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642 LIST S
643 ; *****
644 ; * BALLY BASIC INTERPRETER *
645 ; *
646 ; * (C) JULY 1978 BALLY MFG *
647 ; *
648 ; * WRITTEN BY: JAY FENTON *
649 ; *
650 ; * BALLY BASIC IS BASED ON *
651 ; * PALO ALTO TINY BASIC BY *
652 ; * LICHEN WANG *
653 ; *
654 ; *****
655 ; TINY BASIC INTERPRETER
656 ; MACROS:
657 TOKEN MACR #TINDX, #TGOTO
658 DEFB #TINDX
659 DEFF #TGOTO
660 ENDM
661 DEFF: MACR #WORDY
662 DEFB (#WORDY, SHR. 8)+80H
663 DEFB #WORDY, AND. OFFH
664 ENDM
665 TSTC MACR #CAT, #DOG
666 RST 8
667 DEFB '#CAT'
668 DEFB #DOG-$-1
669 ENDM
670 TSTCC MACR #CAT1, #DOG1
671 RST 8
672 DEFB #CAT1
673 DEFB #DOG1-$-1
674 ENDM
675 ITEM MACR #STRANG, #JUMPTO
676 DEFM '#STRANG'
677 DEFF #JUMPTO
678 ENDM
>4E20 679 BOTSCR EQU 04E20H
>4FEF 680 TOPSCR EQU 04FEFH
>A000 681 BOTRAM EQU 0A000H
>A70C 682 DFTLMT EQU 0A70CH
>2000 683 BOTROM EQU 02000H
684 ;
>0012 685 TAPEIO EQU 12H ; TAPE INTERFACE I-O PORT
>00FC 686 STPBCT EQU 0FCH ; -# OF STOP BIT WINDOWS FOR VALID DATA
687 ;
>000D 688 CR EQU 0DH
>001F 689 RUBOUT EQU 1FH
>0067 690 NLLN EQU 67H
691 ; EQUATES FOR RESTART INSTRUCTIONS
>0010 692 RSTEXP EQU 16 ; EXPR
>0018 693 RSTOCH EQU 24 ; OUTCH
>0020 694 RSTIGN EQU 32 ; IGNBLK
>0028 695 RSTPAR EQU 40 ; PARN
>0030 696 RSTFIN EQU 48 ; FINISH
697 ;
698 ORG BOTSCR
  
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CEN
ZFFC

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
		699				; TAPE INPUT GOODIES
>4E20		700	CONPRO	EQU	\$; TAG TO NAIL BOTH
4E20		701	PROPTR:	DEFS	1	; PRODUCERS POINTER
4E21		702	CONPTR:	DEFS	1	; CONSUMERS POINTER
4E22		703	TAPBUF:	DEFS	48	; ROTATING BUFFER
>4E52		704	TBFEND	EQU	\$; 1 PAST END OF BUFFER
4E52		705	TXFUNF:	DEFS	2	
4E54		706	VDMNLF:	DEFS	1	; VDM NEW LINE FLAG
4E55		707	KEYTMR:	DEFS	1	; KEYBOARD SCAN TIMER
4E56		708	MUZTMR:	DEFS	1	; MUSIC NOTE TIMER
4E57		709	NEWTMR:	DEFS	1	; NEW MUSIC TIMER VALUE
4E58		710	MUZMO:	DEFS	1	; MASTER OSCILLATOR
4E59		711	MUZTON:	DEFS	1	; TONE VALUE
4E5A		712	SHARPF:	DEFS	1	; SHARP-FLAT FLAG
		713				;
4E5B		714	PIXVAL:	DEFS	1	; PIXEL TO DRAW VECTOR WITH
4E5C		715	MNMX:	DEFS	2	; MIN - MAX DELTAS FOR VECTOR DRAW
4E5E		716	INCRO:	DEFS	2	; COORDINATE INCREMENTS FOR VECTOR DRAW
4E60		717	NLLNLN:	DEFS	2	; WORKING COPY OF LINE NUMBER BEING TYPED
4E62		718	NLLNCT:	DEFS	1	; AUTO LINE # FLAG-COUNTER
4E63		719	NLLNZS:	DEFS	1	; AUTO LINE NUMBER ZERO SURPRESS FLAG
4E64		720	OLDLN:	DEFS	2	; PREVIOUS LINE # TYPED
		721				;
4E66		722	ALTFON:	DEFS	7	; ALTERNATE FONT DESCRIPTOR
4E6D		723	KEYTRK:	DEFS	1	; KEYBOARD TRACKER
4E6E		724	VARBGN:	DEFS	2*26	
		725	DEVVAR:			; DEVICE VARIABLES:
4EA2		726	DEVCL0:	DEFS	2	; BACKGROUND COLOR
4EA4		727	DEVCL1:	DEFS	2	; FOREGROUND COLOR
4EA6		728	DEVTEM:	DEFS	2	; TEMPO
4EA8		729	VDMX:	DEFS	2	; VDM X COORDINATE
4EAA		730	VDMY:	DEFS	2	; VDM Y COORDINATE
4EAC		731	OLDXY:	DEFS	2	; PREVIOUS COORDINATES FROM VECTOR DRAW
4EAE		732	REMAIN:	DEFS	2	; REMAINDER FROM LAST DIVIDE
4EB0		733	BCDA1:	DEFS	9	; FIRST ARG AREA
4EB9		734	BCDA2:	DEFS	9	; SECOND ARG AREA
4EC2		735	TAPEST:	DEFS	1	; TAPE STATUS
4EC3		736	CURRNT:	DEFS	2	
4EC5		737	STKGOS:	DEFS	2	
>4EC7		738	VARNXT	EQU	\$	
4EC7		739	STKINP:	DEFS	2	
4EC9		740	LOPVAR:	DEFS	2	
4ECB		741	LOPINC:	DEFS	2	
4ECD		742	LOPLMT:	DEFS	2	
4ECF		743	LOPLN:	DEFS	2	
4ED1		744	LOPPT:	DEFS	2	
4ED3		745		DEFS	1	
4ED4		746	BUFFER:	DEFS	104	
>4F3C		747	BUFEND	EQU	\$	
4F3C		748		DEFS	32	
>4F5C		749	STKLMT	EQU	\$	
		750		ORG	TOPSCR	
>4FEF		751	STACK	EQU	\$	
		752		ORG	BOTRAM	
A000		753	TEXT:	DEFS	2	
		754		ORG	BOTROM	
2000 C36724		755	JP	BEGIN		; ** AUTOSTART CASSETTE **

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2003	80	756	PIXTBL:	DEFB	080H	
2004	20	757		DEFB	020H	
2005	08	758		DEFB	08H	
2006	02	759		DEFB	2H	
		760	; TRANSFER VECTORS TO RESTART ROUTINES			
2007	C3512A	761	JP	TSTCH		; * RST 8
200A	C39227	762	JP	EXPR		; * RST 16
200D	C38C2C	763	JP	OUTCH		; * RST 24
2010	C37D29	764	JP	IGNBLK		; * RST 32
2013	C39C28	765	JP	PARN		; * RST 40
2016	F1	766	POP	AF		; * RST 48
2017	C36A29	767	JP	FINISH		
201A	C39A2D	768	JP	CHKIO		; ** LINK TO TAPE READ ROUTINE **
		769	; INITIAL VALUES FOR PARAMETER VECTOR			
201D	0700	770	INIDEV:	DEFW	7	; BACKGROUND COLOR
201F	0000	771		DEFW	0	; FOREGROUND COLOR
2021	0300	772		DEFW	3	; MUSIC TEMPO
2023	B3FF	773		DEFW	-77	; VDM X COORDINATE
2025	2800	774		DEFW	40	; VDM Y COORDINATE
2027	0000	775		DEFW	0	; RESET OLD X,Y FOR VECTOR DRAW
		776	; ASCII MESSAGES:			
2029	42414C4C	777	MSG:	DEFM	'BALLY BASIC'	
2034	0D	778		DEFB	CR	
2035	57484154	779	WHAT:	DEFM	'WHAT?'	
203A	0D	780		DEFB	CR	
203B	484F573F	781	HOW:	DEFM	'HOW?'	
203F	0D	782		DEFB	CR	
2040	534F5252	783	SORRY:	DEFM	'SORRY'	
2045	0D	784		DEFB	CR	
		785	;			
		786	; TABLE GIVING JUMP TO ADDRESS FOR COMMANDS			
2046	AE25	787	TOKJT:	DEFW	LIST	
2048	6F25	788		DEFW	CLRSCR	
204A	8A25	789		DEFW	RUN	
204C	B026	790		DEFW	NEXT	
204E	EC22	791		DEFW	LINEDR	
2050	1D27	792		DEFW	IFF	
2052	A325	793		DEFW	GOTO	
2054	2726	794		DEFW	GOSUB	
2056	4726	795		DEFW	RETURN	
2058	3A22	796		DEFW	BOXDRW	
205A	5D26	797		DEFW	FOR	
205C	3627	798		DEFW	INPUT	
205E	E625	799		DEFW	PRINT	
		800	; INTERRUPT VECTORS:			
2060	F620	801	JTAB:	DEFW	SIDINT	; ** TAPE INTERRUPT VECTOR **
2062	B020	802	ITAB:	DEFW	TBIINT	; ** MUSIC INTERRUPT VECTOR **
		803	; TABLE GIVING ASCII CHARS FOR TOKENS			
2064		804	TOKTXT:			
2064	4C4953	805		DEFM	'LIS'	
2067	D4	806		DEFB	'T'+80H	
2068	434C4541	807		DEFM	'CLEA'	
206C	D2	808		DEFB	'R'+80H	
206D	5255	809		DEFM	'RU'	
206F	CE	810		DEFB	'N'+80H	
2070	4E4558	811		DEFM	'NEX'	
2073	D4	812		DEFB	'T'+80H	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2074	4C494E	813		DEFM	'LIN'	
2077	C5	814		DEFB	'E'+80H	
2078	49	815		DEFB	'I'	
2079	C6	816		DEFB	'F'+80H	
207A	474F54	817		DEFM	'GOT'	
207D	CF	818		DEFB	'O'+80H	
207E	474F5355	819		DEFM	'GOSU'	
2082	C2	820		DEFB	'B'+80H	
2083	52455455	821		DEFM	'RETUR'	
2088	CE	822		DEFB	'N'+80H	
2089	424F	823		DEFM	'BO'	
208B	D8	824		DEFB	'X'+80H	
208C	464F	825		DEFM	'FO'	
208E	D2	826		DEFB	'R'+80H	
208F	494E5055	827		DEFM	'INPU'	
2093	D4	828		DEFB	'T'+80H	
2094	5052494E	829		DEFM	'PRIN'	
2098	D4	830		DEFB	'T'+80H	
2099	535445	831		DEFM	'STE'	
209C	D0	832		DEFB	'P'+80H	
209D	524E	833		DEFM	'RN'	
209F	C4	834		DEFB	'D'+80H	
20A0	54	835		DEFB	'T'	
20A1	CF	836		DEFB	'O'+80H	
		837				;
		838				; DEVICE VARIABLE TABLE
		839				; THIS TABLE IS IN INVERSE ORDER OF APPEARANCE IN MEMORY
>0007		840	PARNUM	EQU	7	; 7 GUYS
20A2		841		DEVLST:		
20A2	12	842		DEFB	'R'-@'	
20A3	4D	843		DEFB	'M'	
20A4	18	844		DEFB	'X'-@'	
20A5	59	845		DEFB	'Y'	
20A6	03	846		DEFB	'C'-@'	
20A7	59	847		DEFB	'Y'	
20A8	03	848		DEFB	'C'-@'	
20A9	58	849		DEFB	'X'	
20AA	0E	850		DEFB	'N'-@'	
20AB	54	851		DEFB	'T'	
20AC	06	852		DEFB	'F'-@'	
20AD	43	853		DEFB	'C'	
20AE	02	854		DEFB	'B'-@'	
20AF	43	855		DEFB	'C'	
		856				; TINY BASIC INTERRUPT ROUTINE
20B0	F5	857	TBIINT:	PUSH	AF	; SAVE REGISTERS
20B1	C5	858		PUSH	BC	
20B2	D5	859		PUSH	DE	
20B3	E5	860		PUSH	HL	
		861				; DEAL WITH KEYBOARD SCAN TIMER
20B4	21554E	862		LD	HL,KEYTMR	
20B7	7E	863		LD	A,(HL)	
20B8	A7	864		AND	A	
20B9	2801	865		JR	Z,TBINO-\$	
20BB	35	866		DEC	(HL)	
20BC	23	867	TBINO:	INC	HL	
		868				; HAS MUSIC TIMER COUNTED DOWN?
20BD	7E	869		LD	A,(HL)	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
20BE	A7	870		AND	A	
20BF	2808	871		JR	Z, TBIN1-\$; YEP - PLAY NEXT NOTE
20C1	35	872		DEC	(HL)	; ELSE DECREMENT IT
20C2	201F	873		JR	NZ, TBIN3-\$; JUMP IF NOT NOW ZERO
20C4	AF	874		XOR	A	
20C5	D311	875		OUT	(TONEA), A	; ELSE SILENCE
20C7	1818	876		JR	TBIN2-\$	
		877				; MUSIC TIMER IS AT ZERO - ARE NEW PARAMETERS READY?
20C9	23	878	TBIN1:	INC	HL	; STEP TO NEW TIMER VALUE
20CA	B6	879		OR	(HL)	; IS IT NON ZERO?
20CB	2816	880		JR	Z, TBIN3-\$; JUMP IF NOT
20CD	2B	881		DEC	HL	; ELSE SET OFFICIAL TIMER
20CE	77	882		LD	(HL), A	
20CF	23	883		INC	HL	
20D0	3600	884		LD	(HL), 0	; ZERO NEW TIMER VALUE AS FLAG
20D2	23	885		INC	HL	
20D3	7E	886		LD	A, (HL)	; GET NEW M. O.
20D4	D310	887		OUT	(TONMO), A	
20D6	3647	888		LD	(HL), 0A2	; RESET DEFAULT MASTER OSC
20D8	23	889		INC	HL	
20D9	7E	890		LD	A, (HL)	; AND NEW TONE
20DA	D311	891		OUT	(TONEA), A	
20DC	A7	892		AND	A	; REST WANTED?
20DD	2804	893		JR	Z, TBIN3-\$; YES - JUMP AROUND VOLUME UPDATE
20DF	3E0F	894		LD	A, 15	
20E1	D316	895	TBIN2:	OUT	(VOLAB), A	
		896				; SET COLOR REGISTERS TO VALUES IN PARAMETER VARS %0 AND %1
20E3	3AA24E	897	TBIN3:	LD	A, (DEVCL0)	
20E6	D304	898		OUT	(COL0L), A	
20E8	D305	899		OUT	(COL1L), A	
20EA	3AA44E	900		LD	A, (DEVCL1)	
20ED	D306	901		OUT	(COL2L), A	
20EF	D307	902		OUT	(COL3L), A	
		903				; DONE - RESTORE REGISTERS AND GO BACK
20F1	E1	904	INTDON:	POP	HL	
20F2	D1	905		POP	DE	
20F3	C1	906		POP	BC	
20F4	1833	907		JR	ZRONK-\$	
		908				; SERIAL INPUT DRIVER INTERRUPT ROUTINE
		909				; THIS ROUTINE SAMPLES THE SERIAL INPUT BIT
		910				; AND FORMS CHARACTERS WHICH ARE PLACED IN THE
		911				; CIRCULAR INPUT BUFFER FOR CONSUMPTION BY BACKGROUND LEVEL
		912				;
		913				; THIS ROUTINE USES THE ALTERNATE REGISTER SET
		914				; WHERE B=STATE VARIABLE, C=CHARACTER ACCUMULATOR
		915				; IF STATE VAR < 0 => WE ARE AWAITING -N STOP BITS BEFORE
		916				; WE BELIEVE ANYTHING
		917				; IF STATE VAR = 0 => WE ARE LOOKING FOR A START BIT
		918				; IF STATE VAR > 0 => WE ARE GETTING DATA BITS
20F6	F5	919	SIDINT:	PUSH	AF	
20F7	D9	920		EXX		
		921				; SAMPLE THE INPUT BIT
20F8	DB12	922	GETBIT:	IN	A, (TAPEIO)	
20FA	1F	923		RRA		; DATA TO CY
20FB	79	924		LD	A, C	; SHIFT INTO ACCUMULATOR
20FC	17	925		RLA		
20FD	4F	926		LD	C, A	

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20FE 78      927      LD  A,B          ; WHAT STATE ARE WE IN?
20FF A7      928      AND  A
2100 FA0D21  929      JP  M,SIDINO    ; 1 COUNTING STATE?
2103 2011    930      JR  NZ,SIDIN1-$ ; JUMP IF IN MIDDLE OF CHAR
                931 ; WE ARE WAITING FOR A START BIT
2105 CB41    932      BIT 0,C        ; DID WE GET ONE?
2107 201F    933      JR  NZ,SIDIN3-$ ; JUMP IF RIGHT
2109 0608    934      LD  B,8        ; SET WAITING FOR 8 BITS
210B 181B    935      JR  SIDIN3-$   ; AND GO GONZO
                936 ; TAPE INPUT WAS RECENTLY TURNED ON, AND WE ARE WAITING FOR
                937 ; SEVERAL SEARCH WINDOWS IN A ROW TO EACH SHOW A 1 BIT
                938 ; IMPLYING THAT THIS BEASTIE IS REALLY WORKING
210D 04      939      SIDINO: INC B          ; ASSUME WE GOT IT
210E CB41    940      BIT 0,C
2110 2016    941      JR  NZ,SIDIN3-$ ; JUMP IF GOOD ASSUMPTION
                942 ; NO - RESET COUNTER AND WAIT SOME MORE
2112 06FC    943      LD  B,STPBCT
2114 1812    944      JR  SIDIN3-$
                945 ; IN THE MIDDLE OF A CHARACTER...
                946 ; WAS THIS THE LAST BIT?
2116 1010    947      SIDIN1: DJNZ SIDIN3-$ ; JUMP IF NOT
                948 ; WELCOME TO LAST BITSVILLE
2118 2A204E  949      LD  HL,(CONPRO) ; GET POINTERS
211B 7D      950      LD  A,L
211C CD2C21  951      CALL BUMPTR     ; A=P+1
211F BC      952      CP  H          ; IS C = P+1?
2120 2806    953      JR  Z,SIDIN3-$ ; YEP - FULL - IGNORE
2122 32204E  954      LD  (PROPTR),A ; STUFF P+1
2125 264E    955      LD  H,TAPBUF.SHR.8 ; POINT INTO BUFFER
2127 71      956      LD  (HL),C
2128 D9      957      SIDIN3: EXX
2129 F1      958      ZRONK: POP AF
212A FB      959      EI
212B C9      960      RET
                961 ; SUBROUTINE TO INCREMENT 1 BYTE POINTER TO CIRCULAR BUFFER
212C 3C      962      BUMPTR: INC A      ; BUMP IT
212D F5E2    963      CP  TBFEND.AND.OFFH
212F C0      964      RET NZ        ; QUIT IF NOT AT END
2130 3E22    965      LD  A,TAPBUF.AND.OFFH ; ELSE WRAP AROUND
2132 C9      966      RET
                967 ; ROUTINE TO ESTABLISH TAPE UNIT AS INPUT DEVICE
2133 F3      968      TINPES: DI
2134 212222  969      LD  HL,RES.(((TAPBUF.AND.OFFH).SHL.8)+(TAPBUF.AND.OFFH))
2137 22204E  970      LD  (CONPRO),HL
213A D9      971      EXX
213B AF      972      XOR  A
213C 32A64E  973      LD  (DEVTEM),A
213F 3C      974      INC  A
2140 32C24E  975      LD  (TAPEST),A
2143 06FC    976      LD  B,STPBCT
2145 D9      977      EXX
2146 3E18    978      LD  A,18H
2148 D30E    979      OUT (INMOD),A
214A FB      980      EI
                981 ; IF A NAME TO MATCH WAS SPECIFIED
                982 ; IGNORE INPUT DATA UNTIL THAT NAME COMES THRU
                983 ; THIS ROUTINE PERFORMS AN ANCHORED MATCH

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ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
214B	E7	984		RST	RSTIGN	; IGNORE ANY UGLY BLANKS
214C	CD7B21	985		CALL	ATNL	; ARE WE AT NEW LINE?
214F	C8	986		RET	Z	; YEP - DECLARE A MATCH
2150	D5	987	MATINO:	PUSH	DE	; SAVE STRING POINTER
2151	D5	988	MATIN1:	PUSH	DE	
2152	CD9A2D	989		CALL	CHKIO	
2155	D1	990		POP	DE	
2156	4F	991		LD	C,A	; SAVE IT
2157	CDCC2F	992		CALL	LDE	; LOAD STRING TO MATCH
215A	B9	993		CP	C	; DOES THIS CHAR MATCH?
215B	2014	994		JR	NZ,MATIN3-\$; JUMP IF NEGATIVE
		995				; CHAR MATCH - BUMP PTRS
215D	13	996	MATIN2:	INC	DE	
215E	CDCC2F	997		CALL	LDE	; GET NEXT CHAR
2161	CD7B21	998		CALL	ATNL	; ARE WE DONE
2164	20EB	999		JR	NZ,MATIN1-\$; NILCHO - KEEP TRYING
		1000				; IGNORE UNTIL NEW LINE CHAR READ FROM TAPE
2166	F1	1001		POP	AF	; THROW OUT OLD DE
2167	D5	1002	MATIN9:	PUSH	DE	; GET ANOTHER CHAR
2168	CD9A2D	1003		CALL	CHKIO	
216B	D1	1004		POP	DE	
216C	FE0D	1005		CP	CR	; IS THIS THE ONE?
216E	20F7	1006		JR	NZ,MATIN9-\$; NO - KEEP IGNORING
2170	C9	1007		RET		; YEP - GO BACK
		1008				; MISMATCH - RESET SCAN POINTER AND TRY AGAIN
2171	D1	1009	MATIN3:	POP	DE	
2172	CDCC2F	1010		CALL	LDE	
2175	B9	1011		CP	C	; MATCH WITH LAST CHAR READ?
2176	20D8	1012		JR	NZ,MATINO-\$; NILCHO - GO BACK TO GO
2178	D5	1013		PUSH	DE	; YES - TAKE IT FROM THERE
2179	18E2	1014		JR	MATIN2-\$	
		1015				; SUBROUTINE TO RETURN ZERO STATUS IF CHARACTER IN A IS NL OR
		1016				; ;'
217B	FE3B	1017	ATNL:	CP	;'	; CHECK FOR CONTINUATION
217D	C8	1018		RET	Z	
217E	FE0D	1019		CP	CR	; AND FOR CR
2180	C9	1020		RET		
		1021				; COMMAND TO ESTABLISH TAPE UNIT AS INPUT DEVICE
2181	CD3321	1022	TINFUT:	CALL	TINPES	
2184	F7	1023		RST	RSTFIN	; GO HOME
		1024				; COMMAND TO LIST STUFF ON CRT
2185	CD3321	1025	TLIST:	CALL	TINPES	
2188	CD9A2D	1026	TLIST1:	CALL	CHKIO	; GET CHARACTER
218B	DF	1027		RST	RSTOCH	; PRINT IT
218C	18FA	1028		JR	TLIST1-\$; DO FOREVER
		1029				; COMMAND TO ESTABLISH OUTPUT TO TAPE
218E	3E02	1030	TOUTPU:	LD	A,2	; SET OUTPUT FLAG
2190	32C24E	1031		LD	(TAPEST),A	
2193	F7	1032		RST	RSTFIN	
		1033				; COMMAND TO LOAD 128 BYTE BOOTSTRAP
		1034				; FROM TAPE
2194	CD3321	1035	TLOAD:	CALL	TINPES	; FIRE UP READING
2197	210040	1036		LD	HL,NORMEM	
219A	E5	1037		PUSH	HL	
219B	E5	1038	TLOAD1:	PUSH	HL	
219C	CD9A2D	1039		CALL	CHKIO	
219F	E1	1040		POP	HL	

19 + 4 → 23 bpej

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
21A0	77	1041		LD	(HL),A	
21A1	23	1042		INC	HL	— INR L
21A2	CB7D	1043		BIT	7,L	JP
21A4	28F5	1044		JR	Z,TLOAD1-\$	
21A6	C9	1045		RET		; ENTER BOOTSTRAP BY RETURNING TO IT
		1046				;
		1047				; BCD MATH ROUTINE INTERFACE
		1048				; IMPLEMENTS \$+, \$-, \$*, */
21A7	E7	1049	BCDMAT:	RST	RSTIGN	
21A8	13	1050		INC	DE	
21A9	F5	1051		PUSH	AF	; SAVE CODE SCANNED
21AA	CD0E22	1052		CALL	TSTVFF	; GET FIRST VAR
21AD	D5	1053		PUSH	DE	
21AE	11B04E	1054		LD	DE,BCDA1	; CONVERT TO BCD
21B1	CD2B22	1055		CALL	ASCBCD	
21B4	D1	1056		POP	DE	
21B5		1057		TSTC	'',PIXDUD	; INSIST ON COMMAS
21B8	CD0E22	1058		CALL	TSTVFF	; GET 2ND VAR
21BB	F1	1059		POP	AF	
21BC	D5	1060		PUSH	DE	
21BD	11B94E	1061		LD	DE,BCDA2	; SAME STORY
21C0	F5	1062		PUSH	AF	
21C1	CD2B22	1063		CALL	ASCBCD	
21C4	11B04E	1064		LD	DE,BCDA1	
21C7	F1	1065		POP	AF	
21C8	0609	1066		LD	B,9	
21CA	CD1522	1067		CALL	DOBCDD	
21CD	D1	1068		POP	DE	; SCAN FOR PLACE TO STORE
21CE		1069		TSTC	'',PIXDUD	
21D1	CD0E22	1070		CALL	TSTVFF	
21D4	D5	1071		PUSH	DE	
21D5	11B04E	1072		LD	DE,BCDA1	
		1073				; ARG1 CONTAINS THE RESULT - STICK IT LAST VAR
21D8	010012	1074		LD	BC,1200H	
21DB	EB	1075	BCDASC:	EX	DE,HL	
21DC		1076		SYSTEM	INDEXN	
21DE	C630	1077		ADD	A,'0'	
21E0	EB	1078		EX	DE,HL	
21E1	CDE42F	1079		CALL	STHL	
21E4	23	1080		INC	HL	
21E5	23	1081		INC	HL	
21E6	0C	1082		INC	C	
21E7	10F2	1083		DJNZ	BCDASC-\$	
21E9	D1	1084		POP	DE	
21EA	F7	1085		RST	RSTFIN	
		1086				; FUNCTION TO RETURN STATE OF ADDRESSED PIXEL
		1087				; IE... PIX(X,Y)= 1 IF PIXEL IS 1, 0 IF 0
21EB		1088	PIXFUN:	TSTC	'',PIXDUD	
21EE	C5	1089		PUSH	BC	
21EF	D7	1090		RST	RSTEXP	
21F0	E5	1091		PUSH	HL	
21F1		1092		TSTC	'',PIXDUD	
21F4	D7	1093		RST	RSTEXP	
21F5		1094		TSTC	'',PIXDUD	
21F8	C1	1095		POP	BC	
21F9	D5	1096		PUSH	DE	; SAVE PTR
21FA	55	1097		LD	D,L	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
21FB	59	1098		LD	E,C	
21FC	CDF223	1099		CALL	R2A	
21FF	EB	1100		EX	DE,HL	
2200		1101		SYSSUK	INDEXB	
2202	0320	1102		DEFW	PIXTBL	
2204	1A	1103		LD	A,(DE)	; GET BYTE FROM SCREEN
2205	A6	1104		AND	(HL)	; MASK OFF NONSENSE
2206	2600	1105		LD	H,0	
2208	6C	1106		LD	L,H	
2209	D1	1107		POP	DE	
220A	C1	1108		POP	BC	
220B	C8	1109		RET	Z	
220C	Z3	1110		INC	HL	
220D	C9	1111		RET		
		1112				; SUBROUTINE TO GET VARIABLE MAKING SURE IT IS ONE
220E	CDEC29	1113	TSTVFF:	CALL	TSTV	
2211	D0	1114		RET	NC	; GO BACK IF GOOD
		1115				; ELSE FALL INTO ...
2212	C38629	1116	PIXDUD:	JP	QWHA	
		1117				; SUBROUTINE TO DO IT
2215	FE62	1118	DOBCCD:	CP	62H	; < MULT?
2217	300A	1119		JR	NC,BCD3-\$; NO
2219	FE2D	1120		CP	'-'	; YES IS IT MINUS?
221B	2803	1121		JR	Z,BCD2-\$; JUMP IF SO
221D		1122		SYSTEM	BCDADD	; NO - ITS ADD THEN
221F	C9	1123		RET		
2220		1124	BCD2:	SYSTEM	BCDSUB	; DO SUBTR
2222	C9	1125		RET		
2223	2003	1126	BCD3:	JR	NZ,BCD4-\$; JUMP IF NOT = TIMES
2225		1127		SYSTEM	BCDMUL	; ELSE MULT
2227	C9	1128		RET		
2228		1129	BCD4:	SYSTEM	BCDDIV	
222A	C9	1130		RET		
		1131				; SUBROUTINE TO CONVERT ASCII STRING TO BCD
		1132				; HL = ASCII IN, DE=BCD OUT
		1133				; OUT: DE=ASCII IN BUMPED, HL=BCD OUT NOT BUMPED
222B	EB	1134	ASCBCD:	EX	DE,HL	
222C	010012	1135		LD	BC,1200H	
222F	CDCC2F	1136	ASCBC1:	CALL	LDE	
2232		1137		SYSTEM	STOREN	
2234	0C	1138		INC	C	
2235	13	1139		INC	DE	
2236	13	1140		INC	DE	
2237	10F6	1141		DJNZ	ASCBC1-\$	
2239	C9	1142		RET		
		1143				; BOX DRAW ROUTINE
223A	D7	1144	BOXDRW:	RST	RSTEXP	; GET X
223B	E5	1145		PUSH	HL	
223C		1146		TSTC	'/',',BOXDUD	; FIND COMMA
223F	D7	1147		RST	RSTEXP	; GET Y
2240	E5	1148		PUSH	HL	
2241		1149		TSTC	'/',',BOXDUD	
2244	CDE322	1150		CALL	EXPRCP	; XS
2247	F5	1151		PUSH	AF	
2248		1152		TSTC	'/',',BOXDUD	
224B	CDE322	1153		CALL	EXPRCP	; YS
224E	F5	1154		PUSH	AF	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
224F		1155		TSTC	',',BOXDUD	
2252	D7	1156		RST	RSTEXP	
2253	D5	1157		PUSH	DE	
2254	DDE1	1158		POP	IX	
2256	F1	1159		POP	AF	; RESTORE YS
2257	47	1160		LD	B,A	
2258	F1	1161		POP	AF	; AND XS
2259	4F	1162		LD	C,A	
225A	7D	1163		LD	A,L	; PRESERVE FLAG
225B	E1	1164		POP	HL	
225C	55	1165		LD	D,L	
225D	E1	1166		POP	HL	
225E	5D	1167		LD	E,L	
225F	6F	1168		LD	L,A	
		1169				; NOW WE HAVE: B=YS, C=XS, D=Y, E=X, L=FLAG
		1170				; LIMIT CHECK Y
2260	60	1171		LD	H,B	
2261	25	1172		DEC	H	
2262	CB3C	1173		SRL	H	
2264	7A	1174		LD	A,D	
2265	CD9722	1175		CALL	SABS	
2268	84	1176		ADD	A,H	
2269	FE2C	1177		CP	44	
226B	3023	1178		JR	NC,BOXNDR-\$	
226D	7A	1179		LD	A,D	
226E	84	1180		ADD	A,H	
226F	57	1181		LD	D,A	
		1182				; AND X
2270	61	1183		LD	H,C	
2271	CB3C	1184		SRL	H	
2273	7B	1185		LD	A,E	
2274	CD9722	1186		CALL	SABS	
2277	84	1187		ADD	A,H	
2278	FE51	1188		CP	81	
227A	3014	1189		JR	NC,BOXNDR-\$	
227C	7B	1190		LD	A,E	
227D	94	1191		SUB	H	
227E	5F	1192		LD	E,A	
		1193				; DIDDLE WITH FLAG BYTE
227F	7D	1194		LD	A,L	
2280	E603	1195		AND	3	; MODULO 4
2282	280C	1196		JR	Z,BOXNDR-\$; SKIP DRAW IF ZERO
2284	D602	1197		SUB	2	; ELSE SUBTRACT 2 FOR MASK
2286	F5	1198	BOXDR1:	PUSH	AF	
2287	CDF223	1199		CALL	R2A	
		1200				; HL = ABS ADDR, A = SA, B=YS, C=XS
228A	D30C	1201		OUT	(MAGIC),A	
228C	F1	1202		POP	AF	
228D	CD9C22	1203		CALL	BOXPUT	
2290	DDE5	1204	BOXNDR:	PUSH	IX	
2292	D1	1205		POP	DE	
2293	F7	1206		RST	RSTFIN	
2294	C38629	1207	BOXDUD:	JP	QWHAT	
2297	A7	1208	SABS:	AND	A	
2298	F0	1209		RET	P	
2299	ED44	1210		NEG		
229B	C9	1211		RET		

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1212 ; SUBROUTINE TO DRAW A BOX ON SCREEN
229C 5F 1213 BOXPUT: LD E,A
229D 79 1214 LD A,C ; D = X / 4
229E 0F 1215 RRCA
229F 0F 1216 RRCA
22A0 E63F 1217 AND 3FH
22A2 3C 1218 INC A
22A3 57 1219 LD D,A
1220 ; PAINT FULL BYTE STRIPES
22A4 15 1221 MPT1: DEC D
22A5 2807 1222 JR Z,MPT2-#
22A7 3EAA 1223 LD A,10101010B
22A9 CDC122 1224 CALL STRIPE
22AC 18F6 1225 JR MPT1-#
22AE 79 1226 MPT2: LD A,C
22AF E603 1227 AND 3
22B1 3C 1228 INC A
22B2 4F 1229 LD C,A
22B3 AF 1230 XOR A
22B4 0D 1231 MPT3: DEC C
22B5 2806 1232 JR Z,MPT4-#
22B7 0F 1233 RRCA
22B8 0F 1234 RRCA
22B9 F680 1235 OR 10000000B
22BB 18F7 1236 JR MPT3-#
22BD CDC122 1237 MPT4: CALL STRIPE
22C0 AF 1238 XOR A
1239 ; FALL INTO ...
1240 ; SUBROUTINE TO PAINT A STRIPE
22C1 E5 1241 STRIPE: PUSH HL
22C2 C5 1242 PUSH BC
22C3 32FF0F 1243 LD (URINAL),A
22C6 3AFF4F 1244 LD A,(URINAL+4000H)
22C9 4F 1245 LD C,A
22CA 7B 1246 STRP1: LD A,E
22CB FE01 1247 CP 1
22CD 2002 1248 JR NZ,STRP2-#
22CF 7E 1249 LD A,(HL)
22D0 A9 1250 XOR C
22D1 AE 1251 STRP2: XOR (HL)
22D2 A1 1252 AND C
22D3 AE 1253 XOR (HL)
22D4 77 1254 LD (HL),A
22D5 7D 1255 LD A,L
22D6 C628 1256 ADD A,BYTEPL
22D8 6F 1257 LD L,A
22D9 7C 1258 LD A,H
22DA CE00 1259 ADC A,0
22DC 67 1260 LD H,A
22DD 10EB 1261 DJNZ STRP1-#
22DF C1 1262 POP BC
22E0 E1 1263 POP HL
22E1 23 1264 INC HL
22E2 C9 1265 RET
1266 ; ROUTINE TO GET EXPRESSION, MAKING SURE IT IS POSITIVE
1267 ; AND NONZERO
22E3 D7 1268 EXPRCP: RST RSTEXP

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ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
22E4	7C	1269		LD	A, H	
22E5	B7	1270		OR	A	
22E6	203D	1271		JR	NZ, LINED4-\$	
22E8	B5	1272		OR	L	
22E9	283A	1273		JR	Z, LINED4-\$	
22EB	C9	1274		RET		
		1275				; LINE DRAWER
22EC	D7	1276	LINEDR:	RST	RSTEXP	
22ED	7D	1277		LD	A, L	
22EE	F5	1278		PUSH	AF	
22EF		1279		TSTC	',', LINED4	
22F2	D7	1280		RST	RSTEXP	
22F3	7D	1281		LD	A, L	
22F4	F5	1282		PUSH	AF	
22F5		1283	LINED1:	TSTC	',', LINED4	
22F8	D7	1284		RST	RSTEXP	
22F9	44	1285		LD	B, H	
22FA	4D	1286		LD	C, L	
22FB	D5	1287		PUSH	DE	
22FC	DDE1	1288		POP	IX	
22FE	ED5BAC4E	1289		LD	DE, (OLDXY)	
2302	F1	1290		POP	AF	
2303	67	1291		LD	H, A	
2304	F1	1292		POP	AF	
2305	6F	1293		LD	L, A	
2306	CD9023	1294		CALL	CHKX	
2309	3016	1295		JR	NC, LINED3-\$	
230B	7C	1296		LD	A, H	
230C	CD9723	1297		CALL	CHKY	
230F	3010	1298		JR	NC, LINED3-\$	
2311	22AC4E	1299		LD	(OLDXY), HL	; SET NEW LAST PLACE
		1300				; DIDDLE WITH FLAG BYTE
2314	79	1301		LD	A, C	
2315	E603	1302		AND	3	
2317	2808	1303		JR	Z, LINED3-\$	
2319	D602	1304		SUB	2	
231B	325B4E	1305	LINED2:	LD	(PIXVAL), A	; SET PIXVAL
231E	CD2823	1306		CALL	DVECT	
2321	DDE5	1307	LINED3:	PUSH	IX	
2323	D1	1308		POP	DE	
2324	F7	1309		RST	RSTFIN	
2325	C38D2A	1310	LINED4:	JP	QHOW	
		1311				; LARRY LIVERMORE'S VECTOR DRAWING ALGORITHM
		1312				; H=Y1, L=X1, D=Y2, E=X2
2328	D5	1313	DVECT:	PUSH	DE	
2329	45	1314		LD	B, L	
232A	4B	1315		LD	C, E	
232B	CDD023	1316		CALL	CDELTA	
232E	58	1317		LD	E, B	
232F	69	1318		LD	L, C	
2330	44	1319		LD	B, H	
2331	4A	1320		LD	C, D	
2332	CDD023	1321		CALL	CDELTA	
2335	61	1322		LD	H, C	
2336	50	1323		LD	D, B	
		1324				; WE NOW HAVE: H=SGN(DY), L=SGN(DX)
		1325				; D=ABS(DY), E=ABS(DX)

41X

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2337 225E4E 1326 LD (INCRO),HL
1327 ; DECIDE WHICH DELTA IS LARGER
1328 ; CALL BIGGER MX, SMALLER MN
233A 0E00 1329 LD C,0
233C 7A 1330 LD A,D
233D BB 1331 CP E
233E 3803 1332 JR C,VECT1-$
2340 53 1333 LD D,E
2341 5F 1334 LD E,A
2342 0C 1335 INC C
2343 7A 1336 VECT1: LD A,D ; MX TO A
2344 CB3F 1337 SRL A
2346 47 1338 LD B,A
2347 EB 1339 EX DE,HL
2348 225C4E 1340 LD (MMX),HL
234B D1 1341 POP DE
234C 7D 1342 LD A,L
234D 3C 1343 INC A ; MAKE SURE LAST PIXEL WRITTEN
1344 ; THE INFAMOUS PIXEL PAINTING LOOP
234E F5 1345 VECT2: PUSH AF
234F CDF223 1346 CALL R2A
2352 C5 1347 PUSH BC
2353 E5 1348 PUSH HL
2354 4F 1349 LD C,A
2355 0600 1350 LD B,0
2357 210320 1351 LD HL,PIXTBL
235A 09 1352 ADD HL,BC
235B 46 1353 LD B,(HL)
235C E1 1354 POP HL
235D 3A5B4E 1355 LD A,(PIXVAL)
2360 FE01 1356 CP 1
2362 2002 1357 JR NZ,VECT9-$
2364 7E 1358 LD A,(HL)
2365 A8 1359 XOR B
2366 AE 1360 VECT9: XOR (HL)
2367 A0 1361 AND B
2368 AE 1362 XOR (HL)
2369 77 1363 LD (HL),A
236A C1 1364 POP BC
1365 ; INCREMENT COORDINATES
236B 2A5C4E 1366 VECT2A: LD HL,(MMX)
236E 78 1367 LD A,B
236F 84 1368 ADD A,H
2370 BD 1369 CP L
2371 380D 1370 JR C,VECT4-$
2373 95 1371 SUB L
2374 47 1372 LD B,A
2375 2A5E4E 1373 LD HL,(INCRO)
2378 7A 1374 LD A,D
2379 84 1375 ADD A,H
237A 57 1376 LD D,A
237B 7B 1377 VECT3: LD A,E
237C 85 1378 ADD A,L
237D 5F 1379 LD E,A
237E 180B 1380 JR VECT5-$
2380 47 1381 VECT4: LD B,A
2381 2A5E4E 1382 LD HL,(INCRO)

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ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2384	79	1383		LD	A, C	
2385	0F	1384		RRCA		
2386	30F3	1385		JR	NC, VECT3-\$	
2388	7A	1386		LD	A, D	
2389	84	1387		ADD	A, H	
238A	57	1388		LD	D, A	
		1389			; END OF LOOP	
238B	F1	1390	VECT5:	POP	AF	
238C	3D	1391		DEC	A	
238D	20BF	1392		JR	NZ, VECT2-\$	
238F	C9	1393		RET		
		1394			; X CHECK ROUTINE	
2390	FE50	1395	CHKX:	CP	80	
2392	D8	1396		RET	C	
2393	FEB0	1397		CP	0B0H	; ** -80 **
2395	3F	1398		CCF		
2396	C9	1399		RET		
		1400			; Y CHECK ROUTINE	
2397	FE2C	1401	CHKY:	CP	44	
2399	D8	1402		RET	C	
239A	FED4	1403		CP	0D4H	
239C	3F	1404		CCF		
239D	C9	1405		RET		
		1406			; SUBROUTINE TO LOAD HL WITH VDM COORDINATES	
		1407			; FROM DEVICE VARIABLES	
239E	F5	1408	LDVDMC:	PUSH	AF	
239F	3AAA4E	1409		LD	A, (VDMY)	
23A2	2F	1410		CPL		
23A3	C629	1411		ADD	A, 41	
23A5	FE51	1412		CP	81	; OUT OF RANGE?
23A7	3801	1413		JR	C, LDVDM1-\$; NO
23A9	AF	1414		XOR	A	
23AA	67	1415	LDVDM1:	LD	H, A	
23AB	3AA84E	1416		LD	A, (VDMX)	; DIDDLE WITH X
23AE	C64D	1417		ADD	A, 77	
23B0	FE9D	1418		CP	157	
23B2	3801	1419		JR	C, LDVDM2-\$	
23B4	AF	1420		XOR	A	
23B5	6F	1421	LDVDM2:	LD	L, A	
23B6	F1	1422		POP	AF	
23B7	C9	1423		RET		
		1424			; SUBROUTINE TO STORE HL INTO VDM COORDINATE DEVICE VARIABLES	
23B8	E5	1425	STVDMC:	PUSH	HL	
23B9	7C	1426		LD	A, H	
23BA	D629	1427		SUB	41	
23BC	2F	1428		CPL		
23BD	6F	1429		LD	L, A	
23BE	CDE028	1430		CALL	SGNEXT	
23C1	22AA4E	1431		LD	(VDMY), HL	
23C4	E1	1432		POP	HL	
23C5	7D	1433		LD	A, L	
23C6	D64D	1434		SUB	77	
23C8	6F	1435		LD	L, A	
23C9	CDE028	1436		CALL	SGNEXT	
23CC	22A84E	1437		LD	(VDMX), HL	
23CF	C9	1438		RET		
		1439			; SUBROUTINE TO COMPUTE DELTA AND INCREMENT FOR TWO COORDINATES	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
23D0	E5	1440	CDELTA:	PUSH	HL	
23D1	D5	1441		PUSH	DE	
23D2	69	1442		LD	L,C	
23D3	CDE028	1443		CALL	SGNEXT	
23D6	EB	1444		EX	DE,HL	
23D7	68	1445		LD	L,B	
23D8	CDE028	1446		CALL	SGNEXT	
23DB	AF	1447		XOR	A	
23DC	ED52	1448		SBC	HL,DE	
		1449	; COMPUTE SGN(DELTA) AND ABS(DELTA)			
23DE	B4	1450		OR	H	
23DF	2807	1451		JR	Z,CDELTA1-\$	
23E1	4F	1452		LD	C,A	
23E2	7D	1453		LD	A,L	
23E3	ED44	1454		NEG		
23E5	47	1455		LD	B,A	
23E6	1807	1456		JR	CDELTA3-\$	
23E8	B5	1457	CDELTA1:	OR	L	; POS CASE 0?
23E9	2802	1458		JR	Z,CDELTA2-\$	
23EB	3E01	1459		LD	A,1	
23ED	45	1460	CDELTA2:	LD	B,L	
23EE	4F	1461		LD	C,A	
23EF	D1	1462	CDELTA3:	POP	DE	
23F0	E1	1463		POP	HL	
23F1	C9	1464		RET		
		1465	; RELATIVE TO ABSOLUTE CONVERSION			
23F2	D5	1466	R2A:	PUSH	DE	
23F3	7A	1467		LD	A,D	
23F4	2F	1468		CPL		
23F5	C62C	1469		ADD	A,44	
23F7	57	1470		LD	D,A	
23F8	7B	1471		LD	A,E	
23F9	C650	1472		ADD	A,80	
23FB	5F	1473		LD	E,A	
23FC	AF	1474		XOR	A	
23FD		1475		SYSTEM	RELAB1	
23FF	EB	1476		EX	DE,HL	
2400	D1	1477		POP	DE	
2401	C9	1478		RET		
		1479	; KB - FUNCTION TO RETURN NEXT CHARACTER FROM KEYBOARD			
2402	C5	1480	GETKB:	PUSH	BC	
2403	D5	1481		PUSH	DE	
2404	CD9A2D	1482		CALL	CHKIO	
2407	D1	1483		POP	DE	
2408	C1	1484		POP	BC	
2409	6F	1485		LD	L,A	
240A	2600	1486		LD	H,0	
240C	C9	1487		RET		
		1488	; DEVICE VARIABLE TO OUTPUT TO REFERENCED IO PORT			
240D	EF	1489	PUTIO:	RST	RSTPAR	; GET PORT #
240E		1490		TSTC	'=',PUTCD2	; GET EQUALS
2411	E5	1491		PUSH	HL	; SAVE PORT #
2412	D7	1492		RST	RSTEXP	; EVALUATE EXPRESSION FOLLOWING
2413	7D	1493		LD	A,L	; A=VALUE TO OUTPUT
2414	E1	1494		POP	HL	; RESTORE PORT #
2415	C5	1495		PUSH	BC	
2416	44	1496		LD	B,H	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2417	4D	1497		LD	C,L	
2418	ED79	1498		OUT	(C),A	; DO IT
241A	C1	1499		POP	BC	
241B	F7	1500		RST	RSTFIN	; GO HOME
		1501				; FUNCTION TO RETURN VALUE OF A GIVEN IO PORT
241C	EF	1502	IOFUN:	RST	RSTPAR	; GET PORT NUMBA
241D	C5	1503		PUSH	BC	
241E	44	1504		LD	B,H	
241F	4D	1505		LD	C,L	
2420	ED78	1506		IN	A,(C)	
2422	6F	1507		LD	L,A	
2423	2600	1508		LD	H,0	
2425	C1	1509		POP	BC	
2426	C9	1510		RET		
		1511				; DEVICE VARIABLE TO PLAY NOTE WITHOUT PRINTING
2427		1512	PUTMU:	TSTC	'=',PUTCD2	
242A	D7	1513		RST	RSTEXP	
242B	7D	1514		LD	A,L	
242C	CD822E	1515		CALL	PNOTE	
242F	F7	1516		RST	RSTFIN	
		1517				; DEVICE VARIABLE TO OUTPUT CHARACTER ON VDM
2430		1518	PUTCD:	TSTC	'=',PUTCD2	
2433	D7	1519		RST	RSTEXP	
2434	7D	1520		LD	A,L	
2435	DF	1521		RST	RSTOCH	
2436	F7	1522		RST	RSTFIN	
2437	C38629	1523	PUTCD2:	JP	QNHAT	
		1524				; ROUTINE TO TRANSFER CONTROL TO ASSEMBLY LANGUAGE SUBROUTINE
243A	214324	1525	DOCALL:	LD	HL,BBRET	; PUSH RETURN ADDR ON STACK
243D	E5	1526		PUSH	HL	
243E	D7	1527		RST	RSTEXP	; GET ADDRESS
243F	E9	1528		JP	(HL)	; AND JUMP TO IT
		1529				; COMMAND TO RESTORE TINY BASIC INTERRUPT ROUTINE
2440	CD4424	1530	TRETUR:	CALL	TBIEST	
2443	F7	1531	BBRET:	RST	RSTFIN	; GO HOME
2444	DB12	1532	TBIEST:	IN	A,(TAPEIO)	; INITIALIZE TAPE INTERFACE
2446	E602	1533		AND	2	
2448	20FA	1534		JR	NZ,TBIEST-#	; WAIT FOR THANG TO GO TO ZERO
244A	32C24E	1535		LD	(TAPEST),A	
244D	3E03	1536		LD	A,3	
244F	32A64E	1537		LD	(DEVTEM),A	
		1538				; ACTIVATE TINY BASIC INTERRUPT ROUTINE
2452	F3	1539		DI		
2453	ED5E	1540		IM	2	
2455	3E20	1541		LD	A,ITAB.SHR.8	
2457	ED47	1542		LD	I,A	
2459	3E08	1543		LD	A,8	
245B	D30E	1544		OUT	(INMOD),A	
245D	3EC8	1545		LD	A,200	
245F	D30F	1546		OUT	(INLIN),A	
2461	3E62	1547		LD	A,ITAB.AND.OFFH	
2463	D30D	1548		OUT	(INFBK),A	
2465	FB	1549		EI		
2466	C9	1550		RET		
		1551				; ** TINY BASIC EXECUTION STARTS HERE **
		1552				; CLEAR WHOLE KIT AND KABOODLE
2467	AF	1553	BEGIN:	XOR	A	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2468	D30C	1554		OUT	(MAGIC),A	
246A	67	1555		LD	H,A	
246B	6F	1556		LD	L,A	
246C	47	1557		LD	B,A	
246D	70	1558	BEGIN1:	LD	(HL),B	
246E	23	1559		INC	HL	
246F	7C	1560		LD	A,H	
2470	FE50	1561		CP	50H	
2472	20F9	1562		JR	NZ,BEGIN1-\$	
2474	31CE4F	1563		LD	SP,SYSRAM	
2477		1564			SYSTEM INTPC	
2479		1565		DO	SETOUT	
247A	B0	1566		DEFB	176	
247B	2C	1567		DEFB	44	
247C	08	1568		DEFB	8	
247D		1569		DO	EMUSIC ; SHUT DOWN MUSIC	
247E		1570		DO	SETB	
247F	47	1571		DEFB	0A2 ; SET INITIAL MASTER OSCILATOR	
2480	584E	1572		DEFW	MUZMO	
		1573			; INITIALIZE DEVICE VARIABLES	
2482		1574		DO	MOVE	
2483	A24E	1575		DEFW	DEVVAR	
2485	0A00	1576		DEFW	10	
2487	1D20	1577		DEFW	INIDEV	
2489		1578		DO	MOVE	
248A	664E	1579		DEFW	ALTFON	
248C	0700	1580		DEFW	7	
248E	0602	1581		DEFW	FNTSYS	
2490		1582		DO	SETW	
2491	A006	1583		DEFW	6A0H	
2493	664E	1584		DEFW	ALTFON	
2495		1585		DO	SETW	
2496	04A0	1586		DEFW	TEXT+4	
2498	524E	1587		DEFW	TXTUNF	
249A		1588		DO	XINTC	
249B	2101A0	1589		LD	HL,TEXT+1	
249E	3EFF	1590		LD	A,OFFH	
24A0	CDE42F	1591		CALL	STHL	
24A3	CD4424	1592	INIT0:	CALL	TBIEST	
24A6	CD8A2C	1593	INIT:	CALL	CRLF	
		1594			; DIRECT COMMAND - TEXT COLLECTOR	
24A9		1595	TELL:			
24A9	112920	1596		LD	DE,MSG	
24AC	CDFD2A	1597		CALL	PRTSTG	
24AF		1598	STOP:			
24AF	31EF4F	1599	RSTART:	LD	SP,STACK	
24B2	21B924	1600		LD	HL,?ST1+1	
24B5	22C34E	1601		LD	(CURRNT),HL	
24B8	210000	1602	?ST1:	LD	HL,0	
24BB	22C94E	1603		LD	(LOPVAR),HL	
24BE	22C54E	1604		LD	(STKGOS),HL	
24C1	3E3E	1605	?ST2:	LD	A,'>'	
24C3	CDF02B	1606		CALL	GETLN	
24C6	D5	1607		PUSH	DE	
24C7	11D44E	1608		LD	DE,BUFFER	
		1609			; IGNORE ANY LEADING '>'	
24CA	1A	1610		LD	A,(DE)	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
24CB	FE3E	1611		CP	'>'	
24CD	2001	1612		JR	NZ, ?ST4-\$	
24CF	13	1613		INC	DE	
24D0	CD622A	1614	?ST4:	CALL	TSTNUM	
24D3	E7	1615		RST	RSTIGN	
24D4	7C	1616		LD	A, H	
24D5	B5	1617		OR	L	
24D6	C1	1618		POP	BC	
24D7	284C	1619		JR	Z, EXECO-\$	
24D9	22644E	1620		LD	(OLDLN), HL	
24DC	1B	1621		DEC	DE	
24DD	7C	1622		LD	A, H	
24DE	12	1623		LD	(DE), A	
24DF	1B	1624		DEC	DE	
24E0	7D	1625		LD	A, L	
24E1	12	1626		LD	(DE), A	
24E2	C5	1627		PUSH	BC	
24E3	D5	1628		PUSH	DE	
24E4	79	1629		LD	A, C	
24E5	93	1630		SUB	E	
24E6	F5	1631		PUSH	AF	
24E7	CDC329	1632		CALL	FNDLN	
24EA	D5	1633		PUSH	DE	
24EB	2010	1634		JR	NZ, ?ST3-\$	
24ED	D5	1635		PUSH	DE	
24EE	CDE029	1636		CALL	FNDNXT	
24F1	C1	1637		POP	BC	
24F2	2A524E	1638		LD	HL, (TXTUNF)	
24F5	CD942A	1639		CALL	MVUP	
24F8	60	1640		LD	H, B	
24F9	69	1641		LD	L, C	
24FA	22524E	1642		LD	(TXTUNF), HL	
24FD	C1	1643	?ST3:	POP	BC	
24FE	2A524E	1644		LD	HL, (TXTUNF)	
2501	F1	1645		POP	AF	
2502	E5	1646		PUSH	HL	
2503	FE03	1647		CP	3	
2505	28A8	1648		JR	Z, RSTART-\$	
2507	85	1649		ADD	A, L	
2508	5F	1650		LD	E, A	
2509	3E00	1651		LD	A, 0	
250B	8C	1652		ADC	A, H	
250C	57	1653		LD	D, A	
250D	210CA7	1654		LD	HL, DFTLMT	
2510	EB	1655		EX	DE, HL	
2511	CD4D29	1656		CALL	COMP	
2514	D2BD29	1657		JP	NC, QSORRY	
2517	22524E	1658		LD	(TXTUNF), HL	
251A	D1	1659		POP	DE	
251B	CDA62A	1660		CALL	MVDOWN	
251E	D1	1661		POP	DE	
251F	E1	1662		POP	HL	
2520	CD942A	1663		CALL	MVUP	
2523	189C	1664		JR	?ST2-\$	
		1665			; DIRECT AND EXEC	
2525	E7	1666	EXEC0:	RST	RSTIGN	; GET FIRST NONBLANK
2526	D5	1667		PUSH	DE	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2527	FE68	1668		CP	68H	; IS SHE A TOKEN?
2529	3813	1669		JR	C,EXEC0A-\$; NO
252B	FE75	1670		CP	75H	
252D	300F	1671		JR	NC,EXEC0A-\$; NO
		1672				; WE FOUND A TOKEN - LOOKUP IN TABLE AND JUMP TO IT
252F	07	1673		RLCA		
2530	5F	1674		LD	E, A	
2531	1600	1675		LD	D, 0	
2533	21761F	1676		LD	HL, TOKJT-208	
2536	19	1677		ADD	HL, DE	
2537	5E	1678		LD	E, (HL)	
2538	23	1679		INC	HL	
2539	56	1680		LD	D, (HL)	
253A	EB	1681		EX	DE, HL	
253B	D1	1682		POP	DE	
253C	13	1683		INC	DE	
253D	E9	1684		JP	(HL)	
		1685				; NOT A TOKEN - A VARIABLE PERHAPS?
253E	CDEC29	1686	EXEC0A:	CALL	TSTV	
2541	3808	1687		JR	C,EXEC0B-\$; NO - DO SEARCH
2543		1688		TSTC	'=', EXEC0B	; MAYBE
2546	C1	1689		POP	BC	; THROW OUT OLD PTR
2547	CD5929	1690		CALL	SETV1	; DO ASSIGNMENT
254A	F7	1691		RST	RSTFIN	
254B	D1	1692	EXEC0B:	POP	DE	
254C	217D2B	1693		LD	HL, TAB2-1	
254F	E7	1694	EXEC:	RST	RSTIGN	
2550	D5	1695		PUSH	DE	
2551	CDCC2F	1696	EX1:	CALL	LDE	
2554	13	1697		INC	DE	
2555	23	1698		INC	HL	
2556	BE	1699		CP	(HL)	
2557	28F8	1700		JR	Z, EX1-\$	
2559	3E7F	1701		LD	A, 07FH	
255B	1B	1702		DEC	DE	
255C	BE	1703		CP	(HL)	
255D	3808	1704		JR	C, EX5-\$	
255F	23	1705	EX2:	INC	HL	
2560	BE	1706		CP	(HL)	
2561	30FC	1707		JR	NC, EX2-\$	
2563	23	1708		INC	HL	
2564	D1	1709		POP	DE	
2565	18E8	1710		JR	EXEC-\$	
2567	7E	1711	EX5:	LD	A, (HL)	
2568	23	1712		INC	HL	
2569	6E	1713		LD	L, (HL)	
256A	E67F	1714		AND	07FH	
256C	67	1715		LD	H, A	
256D	F1	1716		POP	AF	
256E	E9	1717		JP	(HL)	
		1718				; COMMAND TO CLEAR SCREEN
256F		1719	CLRSCR:			
256F	210040	1720		LD	HL, 4000H	
2572	01100E	1721		LD	BC, 90*BYTEPL	
2575	7E	1722	CLRLP:	LD	A, (HL)	
2576	E655	1723		AND	01010101B	
2578	77	1724		LD	(HL), A	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2579	23	1725		INC	HL	
257A	0B	1726		DEC	BC	
257B	78	1727		LD	A, B	
257C	B1	1728		OR	C	
257D	20F6	1729		JR	NZ, CLR LP-\$	
		1730		; RESET	VDM GOODIES	
257F	D5	1731		PUSH	DE	
2580		1732		SYSSUK	MOVE	
2582	A84E	1733		DEFW	VDMX	
2584	0600	1734		DEFW	6	
2586	2320	1735		DEFW	INIDEV+6	
2588	D1	1736		POP	DE	
2589	F7	1737		RST	RSTFIN	
258A	1100A0	1738	RUN:	LD	DE, TEXT	
258D	210000	1739	RUNXL:	LD	HL, 0	
2590	CDCB29	1740		CALL	FNDLP	
2593	DAAF24	1741		JP	C, RSTART	
2596	EB	1742	RUNTSL:	EX	DE, HL	
2597	22C34E	1743		LD	(CURRNT), HL	
259A	EB	1744		EX	DE, HL	
259B	13	1745		INC	DE	
259C	13	1746		INC	DE	
259D	CD3D2E	1747	RUNSM:	CALL	WHATSU ; CHECK FOR INTERRUPT KEY	
25A0	C32525	1748		JP	EXECO	
25A3	D7	1749	GOTO:	RST	RSTEXP	
25A4	D5	1750		PUSH	DE	
25A5	CDC329	1751		CALL	FNDLN	
25A8	C28E2A	1752		JP	NZ, AHOW	
25AB	F1	1753		POP	AF	
25AC	18E8	1754		JR	RUNTSL-\$	
		1755		; LIST AND PRINT		
		1756		; NEW - IMPROVED LIST COMMAND		
		1757		; LETS YOU PUT IT IN A PROGRAM		
25AE	210000	1758	LIST:	LD	HL, 0 ; ASSUME AT EOL	
25B1	E7	1759		RST	RSTIGN ; IGNORE	
25B2	CD7B21	1760		CALL	ATNL	
25B5	2805	1761		JR	Z, LS3-\$	
25B7	FE2C	1762		CP	', ' ; LEADING COMMA?	
25B9	2801	1763		JR	Z, LS3-\$; YEP - SKIP FIRST EXPR GET	
		1764		; NOT AT END - GET FIRST EXPR		
25BB	D7	1765	LS2:	RST	RSTEXP	
25BC	E5	1766	LS3:	PUSH	HL	
25BD	21FFFF	1767		LD	HL, OFFFFH	
25C0		1768		TSTC	', ', LS4	
25C3	D7	1769		RST	RSTEXP	
25C4	D5	1770	LS4:	PUSH	DE	
25C5	FDE1	1771		POP	IY	
25C7	E3	1772		EX	(SP), HL	
25C8	CDC329	1773		CALL	FNDLN	
25CB	3815	1774	LS5:	JR	C, LSQUIT-\$	
25CD	E3	1775		EX	(SP), HL	
25CE	7C	1776		LD	A, H	
25CF	B5	1777		OR	L	
25D0	2810	1778		JR	Z, LSQUIT-\$	
25D2	2B	1779		DEC	HL	
25D3	E3	1780		EX	(SP), HL	
25D4	CD682B	1781		CALL	PRTLN	

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25D7 CDFD2A 1782          CALL PRTSTG
25DA CD3D2E 1783          CALL WHATSU
25DD CDCB29 1784          CALL FNDLP
25E0 18E9    1785          JR   LS5-$
25E2 FDE5    1786 LSQUIT:  PUSH IY
25E4 D1      1787          POP  DE
25E5 F7      1788          RST  RSTFIN
25E6 0E08    1789 PRINT:  LD   C,8
25E8         1790          TSTC ' ',PR1
25EB CD8A2C 1791          CALL CRLF
25EE 18AD    1792          JR   RUNSML-$
25F0         1793 PR1:    TSTCC CR,PR6
25F3 CD8A2C 1794          CALL CRLF
25F6 1895    1795          JR   RUNNXL-$
25F8         1796 PR2:    TSTC '#',PR4
25FB D7      1797 PR3:    RST  RSTEXP
25FC 3ECO    1798          LD   A,0COH
25FE A5      1799          AND  L
25FF B4      1800          OR   H
2600 C28D2A 1801          JP   NZ,GNOW
2603 4D      1802          LD   C,L
2604 1805    1803          JR   PR5-$
2606 CD0B2B 1804 PR4:    CALL QTSTG
2609 1814    1805          JR   PR9-$
260B         1806 PR5:    TSTC ' ',PR8
260E         1807 PR6:    TSTC ' ',PR7
2611 3E20    1808          LD   A,' '
2613 DF      1809          RST  RSTOCH
2614 18F8    1810          JR   PR6-$
2616 CD6F29 1811 PR7:    CALL FIN
2619 18DD    1812          JR   PR2-$
261B CD8A2C 1813 PR8:    CALL CRLF
261E F7      1814          RST  RSTFIN
261F D7      1815 PR9:    RST  RSTEXP
2620 C5      1816          PUSH BC
2621 CD2E2B 1817          CALL PRTNUM
2624 C1      1818          POP  BC
2625 18E4    1819          JR   PR5-$
          1820 ; GOSUB AND RETURN
2627 CDD42A 1821 GOSUB:  CALL PUSHA
262A D7      1822          RST  RSTEXP
262B D5      1823          PUSH DE
262C CDC329 1824          CALL FNDLN
262F C28E2A 1825          JP   NZ,AHOW
2632 2AC34E 1826          LD   HL,(CURRNT)
2635 E5      1827          PUSH HL
2636 2AC54E 1828          LD   HL,(STKGOS)
2639 E5      1829          PUSH HL
263A 210000 1830          LD   HL,0
263D 22C94E 1831          LD   (LOPVAR),HL
2640 39      1832          ADD  HL,SP
2641 22C54E 1833          LD   (STKGOS),HL
2644 C39625 1834          JP   RUNTSL
2647 2AC54E 1835 RETURN:  LD   HL,(STKGOS)
264A 7C      1836          LD   A,H
264B B5      1837          OR   L
264C CA8629 1838          JP   Z,GNOW
  
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264F F9      1839      LD  SP,HL
2650 E1      1840 ?RESTO: POP HL
2651 22C54E  1841      LD  (STKGOS),HL
2654 E1      1842      POP HL
2655 22C34E  1843      LD  (CURRNT),HL
2658 D1      1844      POP DE
2659 CDB82A  1845      CALL POPA
265C F7      1846      RST RSTFIN
                1847 ; FOR AND NEXT
265D CDD42A  1848 FOR:   CALL PUSHA
2660 CD5329  1849      CALL SETVAL
2663 2B      1850      DEC HL
2664 22C94E  1851      LD  (LOPVAR),HL
2667        1852      TSTCC 77H,FR1A ; T0?
266A D7      1853 FR1:   RST RSTEXP
266B 22CD4E  1854 FR1A:  LD  (LOPLMT),HL
266E 210100  1855      LD  HL,1
2671        1856      TSTCC 75H,FR4 ; STEP?
2674 D7      1857      RST RSTEXP
2675 22CB4E  1858 FR4:   LD  (LOPINC),HL
2678 2AC34E  1859      LD  HL,(CURRNT)
267B 22CF4E  1860      LD  (LOPLN),HL
267E EB      1861      EX  DE,HL
267F 22D14E  1862      LD  (LOPPT),HL
2682 010A00  1863      LD  BC,10
2685 2AC94E  1864      LD  HL,(LOPVAR)
2688 EB      1865      EX  DE,HL
2689 60      1866      LD  H,B
268A 68      1867      LD  L,B
268B 39      1868      ADD HL,SP
268C 1801    1869      JR  FR6-#
268E 09      1870 FR5:   ADD HL,BC
268F 7E      1871 FR6:   LD  A,(HL)
2690 23      1872      INC HL
2691 B6      1873      OR  (HL)
2692 2817    1874      JR  Z,FR7-#
2694 7E      1875      LD  A,(HL)
2695 2B      1876      DEC HL
2696 BA      1877      CP  D
2697 20F5    1878      JR  NZ,FR5-#
2699 7E      1879      LD  A,(HL)
269A AB      1880      XOR E
269B 20F1    1881      JR  NZ,FR5-#
269D EB      1882      EX  DE,HL
269E 67      1883      LD  H,A
269F 6F      1884      LD  L,A
26A0 39      1885      ADD HL,SP
26A1 44      1886      LD  B,H
26A2 4D      1887      LD  C,L
26A3 210A00  1888      LD  HL,10
26A6 19      1889      ADD HL,DE
26A7 CDA62A  1890      CALL MVDOWN
26AA F9      1891      LD  SP,HL
26AB 2AD14E  1892 FR7:   LD  HL,(LOPPT)
26AE EB      1893      EX  DE,HL
26AF F7      1894      RST RSTFIN
26B0 CDEC29  1895 NEXT: CALL TSTV

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ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
26B3	DA8629	1896		JP	C, QNHAT	
26B6	22C74E	1897		LD	(VARNXT), HL	
26B9	D5	1898	NX1:	PUSH	DE	
26BA	EB	1899		EX	DE, HL	
26BB	2AC94E	1900		LD	HL, (LOPVAR)	
26BE	7C	1901		LD	A, H	
26BF	B5	1902		OR	L	
26C0	CA8729	1903		JP	Z, AMHAT	
26C3	CD4D29	1904		CALL	COMP	
26C6	2809	1905		JR	Z, NX2-\$	
26C8	D1	1906		POP	DE	
26C9	CDB82A	1907		CALL	POPA	
26CC	2AC74E	1908		LD	HL, (VARNXT)	
26CF	18E8	1909		JR	NX1-\$	
26D1	EB	1910	NX2:	EX	DE, HL	
26D2	CDCC2F	1911		CALL	LDE	
26D5	6F	1912		LD	L, A	
26D6	13	1913		INC	DE	
26D7	CDCC2F	1914		CALL	LDE	
26DA	67	1915		LD	H, A	
26DB	EB	1916		EX	DE, HL	
26DC	2ACB4E	1917		LD	HL, (LOPINC)	
26DF	E5	1918		PUSH	HL	
26E0	7C	1919		LD	A, H	
26E1	AA	1920		XOR	D	
26E2	7A	1921		LD	A, D	
26E3	19	1922		ADD	HL, DE	
26E4	FAEB26	1923		JP	M, NX3	
26E7	AC	1924		XOR	H	
26E8	FA1227	1925		JP	M, NX5	
26EB	EB	1926	NX3:	EX	DE, HL	
26EC	2AC94E	1927		LD	HL, (LOPVAR)	
26EF	7B	1928		LD	A, E	
26F0	CDE42F	1929		CALL	STHL	
26F3	23	1930		INC	HL	
26F4	7A	1931		LD	A, D	
26F5	CDE42F	1932		CALL	STHL	
26F8	2ACD4E	1933		LD	HL, (LOPLMT)	
26FB	F1	1934		POP	AF	
26FC	B7	1935		OR	A	
26FD	F20127	1936		JP	P, NX4	
2700	EB	1937		EX	DE, HL	
2701	CD4329	1938	NX4:	CALL	CKHLDE	
2704	D1	1939		POP	DE	
2705	380D	1940		JR	C, NX6-\$	
2707	2ACF4E	1941		LD	HL, (LOPLN)	
270A	22C34E	1942		LD	(CURRNT), HL	
270D	2AD14E	1943		LD	HL, (LOPPT)	
2710	EB	1944		EX	DE, HL	
2711	F7	1945		RST	RSTFIN	
2712	E1	1946	NX5:	POP	HL	
2713	D1	1947		POP	DE	
2714	CDB82A	1948	NX6:	CALL	POPA	
2717	F7	1949		RST	RSTFIN	
		1950			; REM, IF, INPUT, LET	
2718	210000	1951	REM:	LD	HL, 0	
271B	1801	1952		JR	IF1-\$	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
271D	D7	1953	IFF:	RST	RSTEXP	
271E	7C	1954	IF1:	LD	A, H	
271F	B5	1955		OR	L	
2720	C29D25	1956		JP	NZ, RUNSML	
2723	CDE229	1957		CALL	FNSKIP	
2726	D29625	1958		JP	NC, RUNTSL	
2729	C3AF24	1959		JP	RSTART	
272C	2AC74E	1960	INPERR:	LD	HL, (STKINP)	
272F	F9	1961		LD	SP, HL	
2730	E1	1962		POP	HL	
2731	22C34E	1963		LD	(CURRNT), HL	
2734	D1	1964		POP	DE	
2735	D1	1965		POP	DE	
>2736		1966	INPUT	EQU	\$	
2736	D5	1967	IP1:	PUSH	DE	
2737	CD0B2B	1968		CALL	QTSTG	
273A	1823	1969		JR	IP8-\$	
273C	CDEC29	1970	IP2:	CALL	TSTV	
273F	3817	1971		JR	C, IP5-\$	
2741	CD6F27	1972	IP3:	CALL	IP12	
2744	11D44E	1973		LD	DE, BUFFER	
2747	D7	1974		RST	RSTEXP	
2748	D1	1975		POP	DE	
2749	EB	1976		EX	DE, HL	
274A	7B	1977		LD	A, E	
274B	CDE42F	1978		CALL	STHL	
274E	23	1979		INC	HL	
274F	7A	1980		LD	A, D	
2750	CDE42F	1981		CALL	STHL	
2753	E1	1982	IP4:	POP	HL	
2754	22C34E	1983		LD	(CURRNT), HL	
2757	D1	1984		POP	DE	
2758	F1	1985	IP5:	POP	AF	
2759		1986	IP6:	TSTC	',', IP7	
275C	18D8	1987		JR	INPUT-\$	
275E	F7	1988	IP7:	RST	RSTFIN	
275F	D5	1989	IP8:	PUSH	DE	
2760	CDEC29	1990		CALL	TSTV	
2763	3003	1991		JR	NC, IP11-\$	
2765	C38629	1992	IP10:	JP	GNHAT	
2768	43	1993	IP11:	LD	B, E	
2769	D1	1994		POP	DE	
276A	CD242B	1995		CALL	PRTCHS	
276D	18D2	1996		JR	IP3-\$	
276F	C1	1997	IP12:	POP	BC	
2770	D5	1998		PUSH	DE	
2771	EB	1999		EX	DE, HL	
2772	2AC34E	2000		LD	HL, (CURRNT)	
2775	E5	2001		PUSH	HL	
2776	213627	2002		LD	HL, IP1	
2779	22C34E	2003		LD	(CURRNT), HL	
277C	210000	2004		LD	HL, 0	
277F	39	2005		ADD	HL, SP	
2780	Z2C74E	2006		LD	(STKINP), HL	
2783	D5	2007		PUSH	DE	
2784	C5	2008		PUSH	BC	
2785	3E20	2009		LD	A, ' '	


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2787 C3F02B 2010          JP  GETLN
278A 1A      2011 DEFLT: LD  A, (DE)
278B FE0D    2012          CP  CR
278D 28CF    2013          JR  Z, IP7-$
278F C38629  2014          JP  QMHAT
2015 ; ** EXPR **
2792 CDDA27  2016 EXPR:  CALL EXPR1
2795 E5      2017          PUSH HL
2796 21D92B  2018          LD  HL, TAB6-1
2799 C34F25  2019          JP  EXEC
279C CDC527  2020 XPR1:  CALL XPR8
279F D8      2021          RET  C
27A0 6F      2022          LD  L, A
27A1 C9      2023          RET
27A2 CDC527  2024 XPR2:  CALL XPR8
27A5 C8      2025          RET  Z
27A6 6F      2026          LD  L, A
27A7 C9      2027          RET
27A8 CDC527  2028 XPR3:  CALL XPR8
27AB C8      2029          RET  Z
27AC D8      2030          RET  C
27AD 6F      2031          LD  L, A
27AE C9      2032          RET
27AF CDC527  2033 XPR4:  CALL XPR8
27B2 6F      2034          LD  L, A
27B3 C8      2035          RET  Z
27B4 D8      2036          RET  C
27B5 6C      2037          LD  L, H
27B6 C9      2038          RET
27B7 CDC527  2039 XPR5:  CALL XPR8
27BA C0      2040          RET  NZ
27BB 6F      2041          LD  L, A
27BC C9      2042          RET
27BD CDC527  2043 XPR6:  CALL XPR8
27C0 D0      2044          RET  NC
27C1 6F      2045          LD  L, A
27C2 C9      2046          RET
27C3 E1      2047 XPR7:  POP  HL
27C4 C9      2048          RET
27C5 79      2049 XPR8:  LD  A, C
27C6 E1      2050          POP  HL
27C7 C1      2051          POP  BC
27C8 E5      2052          PUSH HL
27C9 C5      2053          PUSH BC
27CA 4F      2054          LD  C, A
27CB CDDA27  2055          CALL EXPR1
27CE EB      2056          EX  DE, HL
27CF E3      2057          EX  (SP), HL
27D0 CD4329  2058          CALL CKHLDE
27D3 D1      2059          POP  DE
27D4 210000  2060          LD  HL, 0
27D7 3E01    2061          LD  A, 1
27D9 C9      2062          RET
27DA        2063 EXPR1:  TSTC '-', XP11
27DD 210000  2064          LD  HL, 0
27E0 1821    2065          JR  XP16-$
27E2        2066 XP11:  TSTC '+', XP12

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27E5	CD0C28	2067	XP12:	CALL	EXPR2	
27E8		2068	XP13:	TSTC	'+', XP15	
27EB	E5	2069		PUSH	HL	
27EC	CD0C28	2070		CALL	EXPR2	
27EF	EB	2071	XP14:	EX	DE, HL	
27F0	E3	2072		EX	(SP), HL	
27F1	7C	2073		LD	A, H	
27F2	AA	2074		XOR	D	
27F3	7A	2075		LD	A, D	
27F4	19	2076		ADD	HL, DE	
27F5	D1	2077		POP	DE	
27F6	FAE827	2078		JP	M, XP13	
27F9	AC	2079		XOR	H	
27FA	F2E827	2080		JP	P, XP13	
27FD	C38D2A	2081		JP	QHOW	
2800		2082	XP15:	TSTC	'-', XPR9	
2803	E5	2083	XP16:	PUSH	HL	
2804	CD0C28	2084		CALL	EXPR2	
2807	CD2E29	2085		CALL	CHKSGN	
280A	18E3	2086		JR	XP14-\$	
280C	CD7128	2087	EXPR2:	CALL	EXPR3	
280F		2088	XP21:	TSTCC	62H, XP24	
2812	E5	2089		PUSH	HL	
2813	CD7128	2090		CALL	EXPR3	
2816	0600	2091		LD	B, 0	
2818	CD2B29	2092		CALL	CHKSGN	
281B	E3	2093		EX	(SP), HL	
281C	CD2B29	2094		CALL	CHKSGN	
281F	EB	2095		EX	DE, HL	
2820	E3	2096		EX	(SP), HL	
2821	7C	2097		LD	A, H	
2822	B7	2098		OR	A	
2823	2806	2099		JR	Z, XP22-\$	
2825	7A	2100		LD	A, D	
2826	B2	2101		OR	D	
2827	EB	2102		EX	DE, HL	
2828	C28E2A	2103		JP	NZ, AHOW	
282B	7D	2104	XP22:	LD	A, L	
282C	210000	2105		LD	HL, 0	
282F	B7	2106		OR	A	
2830	2832	2107		JR	Z, XP25-\$	
2832	19	2108	XP23:	ADD	HL, DE	
2833	DA8E2A	2109		JP	C, AHOW	
2836	3D	2110		DEC	A	
2837	20F9	2111		JR	NZ, XP23-\$	
2839	1829	2112		JR	XP25-\$	
283B		2113	XP24:	TSTCC	63H, XPR9	
283E	E5	2114		PUSH	HL	
283F	CD7128	2115		CALL	EXPR3	
2842	0600	2116		LD	B, 0	
2844	CD2B29	2117		CALL	CHKSGN	
2847	E3	2118		EX	(SP), HL	
2848	CD2B29	2119		CALL	CHKSGN	
284B	EB	2120		EX	DE, HL	
284C	E3	2121		EX	(SP), HL	
284D	EB	2122		EX	DE, HL	
284E	7A	2123		LD	A, D	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
284F	B3	2124		OR	E	
2850	CABE2A	2125		JP	Z, AHOW	
2853	C5	2126		PUSH	BC	
2854	CD1629	2127		CALL	DIVIDE	
2857	D1	2128		POP	DE	; SIGN STUFF TO DE
2858	C5	2129		PUSH	BC	; SAVE DIVIDE RESULT
2859	CB7A	2130		BIT	7, D	; WAS SIGN SET?
285B	C42E29	2131		CALL	NZ, CHGSGN	; YEP - CHANGE
285E	22AE4E	2132		LD	(REMAIN), HL	; STUFF IT
2861	E1	2133		POP	HL	; RESULT TO HL
2862	42	2134		LD	B, D	; COPY OVER SIGN STUFF
2863	4B	2135		LD	C, E	
2864	D1	2136	XP25:	POP	DE	
2865	7C	2137		LD	A, H	
2866	B7	2138		OR	A	
2867	FA8D2A	2139		JP	M, QHOW	
286A	78	2140		LD	A, B	
286B	B7	2141		OR	A	
286C	FC2E29	2142		CALL	M, CHGSGN	
286F	189E	2143		JR	XP21-\$	
2871	21B02B	2144	EXPR3:	LD	HL, TAB3-1	
2874	C34F25	2145		JP	EXEC	
2877	CDEC29	2146	NOTF:	CALL	TSTV	
287A	380E	2147		JR	C, XP32-\$	
287C	EB	2148		EX	DE, HL	
287D	CDCC2F	2149		CALL	LDE	
2880	F5	2150		PUSH	AF	
2881	13	2151		INC	DE	
2882	CDCC2F	2152		CALL	LDE	
2885	EB	2153		EX	DE, HL	
2886	67	2154		LD	H, A	
2887	F1	2155		POP	AF	
2888	6F	2156		LD	L, A	
2889	C9	2157		RET		
288A	CD622A	2158	XP32:	CALL	TSTNUM	
288D	78	2159		LD	A, B	
288E	B7	2160		OR	A	
288F	C0	2161		RET	NZ	
2890		2162				; SINGLE CHAR STRING CONSTANT?
2890		2163		TSTC	'"', PARN	; HAVE WE GOT QUOTES?
2893	CDCC2F	2164		CALL	LDE	
2896	6F	2165		LD	L, A	; FAILED TSTNUM SET H TO ZERO
2897	13	2166		INC	DE	
2898		2167		TSTC	'"', XPRO	; ERROR IF NO TRAILING
289B	C9	2168		RET		
289C		2169	PARN:	TSTC	'(', XPRO	
289F	D7	2170	PARNP:	RST	RSTEXP	
28A0		2171		TSTC	')', XPRO	
28A3	C9	2172	XPR9:	RET		
28A4	C38629	2173	XPRO:	JP	QWHAT	
28A7	EF	2174	RND:	RST	RSTPAR	
28A8	7C	2175		LD	A, H	
28A9	B7	2176		OR	A	
28AA	FA8D2A	2177		JP	M, QHOW	
28AD	B5	2178		OR	L	
28AE	CA8D2A	2179		JP	Z, QHOW	
28B1	D5	2180		PUSH	DE	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
28B2	EB	2181		EX	DE, HL	; DE = RANGE
28B3	AF	2182		XOR	A	
28B4		2183		SYSTEM	RANGED	
28B6	6F	2184		LD	L, A	
28B7	AF	2185		XOR	A	
28B8		2186		SYSTEM	RANGED	
28BA	67	2187		LD	H, A	
		2188				; HL = RANDOM #
28BB	C5	2189		PUSH	BC	
28BC	CD1629	2190		CALL	DIVIDE	
28BF	C1	2191		POP	BC	
28C0	D1	2192		POP	DE	
28C1	23	2193		INC	HL	
28C2	C9	2194		RET		
28C3	EF	2195	ABS:	RST	RSTPAR	
28C4	1B	2196		DEC	DE	
28C5	CD2B29	2197		CALL	CHKSGN	
28C8	13	2198		INC	DE	
28C9	C9	2199		RET		
28CA	2A524E	2200	SIZE:	LD	HL, (TXTUNF)	
28CD	D5	2201		PUSH	DE	
28CE	EB	2202		EX	DE, HL	
28CF	210CA7	2203		LD	HL, DFTLMT	
28D2	A7	2204		AND	A	
28D3	ED52	2205		SBC	HL, DE	
28D5	D1	2206		POP	DE	
28D6	C9	2207		RET		
		2208				; FUNCTION TO SENSE DIAL VALUE
28D7	3E1B	2209	GETPOT:	LD	A, 1BH	
28D9	CD0929	2210		CALL	CHKRNG	; GET DATA
28DC	2F	2211		CPL		
28DD	D680	2212		SUB	80H	
28DF	6F	2213		LD	L, A	
		2214				; FALL INTO ...
		2215				; SIGN EXTEND SUBROUTINE
28E0	2600	2216	SGNEXT:	LD	H, 0	
28E2	7D	2217		LD	A, L	
28E3	A7	2218		AND	A	
28E4	F0	2219		RET	P	
28E5	25	2220		DEC	H	
28E6	C9	2221		RET		
		2222				; FUNCTION TO SENSE STATE OF TRIGGER
28E7	CD0729	2223	GETTRG:	CALL	CHKRN1	
28EA	E610	2224		AND	10H	
28EC	C8	2225		RET	Z	
28ED	2C	2226		INC	L	
28EE	C9	2227		RET		
		2228				; FUNCTIONS TO RETURN JOYSTICK VALUE
		2229				; THESE FUNCTIONS RETURN EITHER +1, 0 OR -1, DEPENDING
		2230				; ON JOYSTICK STATE
28EF	CD0729	2231	GETJX:	CALL	CHKRN1	; PARM IN RANGE?
28F2	0F	2232		RRCA		
28F3	0F	2233		RRCA		
28F4	0F	2234		RRCA		
28F5	380E	2235		JR	C, GETJY3-#	
28F7	0F	2236		RRCA		
28F8	3807	2237		JR	C, GETJY1-#	

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28FA C9      2238      RET
              2239 ; ENTRY FOR Y JOYSTICK VALUE
28FB CD0729  2240 GETJY: CALL CHKRNI
28FE 0F      2241      RRCA
28FF 3002    2242      JR   NC,GETJY2-$
2901 23      2243 GETJY1: INC  HL
2902 C9      2244      RET
2903 0F      2245 GETJY2: RRCA
2904 D0      2246      RET  NC
2905 2B      2247 GETJY3: DEC  HL
2906 C9      2248      RET
              2249 ; SUBROUTINE TO GET PARAMETER BETWEEN 1 AND 4
2907 3E0F    2250 CHKRNI: LD   A,0FH
2909 C5      2251 CHKRNG: PUSH BC
290A F5      2252      PUSH AF
290B EF      2253      RST  RSTPAR
290C F1      2254      POP  AF
290D 85      2255      ADD  A,L
290E 4F      2256      LD   C,A
290F ED78    2257      IN  A,(C)
2911 C1      2258      POP  BC
2912 210000  2259      LD   HL,0
2915 C9      2260      RET
              2261 ; DIVIDE, SUBDE, CHKSGN, CHGSGN, CKHLDE
2916 E5      2262 DIVIDE: PUSH HL
2917 6C      2263      LD   L,H
2918 2600    2264      LD   H,0
291A CD2129  2265      CALL DV1
291D 41      2266      LD   B,C
291E 7D      2267      LD   A,L
291F E1      2268      POP  HL
2920 67      2269      LD   H,A
2921 0EFF    2270 DV1:  LD   C,-1
2923 0C      2271 DV2:  INC  C
2924 A7      2272      AND  A
2925 ED52    2273      SBC  HL,DE
2927 30FA    2274      JR   NC,DV2-$
2929 19      2275      ADD  HL,DE
292A C9      2276      RET
292B 7C      2277 CHKSGN: LD  A,H
292C B7      2278      OR   A
292D F0      2279      RET  P
292E 7C      2280 CHGSGN: LD  A,H
292F B5      2281      OR   L
2930 C8      2282      RET  Z
2931 7C      2283      LD   A,H
2932 F5      2284      PUSH AF
2933 2F      2285      CPL
2934 67      2286      LD   H,A
2935 7D      2287      LD   A,L
2936 2F      2288      CPL
2937 6F      2289      LD   L,A
2938 23      2290      INC  HL
2939 F1      2291      POP  AF
293A AC      2292      XOR  H
293B F28D2A  2293      JP   P,QHOW
293E 78      2294      LD   A,B
  
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ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
293F	EE80	2295		XOR	80H	
2941	47	2296		LD	B, A	
2942	C9	2297		RET		
2943	7C	2298	CKHLDE:	LD	A, H	
2944	AA	2299		XOR	D	
2945	F24929	2300		JP	P, CK1	
2948	EB	2301		EX	DE, HL	
2949	CD4D29	2302	CK1:	CALL	COMP	
294C	C9	2303		RET		
294D	7C	2304	COMP:	LD	A, H	
294E	BA	2305		CP	D	
294F	C0	2306		RET	NZ	
2950	7D	2307		LD	A, L	
2951	BB	2308		CP	E	
2952	C9	2309		RET		
		2310				; SETVAL, FIN, AND ERROR
2953	CD0E22	2311	SETVAL:	CALL	TSTVFF	
2956		2312		TSTC	'=', QWHAT	
2959	E5	2313	SETV1:	PUSH	HL	
295A	D7	2314		RST	RSTEXP	
295B	44	2315		LD	B, H	
295C	4D	2316		LD	C, L	
295D	E1	2317		POP	HL	
295E	F5	2318		PUSH	AF	
295F	79	2319		LD	A, C	
2960	CDE42F	2320		CALL	STHL	
2963	23	2321		INC	HL	
2964	78	2322		LD	A, B	
2965	CDE42F	2323		CALL	STHL	
2968	F1	2324		POP	AF	
2969	C9	2325		RET		
296A	CD6F29	2326	FINISH:	CALL	FIN	
296D	1817	2327		JR	QWHAT-\$	
296F		2328	FIN:	TSTC	';', FI1	
2972	F1	2329		POP	AF	
2973	C39D25	2330		JP	RUNSMIL	
2976		2331	FI1:	TSTCC	CR, FI2	
2979	F1	2332		POP	AF	
297A	C38D25	2333		JP	RUNNXL	
297D	CDCC2F	2334	IGNBLK:	CALL	LDE	
2980	FE20	2335		CP	' '	
2982	C0	2336		RET	NZ	
2983	13	2337		INC	DE	
2984	18F7	2338		JR	IGNBLK-\$	
2986	D5	2339	QWHAT:	PUSH	DE	
2987	113520	2340	AMHAT:	LD	DE, WHAT	
298A	CD8A2C	2341	ERROR:	CALL	CRLF	
298D	CDFD2A	2342		CALL	FRTSTG	
2990	2AC34E	2343		LD	HL, (CURRNT)	
2993	E5	2344		PUSH	HL	
2994	EB	2345		EX	DE, HL	
2995	CDCC2F	2346		CALL	LDE	
2998	67	2347		LD	H, A	
2999	13	2348		INC	DE	
299A	CDCC2F	2349		CALL	LDE	
299D	B4	2350		OR	H	
299E	EB	2351		EX	DE, HL	

299F	D1	2352		POP	DE	
29A0	CAA924	2353		JP	Z, TELL	
29A3	EB	2354		EX	DE, HL	
29A4	CDCC2F	2355		CALL	LDE	
29A7	EB	2356		EX	DE, HL	
29A8	B7	2357		OR	A	
29A9	FA2C27	2358		JP	M, INPERR	
29AC	CD6B2B	2359		CALL	PRTLN	
29AF	C1	2360		POP	BC	
29B0	41	2361		LD	B, C	
29B1	CD242B	2362		CALL	PRTCHS	
29B4	3E3F	2363		LD	A, '?'	
29B6	DF	2364		RST	RSTOCH	
29B7	CDFD2A	2365		CALL	PRTSTG	
29BA	C3A924	2366		JP	TELL	
29BD	D5	2367	QSORRY:	PUSH	DE	
29BE	114020	2368	ASORRY:	LD	DE, SORRY	
29C1	18C7	2369		JR	ERROR-\$	
		2370			; FNDLN	
29C3	7C	2371	FNDLN:	LD	A, H	
29C4	B7	2372		OR	A	
29C5	FA8D2A	2373		JP	M, QHOW	
29C8	1100A0	2374		LD	DE, TEXT	
29CB	13	2375	FNDLP:	INC	DE	
29CC	CDCC2F	2376		CALL	LDE	
29CF	4F	2377		LD	C, A	
29D0	1B	2378		DEC	DE	
29D1	87	2379		ADD	A, A	
29D2	D8	2380		RET	C	
29D3	CDCC2F	2381		CALL	LDE	
29D6	95	2382		SUB	L	
29D7	47	2383		LD	B, A	
29D8	13	2384		INC	DE	
29D9	79	2385		LD	A, C	
29DA	9C	2386		SBC	A, H	
29DB	3804	2387		JR	C, FL1-\$	
29DD	1B	2388		DEC	DE	
29DE	B0	2389		OR	B	
29DF	C9	2390	FI2:	RET		
29E0	13	2391	FNDNXT:	INC	DE	
29E1	13	2392	FL1:	INC	DE	
29E2	CDCC2F	2393	FNDSKP:	CALL	LDE	
29E5	FE0D	2394		CP	CR	
29E7	20F8	2395		JR	NZ, FL1-\$	
29E9	13	2396		INC	DE	
29EA	18DF	2397		JR	FNDLP-\$	
29EC	E7	2398	TSTV:	RST	RSTIGN	
29ED	FE25	2399		CP	'%'	; PEEK-POKE?
29EF	281D	2400		JR	Z, TSTV0-\$	
29F1	D640	2401		SUB	'@'	
29F3	D8	2402		RET	C	
29F4	201C	2403		JR	NZ, TV1-\$	
29F6	13	2404		INC	DE	
29F7	EF	2405		RST	RSTPAR	
29F8	29	2406		ADD	HL, HL	
29F9	DA8D2A	2407		JP	C, QHOW	
29FC	D5	2408	TSTB:	PUSH	DE	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
29FD	EB	2409		EX	DE, HL	
29FE	CDCA28	2410		CALL	SIZE	
2A01	CD4D29	2411		CALL	COMP	
2A04	38B8	2412		JR	C, ASORRY-\$	
2A06	2A524E	2413		LD	HL, (TXTUNF)	
2A09	2B	2414		DEC	HL	
2A0A	2B	2415		DEC	HL	
2A0B	19	2416		ADD	HL, DE	
2A0C	D1	2417		POP	DE	
2A0D	C9	2418		RET		
		2419				; %(ADDR) PEEK-POKE CALL
2A0E	13	2420	TSTV0:	INC	DE	
2A0F	EF	2421		RST	RSTPAR	; GET ADDR
2A10	AF	2422		XOR	A	; CLEAR CY
2A11	C9	2423		RET		; AND GO BACK
2A12	FE1B	2424	TV1:	CP	27	
2A14	3F	2425		CCF		
2A15	D8	2426		RET	C	
2A16	13	2427		INC	DE	
		2428				; IS SECOND CHARACTER ALSO ALPHA?
2A17	6F	2429		LD	L, A	; SAVE FIRST ONE
2A18	CDCC2F	2430		CALL	LDE	
2A1B	FE41	2431		CP	'A'	
2A1D	3826	2432		JR	C, DEVV4-\$; IF NOT IN RANGE A-Z
2A1F	FE5B	2433		CP	'Z'+1	
2A21	3022	2434		JR	NC, DEVV4-\$; THEN DONT SEARCH
2A23	C5	2435		PUSH	BC	
2A24	D5	2436		PUSH	DE	
2A25	67	2437		LD	H, A	; SECOND CHAR TO H
2A26	0607	2438		LD	B, PARNUM	; B - ITERATION CTR
2A28	11A220	2439		LD	DE, DEVLST	; DE - SEARCH TABLE
2A2B	1A	2440	DEVV1:	LD	A, (DE)	; GET FIRST ENTRY
2A2C	13	2441		INC	DE	
2A2D	BD	2442		CP	L	
2A2E	1A	2443		LD	A, (DE)	
2A2F	13	2444		INC	DE	
2A30	200B	2445		JR	NZ, DEVV2-\$	
2A32	BC	2446		CP	H	
2A33	2008	2447		JR	NZ, DEVV2-\$	
		2448				; MATCH FOUND - FIGURE OUT LOOKUP INDEX
2A35	78	2449		LD	A, B	
2A36	C61A	2450		ADD	A, 26	
2A38	6F	2451		LD	L, A	
2A39	D1	2452		POP	DE	
2A3A	13	2453		INC	DE	; BUMP CHAR PTR
2A3B	1807	2454		JR	DEVV3-\$	
		2455				; MISMATCH - LOOP BACK IF POSS
2A3D	10EC	2456	DEVV2:	DJNZ	DEVV1-\$	
		2457				; NOT POSSIBLE - RETURN NOT A VAR
2A3F	D1	2458		POP	DE	
2A40	C1	2459		POP	BC	
2A41	1B	2460		DEC	DE	; BACKUP TO CHAR START
2A42	37	2461		SCF		; SET CARRY
2A43	C9	2462		RET		
2A44	C1	2463	DEVV3:	POP	BC	
2A45	7D	2464	DEVV4:	LD	A, L	
2A46	216C4E	2465		LD	HL, VARBGN-2	


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2A49 07      2466      RLCA
2A4A 85      2467      ADD  A,L
2A4B 6F      2468      LD   L,A
2A4C 3E00    2469      LD   A,0
2A4E 8C      2470      ADC  A,H
2A4F 67      2471      LD   H,A
2A50 C9      2472      RET
                2473 ; TSTCH AND TSTNUM
2A51 E3      2474 TSTCH: EX  (SP),HL
2A52 E7      2475      RST  RSTIGN
2A53 BE      2476      CP   (HL)
2A54 23      2477      INC  HL
2A55 2807    2478      JR   Z,TC1-$
2A57 C5      2479      PUSH BC
2A58 4E      2480      LD   C,(HL)
2A59 0600    2481      LD   B,0
2A5B 09      2482      ADD  HL,BC
2A5C C1      2483      POP  BC
2A5D 1B      2484      DEC  DE
2A5E 13      2485 TC1:  INC  DE
2A5F 23      2486      INC  HL
2A60 E3      2487      EX  (SP),HL
2A61 C9      2488      RET
2A62 210000  2489 TSTNUM: LD  HL,0
2A65 44      2490      LD   B,H
2A66 E7      2491      RST  RSTIGN
2A67 FE30    2492 TN1:  CP   '0'
2A69 D8      2493      RET  C
2A6A FE3A    2494      CP   3AH
2A6C D0      2495      RET  NC
2A6D 3EF0    2496      LD   A,0FH
2A6F A4      2497      AND  H
2A70 201B    2498      JR   NZ,QHOW-$
2A72 04      2499      INC  B
2A73 C5      2500      PUSH BC
2A74 44      2501      LD   B,H
2A75 4D      2502      LD   C,L
2A76 29      2503      ADD  HL,HL
2A77 29      2504      ADD  HL,HL
2A78 09      2505      ADD  HL,BC
2A79 29      2506      ADD  HL,HL
2A7A CDCC2F  2507      CALL LDE
2A7D 13      2508      INC  DE
2A7E E60F    2509      AND  00FH
2A80 85      2510      ADD  A,L
2A81 6F      2511      LD   L,A
2A82 3E00    2512      LD   A,0
2A84 8C      2513      ADC  A,H
2A85 67      2514      LD   H,A
2A86 C1      2515      POP  BC
2A87 CDCC2F  2516      CALL LDE
2A8A F2672A  2517      JP   P,TN1
2A8D D5      2518 QHOW: PUSH DE
2A8E 113B20  2519 AHOW: LD  DE,HOW
2A91 C38A29  2520      JP   ERROR
                2521 ; MVUP, MVDOWN, POPA, AND PUSHA
2A94 CD4D29  2522 MVUP: CALL COMP
  
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2A97	C8	2523		RET	Z	
2A98	CDCC2F	2524		CALL	LDE	
2A9B	E5	2525		PUSH	HL	
2A9C	60	2526		LD	H, B	
2A9D	69	2527		LD	L, C	
2A9E	CDE42F	2528		CALL	STHL	
2AA1	E1	2529		POP	HL	
2AA2	13	2530		INC	DE	
2AA3	03	2531		INC	BC	
2AA4	18EE	2532		JR	MVUP-\$	
2AA6	78	2533	MVDOWN:	LD	A, B	
2AA7	92	2534		SUB	D	
2AA8	C2AE2A	2535		JP	NZ, MD1	
2AAB	79	2536		LD	A, C	
2AAC	93	2537		SUB	E	
2AAD	C8	2538		RET	Z	
2AAE	1B	2539	MD1:	DEC	DE	
2AAF	2B	2540		DEC	HL	
2AB0	CDCC2F	2541		CALL	LDE	
2AB3	CDE42F	2542		CALL	STHL	
2AB6	18EE	2543		JR	MVDOWN-\$	
2AB8	C1	2544	POPA:	POP	BC	
2AB9	E1	2545		POP	HL	
2ABA	22C94E	2546		LD	(LOPVAR), HL	
2ABD	7C	2547		LD	A, H	
2ABE	B5	2548		OR	L	
2ABF	CAD22A	2549		JP	Z, PP1	
2AC2	E1	2550		POP	HL	
2AC3	22CB4E	2551		LD	(LOPINC), HL	
2AC6	E1	2552		POP	HL	
2AC7	22CD4E	2553		LD	(LOPLMT), HL	
2ACA	E1	2554		POP	HL	
2ACB	22CF4E	2555		LD	(LOPLN), HL	
2ACE	E1	2556		POP	HL	
2ACF	22D14E	2557		LD	(LOPPT), HL	
2AD2	C5	2558	PP1:	PUSH	BC	
2AD3	C9	2559		RET		
2AD4	215C4F	2560	PUSHA:	LD	HL, STKLMT	
2AD7	CD2E29	2561		CALL	CHGSGN	
2ADA	C1	2562		POP	BC	
2ADB	39	2563		ADD	HL, SP	
2ADC	D2BD29	2564		JP	NC, QSORRY	
2ADF	2AC94E	2565		LD	HL, (LOPVAR)	
2AE2	7C	2566		LD	A, H	
2AE3	B5	2567		OR	L	
2AE4	CAFA2A	2568		JP	Z, PU1	
2AE7	2AD14E	2569		LD	HL, (LOPPT)	
2AEA	E5	2570		PUSH	HL	
2AEB	2ACF4E	2571		LD	HL, (LOPLN)	
2AEE	E5	2572		PUSH	HL	
2AEF	2ACD4E	2573		LD	HL, (LOPLMT)	
2AF2	E5	2574		PUSH	HL	
2AF3	2ACB4E	2575		LD	HL, (LOPINC)	
2AF6	E5	2576		PUSH	HL	
2AF7	2AC94E	2577		LD	HL, (LOPVAR)	
2AFA	E5	2578	PU1:	PUSH	HL	
2AFB	C5	2579		PUSH	BC	

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2AFC C9      2580      RET
              2581 ; PRTSTG, QTSTG, PRTNUM, PRTLN
2AFD 97      2582 PRTSTG: SUB A
2AFE 47      2583 PS1:  LD B, A
2AFF CDCC2F  2584 PS2:  CALL LDE
2B02 13      2585      INC DE
2B03 B8      2586      CP B
2B04 C8      2587      RET Z
2B05 DF      2588      RST RSTOCH
2B06 FE0D    2589      CP CR
2B08 20F5    2590      JR NZ, PS2-$
2B0A C9      2591      RET
2B0B         2592 QTSTG: TSTC '"/, QT3
2B0E 3E22    2593      LD A, '"/
2B10 CDFE2A  2594 QT1:  CALL PS1
2B13 FE0D    2595 QT2:  CP CR
2B15 E1      2596      POP HL
2B16 CA8D25  2597      JP Z, RUNNXL
2B19 23      2598      INC HL
2B1A 23      2599      INC HL
2B1B E9      2600      JP (HL)
2B1C         2601 QT3:  TSTCC 027H, QT5
2B1F 3E27    2602      LD A, 027H
2B21 18ED    2603      JR QT1-$
2B23 C9      2604 QT5:  RET
2B24 7B      2605 PRTCHS: LD A, E
2B25 B8      2606      CP B
2B26 C8      2607      RET Z
2B27 CDCC2F  2608      CALL LDE
2B2A DF      2609      RST RSTOCH
2B2B 13      2610      INC DE
2B2C 18F6    2611      JR PRTCHS-$
>2B2E         2612 PRTNUM EQU $
2B2E 0600    2613 PN3:  LD B, 0
2B30 CD2B29  2614      CALL CHKSGN
2B33 F2392B  2615      JP P, PN4
2B36 062D    2616      LD B, '-/'
2B38 0D      2617      DEC C
2B39 D5      2618 PN4:  PUSH DE
2B3A 110A00  2619      LD DE, 10
2B3D D5      2620      PUSH DE
2B3E 0D      2621      DEC C
2B3F C5      2622      PUSH BC
2B40 CD1629  2623 PN5:  CALL DIVIDE
2B43 78      2624      LD A, B
2B44 B1      2625      OR C
2B45 CA4F2B  2626      JP Z, PN6
2B48 E3      2627      EX (SP), HL
2B49 2D      2628      DEC L
2B4A E5      2629      PUSH HL
2B4B 60      2630      LD H, B
2B4C 69      2631      LD L, C
2B4D 18F1    2632      JR PN5-$
2B4F C1      2633 PN6:  POP BC
2B50 0D      2634 PN7:  DEC C
2B51 79      2635      LD A, C
2B52 B7      2636      OR A
  
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ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2B53	FASB2B	2637		JP	M,PN8	
2B56	3E20	2638		LD	A,' '	
2B58	DF	2639		RST	RSTOCH	
2B59	18F5	2640		JR	PN7-\$	
2B5B	78	2641	PN8:	LD	A,B	
2B5C	B7	2642		OR	A	
2B5D	C48C2C	2643		CALL	NZ,OUTCH	
2B60	5D	2644		LD	E,L	
2B61	7B	2645	PN9:	LD	A,E	
2B62	FE0A	2646		CP	10	
2B64	D1	2647		POP	DE	
2B65	C8	2648		RET	Z	
2B66	C630	2649		ADD	A,'0'	
2B68	DF	2650		RST	RSTOCH	
2B69	18F6	2651		JR	PN9-\$	
2B6B	CDCC2F	2652	PRTLN:	CALL	LDE	
2B6E	6F	2653		LD	L,A	
2B6F	13	2654		INC	DE	
2B70	CDCC2F	2655		CALL	LDE	
2B73	67	2656		LD	H,A	
2B74	13	2657		INC	DE	
2B75	0E04	2658		LD	C,4	
2B77	CD2E2B	2659		CALL	PRTNUM	
2B7A	3E20	2660		LD	A,' '	
2B7C	DF	2661		RST	RSTOCH	
2B7D	C9	2662		RET		
2B7E		2663	TAB2:	ITEM	'TV',PUTCD	
2B82		2664		ITEM	'MU',PUTMU	
2B86		2665		ITEM	'&',PUTIO	
2B89		2666		ITEM	'CALL',DOCALL	
2B8F		2667		ITEM	' ',REM	
2B92		2668		ITEM	'\$',BCDMAT	
2B95	3A	2669		DEFB	' '	
2B96		2670		TOKEN	68H,TLIST	
2B99	3A	2671		DEFB	' '	
2B9A		2672		TOKEN	74H,TOUTPU	
2B9D	3A	2673		DEFB	' '	
2B9E		2674		TOKEN	73H,TINPUT	
2BA1	3A	2675		DEFB	' '	
2BA2		2676		TOKEN	6AH,TLOAD	
2BA5	3A	2677		DEFB	' '	
2BA6		2678		TOKEN	70H,TRETUR	
2BA9		2679		ITEM	'STOP',STOP	
2BAF		2680		DEFF	DEFLT	
2BB1		2681	TAB3:	TOKEN	76H,RND	
2BB4		2682		ITEM	'KN',GETPOT	
2BB8		2683		ITEM	'TR',GETTRG	
2BBC		2684		ITEM	'JX',GETJX	
2BC0		2685		ITEM	'JY',GETJY	
2BC4		2686		ITEM	'KP',GETKB	
2BC8		2687		ITEM	'PX',PIXFUN	
2BCC		2688		ITEM	'&',IOFUN	
2BCF		2689		ITEM	'ABS',ABS	
2BD4		2690		ITEM	'SZ',SIZE	
2BD8		2691		DEFF	NOTF	
2BDA		2692	TAB6:	ITEM	'>=',XPR1	
2BDE		2693		ITEM	'#',XPR2	

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2BE1      2694      ITEM '>', XPR3
2BE4      2695      ITEM '=' , XPR5
2BE7      2696      ITEM '<=' , XPR4
2BEB      2697      ITEM '<<', XPR6
2BEE      2698      DEFF XPR7
>2BF0     2699      RANEND EQU $
2BF0 11D44E 2700      GETLN: LD DE, BUFFER
2BF3 DF    2701      GL1:  RST RSTOCH      ; PROMPT OR ECHO
2BF4 C5    2702      GL2:  PUSH BC
2BF5 D5    2703      PUSH DE
2BF6 E5    2704      PUSH HL
          2705      ; PLACE UP CURSOR BLOCK
2BF7 0EAA  2706      LD C, 0AAH
2BF9 CD862D 2707      CALL CURSE
          2708      ; RETURN CHAR FROM NEXT LINE #
2BFC 21624E 2709      GL2A: LD HL, NLLNCT
2BFF 7E    2710      LD A, (HL)      ; SENSE FLAG
2C00 A7    2711      AND A
2C01 2838  2712      JR Z, GL2C-$
2C03 35    2713      DEC (HL)
          2714      ; FIRST TIME THRU?
2C04 FE05  2715      CP 5
2C06 200C  2716      JR NZ, GL2B-$   ; JUMP IF NOT
          2717      ; GET PREVIOUS LINE # AND BUMP IT
2C08 2A644E 2718      LD HL, (OLDLN)
2C0B 110A00 2719      LD DE, 10
2C0E 19    2720      ADD HL, DE
2C0F CBBC  2721      RES 7, H      ; DONT ALLOW NEG
2C11 22604E 2722      GL2J: LD (NLLNLN), HL ; MOVE TO WORKING RAM CELL
          2723      ; COMPUTE DIVISION SUBTRACTOR
2C14      2724      GL2B: SYSSUK INDEXW
2C16 0C2F  2725      DEFW TBLDIV-2
2C18 2A604E 2726      LD HL, (NLLNLN)
2C1B 0600  2727      LD B, 0
2C1D A7    2728      GL2E: AND A
2C1E ED52  2729      SBC HL, DE
2C20 FA262C 2730      JP M, GL2F
2C23 04    2731      INC B
2C24 18F7  2732      JR GL2E-$
2C26 19    2733      GL2F: ADD HL, DE
2C27 22604E 2734      LD (NLLNLN), HL
2C2A 21634E 2735      LD HL, NLLNZS
2C2D 78    2736      LD A, B
2C2E A7    2737      AND A
2C2F 2005  2738      JR NZ, GL2G-$
2C31 7E    2739      LD A, (HL)
2C32 A7    2740      AND A
2C33 28C7  2741      JR Z, GL2A-$   ; YES - JUMP BACK
2C35 AF    2742      XOR A
2C36 C630  2743      GL2G: ADD A, '0'   ; MAKE ASCII
2C38 77    2744      LD (HL), A     ; SET NONZERO FLAG
2C39 1803  2745      JR GL2D-$
          2746      ; NOTHIN FANCY
2C3B CD9A2D 2747      GL2C: CALL CHKIO  ; GET NORMAL CHARACTER
2C3E E1    2748      GL2D: POP HL
2C3F D1    2749      POP DE
2C40 C1    2750      POP BC
  
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ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2C41	12	2751	GL3:	LD	(DE), A	
2C42	FE1F	2752		CP	RUBOUT	
2C44	202F	2753		JR	NZ, GL4-\$	
2C46	7B	2754		LD	A, E	
2C47	FED4	2755		CP	BUFFER. AND. OFFH	
2C49	28A9	2756		JR	Z, GL2-\$	
2C4B	1B	2757		DEC	DE	
2C4C	1A	2758		LD	A, (DE)	
2C4D	FE68	2759		CP	68H	; TOKEN TO RUB OUT?
2C4F	3007	2760		JR	NC, TOKIN-\$	
2C51	CD822E	2761		CALL	PNOTE	
2C54	3E1F	2762		LD	A, RUBOUT	
2C56	189B	2763		JR	GL1-\$	
2C58	D5	2764	TOKIN:	PUSH	DE	
2C59	CDEB2E	2765		CALL	TOKEPT	
2C5C	7E	2766	TOKER:	LD	A, (HL)	
2C5D	E5	2767		PUSH	HL	
2C5E	E67F	2768		AND	7FH	
2C60	CD822E	2769		CALL	PNOTE	
2C63	3E1F	2770		LD	A, RUBOUT	
2C65	CDCC2C	2771		CALL	VDM	
2C68	E1	2772		POP	HL	
2C69	7E	2773		LD	A, (HL)	
2C6A	23	2774		INC	HL	
2C6B	07	2775		RLCA		
2C6C	30EE	2776		JR	NC, TOKER-\$	
2C6E	3E1F	2777	TOKEQ:	LD	A, RUBOUT	
2C70	DF	2778		RST	RSTOCH	; ECHO ONE RUBOUT CHAR
2C71	D1	2779		POP	DE	
2C72	C3F42B	2780	GL9:	JP	GL2	
2C75	FE0D	2781	GL4:	CP	CR	
2C77	CA842C	2782		JP	Z, GL5	
2C7A	7B	2783		LD	A, E	
2C7B	FE3C	2784		CP	BUFEND. AND. OFFH	
2C7D	28F3	2785		JR	Z, GL9-\$	
2C7F	1A	2786		LD	A, (DE)	
2C80	13	2787		INC	DE	
2C81	C3F32B	2788		JP	GL1	
2C84	13	2789	GL5:	INC	DE	
2C85	13	2790		INC	DE	
2C86	3EFF	2791		LD	A, OFFH	
2C88	12	2792		LD	(DE), A	
2C89	1B	2793		DEC	DE	
2C8A	3E0D	2794	CRLF:	LD	A, CR	
		2795				; SUBROUTINE TO SIMULATE A CHARACTER DISPLAY IN
		2796				; THE ARCADE FRAME BUFFER. THE SIMULATED VDM HAS
		2797				; DIMENSIONS 26 CHARS BY 11 LINES. THE CHARACTER GRAPHICS ARE 5 X 7
		2798				; IN A 6 X 8 FRAME. ALTERNATE FONT IS USED TO GET THIS.
		2799				; THE 64 UPPER CASE ASCII CHARACTERS ARE DISPLAYED BY THIS
		2800				; HANDLER. THE ASCII CONTROL CHARACTERS CARRIAGE RETURN AND
		2801				; RUBOUT ARE ALSO PROCESSED BY THIS HANDLER. CR CAUSES
		2802				; THE DISPLAY TO GO TO THE NEXT LINE OF THE DISPLAY, WITH
		2803				; SCROLL UP IF NECESSARY. RUBOUT CAUSES THE CURSOR TO MOVE
		2804				; BACKWARDS ONE CHARACTER POSITION.
		2805				; CHARACTER TO DISPLAY IS IN A. THE ALTERNATE REGISTER SET
		2806				IS USED.
2C8C	E5	2807	OUTCH:	PUSH	HL	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2C8D	D5	2808		PUSH	DE	
2C8E	C5	2809		PUSH	BC	
2C8F	F5	2810		PUSH	AF	
2C90	57	2811		LD	D,A	
2C91	3AC24E	2812		LD	A,(TAPEST)	
2C94	E602	2813		AND	2	; WRITE TO TAPE WANTED?
2C96	282B	2814		JR	Z,VDMCAL-\$	
2C98	4A	2815		LD	C,D	
2C99	CB01	2816		RLC	C	
		2817				; YEP
		2818				; WRITE START BIT
2C9B	DB12	2819	TAPCH0:	IN	A,(TAPEIO)	; INPUT FF STATE
2C9D	E602	2820		AND	2	; WAIT FOR IT TO GO NONZERO
2C9F	28FA	2821		JR	Z,TAPCH0-\$; MEANING START BIT WRITTEN
2CA1	060A	2822		LD	B,10	; B = # OF BITS TO WRITE
		2823				; WAIT ABOUT 1.8 MILLISECONDS TO MOVE BEYOND CHANGE WINDOW
2CA3	3EC0	2824	TAPCH1:	LD	A,192	
2CA5	3D	2825	TAPCH2:	DEC	A	
2CA6	20FD	2826		JR	NZ,TAPCH2-\$	
		2827				; ARE WE DONE WRITING?
2CA8	05	2828		DEC	B	
2CA9	2818	2829		JR	Z,VDMCAL-\$; JUMP IF SO
		2830				; NO - SHIFT BIT INTO POSITION AND WRITE
		2831				; (POSITION IS BIT 1)
2CAB	CB01	2832		RLC	C	
2CAD	DB12	2833		IN	A,(TAPEIO)	; KEEP READING INPUT
2CAF	5F	2834		LD	E,A	
2CB0	DB12	2835	TAPCH3:	IN	A,(TAPEIO)	; UNTIL IT TOGGLES
2CB2	AB	2836		XOR	E	
2CB3	E602	2837		AND	2	
2CB5	28F9	2838		JR	Z,TAPCH3-\$	
2CB7	7B	2839		LD	A,E	; E = WHAT WE GOT NOW
2CB8	A9	2840		XOR	C	; C = WHAT WE WANT
2CB9	E602	2841		AND	2	; DID WE 'GET IT?'
2CBB	2802	2842		JR	Z,TAPCH4-\$; JUMP IF SO
2CBD	DB12	2843		IN	A,(TAPEIO)	; NO - READ AGAIN TO TOGGLE
2CBF	CBC9	2844	TAPCH4:	SET	1,C	; SET EACH BIT WRITTEN TO 1
2CC1	18E0	2845		JR	TAPCH1-\$; SO STOP BIT WILL GO OUT
2CC3	7A	2846	VDMCAL:	LD	A,D	
2CC4	CDCC2C	2847		CALL	VDM	
2CC7	F1	2848		POP	AF	
2CC8	C1	2849		POP	BC	
2CC9	D1	2850		POP	DE	
2CCA	E1	2851		POP	HL	
2CCB	C9	2852		RET		
		2853				; SOME FUNNY GUYS ENTER HERE
2CCC	FE0D	2854	VDM:	CP	CR	
2CCE	282E	2855		JR	Z,VDMOCR-\$	
2CD0	FE1F	2856		CP	RUBOUT	; TRANSLATE TRASH TO ?
2CD2	280F	2857		JR	Z,VDM1-\$	
2CD4	3804	2858		JR	C,FILT1-\$	
2CD6	FE78	2859		CP	78H	
2CD8	3802	2860		JR	C,FILT2-\$	
2CDA	3E3F	2861	FILT1:	LD	A,'?'	
2CDC	FE68	2862	FILT2:	CP	68H	; TOKEN TO PRINT?
2CDE	304F	2863		JR	NC,TOKEP-\$; JUMP IF SO
		2864				; PLAY NOTE FOR THIS CHAR

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2CE0	CDB22E	2865		CALL	PNOTE	
		2866				; NON NEW LINE CHAR - UNWRITE OLD CURSOR
2CE3	CD442D	2867	VDM1:	CALL	UCURSE	
2CE6	CD9E23	2868		CALL	LDVDMC	
2CE9	FE1F	2869		CP	RUBOUT	; WAS THAT RUBOUT?
2CEB	201F	2870		JR	NZ,VDM3-\$; JUMP IF NOT
		2871				; RUBOUT ENTERED - SO RUB OUT
2CED	7D	2872		LD	A,L	; GET X
2CEE	A7	2873		AND	A	; IS X = 0?
2CEF	2805	2874		JR	Z,VDM2-\$; YES - JUMP
2CF1	D606	2875		SUB	6	; NO - BACKUP X
2CF3	6F	2876		LD	L,A	
2CF4	1831	2877		JR	VMDN1-\$; AND JOIN STORE BACK
2CF6	2E96	2878	VDM2:	LD	L,150	
2CF8	7C	2879		LD	A,H	
2CF9	D608	2880		SUB	8	
2CFB	67	2881		LD	H,A	
2CFC	1829	2882		JR	VMDN1-\$	
		2883				; NEW LINE CHAR - DID WE JUST WRAP AROUND
2CFE	3A544E	2884	VDMOCR:	LD	A,(VDMNLF)	; CHECK OLD GLORY
2D01	A7	2885		AND	A	
2D02	2026	2886		JR	NZ,VMDON-\$; YES - SKIP DIDDLING
2D04	CD442D	2887		CALL	UCURSE	; NO - UNWRITE CURSOR
2D07	CD482D	2888		CALL	NEWLIN	; GO TO NEXT LINE
2D0A	181E	2889		JR	VMDON-\$; AND QUIT
		2890				; NORMAL CHARACTER ENTERED - DISPLAY IT
2D0C	54	2891	VDM3:	LD	D,H	; COORDINATES TO DE
2D0D	5D	2892		LD	E,L	
2D0E	F680	2893		OR	80H	; ALT FONT THE CHAR
2D10	0E18	2894		LD	C,011000B	; OR WRITE THE CHAR
2D12	DD21664E	2895		LD	IX,ALTFON	; USING ALTERNATE CHAR FONT
2D16		2896		SYSTEM	CHRDIS	; DO IT
2D18	7D	2897		LD	A,L	; ADVANCE X POINTER
2D19	C606	2898		ADD	A,6	
2D1B	6F	2899		LD	L,A	
2D1C	FE9C	2900		CP	156	; END OF LINE?
2D1E	2007	2901		JR	NZ,VMDN1-\$; NO - JUMP
2D20	CD482D	2902		CALL	NEWLIN	; YES - DO NEW LINE
2D23	3E01	2903		LD	A,1	; AND SET NEW LINE FORCED FLAG
2D25	1804	2904		JR	VMDN2-\$	
2D27	CDB823	2905	VMDN1:	CALL	STVDMC	
2D2A	AF	2906	VMDON:	XOR	A	; CLEAR NEW LINE FORCED FLAG
2D2B	32544E	2907	VMDN2:	LD	(VDMNLF),A	
2D2E	C9	2908		RET		
		2909				; ROUTINE TO DISPLAY A TOKEN IN FULL FORM
2D2F	CDEB2E	2910	TOKEP:	CALL	TOKEPT	
2D32	7E	2911	TOKEP1:	LD	A,(HL)	
2D33	E67F	2912		AND	7FH	
2D35	E5	2913		PUSH	HL	
2D36	CDCC2C	2914		CALL	VDM	
2D39	E1	2915		POP	HL	
2D3A	7E	2916		LD	A,(HL)	
2D3B	23	2917		INC	HL	
2D3C	07	2918		RLCA		
2D3D	30F3	2919		JR	NC,TOKEP1-\$	
2D3F	3E20	2920	TOKEP2:	LD	A,' '	; PUT SPACE AFTER TOKEN
2D41	C3CC2C	2921		JP	VDM	; AND RETURN


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2922 ; SUBROUTINE TO UNWRITE THE CURSOR
2D44 0E00 2923 UCURSE: LD C,0
2D46 183E 2924 JR CURSE-$
2925 ; SUBROUTINE TO DISPLAY NEW LINE
2D48 CD9E23 2926 NEWLIN: CALL LDVDMC
2927 ; IS SCROLL UP NEEDED?
2D4B 2E00 2928 LD L,0
2D4D 7C 2929 LD A,H
2D4E FE50 2930 CP 80
2D50 202D 2931 JR NZ,NEWL1-$ ; JUMP IF NOT NEEDED
2932 ; SCROLL UP IS NEEDED
2D52 CDB823 2933 CALL STVDMC
2D55 21C04D 2934 LD HL,4DC0H
2D58 7E 2935 SCRL9: LD A,(HL)
2D59 E655 2936 AND 01010101B
2D5B 77 2937 LD (HL),A
2D5C 23 2938 INC HL
2D5D 7D 2939 LD A,L
2D5E FE20 2940 CP 20H
2D60 20F6 2941 JR NZ,SCRL9-$
2D62 0604 2942 LD B,4
2D64 C5 2943 SCRLP: PUSH BC
2D65 210040 2944 LD HL,NORMEM
2D68 115040 2945 LD DE,NORMEM+80
2D6B 010E98 2946 LD BC,0980EH
2D6E 1A 2947 SCRUP: LD A,(DE)
2D6F AE 2948 XOR (HL)
2D70 E6AA 2949 AND 10101010B
2D72 AE 2950 XOR (HL)
2D73 77 2951 LD (HL),A
2D74 23 2952 INC HL
2D75 13 2953 INC DE
2D76 10F6 2954 DJNZ SCRUP-$
2D78 0D 2955 DEC C
2D79 20F3 2956 JR NZ,SCRUP-$
2D7B C1 2957 POP BC
2D7C 10E6 2958 DJNZ SCRLP-$
2D7E C9 2959 RET
2960 ;
2D7F C608 2961 NEWL1: ADD A,8
2D81 67 2962 LD H,A
2D82 CDB823 2963 CALL STVDMC
2D85 C9 2964 RET
2965 ; SUBROUTINE TO PAINT CURSOR
2966 ; C = DATA TO PAINT 00 OR AA
2D86 F5 2967 CURSE: PUSH AF
2D87 CD9E23 2968 CALL LDVDMC
2D8A EB 2969 PCURS1: EX DE,HL
2D8B AF 2970 XOR A
2D8C 2971 SYSTEM RELAB1
2D8E D30C 2972 OUT (MAGIC),A
2D90 EB 2973 EX DE,HL
2D91 79 2974 LD A,C
2D92 010608 2975 LD BC,0806H
2D95 CD9C22 2976 CALL BOXPUT
2D98 F1 2977 POP AF
2D99 C9 2978 RET

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ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
		2979				; NEW KEYBOARD HANDLER
		2980				; WITH SHIFT KEY ROLLOVER
2D9A	3AC24E	2981	CHK10:	LD	A, (TAPEST)	; TAPE INPUT WANTED? ← C3, 8A, 25
2D9D	3D	2982		DEC	A	
2D9E	2019	2983		JR	NZ, CHK10Q-\$; NO - SKIP IT THEN
		2984				; YES - CHECK FOR ABORT KEYSTROKE
2DA0	CD582E	2985		CALL	KEYSCN	
2DA3	C2A32A	2986		JP	NZ, INITO	
		2987				; GET CHARACTER FROM THE BUFFER
2DA6	2A204E	2988		LD	HL, (CONPRO)	
2DA9	7C	2989		LD	A, H	
2DAA	BD	2990		CP	L	; ARE POINTERS EQUAL?
2DAB	28ED	2991		JR	Z, CHK10-\$; YEP - LOOP WAITING
2DAD	6F	2992		LD	L, A	; MAKE OFFICIAL POINTER
2DAE	264E	2993		LD	H, TAPBUF. SHR. 8	
2DB0	4E	2994		LD	C, (HL)	
2DB1	CD2C21	2995		CALL	BUMPTR	
2DB4	32214E	2996		LD	(CONPTR), A	; UPDATE MY POINTER
2DB7	79	2997		LD	A, C	; PASS BACK THE CHARACTER
2DB8	C9	2998		RET		
2DB9	CD582E	2999	CHK10Q:	CALL	KEYSCN	; MAKE SURE PREVIOUS KEY RELEASED
2DBC	20FB	3000		JR	NZ, CHK10Q-\$	
		3001				; AWAIT DEBOUNCE TIMER COUNTDOWN
2DBE	21554E	3002	CHK100:	LD	HL, KEYTMR	
2DC1	3606	3003		LD	(HL), 6	; SET IT
2DC3	7E	3004	LOOPER:	LD	A, (HL)	
2DC4	A7	3005		AND	A	
2DC5	20FC	3006		JR	NZ, LOOPER-\$	
		3007				; SAVE BACKGROUND COLOR
2DC7	3AA24E	3008		LD	A, (DEVCL0)	
2DCA	F5	3009		PUSH	AF	
		3010				; ASSUME FIRST LEVEL KEYCODE
2DCB	21642F	3011		LD	HL, FIRSTL	
2DCE	E5	3012	GETK1:	PUSH	HL	; SAVE TABLE PTR
		3013				; SCAN ONLY FOR SHIFT KEYS
2DCF	21B72F	3014		LD	HL, KTBL4	
2DD2	11EBFF	3015		LD	DE, -21	; ** SIZE OF LOOKUP TABLE
2DD5	01140A	3016		LD	BC, 0414H	
2DD8	ED78	3017	GETK2:	IN	A, (C)	; INPUT FROM PORT
2DDA	E620	3018		AND	20H	; SHIFT KEY DOWN?
2DDC	2007	3019		JR	NZ, GETK3-\$; JUMP IF YEP
2DDE	19	3020		ADD	HL, DE	; ELSE TO NEXT TABLE
2DDF	0C	3021		INC	C	; AND PORT
2DE0	10F6	3022		DJNZ	GETK2-\$	
		3023				; NO SHIFT KEY IS DOWN - USE WHATEVER WE HAD BEFORE
2DE2	E1	3024		POP	HL	
2DE3	180F	3025		JR	GETK5-\$	
		3026				; A SHIFT KEY IS DOWN - SAME OLD STORY?
2DE5	D1	3027	GETK3:	POP	DE	; DISCARD OLD BELIEFS
2DE6	3AA24E	3028		LD	A, (DEVCL0)	; IS CURRENT SCREEN COLOR
2DE9	BE	3029		CP	(HL)	; THE SAME AS WHAT WE WOULD SET?
2DEA	2807	3030		JR	Z, GETK4-\$; YEP - DON'T BOTHER WITH FEEDBACK
2DEC	7E	3031		LD	A, (HL)	; ELSE SET NEW COLOR
2DED	32A24E	3032		LD	(DEVCL0), A	
2DF0	CD272E	3033		CALL	WCLICK	; AND GO CLICK
2DF3	23	3034	GETK4:	INC	HL	; SKIP COLOR BYTE
		3035				; NOW SCAN FOR ANY 'NORMAL' KEY DEPRESSION

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2DF4 CD582E 3036 GETK5: CALL KEYSN
2DF7 28D5 3037 JR Z,GETK1-$ ; JUMP IF NO KEY DOWN
3038 ; WE GOT ONE - CONVERT TO ASCII
2DF9 3D 3039 DEC A ; BY TABLE LOOKUP
2DFA 4F 3040 LD C,A
2DFB 0600 3041 LD B,0
2DFD 09 3042 ADD HL,BC
2DFE F1 3043 POP AF ; RESTORE COLOR
2DFF 32A24E 3044 LD (DEVCL0),A
2E02 7E 3045 LD A,(HL) ; GET CODE
2E03 A7 3046 AND A ; A HALT PERCHANCE?
2E04 284C 3047 JR Z,INIIMP-$ ; YEP - RESET
2E06 FE01 3048 CP 1 ; AN ERROR?
2E08 CA9A2D 3049 JP Z,CHKIO ; YEP - GO DOIT AGAIN
3050 ; GOOD KEY...
2E0B F5 3051 CHKIO2: PUSH AF ; NEED WE GO 'CLICK'?
2E0C FE67 3052 CP NLLN ; REJECT TOKENS
2E0E 300A 3053 JR NC,NOCLK-$
2E10 3054 SYSSUK INDEXB
2E12 002F 3055 DEFW NOTES-CR
2E14 3C 3056 INC A
2E15 2003 3057 JR NZ,NOCLK-$
2E17 CD272E 3058 CALL WCLICK
2E1A F1 3059 NOCLK: POP AF
2E1B FE67 3060 CP NLLN
2E1D C0 3061 RET NZ
2E1E 210500 3062 LD HL,5
2E21 22624E 3063 LD (NLLNCT),HL ; SET FLAG AND ZERO SUPPRESS
2E24 3E0D 3064 LD A,CR ; PASS BACK CR AS FIRST CHAR
2E26 C9 3065 RET
2E27 3A574E 3066 WCLICK: LD A,(NEWTMR)
2E2A A7 3067 AND A
2E2B 20FA 3068 JR NZ,WCLICK-$
2E2D 3EFD 3069 LD A,GO
2E2F 32594E 3070 LD (MUZTON),A
2E32 3AA64E 3071 LD A,(DEVTEM) ; DON'T CLICK IF NT=0
2E35 A7 3072 AND A
2E36 C8 3073 RET Z
2E37 3E01 3074 LD A,1
2E39 32574E 3075 LD (NEWTMR),A
2E3C C9 3076 RET
3077 ;
3078 ; SUBROUTINE TO CHECK FOR HALT KEY WHILE PGM RUNNING
2E3D C5 3079 WHATSU: PUSH BC
2E3E D5 3080 PUSH DE
2E3F CD582E 3081 CALL KEYSN ; GET KEY CODE
2E42 D602 3082 SUB 2 ; FREEZE?
2E44 2805 3083 JR Z,FRZKEY-$
2E46 3D 3084 DEC A
2E47 2809 3085 JR Z,INIIMP-$
2E49 180A 3086 JR FRZGBK-$ ; ELSE GO BACK TO CALLER
2E4B CD582E 3087 FRZKEY: CALL KEYSN ; SCAN FOR NONZERO KEY TO REL
2E4E 28FB 3088 JR Z,FRZKEY-$
2E50 FE03 3089 CP 3 ; HALT NAILED?
2E52 CAA624 3090 INIIMP: JP Z,INIT
2E55 D1 3091 FRZGBK: POP DE
2E56 C1 3092 POP BC
  
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C9

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2E57 C9      3093      RET
              3094 ; SUBROUTINE TO SCAN TINY BASIC KEYBOARD
2E58 011404  3095 KEYSCN: LD BC,0414H ; B = CNT, C = PORT #
2E5B 116D4E  3096      LD DE,KEYTRK ; DE = KEYBOARD MEMORY
2E5E AF      3097      XOR A
2E5F        3098      SYSTEM RANGED
2E61 ED78   3099 KYSCN1: IN A,(C) ; LOOK AT COLUMN
2E63 E61F   3100      AND 1FH ; ISOLATE THE RELEVANT
2E65 2006   3101      JR NZ,KYSCN2-$ ; JUMP IF BITS HIGH
2E67 0C     3102      INC C ; BUMP PORT #
2E68 10F7   3103      DJNZ KYSCN1-$
2E6A AF     3104      XOR A ; SET ZERO STATUS
2E6B 12     3105      LD (DE),A ; NOTHIN - SAY ZIP
2E6C C9     3106      RET
              3107 ; DEPRESSION FOUND - JUMP UP AND DOWN
2E6D 05     3108 KYSCN2: DEC B
2E6E 0E00   3109      LD C,0 ; COME UP WITH BIT #
2E70 0F     3110 KYSCN4: RRCA ; SHIFT BIT OVER
2E71 3803   3111      JR C,KYSCN3-$ ; JUMP IF THE ONE
2E73 0C     3112      INC C ; ELSE COUNT UP
2E74 18FA   3113      JR KYSCN4-$ ; AND TRY AGAIN
              3114 ; FOUND BIT - ASSEMBLE KEYCODE
2E76 79     3115 KYSCN3: LD A,C ; BIT # TO A
2E77 07     3116      RLCA ; * 4
2E78 07     3117      RLCA
2E79 B0     3118      OR B ; COMBINE WITH COL #
2E7A 3C     3119      INC A
2E7B 47     3120      LD B,A
2E7C 1A     3121      LD A,(DE)
2E7D A8     3122      XOR B
2E7E C8     3123      RET Z ; QUIT IF THE SAME
2E7F 78     3124      LD A,B ; ELSE RESTORE
2E80 12     3125      LD (DE),A ; UPDATE TRACKER
2E81 C9     3126      RET
              3127 ; SUBROUTINE TO PLAY A NOTE
2E82 E5     3128 PNOTE: PUSH HL
2E83 D5     3129      PUSH DE
2E84 F5     3130      PUSH AF
2E85 67     3131      LD H,A
              3132 ; WAIT FOR PREVIOUS PARAMETERS TO BE EATEN
2E86 3A574E 3133 PWAIT: LD A,(NEWTMR)
2E89 A7     3134      AND A
2E8A 20FA   3135      JR NZ,PRWAIT-$ ; LOOP
2E8C 7C     3136      LD A,H
2E8D FE63   3137      CP 63H ; DIVIDE?
2E8F 282E   3138      JR Z,PNOTDV-$
2E91 FE62   3139      CP 62H ; MULTIPLY?
2E93 2831   3140      JR Z,PNOTML-$
2E95 FE2B   3141      CP '+'
2E97 2831   3142      JR Z,PNOTPL-$
2E99 FE2D   3143      CP '-'
2E9B 2830   3144      JR Z,PNOTMN-$
2E9D FE30   3145      CP '0'
2E9F 2830   3146      JR Z,PNOTZ-$
2EA1 21002F 3147      LD HL,NOTES-CR
2EA4       3148 HOOKIN: SYSTEM INDEXB
2EA6 3C     3149      INC A ; CLICK?

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ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2EA7	280E	3150		JR	Z, PNOTCL-\$	
2EA9	3C	3151		INC	A	; AINSWORTH NUMBA?
2EAA	2831	3152		JR	Z, PNOTNO-\$	
2EAC	3D	3153		DEC	A	
2EAD	3D	3154		DEC	A	
2EAE	32594E	3155		LD	(MUZTON), A	
2EB1	3AA64E	3156		LD	A, (DEVTEM)	
2EB4	32574E	3157		LD	(NEWTMR), A	
2EB7	AF	3158	PNOTCL:	XOR	A	
2EB8	325A4E	3159	PSHARP:	LD	(SHARPF), A	
2EBB	F1	3160	PNOTC1:	POP	AF	
2EBC	D1	3161		POP	DE	
2EBD	E1	3162		POP	HL	
2EBE	C9	3163		RET		
2EBF	3E8F	3164	PNOTDV:	LD	A, OA1	
2EC1	32584E	3165	PNOTD1:	LD	(MUZMO), A	
2EC4	18F5	3166		JR	PNOTC1-\$	
2EC6	3E23	3167	PNOTML:	LD	A, OA3	
2EC8	18F7	3168		JR	PNOTD1-\$	
2ECA	3E01	3169	PNOTPL:	LD	A, 1	
2ECC	11	3170		DEFB	11H	; OPCODE TO MUNCH NEXT TWO BYTES INTO DE
2ECD	3E02	3171	PNOTMN:	LD	A, 2	
2ECF	18E7	3172		JR	PSHARP-\$	
2ED1	21564E	3173	PNOTZ:	LD	HL, MUZTMR	
2ED4	3AA64E	3174		LD	A, (DEVTEM)	
2ED7	F3	3175		DI		
2ED8	86	3176		ADD	A, (HL)	
2ED9	77	3177		LD	(HL), A	
2EDA	FB	3178		EI		
2EDB	18DE	3179		JR	PNOTC1-\$	
		3180				; PLAY AINSWORTH NOTE
2EDD	3A5A4E	3181	PNOTNO:	LD	A, (SHARPF)	; RESTORE CHARACTER
2EE0		3182			SYSSUK INDEXW	
2EE2	F92E	3183		DEFW	DICKY	
2EE4	EB	3184		EX	DE, HL	
2EE5	F1	3185		POP	AF	
2EE6	F5	3186		PUSH	AF	
2EE7	D631	3187		SUB	'1'	
2EE9	18B9	3188		JR	HOOKIN-\$	
		3189				; SUBROUTINE TO POINT AT A TOKEN
2EEB	216420	3190	TOKEPT:	LD	HL, TOKTXT	; POINT AT TEXT LIST
2EEE	D668	3191		SUB	68H	
2EF0	C8	3192	JOKEP1:	RET	Z	; QUIT IF POINTING AT EM
2EF1	CB7E	3193	JOKEP2:	BIT	7, (HL)	; MOVE PAST NEXT WORD
2EF3	23	3194		INC	HL	
2EF4	28FB	3195		JR	Z, JOKEP2-\$	
2EF6	3D	3196		DEC	A	
2EF7	18F7	3197		JR	JOKEP1-\$; LOOP BACK AND CHECK
		3198				; MUSIC TABLES
2EF9	062F	3199	DICKY:	DEFW	MUZNOR	
2EFB	182F	3200		DEFW	MUZMAX	
2EFD	FF2E	3201		DEFW	MUZMIN	
2EFF		3202	MUZMIN:			
2EFF	64	3203		DEFB	B1	
2F00	59	3204		DEFB	CS2	
2F01	4F	3205		DEFB	DS2	
2F02	4A	3206		DEFB	E2	

ADDR	OBJECT	STMT	LABEL	OPCD	OPERAND	COMMENT
2F03	42	3207		DEFB	FS2	
2F04	3B	3208		DEFB	GS2	
2F05	34	3209		DEFB	AS2	
2F06		3210	MUZNOR:			
2F06	5E	3211		DEFB	C2	
2F07	54	3212		DEFB	D2	
2F08	4A	3213		DEFB	E2	
2F09	46	3214		DEFB	F2	
2F0A	3E	3215		DEFB	G2	
2F0B	37	3216		DEFB	A2	
2F0C	31	3217		DEFB	B2	
		3218				; TONE GENERATION TABLE - ORDERED BY ASCII CHARACTER
>00FF		3219	CLICK	EQU	OFFH	
>00FE		3220	NUMBA	EQU	OFEH	
2F0D	FF	3221	NOTES:	DEFB	CLICK	; CR
		3222				; IRRELEVANT STUFF TO EAT TABLE SPACE
2F0E	0100	3223	TBLDIV:	DEFW	1	
2F10	0A00	3224		DEFW	10	
2F12	6400	3225		DEFW	100	
2F14	E803	3226		DEFW	1000	
2F16	1027	3227		DEFW	10000	
2F18		3228	MUZMAX:			
2F18	59	3229		DEFB	CS2	
2F19	4F	3230		DEFB	DS2	
2F1A	46	3231		DEFB	F2	
2F1B	42	3232		DEFB	FS2	
2F1C	3B	3233		DEFB	GS2	
2F1D	34	3234		DEFB	AS2	
2F1E	2E	3235		DEFB	C3	
		3236				; AND THE TABLE CONTINUES
2F1F	FF	3237		DEFB	CLICK	
2F20	00	3238		DEFB	0	
2F21	E1	3239		DEFB	A0	
2F22	D4	3240		DEFB	AS0	
2F23	C8	3241		DEFB	B0	
2F24	BD	3242		DEFB	C1	
2F25	B2	3243		DEFB	CS1	
2F26	A8	3244		DEFB	D1	
2F27	9F	3245		DEFB	DS1	
2F28	96	3246		DEFB	E1	
2F29	8D	3247		DEFB	F1	
2F2A	85	3248		DEFB	FS1	
2F2B	FF	3249		DEFB	CLICK	
2F2C	77	3250		DEFB	GS1	
2F2D	FF	3251		DEFB	CLICK	
2F2E	6A	3252		DEFB	AS1	
2F2F	64	3253		DEFB	B1	
2F30	FF	3254		DEFB	CLICK	
2F31	FE	3255		DEFB	NUMBA	
2F32	FE	3256		DEFB	NUMBA	
2F33	FE	3257		DEFB	NUMBA	
2F34	FE	3258		DEFB	NUMBA	
2F35	FE	3259		DEFB	NUMBA	
2F36	FE	3260		DEFB	NUMBA	
2F37	FE	3261		DEFB	NUMBA	
2F38	2E	3262		DEFB	C3	
2F39	2C	3263		DEFB	CS3	

2F3A	29	3264		DEFB	D3	
2F3B	27	3265		DEFB	DS3	
2F3C	25	3266		DEFB	E3	
2F3D	22	3267		DEFB	F3	
2F3E	20	3268		DEFB	FS3	
2F3F	1F	3269		DEFB	G3	
2F40	1D	3270		DEFB	GS3	
2F41	1B	3271		DEFB	A3	
2F42	1A	3272		DEFB	AS3	
2F43	18	3273		DEFB	B3	
2F44	17	3274		DEFB	C4	
2F45	15	3275		DEFB	CS4	
2F46	14	3276		DEFB	D4	
2F47	13	3277		DEFB	DS4	
2F48	12	3278		DEFB	E4	
2F49	11	3279		DEFB	F4	
2F4A	10	3280		DEFB	FS4	
2F4B	0F	3281		DEFB	G4	
2F4C	0E	3282		DEFB	GS4	
2F4D	0D	3283		DEFB	A4	
2F4E	0B	3284		DEFB	C5	
2F4F	0A	3285		DEFB	CS5	
2F50	09	3286		DEFB	DS5	
2F51	08	3287		DEFB	F5	
2F52	07	3288		DEFB	G5	
2F53	06	3289		DEFB	A5	
2F54	05	3290		DEFB	C6	
2F55	04	3291		DEFB	DS6	
2F56	03	3292		DEFB	G6	
2F57	02	3293		DEFB	C7	
2F58	01	3294		DEFB	G7	
2F59	64	3295		DEFB	B1	
2F5A	5E	3296		DEFB	C2	
2F5B	59	3297		DEFB	CS2	
2F5C	54	3298		DEFB	D2	
2F5D	4F	3299		DEFB	DS2	
2F5E	4A	3300		DEFB	E2	
2F5F	46	3301		DEFB	F2	
2F60	42	3302		DEFB	FS2	
2F61	3E	3303		DEFB	G2	
2F62	FF	3304		DEFB	CLICK	
2F63	FF	3305		DEFB	CLICK	
		3306		; TABLE OF FIRST LEVEL KEYCODES		
2F64		3307		FIRSTL:		
2F64	0D	3308		DEFB	CR	
2F65	01	3309		DEFB	1	
2F66	00	3310		DEFB	0	
2F67	63	3311		DEFB	63H	
2F68	37	3312		DEFB	'7'	
2F69	38	3313		DEFB	'8'	
2F6A	39	3314		DEFB	'9'	
2F6B	62	3315		DEFB	62H	
2F6C	34	3316		DEFB	'4'	
2F6D	35	3317		DEFB	'5'	
2F6E	36	3318		DEFB	'6'	
2F6F	2D	3319		DEFB	'-'	
2F70	31	3320		DEFB	'1'	

2F71	32	3321		DEFB	'2'	
2F72	33	3322		DEFB	'3'	
2F73	2B	3323		DEFB	'+'	
2F74	20	3324		DEFB	' '	
2F75	30	3325		DEFB	'0'	
2F76	1F	3326		DEFB	RUBOUT	
2F77	3D	3327		DEFB	'='	
		3328			; FIRST SHIFT KEY	
2F78		3329			KTBL1:	
2F78	A7	3330		DEFB	0A7H	; FIRST SHIFT KEY COLOR
2F79	0D	3331		DEFB	CR	
2F7A	01	3332		DEFB	1	
2F7B	00	3333		DEFB	0	
2F7C	01	3334		DEFB	1	
2F7D	41	3335		DEFB	'A'	
2F7E	44	3336		DEFB	'D'	
2F7F	47	3337		DEFB	'G'	
2F80	4A	3338		DEFB	'J'	
2F81	4D	3339		DEFB	'M'	
2F82	50	3340		DEFB	'P'	
2F83	53	3341		DEFB	'S'	
2F84	56	3342		DEFB	'V'	
2F85	59	3343		DEFB	'Y'	
2F86	5F	3344		DEFB	5FH	
2F87	5E	3345		DEFB	5EH	
2F88	26	3346		DEFB	'&'	
2F89	24	3347		DEFB	'\$'	
2F8A	3C	3348		DEFB	'<<'	
2F8B	28	3349		DEFB	'('	
2F8C	23	3350		DEFB	'#'	
		3351			; SECOND SHIFT KEY	
2F8D		3352			KTBL2:	
2F8D	5F	3353		DEFB	05FH	; SECOND SHIFT KEY COLOR
2F8E	0D	3354		DEFB	CR	
2F8F	2F	3355		DEFB	2FH	
2F90	00	3356		DEFB	0	
2F91	5B	3357		DEFB	5BH	
2F92	42	3358		DEFB	'B'	
2F93	45	3359		DEFB	'E'	
2F94	48	3360		DEFB	'H'	
2F95	4B	3361		DEFB	'K'	
2F96	4E	3362		DEFB	'N'	
2F97	51	3363		DEFB	'Q'	
2F98	54	3364		DEFB	'T'	
2F99	57	3365		DEFB	'W'	
2F9A	5A	3366		DEFB	'Z'	
2F9B	27	3367		DEFB	27H	
2F9C	2E	3368		DEFB	'.'	
2F9D	40	3369		DEFB	'@'	
2F9E	2C	3370		DEFB	'.'	
2F9F	22	3371		DEFB	22H	
2FA0	3B	3372		DEFB	';'	
2FA1	25	3373		DEFB	'%'	
		3374			; TABLE THE THIRD	
2FA2		3375			KTBL3:	
2FA2	0F	3376		DEFB	0FH	; THIRD SHIFT KEY COLOR
2FA3	0D	3377		DEFB	CR	

2FA4	5C	3378		DEFB	5CH	
2FA5	00	3379		DEFB	0	
2FA6	5D	3380		DEFB	5DH	
2FA7	43	3381		DEFB	'C'	
2FA8	46	3382		DEFB	'F'	
2FA9	49	3383		DEFB	'I'	
2FAA	4C	3384		DEFB	'L'	
2FAB	4F	3385		DEFB	'O'	
2FAC	52	3386		DEFB	'R'	
2FAD	55	3387		DEFB	'U'	
2FAE	58	3388		DEFB	'X'	
2FAF	21	3389		DEFB	'!'	
2FB0	61	3390		DEFB	61H	
2FB1	60	3391		DEFB	60H	
2FB2	2A	3392		DEFB	'*'	
2FB3	3F	3393		DEFB	'?'	
2FB4	3E	3394		DEFB	'>'	
2FB5	29	3395		DEFB	' '	
2FB6	3A	3396		DEFB	' '	
		3397			; TOKEN KEY	
2FB7		3398			KTBL4:	
2FB7	77	3399		DEFB	77H	; WORDS KEY COLOR
2FB8	67	3400		DEFB	NLLN	
2FB9	01	3401		DEFB	1	
2FBA	6A	3402		DEFB	6AH	
2FBB	68	3403		DEFB	68H	
2FBC	72	3404		DEFB	72H	
2FBD	77	3405		DEFB	77H	
2FBE	75	3406		DEFB	75H	
2FBF	6B	3407		DEFB	6BH	
2FC0	6F	3408		DEFB	6FH	
2FC1	70	3409		DEFB	70H	
2FC2	76	3410		DEFB	76H	
2FC3	6D	3411		DEFB	6DH	
2FC4	69	3412		DEFB	69H	
2FC5	6C	3413		DEFB	6CH	
2FC6	71	3414		DEFB	71H	
2FC7	6E	3415		DEFB	6EH	
2FC8	01	3416		DEFB	1	
2FC9	73	3417		DEFB	73H	
2FCA	01	3418		DEFB	1	
2FCB	74	3419		DEFB	74H	
		3420			; SUBROUTINE TO LD A, (DE) FROM SCREEN TEXT MEMORY IF NECESSARY	
2FCC	08	3421	LDE:	EX	AF,AF'	
2FCD	CB7A	3422		BIT	7,D	
2FCF	2810	3423		JR	Z,LDE1-\$	
2FD1	D5	3424		PUSH	DE	
2FD2	EB	3425		EX	DE,HL	
2FD3	29	3426		ADD	HL,HL	
2FD4	7E	3427		LD	A,(HL)	
2FD5	07	3428		RLCA		
2FD6	23	3429		INC	HL	
2FD7	AE	3430		XOR	(HL)	
2FD8	E6AA	3431		AND	10101010B	
2FDA	AE	3432		XOR	(HL)	
2FDB	67	3433		LD	H,A	
2FDC	08	3434		EX	AF,AF'	

ADDR	OBJECT	STMT	LABEL	OPCODE	OPERAND	COMMENT
2FDD	7C	3435		LD	A, H	
2FDE	EB	3436		EX	DE, HL	
2FDF	D1	3437		POP	DE	
2FE0	C9	3438		RET		
2FE1	08	3439	LDE1:	EX	AF, AF'	
2FE2	1A	3440		LD	A, (DE)	
2FE3	C9	3441		RET		
		3442		; SUBROUTINE TO STORE LD (HL), A		
2FE4	E5	3443	STHL:	PUSH	HL	
2FE5	F5	3444		PUSH	AF	
2FE6	CB7C	3445		BIT	7, H	
2FE8	280E	3446		JR	Z, STHL1-\$	
2FEA	29	3447		ADD	HL, HL	
2FEB	0F	3448		RRCA		
2FEC	AE	3449		XOR	(HL)	
2FED	E655	3450		AND	01010101B	
2FEF	AE	3451		XOR	(HL)	
2FF0	77	3452		LD	(HL), A	
2FF1	23	3453		INC	HL	
2FF2	F1	3454		POP	AF	
2FF3	F5	3455		PUSH	AF	
2FF4	AE	3456		XOR	(HL)	
2FF5	E655	3457		AND	01010101B	
2FF7	AE	3458		XOR	(HL)	
2FF8	77	3459	STHL1:	LD	(HL), A	
2FF9	F1	3460		POP	AF	
2FFA	E1	3461		POP	HL	
2FFB	C9	3462		RET		
2FFC		3463		END		

00010111

TOTAL ASSEMBLER ERRORS = 0

same

00010101