	CHAR ' - HOME DISPLAY TO CURSOR',@DC4	2421.
001C9E	20646973706C6179			5439		
001CA6	20746F2063757273			5440		
001CAE	6F72			5441		
001CB0	14			5442		
001CB1	5B202D20756E686F			5443	CHAR ' - UNHOME',@CR,@LF	2422.
001CB9	6D65			5445		
001CBB	0D0A			5446		
001C3D	6D202D2070757420			5447	CHAR 'M - PUT CURSOR ON SCREEN',@CR,@LF	2423.
001CC5	637572736F72206F			5449		
001CCD	6E2073637265656E			5450		
001CD5	0D0A			5451		
001CD7	46202D2046756C6C			5452	CHAR 'F - FULL DUPLEX',@DC4	2424.
001CDF	204475706C6578			5454		
001CE6	14			5455		
001CE7	48202D2048616C66			5456	CHAR 'H - HALF DUPLEX',@CR,@LF	2425.
001CEF	204475706C6578			5458		
001CF6	0D0A			5459		
001CF8	6C202D204C6F6361			5460	CHAR 'L - LOCAL',@DC4,'R - REMOTE',@CR,@LF	2426.
001D00	6C			5462		
001D01	14			5463		
001D02	72202D2072656D6F			5464		
001D0A	7465			5465		
001D0C	0D0A			5466		
001D0E	5363726F6C6C696E			5467	CHAR 'SCROLLING:',@CR,@LF	2427.
001D16	673A			5469		
001D18	0D0A			5470		

001D1A	3A202D2070616765	5471	CHAR	' : - PAGE DOWN',@DC4,'; - PAGE UP',@CR,@LF	2428.
001D22	20646F776E	5473			
001D27	14	5474			
001D28	3B202D2070616765	5475			
001D30	207570	5476			
001D33	0D0A	5477			
001D35	5C202D206C696E65	5478	CHAR	' - LINE DOWN QUICK',@DC4	2429.
001D3D	20646F776E207175	5480			
001D45	69636B	5481			
001D48	14	5482			
001D49	40202D2075702071	5483	CHAR	'@ - UP QUICK',@CR,@LF	2430.
001D51	7569636B	5485			
001D55	0D0A	5486			
001D57	70202D206C696E65	5487	CHAR	'P - LINE DOWN SLOW',@DC4	2431.
001D5F	20646F776E20736C	5489			
001D67	6F77	5490			
001D69	14	5491			
001D6A	6F202D2075702073	5492	CHAR	'O - UP SLOW',@CR,@LF	2432.
001D72	6C6F77	5494			
001D75	0D0A	5495			
001D77	532C4D2C42202D20	5496	CHAR	'S,M,B - GRAPH SCALING',@DC4	2433.
001D7F	6772617068207363	5498			
001D87	616C696E67	5499			
001D8C	14	5500	CHAR	'V - INVERT VIDEO',@CR,@LF	2434.
		5501			

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
001D8D	56202D20496E7665			5502		
001D95	727420566964656F			5503		
001D9D	0D0A			5504		
001D9F	51202D2074797065			5505	CHAR 'Q - TYPE AHEAD',@DC4	2435.
001DA7	206168656164			5507		
001DAD	14			5508		
001DAE	43202D20586D6974			5509	CHAR 'C - XMIT NORMAL (CHAR. MODE)',@CR,@LF	2436.
001D36	206E6F726D616C20			5511		
001DBE	28636861722E206D			5512		
001DC6	6F646529			5513		
001DCA	0D0A			5514		
001DCC	67202D20656E7465			5515	CHAR 'G - ENTER, N - LEAVE => GRAPH MODE, NO CLR',@CR,@LF	2437.
001DD4	722C206E202D206C			5517		
001DDC	65617665203D3E20			5518		
001DE4	4772617068206D6F			5519		
001DEC	64652C206E6F2063			5520		
001DF4	6C72			5521		
001DF6	0D0A			5522		
001DF8	63202D20636C7220			5523	CHAR 'C - CLR SCREEN',@DC4	2438.
001E00	73637265656E			5525		
001E06	14			5526		
001E07	6B202D20636C7220			5527	CHAR 'K - CLR + LEAVE GRAPH MODE',@CR,@LF	2439.
001E0F	2B206C6561766520			5529		
001E17	6772617068206D6F			5530		
001E1F	6465			5531		
001E21	0D0A			5532		
001E23	74202D2074696D65			5533	CHAR 'T - TIME',@DC4	2440.
001E2B	14			5535		
001E2C	3F202D2074686973			5536	CHAR '? - THIS TEXT',@CR,@LF	2441.
001E34	2074657874			5538		
001E39	0D0A			5539		
001E3B	3C46463E2D20656E			5540	CHAR '<FF>- ENTER GRAPH MODE',@DC4	2442.
001E43	7465722067726170			5542		
001E4B	68206D6F6465			5543		
001E51	14			5544		
001E52	47202D2044726167			5545	CHAR 'G - DRAGON',@CR,@LF	2443.
001E5A	6F6E			5547		
001E5C	0D0A			5548		
001E5E	3129207365742074			5549	CHAR '1) SET TAB, 2) CLR TAB, 3) CLR + ENABLE TABS, '	2444.
001E66	61622C2032292063			5551		
001E6E	6C72207461622C20			5552		
001E76	332920636C72202B			5553		
001E7E	20656E61626C6520			5554		
001E86	746162732C20			5555		
001E8C	3429203430313320			5556	CHAR '4) 4013 TABS',@CR,@LF	2445.
001E94	74616273			5558		
001E98	0D0A			5559		
001E9A	5578202D20536574			5560	CHAR 'UX - SET BAUD RATE TO X',@DC4	2446.
001EA2	2042617564205261			5562		
001EAA	746520746F2078			5563		
001E31	14			5564		
001EB2	2278202D20636867			5565	CHAR '"X - CHG <ESC> TO X',@CR,@LF	2447.
001EEA	203C4553433E2074			5567		
001EC2	6F2078			5568		
001EC5	0D0A			5569		

001EC7	52202D2042756620	5570	CHAR	'R - BUF RESET',@DC4	2448.
001ECF	5265736574	5572			
001ED4	14	5573			
001ED5	3C4553433E3C7878	5574	CHAR	'<ESC><XXX>=<CMD>-XXX>',@CR,@LF	2449.
001EDD	783E3D3C434D442D	5576			
001EE5	7878783E	5577			
001EE9	0D0A	5578			
001EEB	58202D2031362078	5579	CHAR	'X - 16 X CLOCK',@DC4,'W - 1 X CLOCK',@CR,@LF	2450.
001EF3	20636C6F636B	5581			
001EF9	14	5582			
001EFA	57202D2031207820	5583			
001F02	636C6F636B	5584			
001F07	0D0A	5585			
001F09	49202D20496E7465	5586	CHAR	'I - INTERNAL CLOCK',@DC4,'E - EXTERNAL CLOCK',@CR,@LF	2451.
001F11	726E616C20636C6F	5588			
001F19	636B	5589			
001F1B	14	5590			
001F1C	45202D2045787465	5591			
001F24	726E616C20636C6F	5592			
001F2C	636B	5593			
001F2E	0D0A	5594			
001F30	59202D20456E6162	5595	CHAR	'Y - ENABLE GRAPH MODE',@DC4,'N - DISABLE GRAPH MODE'	2452.
001F38	6C65204772617068	5597			
001F40	206D6F6465	5598			
001F45	14	5599			
001F46	4E202D2044697361	5600			
001F4E	626C652047726170	5601			
001F56	68204D6F6465	5602			
001F5C	0D0A	5603	CHAR	@CR,@LF	2453.

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	ASM H V 05 14.53 06/19/76
001F5E	FF			5605 5606	DC X'FF' END	2454. 2455.002



SYMBOL	LEN	VALUE	DEFN	REFERENCES	ASM H V 05 14.53 06/19/76														
#QUADS	00001	002041	4266	5310	5310	5310	5371	5371	5371	5377	5377	5377							
@BEL	00001	00000007	1103	3171	3171														
@BS	00001	00000008	1104	3211	3211	3233	3233	4404	4404										
@CR	00001	0000000D	1109	1745	1745	2119	2119	2150	2150	3110	3110	3130	3130	3225	3225	4390	4390	5407	
				5407	5418	5418	5418	5418	5424	5424	5426	5426	5436	5436	5446	5446	5451	5451	
				5459	5459	5466	5466	5470	5470	5477	5477	5486	5486	5495	5495	5504	5504	5514	
				5514	5522	5522	5532	5532	5539	5539	5548	5548	5559	5559	5569	5569	5578	5578	
				5585	5585	5594	5594	5604	5604										
@DC1	00001	00000011	1113	1906	1906	2784	2784												
@DC4	00001	00000014	1116	3245	3245	5442	5442	5455	5455	5463	5463	5474	5474	5482	5482	5491	5491	5500	
				5500	5508	5508	5526	5526	5535	5535	5544	5544	5564	5564	5573	5573	5582	5582	
				5590	5590	5599	5599												
@DEL	00001	0000007F	1128	1609	1609	1613	1613	1619	1619	3383	3383	3385	3385						
@EOT	00001	00000004	1100	1737	1737	2114	2114												
@ESC	00001	0000001B	1123	1506	1506														
@FF	00001	0000000C	1108	2268	2268	4060	4060	4400	4400										
@GS	00001	0000001D	1125	2345	2345	3189	3189	3219	3219	4047	4047	4327	4327	4360	4360				
@HT	00001	00000009	1105	3241	3241	4372	4372												
@LF	00001	0000000A	1106	3124	3124	3132	3132	3145	3145	3229	3229	4364	4364	5407	5407	5418	5418	5418	
				5418	5424	5424	5426	5426	5436	5436	5446	5446	5451	5451	5459	5459	5466	5466	
				5470	5470	5477	5477	5486	5486	5495	5495	5504	5504	5514	5514	5522	5522	5532	
				5532	5539	5539	5548	5548	5559	5559	5569	5569	5578	5578	5585	5585	5594	5594	
				5604	5604														
@SOH	00001	00000001	1097	4386	4386														
@SP	00001	00000020	1131	3215	3215														
@TE1	00001	000000EE	1701	1791	1791	1791	1801	1801	1801										
@TOCR	00001	00012F	1785	2753	2753	2753													
@TDDC1	00001	00000139	1793	2762	2762	2762													
@US	00001	0000001F	1127	3249	3249	4382	4382												
@VT	00001	0000000B	1107	3237	3237	4442	4442												
@0307	00001	0000003C	1403	1404															
ALLOWGMD	00001	002025	1351	2320	2320	2320	2339	2339	2339	2842	2842	2842	4037	4037	4037	4144	4144	4144	
				4154	4154	4154													
ALPHA	00001	00094A	4309	4074	4074	4074	4402	4402	4402	4460	4460	4460	4591	4591	4591				
ALPHACHK	00001	00097E	4360	5015	5015	5015													
ALPHAR4	00001	00000995	4380	4374	4374	4374													
ALPHA2	00001	000963	4332	4384	4384	4384	4388	4388	4388	4396	4396	4396	4438	4438	4438	4458	4458	4458	
				4532	4532	4532	4583	4583	4583	4605	4605	4605							
ATTOP	00001	000658	3359	3353	3353	3353													
BELL	00001	00000086	1212	1890	1890	2104	2104	2190	2190	3175	3175	4136	4136						
BRGEXT	00001	00000922	4176	3670															
BRGINT	00001	00000917	4161	3678															
BRKSTATE	00001	002011	1319	1842	1842	1842	1857	1857	1857										
BTOELoad	00001	000A80	4631	4982	4982	4982													
BTOESAVE	00001	000A88	4652	4929	4929	4929	4944	4944	4944	4986	4986	4986							
BUFEND	00001	0000000C	1413	2172	2172	3071	3071												
BUFFER	00001	0000FD00	1410	1807	1807	1807	2176	2176	2176	3075	3075	3075							
BUFGET1	00001	00053C	3067	3059	3059	3059													
BUFGET2	00001	000546	3077	3073	3073	3073													
BUFTST	00001	00000525	3029	2866	2866	2866	3140	3140	3140	3160	3160	3160	3177	3177	3177	3395	3395	3395	
				3581	3581	3581	4041	4041	4041	4084	4084	4084	4231	4231	4231				
BUFTST2	00001	00052A	3051	3606	3606	3606													
CHARPOS	00001	002048	4274	4323	4323	4323	4338	4338	4338	4432	4432	4432	4436	4436	4436	4446	4446	4446	
				4452	4452	4452	4484	4484	4484	4516	4516	4516	4542	4542	4542	4550	4550	4550	
				4563	4563	4563	4581	4581	4581	4595	4595	4595	4708	4708	4708	4758	4758	4758	

1791	1795	1795	1795	1799	1799	1799	1801	1801	1801	1807	1807	1807	1809	1809
1809	1811	1811	1811	1815	1815	1815	1828	1828	1828	1830	1830	1830	1832	1832
1832	1836	1836	1836	1838	1838	1838	1842	1842	1842	1857	1857	1857	1863	1863
1863	1869	1869	1869	1882	1882	1882	1888	1888	1888	1898	1898	1898	1904	1904
1904	1908	1908	1908	1912	1912	1912	1914	1914	1914	1916	1916	1916	1932	1932
1932	1936	1936	1936	1938	1938	1938	1944	1944	1944	1946	1946	1946	1951	1951
1951	1957	1957	1957	1971	1971	1971	1977	1977	1977	1983	1983	1983	1985	1985
1985	2003	2003	2003	2011	2011	2011	2019	2019	2019	2025	2025	2025	2039	2039
2039	2045	2045	2045	2058	2058	2058	2062	2062	2062	2064	2064	2064	2068	2068
2068	2070	2070	2070	2074	2074	2074	2076	2076	2076	2080	2084	2084	2084	2086
2086	2086	2090	2090	2090	2092	2092	2092	2096	2096	2096	2098	2098	2098	2102
2102	2102	2116	2116	2116	2125	2125	2125	2137	2137	2137	2152	2152	2152	2154
2154	2154	2156	2156	2156	2164	2164	2164	2166	2166	2166	2174	2174	2174	2176
2176	2176	2178	2178	2178	2182	2182	2182	2184	2184	2184	2188	2188	2188	2194
2194	2194	2206	2206	2206	2214	2214	2214	2225	2225	2225	2230	2230	2230	2244
2244	2244	2248	2248	2248	2250	2250	2250	2252	2252	2252	2256	2256	2256	2266
2266	2266	2270	2270	2270	2286	2286	2286	2290	2290	2290	2292	2292	2292	2307
2307	2307	2320	2320	2320	2328	2328	2328	2339	2339	2339	2347	2347	2347	2355
2355	2355	2359	2359	2359	2361	2361	2361	2365	2365	2365	2367	2367	2367	2375
2375	2375	2383	2383	2383	2385	2385	2385	2390	2390	2390	2396	2396	2396	2398
2398	2398	2404	2404	2404	2410	2410	2410	2415	2415	2415	2423	2423	2423	2425
2425	2425	2430	2430	2430	2436	2436	2436	2438	2438	2438	2444	2444	2444	2450
2450	2450	2456	2456	2456	2464	2464	2464	2470	2470	2474	2474	2476	2476	2476
2481	2481	2481	2489	2489	2489	2495	2495	2499	2499	2501	2501	2501	2528	2528
2528	2534	2534	2534	2536	2536	2536	2564	2564	2572	2572	2572	2584	2584	2584
2586	2586	2586	2588	2588	2588	2594	2594	2594	2606	2606	2606	2616	2616	2616
2624	2624	2624	2626	2626	2626	2632	2632	2632	2638	2638	2638	2642	2642	2642
2653	2653	2653	2655	2655	2655	2664	2664	2664	2670	2670	2670	2672	2672	2672
2677	2677	2677	2685	2685	2685	2697	2697	2697	2699	2699	2699	2708	2708	2708
2714	2714	2714	2716	2716	2716	2720	2720	2720	2724	2724	2724	2732	2732	2732
2743	2743	2743	2753	2753	2753	2757	2757	2757	2762	2762	2762	2766	2766	2766
2772	2772	2772	2778	2778	2778	2780	2780	2780	2782	2782	2782	2786	2786	2786
2795	2795	2795	2797	2797	2797	2809	2809	2809	2822	2822	2822	2828	2828	2828
2838	2838	2838	2840	2840	2840	2842	2842	2842	2844	2844	2844	2862	2862	2862
2866	2866	2866	2875	2875	2875	2884	2884	2884	2886	2886	2886	2904	2904	2904
2906	2906	2906	2910	2910	2910	2915	2915	2915	2925	2925	2925	2943	2943	2943
2946	2946	2946	2966	2966	2966	2971	2971	2971	2977	2977	2977	2981	2981	2981
2983	2983	2983	2991	2991	2991	3004	3004	3004	3008	3008	3008	3012	3012	3012
3018	3018	3018	3027	3027	3027	3031	3031	3031	3053	3053	3053	3055	3055	3055
3059	3059	3059	3061	3061	3061	3065	3065	3065	3073	3073	3073	3075	3075	3075
3077	3077	3077	3088	3088	3088	3092	3092	3092	3096	3096	3096	3102	3102	3102
3106	3106	3106	3112	3112	3112	3114	3114	3114	3120	3120	3120	3126	3126	3126
3134	3134	3134	3140	3140	3140	3147	3147	3147	3151	3151	3151	3155	3155	3155
3160	3160	3160	3173	3173	3173	3177	3177	3177	3181	3181	3181	3185	3185	3185
3191	3191	3191	3195	3195	3195	3209	3209	3209	3213	3213	3213	3217	3217	3217
3221	3221	3221	3227	3227	3227	3231	3231	3231	3235	3235	3235	3239	3239	3239
3243	3243	3243	3247	3247	3247	3251	3251	3251	3267	3267	3267	3271	3271	3271
3275	3275	3275	3281	3281	3281	3285	3285	3285	3287	3287	3287	3289	3289	3289
3295	3295	3295	3297	3297	3297	3311	3311	3311	3315	3315	3315	3323	3323	3323
3327	3327	3327	3329	3329	3329	3331	3331	3331	3333	3333	3333	3337	3337	3337
3347	3347	3347	3353	3353	3353	3355	3355	3355	3357	3357	3357	3371	3371	3371
3375	3375	3375	3377	3377	3377	3381	3381	3381	3387	3387	3387	3393	3393	3393
3395	3395	3395	3400	3400	3400	3404	3404	3404	3408	3408	3408	3416	3416	3416
3420	3420	3420	3422	3422	3422	3426	3426	3426	3435	3435	3435	3449	3449	3449
3451	3451	3451	3460	3460	3460	3478	3478	3478	3482	3482	3482	3484	3484	3484
3488	3488	3488	3490	3490	3490	3496	3496	3496	3498	3498	3498	3500	3500	3500
3514	3514	3514	3518	3518	3518	3526	3526	3526	3530	3530	3530	3532	3532	3532
3537	3537	3537	3541	3541	3541	3545	3545	3545	3554	3554	3554	3568	3568	3568
3577	3577	3577	3581	3581	3581	3594	3594	3594	3598	3598	3598	3602	3602	3602
3606	3606	3606	3608	3608	3608	3616	3616	3616	3622	3622	3622	3626	3626	3626

SYMBOL	LEN	VALUE	DEFN	REFERENCES	ASM H V 05 14.53 06/19/76													
				3634	3636	3638	3640	3642	3644	3646	3648	3650	3652	3654	3656	3658	3660	3662
				3664	3666	3668	3670	3672	3674	3676	3678	3680	3682	3684	3686	3688	3690	3692
				3694	3696	3698	3700	3702	3704	3706	3708	3710	3712	3714	3716	3718	3720	3722
				3724	3726	3728	3745	3745	3745	3749	3749	3749	3751	3751	3751	3759	3759	3759
				3761	3761	3761	3777	3777	3777	3787	3787	3787	3813	3813	3813	3825	3825	3825
				3839	3839	3839	3853	3853	3853	3855	3855	3855	3859	3859	3859	3861	3861	3861
				3870	3870	3870	3878	3878	3878	3882	3882	3882	3888	3888	3888	3912	3912	3912
				3922	3922	3922	3924	3924	3924	3935	3936	3936	3940	3940	3940	3948	3948	3948
				3954	3954	3954	3958	3958	3958	3974	3974	3974	3978	3978	3978	3980	3980	3980
				4008	4008	4008	4030	4030	4030	4037	4037	4037	4041	4041	4041	4045	4045	4045
				4049	4049	4049	4056	4056	4056	4066	4066	4066	4070	4070	4070	4074	4074	4074
				4082	4082	4082	4084	4084	4084	4092	4092	4092	4094	4094	4094	4106	4106	4106
				4110	4110	4110	4114	4114	4114	4118	4118	4118	4134	4134	4134	4138	4138	4138
				4144	4144	4144	4154	4154	4154	4163	4163	4163	4169	4169	4169	4178	4178	4178
				4184	4184	4184	4225	4225	4225	4229	4229	4229	4231	4231	4231	4315	4315	4315
				4317	4317	4317	4319	4319	4319	4323	4323	4323	4329	4329	4329	4334	4334	4334
				4338	4338	4338	4348	4348	4348	4350	4350	4350	4356	4356	4356	4358	4358	4358
				4362	4362	4362	4366	4366	4366	4374	4374	4374	4378	4378	4378	4384	4384	4384
				4388	4388	4388	4392	4392	4392	4394	4394	4394	4396	4396	4396	4402	4402	4402
				4406	4406	4406	4410	4410	4410	4418	4418	4418	4422	4422	4422	4430	4430	4430
				4432	4432	4432	4436	4436	4436	4438	4438	4438	4444	4444	4444	4446	4446	4446
				4452	4452	4452	4458	4458	4458	4460	4460	4460	4484	4484	4484	4490	4490	4490
				4502	4502	4502	4510	4510	4510	4516	4516	4516	4518	4518	4518	4520	4520	4520
				4524	4524	4524	4530	4530	4530	4532	4532	4532	4536	4536	4536	4538	4538	4538
				4542	4542	4542	4546	4546	4546	4550	4550	4550	4554	4554	4554	4563	4563	4563
				4575	4575	4575	4581	4581	4581	4583	4583	4583	4587	4587	4587	4591	4591	4591
				4595	4595	4595	4599	4599	4599	4603	4603	4603	4605	4605	4605	4683	4683	4683
				4685	4685	4685	4708	4708	4708	4722	4722	4722	4736	4736	4736	4738	4738	4738
				4740	4740	4740	4742	4742	4742	4748	4748	4748	4756	4756	4756	4758	4758	4758
				4762	4762	4762	4796	4796	4796	4802	4802	4802	4810	4810	4810	4814	4814	4814
				4824	4824	4824	4830	4830	4830	4832	4832	4832	4836	4836	4836	4842	4842	4842
				4846	4846	4846	4852	4852	4852	4854	4854	4854	4858	4858	4858	4862	4862	4862
				4874	4874	4874	4888	4888	4888	4892	4892	4892	4903	4903	4903	4909	4909	4909
				4913	4913	4913	4915	4915	4915	4921	4921	4921	4923	4923	4923	4925	4925	4925
				4927	4927	4927	4929	4929	4929	4931	4931	4931	4938	4938	4938	4940	4940	4940
				4942	4942	4942	4944	4944	4944	4946	4946	4946	4978	4978	4978	4980	4980	4980
				4982	4982	4982	4984	4984	4984	4986	4986	4986	4988	4988	4988	4993	4993	4993
				5005	5005	5005	5011	5011	5011	5015	5015	5015	5019	5019	5019	5023	5023	5023
				5027	5027	5027	5029	5029	5031	5031	5031	5035	5035	5035	5039	5039	5041	5041
				5049	5049	5053	5053	5053	5061	5061	5061	5063	5063	5063	5091	5091	5091	5099
				5099	5099	5103	5103	5103	5123	5123	5123	5125	5125	5125	5129	5129	5129	5131
				5131	5131	5164	5164	5164	5184	5184	5184	5208	5208	5208	5210	5210	5210	5216
				5216	5216	5253	5253	5253	5288	5288	5288	5302	5302	5302	5308	5308	5308	5310
				5310	5310	5314	5314	5314	5322	5322	5322	5326	5326	5326	5350	5350	5350	5354
				5354	5354	5363	5363	5363	5365	5365	5365	5369	5369	5369	5371	5371	5371	5374
				5377	5377	5379	5379	5379	5384	5384	5384	5386	5386	5386	5405			
VIDEOINV	00001	00000474	2816	3694														
WAIT	00001	000492	2856	3065	3065	3065												
XBIG	00001	000C48	5236	5210	5210	5210	5216	5216	5216									
XMASK	00001	002053	4293	4736	4736	4736	4794	5314	5314	5314								
XMITBUF	00128	00FC44	1401	1727	1727	1727	1828	1828	1828	2086	2086	2086						
XMITCALL	00001	00000120	1757	1747	1747	1747												
XMITCHK	00001	0000022B	2088	2084	2084	2084												
XMITEND	00001	0000FD00	1406	1721	2080													
XMITGET	00002	002027	1356	1703	1703	1703	1731	1731	1731	1832	1832	1832	2092	2092	2092	2098	2098	2098

ASM H V 05 14.53 06/19/76

NO STATEMENTS FLAGGED IN THIS ASSEMBLY

OVERRIDING PARAMETERS- TEST,TERM,LINECOUNT(115)

OPTIONS FOR THIS ASSEMBLY

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

FLAG(0), SYSPARM()

NO OVERRIDING DD NAMES

2537 CARDS FROM SYSIN
3768 LINES OUTPUT1045 CARDS FROM SYSLIB
548 CARDS OUTPUT

--06/04/76---FORTX FIXED-----

THE FORTX COMPILER IS NOW FIXED, SO IT NO LONGER GIVES MESSAGE IFE414I.

--06/03/76---FORTRAN UNDER OPT=0 BLOWS UP-----

FORTRAN H-EXTENDED HAS SUDDENLY BEGUN TO FAIL WITH AN IFE414I MESSAGE WHEN USING OPT=0. WE ARE INVESTIGATING THE CAUSE OF THE PROBLEM. IN THE MEAN TIME THE PROBLEM CAN BE BY-PASSED BY SPECIFYING FORTVER=NEW IN THE EXEC CARD.

--06/03/76----- JCL TUTORIAL SEMINARS -----

JUNE 9,16,23,30, JULY 7,14 -- INTRODUCTION TO THE SLAC TRIPLEX, FOR NEWCOMERS TO SLAC. PLEASE TELL ALL YOUR FRIENDS, SUMMER VISITORS, AND OTHERS WHO MIGHT BE INTERESTED IN GETTING STARTED ON OUR COMPUTERS TO COME TO ONE OF THESE TALKS.

--06/03/76---NEW STATUS COMMAND OPTIONS-----

TO DISPLAY THE STATUS OF YOUR CURRENTLY EXECUTING JOBS ON THE 2260 DISPLAY UNIT, ENTER: S STATUS,U=UUU WHERE UUU IS YOUR 3-CHAR USERID TO LIST THE COMMANDS ALLOWED TO DISPLAY JOB STATUS, ENTER: S STATUS,?

--05/25/76-- FETCH INPUT IS BACK -----

FETCH INPUT HAS BEEN FIXED. PLEASE REPORT ANY NEW PROBLEMS OR BUGS TO PAUL DANTZIG, FMD&SF, EXT 2529.

--05/23/76-- RESTRICTION ON LOGICAL VARIABLES BACKED OUT -----

THE NEW VERSION OF FORTRAN H-EXTENDED HAS BEEN MODIFIED SO THAT THE RESTRICTION AGAINST USING LOGICAL OPERANDS WITH A RELATIONAL OPERATOR IS NO LONGER IN FORCE. ALL OTHER CHANGES TO THE NEW COMPILER (IN SYS1.LINKNEW) WILL REMAIN IN EFFECT. THIS CHANGE WAS ANNOUNCED IN THE MAY 15 BULLETIN ON PAGE 4. THE NEW VERSION WILL BE INSTALLED ON THE PRODUCTION SYSTEM ON JULY 1 (NOT JUNE 1 AS ANNOUNCED). WE HAVE DELAYED THE IMPLEMENTATION OF THE LOGICAL VARIABLE RESTRICTION INDEFINITELY.

--05/17/76-- WE'VE LOST OUR FORTRAN H-EXTENDED PLM -----

OUR ONLY COPY OF THE FORTRAN H-EXTENDED PROGRAM LOGIC MANUAL HAS VANISHED FROM THE CONSULTING OFFICE. IF YOU LOCATE IT, WE'D APPRECIATE YOUR RETURNING IT AS SOON AS POSSIBLE. THANKS.

ASP JOB NO. = 8990

SATURDAY

JUNE 19, 1976 (76.171)

INPUT STATEMENTS (INCLUDING DD *) = 002583

//LJSCG899 JOB LJS\$CG,CLASS=I,TIME=2

0.002


