
TRS - 80 USERS GROUP
NEWSLETTER

OCTOBER 1978 FAYETTEVILLE, NC VOLUME 1, NUMBER 9

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10 CLS
15 PRINTTAB(10); ">>> 23 MATCHES <<<<"
20 PRINTTAB(5); "BY JOHN MARLER: SAN JOSE, CA"
30 FORI=1TO1000:NEXTI:CLS
1000 PRINT"LETS PLAY 23 MATCHES"
1010 PRINT"YOU MOVE FIRST-TAKE 1, 2, OR 3 MATCHES"
1020 PRINT"THE TRS-80 WILL TAKE 1, 2, OR 3 MATCHES"
1030 PRINT"TAKE TURNS MOVING-THE ONE WHO MUST TAKE"
1040 PRINT"THE LAST MATCH LOSES":INPUT"PUSH ENTER WHEN READY";A$
1050 CLS:M=23:FORD=3TO113STEP5:FORE=2TO14:SET(D,E):SET(D+1,E):NEXTE:NEXTD
1051 B=1
1060 FORE=2TO3:FORD=2TO112STEP5:SET(D,E):SET(D+3,E):NEXTD:NEXTE:D=3
1065 PRINTAT320,"MOVE","MATCHES LEFT","YOUR MOVE","TRS-80 MOVE"
1070 PRINTAT(B*64+320),B,M,:INPUTT
1075 IFT>32767GOTO1900
1090 IF(T*M)+(T<)INT(T)+(T<1)+(T<)3GOTO1900
1100 M=M-T:G=T-1:GOSUB1950:IFM=0GOTO1300
1110 IFM=1GOTO1400
1120 R=M-4*INT(M/4):IFR=1C=RND(3):GOTO1135
1130 C=(R+3)-4*INT((R+3)/4)
1135 PRINT@(B*64+320),B,M+T,T,C:B=B+1
1140 M=M-C:G=C-1:GOSUB1950:GOTO1070
1300 PRINT"YOU LOSE!!! DON'T FEEL TOO BAD - MOST DO LOSE":GOTO2000
1400 PRINT"YOU WON !!! - YOU'RE BETTER THAN THE AVERAGE PLAYER":GOTO2000
1900 PRINTAT(B*64+340),"INVALID MOVE":FORI=1TO1000:NEXTI:GOTO1070
1950 FORD=DTOG*5+DSTEP5:FORE=2TO14:FORZ=-1TO3:RESET(D+2,E):NEXTZ
1960 NEXTE:NEXTD:RETURN
2000 INPUT"WHAT ANOTHER TRY (1=YES, 2=NO)";X
2001 IFX=1THEN1050
2002 CLS:PRINT"THANKS - SEE YA AGAIN, SPORT!"
2003 FORI=1TO750:NEXTI:CLS:PRINT"GOODBYE"
2004 END
2110 FORX=3TO13STEP2:RESET(X,41):NEXTX:RESET(7,43):RESET(8,43)

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GORDON,

HERE IS A SHORT PROGRAM THAT WILL IDENTIFY THE ASCII CHARACTER CODE # AND PRINT A LINE OF THE CORRESPONDING CHARACTERS. (FOR LEVEL II)

CODES FROM 1 TO 31 ARE CONTROL CODES. 32 TO 128 ARE CHARACTER CODES. 129 TO 191 ARE GRAPHIC CODES. 192 TO 255 ARE SPACE COMPRESSION CODES.

THE GRAPHIC CODES (129 TO 191) ARE VERY INTERESTING. USING THESE CODES SOME FANTASTIC GRAPHICS CAN BE MADE.

KEEP UP THE GOOD WORK WITH THE NEWSLETTER.
TERRY HAZELETT, 2107 CAPITOL DR., PARKERSBURG, WV 26101

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210 CLS
220 FOR I=33 TO 191
230 FOR B=1 TO 500:NEXT B
240 PRINT "ASCII CODE #";I
250 FOR A=1 TO 64
260 PRINT CHR$(I);
270 NEXT A
280 NEXT I
290 END

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ASCII CODE # 42

ASCII CODE # 43

3 Grants Lane
Ossining, N.Y. 10562
August 6, 1978

Dear Bob,

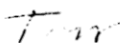
Enclosed is a tape which contains two programs which some of your readers may find useful. They are for converting LEVEL-1 data files to LEVEL-2. The program supplied with LEVEL-2 requires inter-changing tapes for each record. The enclosed programs will reduce the labor involved in converting large data files.

Program L1L2A is designed for single cassette systems. It will read a selected number of (up to 99) of LEVEL-1 records and store them in a buffer. The tape is then replaced and the buffer is dumped in LEVEL-2 format.

Program L1L2B is designed for use with the expansion unit and two tape recorders. It will repetitively read a level one record from one cassette and write to the other. The record count is displayed on the screen. If the checksum does not compare, an error message will follow the record number. Control returns to the beginning of the program after 99 records; at which point one can continue for another 99 records or return to LEVEL-2 BASIC.

The source and object files are both included and were generated with the R-S Editor-Assembler. The entry point for the assembled version is 5000 (20480 decimal) and the buffer starts at 5302. The programs can be relocated by changing the origin and stack locations in the first two source lines and then reassembling. The source statements are commented so that they may be modified for individual preference.

Sincerely,



Tom Michel

5000	00100	ORG	5000H		
5300	00110	STACK	EQU	5300H	
002B	00120	KB	EQU	002BH ; KEYBOARD SCAN	
0033	00130	VD	EQU	0033H ; DISPLAY (A)	
01F8	00140	STOP	EQU	01F8H ; STOP CASSETTE DRIVE	
0212	00150	DEFC	EQU	0212H ; DEFINE CASSETTE DRIVE	
021E	00160	OUT	EQU	021EH ; OUTPUT (A) TO CAS. POF	
0264	00170	WRT	EQU	0264H ; WRITE (A) ON TAPE	
0287	00180	SYNC	EQU	0287H ; WRITE SYNC BYTE AS	
1A19	00190	RETB	EQU	1A19H ; RETURN TO BASIC	
5000	310053	00200	LD	SP, STACK	
5003	3E0E	00210	LD	A, 0EH ; TURN ON CURSOR	
5005	CD0251	00220	CALL	VIDEO	
5008	CDECS0	00230	BEG	CALL	CLEAR
500B	217F51	00240	LD	HL, M1	
500E	0670	00250	LD	B, 70H	
5010	CDE450	00260	CALL	PRINT	; PRINT MESSAGE 1
5013	CD5251	00270	CALL	COUNT	; SET RECORD COUNTER
5016	CD3451	00280	CALL	PNUM	; PRINT VALUE OF COUNTER
5019	21EF51	00290	LD	HL, M2	
501C	062A	00300	LD	B, 2AH	
501E	CDE450	00310	CALL	PRINT	; PRINT MESSAGE 2

5021	211952	00320	LD	HL, M3	
5024	0649	00330	LD	B, 49H	
5026	CDE450	00340	CALL	PRINT	; PRINT MESSAGE 3
5029	CDF750	00350	J1 CALL	KEY	
502C	28FB	00360	JR	Z, J1	
502E	FE52	00370	CP	52H	
5030	28D6	00380	JR	Z, BEG	
5032	FE42	00390	CP	42H	
5034	CA191A	00400	JP	Z, RETB	
5037	210253	00410	LD	HL, STACK+2	; BUFFER ORIGIN=STACK+2
503A	1601	00420	LD	D, 01H	; INITIALIZE COUNTER
503C	1801	00422	JR	LOOP+1	
503E	14	00424	LOOP INC	D	
503F	AF	00430	XOR	A	; READ LOOP
5040	7A	00440	LD	A, D	
5041	27	00450	DAA		
5042	57	00460	LD	D, A	
5043	CD3451	00470	CALL	PNUM	; DISPLAY RECORD COUNT
5046	AF	00480	XOR	A	
5047	CD1202	00490	CALL	DEFC	; SET CAS LATCH FOR #1
504A	AF	00500	XOR	A	
504B	CD0C51	00510	J2 CALL	CAS	; START CAS AND READ IN
504E	FEA5	00520	CP	0A5H	; BITS UNTIL (A)=A5 WHICH
5050	20F9	00530	JR	NZ, J2	; IS THE SYNC BYTE
5052	CD2C51	00540	CALL	CHR	; READ THE 1ST 4 BYTES
5055	CD2C51	00550	CALL	CHR	; AND DISREGARD
5058	CD2C51	00560	CALL	CHR	
505B	CD2C51	00570	CALL	CHR	
505E	0E00	00580	LD	C, 0	; INITIALIZE CHECKSUM
5060	CD2C51	00590	J3 CALL	CHR	; GET BYTE
5063	77	00600	LD	(HL), A	; STORE IN BUFFER
5064	23	00610	INC	HL	; INCREMENT POINTER
5065	F5	00620	PUSH	AF	
5066	81	00630	ADD	A, C	; COMPUTE CHECKSUM
5067	4F	00640	LD	C, A	
5068	F1	00650	POP	AF	
5069	FE0D	00660	CP	0DH	; LOOK FOR END OF
506B	20F3	00670	JR	NZ, J3	; RECORD = 0D
506D	CD2C51	00680	CALL	CHR	; LAST BYTE= NEG CHECKSUM
5070	81	00690	ADD	A, C	
5071	C2D950	00700	JP	NZ, ERR	
5074	3A0153	00720	J4 LD	A, (STACK+1)	
5077	BA	00730	CP	D	
5078	20C4	00740	JR	NZ, LOOP	
507A	CD801	00760	CALL	STOP	
507D	216252	00770	LD	HL, M4	
5080	0627	00780	LD	B, 27H	
5082	CDE450	00790	CALL	PRINT	; PRINT MESSAGE 4
5085	211952	00800	LD	HL, M3	
5088	0649	00810	LD	B, 49H	
508A	CDE450	00820	CALL	PRINT	; PRINT MESSAGE 3
508D	CDF750	00830	J6 CALL	KEY	
5090	28FB	00840	JR	Z, J6	
5092	FE52	00850	CP	52H	
5094	CA0850	00860	JP	Z, BEG	
5097	FE42	00870	CP	42H	
5099	CA191A	00880	JP	Z, RETB	
509C	210253	00890	LD	HL, STACK+2	; BUFFER ORIGIN=STACK+2
509F	1601	00900	LD	D, 01H	; INITIALIZE COUNTER
50A1	1801	00905	JR	LOOP2+1	
50A3	14	00907	LOOP2 INC	D	
50A4	AF	00910	XOR	A	; WRITE LOOP
50A5	7A	00920	LD	A, D	
50A6	27	00930	DAA		

50A7	57	00940	LD	D, A	
50A8	CD3451	00950	CALL	PNUM	; PRINT COUNT
50AB	AF	00960	XOR	A	
50AC	CD1202	00970	CALL	DEFC	; SET CAS LATCH FOR #1
50AF	CD9702	00980	CALL	SYNC	; WRITE SYNC BYTE
50B2	7E	00990	J5	LD	A, (HL)
50B3	23	01000	INC	HL	; WRITE THE CONTENTS OF
50B4	CD6402	01010	CALL	WRT	; THE BUFFER. NO
50B7	FE0D	01020	CP	0DH	; CHECKSUM IS USED IN
50B9	20F7	01030	JR	NZ, J5	; LEVEL-II DATA
50BB	CDF801	01040	CALL	STOP	
50BE	3A0153	01060	LD	A, (STACK+1)	; STOP CASSETTE
50C1	BA	01070	CP	D	
50C2	20DF	01080	JR	NZ, LOOP2	
50C4	218952	01100	LD	HL, M5	
50C7	065B	01110	LD	B, 5BH	
50C9	CDE450	01120	CALL	PRINT	; PRINT MESSAGE 5
50CC	CD750	01130	J7	CALL	KEY
50CF	20FB	01140	JR	Z, J7	
50D1	FE42	01150	CP	42H	
50D3	CA191A	01160	JP	Z, RETB	
50D6	C30850	01170	JP	BEG	
50D9	21E452	01180	ERR	LD	HL, M6
50DC	060D	01190	LD	B, 0DH	; ERR - DISPLAYS ON THE
50DE	CDE450	01200	CALL	PRINT	; MONITOR THE MESSAGE
50E1	C37450	01210	JP	J4	; "INPUT ERROR"
50E4	7E	01220	PRINT	LD	A, (HL)
50E5	CD0251	01230	CALL	VIDEO	; PRINT - DISPLAYS ON THE
50E8	23	01240	INC	HL	; BY THE MESSAGE POINTED TO
50E9	10F9	01250	DJNZ	PRINT	; BY (HL). THE MESSAGE
50EB	C9	01260	RET		; LENGTH MUST FIRST BE
50EC	3E1C	01270	CLEAR	LD	A, 1CH
50EE	CD0251	01280	CALL	VIDEO	; POSITION CURSOR TO
50F1	3E1F	01290	LD	A, 1FH	; HOME(00)
50F3	CD0251	01300	CALL	VIDEO	; CLEAR TO END OF FRAME
50F6	C9	01310	RET		
50F7	D5	01320	KEY	PUSH	DE
50F8	FDE5	01330	PUSH	IY	; KEY - SCANS KEYBOARD &
50FA	CD2B00	01340	CALL	KB	; RETURNS ASCII REPRESENTATION
50FD	B7	01350	OR	A	; OF KEY RETURNED
50FE	FDE1	01360	POP	IY	; TO A. IF KEYBOARD IS
5100	D1	01370	POP	DE	; CLEAR A=0. OR A IS USED
5101	C9	01380	RET		; TO SET FLAGS
5102	D5	01390	VIDEO	PUSH	DE
5103	FDE5	01400	PUSH	IY	; VIDEO - DISPLAYS (A)
5105	CD3300	01410	CALL	VD	; ON MONITOR
5108	FDE1	01420	POP	IY	
510A	D1	01430	POP	DE	
510B	C9	01440	RET		
510C	D9	01450	CAS	EXX	
510D	08	01460	EX	AF, AF'	; CAS - RETRIEVES ONE
510E	DBFF	01470	J8	IN	A, (0FFH)
5110	17	01480	RLA		; PORT - FF
5111	30FB	01490	JR	NC, J8	
5113	067C	01500	LD	B, 7CH	
5115	10FE	01510	J9	DJNZ	J9
5117	CD1E02	01520	CALL	OUT	
511A	06F8	01530	LD	B, 0F8H	
511C	10FE	01540	J10	DJNZ	J10
511E	DBFF	01550	IN	A, (0FFH)	
5120	47	01560	LD	B, A	
5121	08	01570	EX	AF, AF'	
5122	CB10	01580	RL	B	
5124	17	01590	RLA		

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5125 F5      01600      PUSH  AF
5126 CD1E02 01610      CALL  OUT
5129 F1      01620      POP   AF
512A D9      01630      EXX
512B C9      01640      RET
512C 0608    01650 CHR   LD    B, 08H
512E CD0C51 01660 J11   CALL  CAS
5131 10FB    01670      DJNZ  J11
5133 C9      01680      RET
5134 7A      01690 PNUM  LD    A, D
5135 0604    01700      LD    B, 04H
5137 CB3F    01710 J13   SRL   A
5139 10FC    01720      DJNZ  J13
513B 4F      01730      LD    C, A
513C 3E30    01740      LD    A, 30H
513E 81      01750      ADD   A, C
513F CD0251 01760      CALL  VIDEO
5142 7A      01770      LD    A, D
5143 E60F    01780      AND   0FH
5145 4F      01790      LD    C, A
5146 3E30    01800      LD    A, 30H
5148 81      01810      ADD   A, C
5149 CD0251 01820      CALL  VIDEO
514C 3E20    01830      LD    A, 20H
514E CD0251 01840      CALL  VIDEO
5151 C9      01850      RET
5152 0602    01860 COUNT LD   B, 02H
5154 0E00    01870      LD    C, 0H
5156 1600    01880      LD    D, 0H
5158 CDF750 01890 J12   CALL  KEY
515B 28FB    01900      JR    Z, J12
515D 4F      01910      LD    C, A
515E C606    01920      ADD   A, 0C6H
5160 38F6    01930      JR    C, J12
5162 79      01940      LD    A, C
5163 D630    01950      SUB   30H
5165 FA5851 01960      JP    M, J12
5168 4F      01970      LD    C, A
5169 78      01980      LD    A, B
516A FE01    01990      CP    01H
516C 2804    02000      JR    Z, J15
516E 79      02010      LD    A, C
516F 57      02020      LD    D, A
5170 10E6    02030      DJNZ  J12
5172 7A      02040 J15   LD    A, D
5173 0604    02050      LD    B, 04H
5175 CB27    02060      SLA   A
5177 10FC    02070      DJNZ  J15+3
5179 81      02080      ADD   A, C
517A 57      02110      LD    D, A
517B 320153 02120      LD    (STACK+1), A
517E C9      02130      RET

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; PNUM - PRINTS VALUE OF
; COUNTER (D REG) THE
; UPPER & LOWER NIBBLE
; REPRESENT A TWO DIGIT
; DECIMAL #

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J15	5172
J12	5158
J13	5137
J11	512E
J10	511C
J9	5115
J8	510E
M6	52E4
J7	50CC
M5	5289
J5	50B2

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; COUNT - GETS TWO DIGITS
; EACH 0-9. FIRST DIGIT
; IS SHIFTED INTO THE
; UPPER NIBBLE & RESULT
; IS STORED IN THE D REG
; & IN STACK+1

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LOOP2	50A3	COUNT	5152
J6	508D	PRINT	50E4
M4	5262	M1	517F
J4	5074	CLEAR	50EC
ERR	50D9	BEG	5088
J3	5060	VIDEO	5102
CHR	512C	RETB	1A19
CAS	510C	SYNC	0287
J2	504B	WRT	0264
LOOP	503E	OUT	021E
KEY	50F7	DEFC	0212
J1	5029	STOP	01F8
M3	5219	VD	0033
M2	51EF	KB	002B
PNUM	5134	STACK	5300

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02140 M1  DEFM  / LEVEL-1 TO LEVEL-2 DATA CONVERSION/
02150      DEFM  0000H
02160      DEFM  /TYPE THE # OF RECORDS, 00-99, TO BE/
02170      DEFM  00H
02180      DEFM  /CONVERTED YOU MUST TYPE TWO DIGITS/
02190      DEFM  3F00H
02200 M2  DEFM  0000H
02210      DEFM  /LOAD THE LEVEL-1 TAPE, PUSH PLAY, & HIT/
02220      DEFM  00H
02230 M3  DEFM  /ENTER - TO CONTINUE/
02240      DEFM  00H
02250      DEFM  /R - TO RESTART/

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02260      DEFB 00DH
02270      DEFM 'B      - TO RETURN TO BASIC'
02280      DEFW 000DH
02290 M4    DEFB 00DH
02300      DEFM 'LOAD LEVEL-2 TAPE, PUSH RECORD, & HIT'
02310      DEFB 00DH
02320 M5    DEFB 00DH
02330      DEFM '
                    CONVERSION COMPLETE'
02340      DEFW 000DH
02350      DEFM 'TYPE R TO CONVERT MORE RECORDS'
02360      DEFB 00DH
02370      DEFM 'OR B TO RETURN TO BASIC'
02380      DEFW 3F0DH
02390 M6    DEFM ' INPUT ERROR '

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5000      00100      ORG 5000H
5300      00110      EQU 5300H
002B      00120      EQU 002BH      ; KEYBOARD SCAN
0033      00130      EQU 0033H      ; DISPLAY (A)
01F8      00140      EQU 01F8H      ; STOP CASSETTE DRIVE
0212      00150      EQU 0212H      ; DEFINE CASSETTE DRIVE
021E      00160      EQU 021EH      ; OUTPUT (A) TO CAS. PORT
0264      00170      EQU 0264H      ; WRITE (A) ON TAPE
0287      00180      EQU 0287H      ; WRITE SYNC BYTE A5
1A19      00190      EQU 1A19H      ; RETURN TO BASIC
5000 310053      LD SP, STACK
5003 3E0E      00210      LD A, 0EH      ; TURN ON CURSOR
5005 CDB050      00220      CALL VIDEO
5008 CDA750      00230      CALL CLEAR
500B 211051      00240      LD HL, M1
500E 069D      00250      LD B, 9DH
5010 CD9F50      00260      CALL PRINT      ; PRINT MESSAGE 1
5013 CDB250      00270      CALL KEY
5016 20F8      00280      JR Z, J1
5018 FE42      00290      CP 42H      ; IF KEYED INPUT IS B
501A CA191A      00300      JP Z, RETB      ; RETURN TO BASIC
501D 3E0D      00310      LD A, 0DH
501F CDB050      00320      CALL VIDEO
5022 3E01      00330      LD A, 01
5024 320153      00340      LD (STACK+1), A
5027 210253      00350      LD HL, STACK+2      ; INITIALIZE RECORD COUNT
502A CDEF50      00360      CALL PNUM      ; BUFFER ORIGIN=STACK+2
502D 3EFF      00370      LD A, 0FFH      ; DISPLAY RECORD COUNT
502F CD1202      00380      CALL DEFC      ; SET CAS LATCH FOR #2
5032 AF      00390      XOR A
5033 CDC750      00400      CALL CAS      ; START CAS AND READ IN
5036 FE85      00410      CP 0A5H      ; BITS UNTIL (A)=THE SYNC
5038 20F9      00420      JR NZ, J2      ; BYTE - A5.
503A 3E2A      00430      LD A, 2AH      ; 2A = ASCII *
503C 323E3C      00440      LD (3C3EH), A      ; DISPLAY *
503F 323F3C      00450      LD (3C3FH), A
5042 CDE750      00460      CALL CHR      ; READ THE 1ST 4 BYTES
5045 CDE750      00470      CALL CHR      ; AND DISREGARD
5048 CDE750      00480      CALL CHR
504B CDE750      00490      CALL CHR
504E 0E00      00500      LD C, 0      ; INITIALIZE CHECKSUM
5050 CDE750      00510      CALL CHR      ; GET BYTE
5053 77      00520      LD (HL), A      ; STORE IN BUFFER
5054 23      00530      INC HL      ; INCREMENT POINTER
5055 F5      00540      PUSH AF
5056 81      00550      ADD A, C      ; COMPUTE CHECKSUM
5057 4F      00560      LD C, A
5058 F1      00570      POP AF
5059 FE0D      00580      CP 0DH      ; LOOK FOR END OF

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505B	20F3	00590	JR	NZ, J3	: RECORD = 00
505D	0DE750	00600	CALL	CHR	: LAST BYTE= NEG CHECKSUM
5060	81	00610	ADD	A, C	
5061	029450	00620	JP	NZ, ERR	
5064	0DF001	00630	CALL	STOP	: STOP CAS #2
5067	3E20	00640	LD	A, 20H	
5069	323F30	00650	LD	(303FH), A	: TURN OFF *
506C	210253	00660	LD	HL, STACK+2	: BUFFER ORIGIN=STACK+2
506F	AF	00670	XOR	A	
5070	0D1202	00680	CALL	DEFC	: SET CAS LATCH FOR #1
5073	0D8702	00690	CALL	SYNC	: WRITE SYNC BYTE
5076	7E	00700	LD	A, (HL)	: WRITE THE CONTENTS
5077	23	00710	INC	HL	: OF THE BUFFER. NO
5078	0D6402	00720	CALL	WRT	: CHECKSUM IS USED IN
507B	FE00	00730	CP	00H	: LEVEL-II DATA
507D	20F7	00740	JR	NZ, J5	
507F	0DF001	00750	CALL	STOP	: STOP CASSETTE #1
5082	3A0153	00760	LD	A, (STACK+1)	
5085	3C	00770	INC	A	: INCREMENT & DECIMAL
5086	27	00780	DAA		: ADJUST & STORE THE
5087	320153	00790	LD	(STACK+1), A	: THE RECORD COUNTER
508A	FE99	00800	CP	99H	
508C	CA0850	00810	JP	Z, BEG	
508F	1896	00820	JR	LOOP	
5091	03191A	00830	JP	RETB	
5094	21AD51	00840	LD	HL, M2	: ERR - DISPLAYS ON THE
5097	0600	00850	LD	B, 00H	: MONITOR THE MESSAGE
5099	0D9F50	00860	CALL	PRINT	: "INPUT ERROR"
509C	036450	00870	JP	J14	
509F	7E	00880	LD	A, (HL)	: PRINT - DISPLAYS
50A0	0DBD50	00890	CALL	VIDEO	: THE MESSAGE POINTED TO
50A3	23	00900	INC	HL	: BY (HL). THE MESSAGE
50A4	10F9	00910	DJNZ	PRINT	: LENGTH MUST FIRST BE
50A6	09	00920	RET		: LOADED INTO THE B REG
50A7	3E1C	00930	LD	A, 1CH	: POSITION CURSOR TO
50A9	0DBD50	00940	CALL	VIDEO	: HOME(00)
50AC	3E1F	00950	LD	A, 1FH	: CLEAR TO END OF
50AE	0DBD50	00960	CALL	VIDEO	: FRAME
50B1	09	00970	RET		
50B2	05	00980	PUSH	DE	: KEY - SCANS KEYBOARD &
50B3	FDE5	00990	PUSH	IY	: RETURNS ASCII REPRESENT-
50B5	0D2B00	01000	CALL	KB	: ATION OF KEY RETURNED
50B8	87	01010	OR	A	: TO A. IF KEYBOARD IS
50B9	FDE1	01020	POP	IY	: CLEAR A=0 OR A IS USED
50BB	01	01030	POP	DE	: TO SET FLAGS
50BC	09	01040	RET		
50BD	05	01050	PUSH	DE	: VIDEO - DISPLAYS (A)
50BE	FDE5	01060	PUSH	IY	: PRESERVES REGISTER
50C0	0D3300	01070	CALL	VD	: CONTENTS
50C3	FDE1	01080	POP	IY	
50C5	01	01090	POP	DE	
50C6	09	01100	RET		
50C7	09	01110	CAS	EXX	: CAS - RETRIEVES ONE
50C8	08	01120	EX	AF, AF'	: BIT FROM THE CASSETTE
50C9	0BFF	01130	IN	A, (0FFH)	: PORT - FF
50CB	17	01140	RLA		
50CC	30FB	01150	JR	NC, J8	
50CE	067C	01160	LD	B, 7CH	
50D0	10FE	01170	DJNZ	J9	
50D2	0D1E02	01180	CALL	OUT	
50D5	06F8	01190	LD	B, 0F8H	
50D7	10FE	01200	DJNZ	J10	
50D9	0BFF	01210	IN	A, (0FFH)	
50DB	47	01220	LD	B, A	
50DC	08	01230	EX	AF, AF'	

50D0	CB10	01240		RL	B				
50DF	17	01250		RLA					
50E0	F5	01260		PUSH	AF				
50E1	CD1E02	01270		CALL	OUT				
50E4	F1	01280		POP	AF				
50E5	09	01290		EXX					
50E6	C9	01300		RET					
50E7	0608	01310	CHR	LD	B, 8H				
50E9	CDC750	01320	J11	CALL	CAS				
50EC	10FB	01330		DJNZ	J11				
50EE	C9	01340		RET					
50EF	3A0153	01350	PNUM	LD	A, (STACK+1)				; PNUM - DISPLAY THE
50F2	57	01360		LD	D, A				; VALUE OF THE RECORD
50F3	0604	01370		LD	B, 04H				; COUNTER THAT IS
50F5	CB3F	01380	J13	SRL	A				; STORED IN STACK+1
50F7	10FC	01390		DJNZ	J13				
50F9	4F	01400		LD	C, A				
50FA	3E30	01410		LD	A, 30H				
50FC	81	01420		ADD	A, C				
50FD	CDBD50	01430		CALL	VIDEO				
5100	7A	01440		LD	A, D				
5101	E60F	01450		AND	0FH				
5103	4F	01460		LD	C, A				
5104	3E30	01470		LD	A, 30H				
5106	81	01480		ADD	A, C				
5107	CDBD50	01490		CALL	VIDEO				
510A	3E20	01500		LD	A, 20H				
510C	CDBD50	01510		CALL	VIDEO				
510F	C9	01520		RET					
		01530	M1	DEFM	'LOAD LEVEL-I TAPE IN CAS #2'				
		01540		DEFB	0DH				
		01550		DEFM	'LOAD LEVEL-II TAPE IN CAS #1'				
		01560		DEFB	0DH				
		01570		DEFM	'SET CAS #1 FOR RECORD & CAS #2 FOR PLAY'				
		01580		DEFB	0DH				
		01590		DEFM	'PRESS ENTER TO START COPYING OR'				
		01600		DEFB	0DH				
		01610		DEFM	'B TO RETURN TO LEVEL-2 BASIC'				
		01620	M2	DEFM	' INPUT ERROR '				
J13	50F5	J14	5064	LOOP	5027	VIDEO	50BD	VD	0033
J11	50E9	ERR	5094	KEY	50B2	RETB	1A19	KB	002B
J10	50D7	J3	5050	J1	5013	SYNC	0287	STACK	5300
J9	50D0	CHR	50E7	PRINT	509F	WRT	0264		
J8	50C9	CAS	50C7	M1	5110	OUT	021E		
M2	51AD	J2	5033	CLEAR	50A7	DEFC	0212		
J5	5076	PNUM	50EF	BEG	5008	STOP	01F8		

 FREE! A SHORT BASIC PROGRAM. (LEVEL ONE ONLY) INCLUDE A
 SELF-ADDRESSED, STAMPED ENVELOPE. G. FRANK HUMISTON
 946 S. ANZA #15, EL CAJON, CA 92020

"BUZZER"

10 A=0
 20 P.# A;
 30 G.20

You can exit this infinite loop via the "break" key. Could be used in games to accompany "you're shot down!", "you're sunk!", etc. No real harm is done to the reed relay with this routine.

FAST T-BUG RELOADER

Everett E. Ogden
175 Adams Street
Delmar, NY 12054

Those of you with Radio Shack's T-BUG program have probably been aggravated more than once by finding yourself unceremoniously dropped back into BASIC, or by getting locked up in a program and having to reset the machine. You then have to reload T-BUG, which takes about half a minute. The program is still there (well, most of it) but you can't get back to it without a cassette load. This change to T-BUG will allow you to do that, and repair the damage done by the BASIC monitor, by reloading just two bytes.

First it is necessary to understand how the computer knows it should run T-BUG after loading it, instead of returning to the BASIC monitor. There is nothing in the CLOAD routine to do this. It calls the subroutine CLOAD0 (which does the actual loading), performs a few other manipulations, and returns to the BASIC monitor. I had to cogitate on this a while (I'm new at this game) but I finally got it. I'll admit the people who designed this are pretty clever. When a subroutine is called, the return address is pushed onto the stack. Level I initializes its stack at 4200, and when CLOAD0 is called the return address is stored at 41FE and 41FF. BASIC programs start at 4200, but T-BUG runs from 4091 to 43B6 and overwrites the stack. It changes the return address to 40B1, which is the start of T-BUG.

If you get into BASIC you could return to T-BUG with a CLOAD of address 40B1 into the proper location. However, this leaves two problems. CLOAD0 loads a checksum after the last data byte (at 4200 in this case). Also, the BASIC monitor loads zeros from 409D to 40A6. These changes are repaired by the program below. It occupies memory space not used by T-BUG. Level I uses the space to store A\$ and B\$.

Load T-BUG, then make the following changes:

4070	ED 4B CB 43				; Data (same as 409D
4074	C3 BC 40				; to 40A6)
4077	CD 51 42				
407A	xx xx xx				; x = Don't Care
407D	01 0A 00	LD BC, 000A			; Repair 409D-40A6
4080	21 70 40	LD HL, 4070			
4083	11 9D 40	LD DE, 409D			
4086	ED B0	LDIR			
4088	21 00 42	LD HL, 4200			; Repair 4200
408B	36 32	LD M, 32			
408D	C3 B1 40	JP 40B1			; Start of T-BUG
41FE	7D 40				; New start address

Now punch 41FE to 41FF, preferably at the head of a leaderless tape to make it easy to find. Finally, punch 4070 to 43B6, which becomes your new T-BUG. If you find yourself in BASIC you need only rewind the cassette to the head and a CLOAD will put you back into T-BUG in seconds.

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INSTRUCTIONS FOR THOSE INTERESTED:

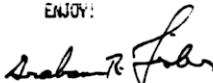
- 1) INCLUDE LEGIBLE INSTRUCTIONS AS TO
 - A) LEVEL OF BASIC (I OR II)
 - B) NUMBER OF PROGRAMS ON MEDIA (TAPE OR DISK)
 - C) WIDTH OF PRINT-OUT (5" TO 9" @ UP TO 132 COLUMNS)
 - D) IF SAMPLE RUNS ARE DESIRED (NOTE: I AM NOT OFFERING TO DEBUG YOUR PROGRAMS:)
- 2) PACK ADEQUATELY!!!! YOUR TAPE OR DISK COULD BE RUINED SIMPLY BY SPURIOUS MAGNETISM, SUCH AS HOBBY MAGNETS WHICH ARE REGULARLY SENT THROUGH THE MAIls. TRY PACKING TAPES AND ESPECIALLY DISKS IN A COOKIE TIN OR MINT TIN.
- 3) CHARGES ARE AS FOLLOWS
 - A) ONE CENT PER LINE OF PRINT-OUT
 - B) \$2.50 MINIMUM
 - C) \$1.25 FOR UNITED PARCEL SERVICE RETURN OF YOUR MATERIAL
 - D) NO CHARGE FOR FIRST CLASS RETURN, BUT SEND STAMPED SELF ADDRESSED ENVELOPE (LARGE, MANILLA) FOR RETURN

A NOTE OF INTEREST TO LEVEL II DISK BASIC USERS... YOU CAN EASILY (BUT CAREFULLY) DOUBLE THE USABLE STORAGE OF YOUR DISKS! MAKE A NOTCH EXACTLY CORRESPONDING TO THE EXISTING NOTCH IN THE EDGE OF YOUR DISKS, EXACTLY OPPOSITE THE EXISTING NOTCH, AND A PAIR OF HOLES EXACTLY OPPOSITE THE EXISTING HOLES, JUST OUTSIDE THE CENTRAL DRIVE GRIPPER HOLE. IN OTHER WORDS, MAKE THE BOTTOM HALF A MIRROR IMAGE OF THE TOP, AND THEN BACKUP THE FRONT OF THE DISK TO THE BACK. VOILA! DOUBLE CAPACITY!

I ENCLOSE MY LISTING FOR A WORD PROCESSING SYSTEM WHICH IS QUITE WORKABLE, ALLOWING MOST OF THE FEATURES OF THE IBM SYSTEM/32 WORD PROCESSING SYSTEM TO BE EXECUTED! THE VARIABLES SEGMENTS ARE NOT INCLUDED DUE TO THE COMPLEXITY OF THE SEGMENT AND A LITTLE GREED. THE PROGRAM IS ALREADY QUITE CAPABLE, AND THE VARIABLES SEGMENT ALLOWS FOR TOTAL(!) AUTOMATION OF LETTER WRITING. DIRECTIONS: FOLLOW THE PROMPTING OF THE PROGRAM WHICH IS SELF-EXPLANATORY, EXCEPT AS LISTED HERE. FOR LETTERS YOU DESIRE TO FORMAT THE WRITINGS OF, USING THE LINE PRINTER - YOU MUST SPACE ONCE ON A LINE, OR THE PRINTER WILL NOT CARRIAGE RETURN TO PUT SPACES VERTICALLY BETWEEN LINES. TO INSERT A PROGRAM PROMPT FOR INFORMATION DURING THE PRINT SEGMENT, TYPE A < ## > (DOUBLE AND SIGNS) FOLLOWED DIRECTLY BY THE INFORMATION NEEDED - WITH NO SPACES - < AS: YOUR BALANCE IS PAST DUE, SHOWING A BALANCE OF \$ACURRENT-BALANCE UNPAID.). THE PROGRAM WILL SENSE THE < ## >, PRINT "PLEASE ENTER THE 'CURRENT-BALANCE'" TO THE MONITOR SCREEN, WAIT FOR THE DATA ENTRY, AND THEN INSERT THE INFORMATION IN THE LINE, PROCEEDING TO THE END OF THE LETTER, OR THE NEXT < ## > CODE.

IT TAKES A LITTLE PLAYING WITH THE PROGRAM TO REALLY APPRECIATE IT. THE SYSTEM WORKS WITH TAPE OR DISK (THE VARIABLES SEGMENT IS DISK-INTERACTIVE), BUT DOES REQUIRE A LEVEL II MPU. THE SYSTEM PRINTS ROUGH OR FINISHED DRAFTS, OR ALLOWS YOU TO SEE SEGMENTS OF THE LETTER ON THE MONITOR SCREEN. IT ALLOWS EASY ENTRY OF NEW COPY, LESS EASY EDITING (I'M WORKING ON THIS), TRUE EASE OF STORAGE AND RETRIEVAL OF DATA, AND NEARLY AUTOMATIC OPERATION. IT IS AVAILABLE ON DISK OR TAPE IN A MORE ADVANCED VERSION.

ENJOY!



GRAHAM R. FISHER
BOX 1227
CONCORD, NC 28625

P.S. THIS LETTER WAS PRODUCED BY WORDPROO

P.P.S. I CANNOT BE RESPONSIBLE FOR PROGRAM MATERIAL PRINT-OUTS ONCE GIVEN TO UPS OF THE POST OFFICE AS I WILL NOT BE KEEPING ANY BACKUP COPIES OF MATERIALS SENT TO ME FOR LISTING ON MY LINE PRINTER.

P.P.P.S. I'M AFRAID I FAILED TO MENTION THAT WORDPROO WORKS EQUALLY AS WELL PREPARING CONTRACTS, LEGAL DRAFTS, PRE-PRINTED FORMS, OR JUST ABOUT ANYTHING DESIRABLE. WORDPROO 2.00

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1 CLS:PRINTAB(20):"*** WORDPROC ***" PRINT PRINT" A WORD-PROCESSING SYSTEM":
2 PRINT" THE TRS-80 MICROCOMPUTER SYSTEM":PRINT PRINTAB(45):"GRAHAM R. FISHER"
3 PRINTAB(45):"BOX 1127" PRINTAB(45):"CONCORD, NC 28025" FOR I=1 TO 2500 NEXT I
4 CLEAR 12500
5 DIM LT$(120)
6 CLS
10 CLS:PRINT"ENTER THE PROGRAM FUNCTION YOU WISH TO PERFORM"
12 PRINT" 1) INPUT A NEW LETTER"
14 PRINT" 2) SAVE THE LETTER CURRENTLY IN MEMORY TO DISK"
16 PRINT" 3) PRINT THE LETTER CURRENTLY IN MEMORY"
18 PRINT" 4) EDIT THE LETTER CURRENTLY IN MEMORY"
20 PRINT" 5) LOAD A LETTER FROM DISK"
26 PRINT" 6) PRINT ROUGH DRAFT"
33 PRINT" 7) ENTER VARIABLE LIST (TO MERGE W/LETTER)"
35 PRINT" 8) SAVE LETTER CURRENTLY IN MEMORY TO TAPE DRIVE #1"
37 PRINT" 9) LOAD A LETTER FROM CASSETTE DRIVE #1 "
55 PRINT" /) END THE PROGRAM"
60 F$=INKEY$:IF F$=""THEN 60 ELSE IF F$="/" THEN 30000 ELSE F=VAL(F$)
70 ON F GOSUB 120,500,5000,6000,7000,2000,1000,700,7200,30000
80 GOTO 10
120 CLS:LNE=0:PRINT"PLEASE ENTER THE ROUGH COPY OF YOUR LETTER"
130 PRINT"ENTER $$$ WHEN YOUR LETTER IS COMPLETE"
150 LINE INPUT LT$(LNE)
160 IF MID$(LT$(LNE),1,3) = "$$$" THEN RETURN
170 LNE=LNE + 1
180 GOTO 150
500 CLOSE 1
505 INPUT"PLEASE ENTER YOUR LETTER NAME":NM$
510 OPEN "0",1,NM$
520 FOR I = 0 TO LNE
530 PRINT#1,LT$(I)
540 NEXT I
550 CLOSE 1
560 RETURN
700 REM THIS SUB SAVES LETTERS TO TAPE
710 CLS:PRINT:PRINT
720 PRINT"ENTER THE NAME OF THE LETTER YOU WISH TO SAVE TO TAPE,"
730 PRINT"FOLLOWING THESE RULES: 1) ONLY THE FIRST LETTER OF THE"
740 PRINT"LETTER NAME IS USED BY THE COMPUTER 2) NO LETTER ON ONE"
750 PRINT"TAPE MAY REPEAT THE FIRST LETTER OF THE NAME. END THE NAME"
760 PRINT"(NOT TO EXCEED 6 LETTERS) WITH A PERIOD. NOW ENTER THE"
770 PRINT"LETTER NAME: ";
780 FOR I=1 TO 6
790 W$(I)=INKEY$:IF W$(I)=" " THEN 820
800 IF W$(I)="" THEN 790
810 NEXT I
820 CMD"T"
830 FOR I=0 TO LNE
840 PRINT#-1,LT$(I);", ";
850 NEXT I
860 CMD"R"
890 RETURN
1000 CLS:PRINT"PLEASE ENTER THE VARIABLE FUNCTION YOU WISH TO PERFORM"
1005 PRINT" 1) ENTER THE VARIABLES ONE LETTER AT A TIME"
1010 PRINT" 2) ENTER ALL VARIABLES AT ONCE"
1015 PRINT" 3) ENTER VARIABLES FROM DISK FILE EN MASSE"
1020 PRINT" 4) CALL THE VARIABLES FROM DISK AS NEEDED"
1045 PRINT" 8) PRINT LETTER IN MEMORY & MERGE W/VARIABLES"
1050 PRINT" 9) ESCAPE VARIABLES SEGMENT"
1055 F$=INKEY$:IF F$="" THEN 1055 ELSE F=VAL(F$) IF F=9 THEN RETURN
1060 ON F GOSUB 1100,1200,1300,1400,1500,1000,1000,1000
1065 GOTO1000
1100 REM ENTER VAR 1 LETTER AT A TIME
1200 REM ENTER ALL VAR AT ONCE
1300 REM ENTER VARIABLES FROM DISK EN MASSE

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1400 REM CALL VARIABLES FROM DISK AS NEEDED
1800 REM PRINT THE LETTER IN MEMORY, MERGE VARIABLES
1803 CLS:FOR I=0 TO LNE-1
1807 FOR J=1 TO LEN(LT$(I))-1
1811 IF MID$(LT$(I),J,2)="&&" THEN 1903
1815 IF MID$(LT$(I),J,2)="**" THEN
1903 FOR K=J+2 TO LEN(LT$(I))
1907 IF MID$(LT$(I),K,1)=" " THEN 2000
1911 NEXT K
2000 LPRINT TAB(100);TIME$
2010 LPRINT " "
2020 FOR I=0TO LNE-1
2030 LPRINT I;TAB(5);LT$(I)
2040 NEXT I
2085 LPRINT " "
2088 LPRINT TAB(100);TIME$
2090 RETURN
5000 CLS:FOR I = 0 TO LNE-1
5010 FOR J = 1 TO LEN(LT$(I))-1
5015 IFMID$(LT$(I),J,2) = "&&" THEN 5100
5020 NEXT J
5030 LPRINT LT$(I)
5040 GOTO 5800
5100 FOR K = J+2 TO LEN(LT$(I))
5110 IF MID$(LT$(I),K,1) = " " THEN 5200
5120 NEXT K
5200 PRINT"PLEASE ENTER THE ";MID$(LT$(I),J+2,K-(J+2))
5205 LINE INPUT IN$
5208 SL = LEN(LT$(I))
5210 OT$ =( LEFT$(LT$(I),J-1) + IN$ + RIGHT$(LT$(I),SL-(K-1)))
5300 LPRINT OT$
5800 NEXT I
5820 PRINT"PRESS ANY KEY TO CONTINUE"
5840 X$=INKEY$
5842 IF X$="" THEN5840
5846 RETURN
5850 INPUT"HIT 'ENTER' TO CONTINUE";R
5990 RETURN
6000 CLS
6010 PRINT"PLEASE ENTER THE EDIT FUNCTION "
6020 PRINT" 1) LIST A SECTION OF THE LINES"
6030 PRINT" 2) REPLACE A LINE"
6040 PRINT" 3) DELETE A LINE"
6050 PRINT" 4) INSERT A LINE"
6090 PRINT" 9) END EDITING
6100 F$=INKEY$:IF F$="" THEN 6100 ELSE F=VAL(F$)
6105 IF F=9 THEN RETURN
6110 ON F GOTO 6200,6300,6400,6500,6000,6000,6000,6000
6115 GOTO 6000
6200 PRINT" ENTER THE BEGINNING AND ENDING LINES"
6205 PRINT" THE NUMBER OF LINES IN THE LETTER IS ";LNE-1
6210 INPUT B,E
6215 IF (B<0) + (E<0) THEN PRINT"NO NEGATIVE NUMBERS PLEASE" GOTO 6200
6220 IF (B>LNE) + (E>LNE) THEN PRINT"LINE NUMBERS OUT OF RANGE" GOTO 6200
6230 FOR I = B TO E
6235 PRINT I,LT$(I)
6240 NEXT I
6242 FOR I = 1 TO 1000:NEXT I
6250 GOTO 6000
6300 PRINT"PLEASE ENTER THE LINE# TO REPLACE"
6310 INPUT N
6315 IF (N<0) + (N>LNE-1) PRINT"INVALID NUMBER" GOTO 6300
6320 CLS:PRINT N,LT$(N)
6325 LINE INPUT LT$(N)
6330 GOTO 6000

```

```

6400 PRINT"PLEASE ENTER THE LINE YOU WISH TO DELETE"
6410 INPUT L
6420 IF (L<0) + (L>LNE+1) THEN PRINT"INVALID LINE#":GOTO 6400
6421 PRINT L;LT$(L)
6422 INPUT "ENTER YES TO VERIFY THAT THIS IS CORRECT":A$
6423 IF A$ <> "YES" THEN 6000
6425 FOR I = L+1 TO LNE
6430 LT$(I-1)= LT$(I)
6435 NEXT I
6440 LNE = LNE -1
6450 GOTO 6000
6500 PRINT"WHICH LINE WOULD YOU LIKE TO INSERT BEFORE"
6505 INPUT I
6510 IF (I<0) + (I>LNE-1) PRINT"INVALID LINE#":GOTO 6500
6520 FOR N = I TO LNE
6530 LT$(N+1) = LT$(N)
6540 PRINT"ENTER THE NEW LINE"
6545 LINE INPUT LT$(N)
6547 LNE=LNE+1
6550 GOTO 6000
7000 CLOSE1
7005 INPUT"PLEASE ENTER THE LETTER NAME":F$
7010 OPEN "I",1,F$
7020 LNE=0
7030 LINE INPUT#1,LT$(LNE)
7040 IF MID$(LT$(LNE),1,3) = "$$$" THEN RETURN
7050 LNE=LNE+1
7060 GOTO 7030
7200 REM THIS SUB LOADS LETTERS FROM TAPE INTO MEMORY ARRAY LT$
7210 PRINT"ENTER LETTER NAME, FOLLOWED BY A PERIOD. THE LETTER NAME"
7220 PRINT"SHOULD NOT EXCEED SIX LETTERS"
7230 FOR I=1 TO 6
7240   W$(I)=INKEY$
7250   IF W$(I)="." THEN 7280
7260   IF W$(I)=" " THEN 7240
7270 NEXT I
7280 LNE=0
7290 CMD"T"
7300 INPUT#-1,LT$(LNE)
7310 IF MID$(LT$(LNE),1,3)="$$$" THEN 7340
7320 LNE=LNE+1
7330 GOTO 7300
7370 CMD"R"
7390 RETURN
30000 CLS:PRINT"SEE YOU LATER!!!!!!"

```

.....

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JOHN REVELLE'S QUESTION ABOUT THE LINE PRINTER COMMANDS FOR PAGE SIZE ARE EASILY ANSWERED. THE POKE16424,## MUST BE FOLLOWED AT THE END OF THE PROGRAM WITH THE 'CHR\$(12)' INSTRUCTION WHICH TELLS THE PRINTER TO 'GO TO THE TOP OF THE PAGE' THIS WILL CAUSE THE PRINTER TO FEED UP THE TOTAL NUMBER OF LINES FROM THE TOP OF THE PAGE TO THE BOTTOM AS IT IS INSTRUCTED TO DO IN THE 'POKE' COMMAND.

MY PROBLEM WITH THE PRINTER IS THIS. TYPING ON THE SCREEN 'LPRINT' WILL NOT MAKE THE PRINTER PRINT' IN ORDER FOR ME TO GET IT TO PRINT I MUST ENTER 'LPRINT' FOR EACH LINE AND THEN GIVE A 'RUN' COMMAND. IT WILL NOW PRINT BEAUTIFULLY. BUT THIS MEANS THAT WITHOUT THE PRINTER CONNECTED THE PROGRAM WON'T 'RUN'. IS THERE ANY ANSWER TO THIS OTHER THAN MAKING 2 TAPES? (ONE WITH AND ONE WITHOUT 'LPRINT'

YOU PEOPLE AT FAYETTEVILLE ARE DOING A GREAT JOB— ONE THAT RADIO SHACK OUGHT TO BE DOING AT LEAST SOME OF — TELLING US ABOUT THE MISTAKES IN THEIR MANUALS — KEEP UP THE GOOD WORK AND KEEP THE PROGRAMS, IDEAS, EXPERIENCES AND FRUSTRATIONS COMING!

REGARDS
 PHIL REIDY
 75 MINARDNOCK ROAD
 WORCESTER, MA 01609

DEAR TRS-80 FOLKS,

IN RESPONSE TO MR. REVELL'S LETTER IN THE AUGUST ISSUE, IT IS TRUE THAT 'LPRINT' BY ITSELF DOES NOTHING. HOWEVER UPON CALLING TANDY CUSTOMER SERVICE, I FOUND THAT THE CORRECT STATEMENT FOR A LINE FEED IS 'LPRINTCHR\$(138)'. AND SUGGEST THAT THOSE WITH LINE PRINTERS USE THIS INSTEAD OF THE LPRINT'', AS IT DOES NOT CAUSE MOVEMENT OF THE PRINTING HEAD WHICH DOES CAUSE UNNECESSARY WEAR ON SAME.

MR. REVELL, IF YOU POKE16424,X WHERE 'X' IS ANY VALUE IT CHANGES THE NUMBER OF LINES PER PAGE AS IDENTIFIED BY THE LINE COUNTER AT ADDRESS 16425. THE IDEA IS THAT FOR INSTANCE, YOU WISH TO PRINT INFORMATION ON A LEGAL SIZED FORM (14'') AND THE PROPER STATEMENT WOULD BE 'POKE16424,84'. THEN AT THE END OF YOUR PROGRAM YOU WOULD INSERT THE COMMAND 'LPRINTCHR\$(12)' WHICH WOULD CAUSE A LINE FEED UNTIL THE COUNTER AT 16425 WAS EQUAL TO 84. PLEASE NOTE THAT IF INFORMATION WAS LPRINTED PAST THE 84TH LINE, THE LINE COUNTER WOULD AUTOMATICALLY RESET TO 0 AND WOULD LINE FEED UNTIL IT AGAIN REACHED 84.

AT FIRST, I FOUND IT DIFFICULT TO SET THE LINE LENGTH ON THE BACK OF THE LINE PRINTER WITH THE SMALL CONTROL. SO I SPENT ABOUT A DAY AND CALIBRATED IT, MAKING A TEMPLATE, AND INSTALLED A POINTER ON THE CONTROL. IT IS MUCH EASIER MERELY TO DIAL THE CHARACTERS PER LINE NEEDED INSTEAD OF GUESSING. IF ANYONE WITH A LINE PRINTER WOULD LIKE A PHOTOCOPY OF MY TEMPLATE, JUST WRITE AND ENCLOSE \$1.00 AND I WILL SEND SAME BACK TO YOU. IT MERELY FITS OVER THE CONTROL KNOB AND YOU CAN BUY A POINTER AT ANY RADIO SHACK OR JUST FROM YOUR SALVAGE BOX. SET THE POINTER ON THE CORRECT GAUGE ONCE AND NEVER HAVE TO GUESS AGAIN.

ALSO NOTE THAT THE LINE PRINTER ACTS JUST LIKE THE VIDIED SCREEN WHEN IT COMES TO THE 'TAB' STATEMENT. IN ORDER TO TAB PAST 63 I HAVE FOUND THE FOLLOWING USEFUL.

```
2 L=L-60 : LPRINTTAB(60);STRING$(L," "); : RETURN
99 L=120 : GOSUB2 : LPRINT X;
```

WHAT THE LINE PRINTER WILL NOW DO IS TO TAB OVER 60 SPACES, THEN PRINT A STRING OF BLANKS, THEN PRINT THE VALUE OF X AT THE 'L TAB' WHICH YOU SPECIFIED. BUT NOTE THAT EACH TIME THIS IS EXECUTED IN THE PROGRAM IT WILL ADD TO THE LINE LENGTH OF THE LINE PRINTER, I.E. IF LINE 99 IS RUN AGAIN BEFORE A END OF LINE IS EXECUTED THE LINE PRINTER HOLDS TAB(60), 60 SPACES, THE VALUE OF X, THEN UPON THE NEXT EXECUTION IT WILL ADD 60 MORE SPACES AND THE NEXT VALUE OF 'X' WHICH WILL EXCEED THE MAXIMUM LINE LENGTH OF 132 CHARACTERS. THE LINE PRINTER WILL TAB 60 SPACES, PRINT 60 BLANKS, PRINT THE VALUE OF X (SAY 10), AND IGNORE THE NEXT TAB(60), USE THE FIRST 9 BLANKS OF THE 'GOSUB' CARRIAGE RETURN, PRINT 51 BLANKS, AND THEN THE SECOND VALUE OF X.

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This is a nonparametric test of independence or correlation coefficient which is very useful. One problem with the explosion in computing power is that an awful lot of tests are being used on non-normal data as if it were normal. In most cases "tau" is more reliable, robust and useful. This program calculates an approximation of a "z" score so that p can be read from a normal curve table (ie, if $z = 1.96$ the two-tailed p is .05).

I've used the Shell-Metzger sort to find the x column (its easier to write the program with this sort separately, and faster running time is enjoyed); but since I haven't had the time or wisdom to figure out how tau can be calculated I use the slightly slower merge sort described by Knight for sorting the y scores in each iteration. I didn't see the "butterfly"merge in the Jan-Feb CREATIVE COMPUTING in time to work it in; however, I also don't know how to calculate the statistic from the sort and its advantage over the Shell sort is not that significant for this program unless your N is enormous, in which case you probably don't want to use the TRS-80.

The program accomodates, automatically, for variations in N from column to column. As written it is set up to write the outcome into diskette, however a cassette routine is simple, and most applications will probably want to read off the screen. The first sort of each x/y takes about 2 minutes for N=100 and 1 minute for each subsequent y column.

Since I get a lot of spikes from the power supply, and have yet to get more than a 4 hour run on any matrix I've set it up so that you can specify a run starting with any column after the first; however, enter k-1 (same thing for the matrix cell, MC-1). You can terminate the run early by changing line 110 to IF KK< k (k being the last column you want to compare). DATA/READ STATEMENTS are somewhat cumbersome, but do save a lot of input time and storage space. I should also say that often I cannot get through a 42 column run for one row, and the feature enabling a start in the middle of the matrix is indispensable. I find lots of parentheses thrown in instead of commas, number changes and other glorious garbage which, fortunately, gives a SYNTAX ERROR message instead of running on to give you lousy data.

George von Hilsheimer, PhD
124 N. Clara Ave
DeLand, FL 32720
904-734-7664

```

5 REM * COPYRIGHT FRED BLECHMAN 1978 *
6 REM * 23958 ARCHWOOD ST .CANOGA PARK, CA 91307 *
7 REM * P M =3135 *
8 REM * SPTRANGLE PROGRAM *
10 CLS
20 X=62:Y=23
25 A=6:B=2
30 FOR Z=1 TO A
40 SET(X,Y)
45 X=X+1
46 IF X=123 GOTO 170
50 NEXT Z
60 FOR Z=1 TO B
70 SET (X,Y)
75 Y=Y+1
80 NEXT Z
85 C=A+6
90 For Z=1 to C
100 SET(X,Y)
105 X=X-1
110 NEXT Z
115 D=B+2
120 FOR Z= 1 TO D
130 SET(X,Y)
140 Y=Y-1
150 NEXT Z
155 H=0+6 R=D+2
160 GOTO 30
170 GOTO 170
180 END

```

```

300 PRINT"COMMAND"
310 X=10
320 GOSUB2900
330 T=2
340 GOSUB2300
350 RESTORE
360 READ Z$, T
370 IF Z$="##" THEN 300
380 IF LEFT$(Z$, 2) < LEFT$(T$, 2) THEN 360
390 ONT GOSUB 500, 700, 800, 850, 900, 1000, 4600, 5100, 5000, 5200, 6000, 4400, 8000, 5300
395 GOT0410
410 GOT0300

```

```

8000 REM ---LABELS---
8010 PRINT" LINES PER LABEL ";
8020 X=5
8030 GOSUB1900
8040 T=T-1
8045 I1=T
8050 IFT<0 THEN 8350
8060 FOR I=0 TO T
8070 PRINT X9$; " LINE "; I+1
8080 GOSUB2420
8090 V(I)=R
8100 NEXT I
8110 PRINT" POSITION FORMS. "
8120 PRINT" ENTER 1 FOR ALIGNMENT, 2 TO BEGIN"
8130 X=2
8140 GOSUB1900
8150 IFT=2 THEN 8220
8160 FOR I=0 TO 5
8170 LPRINT"<----- ALIGNMENT ----->"
8180 NEXT I
8210 GOT08130
8220 FOR I=0 TO N
8230 GOSUB4100
8240 IFR<0 THEN 8340
8250 FOR I2=0 TO I1
8260 IF V(I2)>M1 THEN 8290
8270 LPRINT MID$(A$(V(I2), I), 1, 30)
8280 GOT08300
8290 LPRINT A$(V(I2)-M1-1, I)
8300 NEXT I2
8305 IF I1>4 THEN 8340
8310 FOR I2=0 TO 4-I1
8320 LPRINT CHR$(138)
8330 NEXT I2
8340 NEXT I
8350 PRINT"* * END OF LISTING * *"
8360 RETURN

```

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