

PAGE 1

1 ROM ONLY CW & RTTY CONVERTER
 2 8 - 24 WPM MORSE.
 3 45,50,56,75 BAUD RTTY.
 4 I/P PORT A BIT 1 (01234567)
 5 O/P ASCII & STROBE PORT B
 6 NO BUSY USED DUE TO SPEED
 7 DUE TO NO RAM, IY USED FOR
 8 SUBROUTINE RETURN ADDRESSES.
 9 NO STACK- NO PUSH/POP/CALL/RET
 10 RSTS OR INTS
 11 ASSUMED 4 OR 3.579 M CLOCK
 12

13 P. T. GREEN NOV 85

14
 15 ORG 0A000H
 16 LOAD 0A000H
 17 EXEC 0A000H

18
 19 INITSPD:EQU 14H
 20 CR:EQU 0DH
 21 LF:EQU 0AH
 22 BDRTA:EQU 0
 23 BDRTB:EQU 1
 24 ACONT:EQU 2
 25 BCONT:EQU 3

26
 27
 28
 29 A000 3E4F LD A,4FH
 30 A002 D302 OUT (ACONT),A; A=I/P
 31 A004 3E0F LD A,0FH
 32 A006 D303 OUT (BCONT),A; B=O/P
 33

34 A008 2123A3 LD HL,SIGN; GENERAL HEADING
 35 A00B FD2112A0 LD IY,\$+7
 36 A00F C3RCA2 JP PRT

37
 38 A012 F12129A0 LD IY,CMODE
 39 A016 DB00 IN A,(ADATA)
 40 A018 E610 AND 10H
 41 A01A 87 OR A
 42 A01B 2006 JR NZ,C2
 43 A01D 214BA3 LD HL,C3579
 44 A020 C3RCA2 JP PRT
 45 A023 215AA3 C2: LD HL,C4000
 46 A026 C3RCA2 JP PRT

47
 48 CMODE:
 49 A029 DB00 IN A,(ADATA)
 50 A02B E6C0 AND 0C0H ; CHECK MODE
 51 A02D FE00 CP 0
 52 A02F C03CA0 JP Z,MORSE
 53 A032 FE40 CP 40H
 54 A034 C0E0A1 JP Z,RTTY
 55 A037 FE80 CP 80H
 56 A039 C0A2A2 JP Z,ASCII

57
 58
 59 MORSE:
 60 A03C RF XOR A ; CLEAR CHAR COUNT IN I

PAGE 2
 61 A03D ED47 LD I,A
 62

63 A03E E0FFF	LD HL,HELLO
64 A03F FFFF00	LD I,B-1

63	R03F	2102R1	LD	HL,HELLO
64	R042	FD2149R0	LD	IY,\$+7
65	R046	C3RCR2	JP	PRT
66				
67		RSTART:		
68	R049	3E14	LD	A,INITSPEED
69	R04B	47	LD	B,R
70	R04C	0E01	LD	C,1
71	R04E	210000	LD	HL,0
72	R051	FD2158R0	LD	IY,\$+7 ; RETURN ADDRESS
73	R055	C30FA1	JP	CWINP
74	R058	3040	JR	NC,INCSC
75	R05A	24	INCM1:INC	H ; INCREMENT MARK
76	R05B	7C	LD	A,H
77	R05C	CB3F	SRL	A
78	R05E	CB3F	SRL	A
79	R060	CB3F	SRL	A
80	R062	B8	CP	B
81	R063	380B	JR	C,CW20
82	R065	FD216CA0	CW40:LD	IY,\$+7 ; RETURN ADDRESS
83	R069	C30FA1	JP	CWINP
84	R06C	30DB	JR	NC,RESTART
85	R06E	18F5	JR	CW40
86	R070	FD2177R0	CW20:LD	IY,\$+7 ; RETURN ADDRESS
87	R074	C30FA1	JP	CWINP
88	R077	38E1	JR	C,INCM1
89	R079	2C	INCS2:INC	L ; INC SPACE
90	R07A	78	LD	A,B ; SPACE > 1/2 UNIT?
91	R07B	CB3F	SRL	A
92	R07D	BD	CP	L
93	R07E	3810	JR	C,MARK2
94	R080	FD2187R0	LD	IY,\$+7 ; RETURN ADDRESS
95	R084	C30FA1	JP	CWINP
96	R087	30F0	JR	NC,INCS2
97	R089	7C	LD	A,H ; ADD SP TO MARK
98	R08A	85	ADD	A,L
99	R08B	67	LD	H,A
100	R08C	2E00	LD	L,0 ; SPACE=0
101	R08E	18CA	JR	INCM1
102	R090	7C	MARK2:LD	R,H
103	R091	CB3F	SRL	A
104	R093	B8	CP	B ; MARK > 2 UNITS ?
105	R094	CB11	RL	C ; ENTER BIT OR DAH
106	R096	2600	LD	H,0 ; MARK=0
107	R098	1809	JR	CW4B
108	R09A	2C	INCSC:INC	L ; INC SPACE
109	R09B	7D	LD	A,L
110	R09C	CB3F	SRL	A
111	R09E	CB3F	SRL	A
112	R0A0	B8	CP	B ; SP > 4 UNITS ?
113	R0A1	3020	JR	NC,CHAR01
114	R0A3	FD21ARR0	CW4B:LD	IY,\$+7 ; RETURN ADDRESS
115	R0A7	C30FA1	JP	CWINP
116	R0AA	30EE	JR	NC,INCSC; IF SPACE LOOP
117	R0AC	24	INCM3:INC	H ; ELSE INC MARK
118	R0AD	78	LD	A,B
119	R0AE	CB3F	SRL	A
120	R0B0	BC	CP	H ; MARK > 1/2 UNIT?
PAGE 3				
121	R0B1	3842	JR	C,SPRCEG
122	R0B3	FD21BAR0	LD	IY,\$+7 ; RETURN ADDRESS
123	R0B7	C30FA1	JP	CWINP
124	R0BA	38F0	JR	C,INCM3; IF MARK LOOP
125	R0BC	7D	LD	A,L ; ELSE ADD MK TO SP
126	R0BD	8C	RDC	A,H
127	R0BE	6F	LD	L,A
128	R0BF	2600	LD	H,0 ; MARK=0

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129 R0C1 1807      JR   INCSC
130 R0C3 79         CHAR01:LD  R,C
131 R0C4 FE01      CP   1      ; SPACE CODE?
132 R0C6 2816      JR   Z,SPZR01 IF SO SKIP
133 R0C8 FD21CF00  LD   IY,$+7
134 R0C0 C331R1    JP   PROUT
135           ; 20MS DELAY
136 R1CF 11000C    LD   DE,0C00H
137 R0D2 1B        DEL7:DEC DE
138 R0D3 7A        LD   A,D
139 R0D4 B3        OR   E
140 R0D5 20FB      JR   NZ,DEL7
141           ;
142 R0D7 FD21D000  LD   IY,$+7 ; PRINT CHAR THEN SPACE
143 R0DB C331R1    JP   PROUT
144 R0DE 2E00      SPZR01:LD L,0  ; SPACE=0
145 R0E0 2600      MARK0:LD H,0  ; MARK=0
146 R0E2 FD21E9R0  CW80:LD  IY,$+7 ; RETURN ADDRESS
147 R0E6 C30FR1    JP   CWINP
148 R0E9 30F5      JR   NC,MARK0; IF SPACE LOOP
149 R0EB 24        INC  H      ; ELSE INC MARK
150 R0EC 78        LD   A,B
151 R0ED CB3F      SRL  A
152 R0EF BC        CP   H      ; MARK > 1/2 UNIT?
153 R0F0 30F0      JR   NC,CW80; IF NOT, LOOP
154 R0F2 C370R0    JP   CW20  ; ELSE TEST AGAIN
155 R0F5 78        SPACEG:LD R,B
156 R0F6 CB3F      SRL  A
157 R0F8 80        ADD  A,B
158 R0F9 B0        CP   L      ; SPACE > 1 1/2 UNITS?
159 R0FA 3807      JR   C,CW8E ; YES SO DISPLAY CHAR
160 R0FC 78        LD   A,B
161 R0FD 85        ADD  A,L  ; ELSE ADJUST UNIT
162 R0FE CB3F      SRL  A
163 R100 47        LD   B,A
164 R101 1807      JR   SPZR02
165 R103 FD210RA1  CW8E:LD  IY,$+7
166 R107 C331R1    JP   PROUT
167 R10A 2E00      SPZR02:LD L,0  ; SPACE=0
168 R10C C370R0    JP   CW20  ; AND TEST AGAIN
169           ;
170           ;***** I/P ROUTINE *****
171 R10F 50        CWINP:LD  D,R
172 R110 59        LD   E,C
173 R111 0605      LD   B,S  ; 5 TESTS PER UNIT
174 R113 0E00      LD   C,0  ; COUNTER/TIMER
175 R115 DB00      SPIN:IN  A,(ADATA)
176 R117 E602      AND  2      ; GET THE RIGHT BIT
177 R119 81        ADD  A,C
178 R11A 4F        LD   C,R
179           ; UNIDEL
180 R11B D9        EXX
PAGE 4
181 R11C 08        EX   AF,AF
182 R11D 018E00    LD   BC,70*4/2.2
183 R120 0B        DEL2:DEC BC
184 R121 78        LD   A,B
185 R122 B1        OR   C
186 R123 20FB      JR   NZ,DEL2
187 R125 08        EX   RF,RF
188 R126 D9        EXX

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189      # END UNIDEL
190 R127 0F          RRCA
191 R128 10EB        DJNZ SPIN
192 R128 79          LD A,C
193 R12B FE06        CP 6
194 R12D 42          LD B,D
195 R12E 4B          LD C,E
196 R12F FDE9        JP (IY)  ; RETURN
197
198      ; PROUT:
199 R131 79          LD A,C  ; GET CHAR
200 R132 B9          EXX
201 R133 013200      LD BC,32H ; OFFSET TO ASCII
202 R136 216RA1      LD HL,MORTAB
203 R139 EBB1        CPIR ; FIND IT
204 R13B 013100      LD BC,31H ; ASCII TABLE OFFSET
205 R13E 09          ADD HL,BC
206 R13F 7E          LD A,(HL)
207 R140 D301        OUT (CDDATA),A; TO PRINTER
208 R142 B9          EXX
209 R143 ED57        LD A,I
210 R145 3C          INC A
211 R146 EB47        LD I,A  ; NUMBER OF RX'D CHARS
212 R148 79          LD A,C  ; GET CW CHAR
213 R149 FE01        CP 1   ; SPACE?
214 R14B 2019        JR NZ,RESPC
215 R14D ED57        LD A,I
216 R14F FE46        CP 70   ; > 70 CHARS ON LINE?
217 R151 3813        JR C, RESPC
218 R153 3E0D        LD A,CR
219 R155 D301        OUT (CDDATA),A; TO PRINTER
220 R157 11000C      LD DE,0C00H
221 R158 1B          DEL3:DEC DE
222 R15B 7A          LD A,D
223 R15C B3          OR E
224 R15D 20FB        JR NZ,DEL3
225 R15F 3E0A        LD A,LF
226 R161 D301        OUT (CDDATA),A; SEND LINEFEED
227 R163 AF          XOR A   ; ZERO COUNT
228 R164 ED47        LD I,A
229 R166 0E01        RESPC:LD C,I  ; RESTORE SPACE CHAR
230 R168 FDE9        JP (IY)  ; RETURN
231
232      MORTAB:
233 R16A 01061715    DB 01H,06H,17H,15H,08H,03H
233 R16E 0B03        DB
234 R170 1D091F07    DB 1DH,09H,1FH,07H,18H,0AH
234 R174 180A        DB
235 R176 1B040508    DB 1BH,04H,05H,08H,19H,12H
235 R178 1912        DB
236 R17C 0D0F020E    DB 0DH,0FH,02H,0EH,1EH,0CH
236 R180 1E0C        DB
PAGE 5
237 R182 16141330    DB 16H,14H,13H,30H,38H,3CH
237 R186 383C        DB
238 R188 3E3F2F27    DB 3EH,3FH,2FH,27H,23H,21H
238 R18C 2321        DB
239 R18E 202E6A2D    DB 20H,2EH,6AH,2DH,4CH,35H
239 R192 4C35        DB
240 R194 BB7B7347    DB 08RH,7RH,73H,47H,2RH,52H
240 R198 2B52        DB
241 R19A 2900        DB 29H,0
242 R19C 20414243    DB " ABCDEFGHIJKLMNOPQRSTUVWXYZ"
242 R1B0 44454647    DB
242 R1B4 4849484B    DB
242 R1B8 4C4D4E4F    DB

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242 R1AC 50515253
242 R1B0 5455
243 R1B2 56575859 DB "UWXYZ1234567890=.,,0"
243 R1B6 58313233
243 R1B8 34353637
243 R1BE 38393030
243 R1C2 2E2F2C40
244 R1C6 2B213F38 DB "-(??>)"
244 R1CA 3E29
245 R1CC 3C280000 DB "<(*,0,0,0,0
245 R1D0 0000
246 ;
247 ;
248 R1D2 4D6F7273 HELLO:DB "MORSE MODE AT "
248 R1D6 65206D6F
248 R1DA 64652061
248 R1DE 7420
249 R1E0 382D3234 DB "8-24 WPM.",CR,LF,LF,0
249 R1E4 2057504D
249 R1E8 2E0D0A0A
249 R1EC 00
250 ;
251 ; *** RTTY READER ***
252 ;
253 ;
254 ;
255 RTTY:
256 ;
257 R1E0 21FF82 LD HL,RHELLO
258 R1F0 FD21F7A1 LD IY,\$+7
259 R1F4 C3ACR2 JP PRT
260 ;
261 R1F7 FD2123A2 LD IY,BM ; RETURN ADDR
262 R1FB DB00 IN A,(ADATA)
263 R1FD E60C AND 0CH ; READ BAUDRATE
264 R1FF FE00 CP 0
265 R201 2006 JR NZ,M2
266 R203 2110A3 LD HL,B45
267 R206 C3ACR2 JP PRT
268 R209 FE04 M2: CP 04H
269 R20B 2006 JR NZ,M3
270 R20D 210DA3 LD HL,B50
271 R210 C3ACR2 JP PRT
272 R213 FE08 M3: CP 08H
273 R215 2006 JR NZ,M4
274 R217 2113A3 LD HL,B56
275 R21A C3ACR2 JP PRT
PAGE 6
276 R21D 2116A3 M4: LD HL,B75 ; MUST=0CH
277 R220 C3ACR2 JP PRT
278 ;
279 R223 FD212DA2 BM: LD IY,\$+10
280 R227 2119A3 LD HL,B99
281 R22A C3ACR2 JP PRT
282 ;
283 R22D 21BFH2 MNH: LD HL, TABLET
284 R230 110005 R1: LD DE, 0500H
285 R233 DB00 BIN: IN A,(ADATA)
286 R235 E602 AND 02H
287 R237 28FA JR Z,BIN ; WAIT FOR STOP
288 BIN2:
289 R239 DB00 IN A,(ADATA)
290 R23B E602 AND 02H
291 R23D 20FA JR NZ,BIN2; WAIT FOR START BIT

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292
293      ; GET DELAY FOR BAUD
294      ; RATE IN USE...
295
296 R23F D9      EXX      ; SPARE REG SET
297 R240 217BA3    LD  HL,RBIT
298 R243 BB00      IN  A,(ADATA)
299 R245 1F      RRA
300 R246 E60E      AND 0EH  ; GET BAUD & CLK
301 R248 85      ADD A,L
302 R249 6F      LD  L,A
303 R24A 4E      LD  C,(HL)
304 R24B 23      INC HL
305 R24C 46      LD  B,(HL)
306 R24D CB38      SRL B   ; HALVE IT
307 R24F CB19      RR  C
308 R251 08      DEL: DEC BC
309 R252 78      LD  A,B
310 R253 B1      OR  C
311 R254 20FB      JR  NZ,DEL
312 R256 D9      EXX      ; NORM SET
313
314 R257 DB00      IN  A,(ADATA); CHECK STILL THERE
315 R259 E602      AND 2
316 R25B 20DC      JR  NZ,BIN2; TRY AGAIN IF GONE
317 SERBIT:
318
319      ; GET DELAY VALUE
320
321 R25D D9      R* EXX      ; ALT SET
322 R25E 217BA3    R* LD  HL,RBIT
323 R261 BB00      R* IN  A,(ADATA)
324 R263 1F      R* RRA
325 R264 E60E      R* AND 0EH
326 R266 85      R* ADD A,L
327 R267 6F      R* LD  L,A
328 R268 4E      R* LD  C,(HL)
329 R269 23      R* INC HL
330 R26A 46      R* LD  B,(HL)
331
332 R26B 08      RDEL2:DEC BC
333 R26C 78      LD  A,B
334 R26D B1      OR  C
335 R26E 20FB      JR  NZ,RDEL2

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336 R270 D9      R* EXX      ; NORM SET
337
338 R271 BB00      IN  A,(ADATA)
339 R273 E602      AND 02H
340 R275 B3      OR  E
341 R276 0F      RRCA      ; NEXT BIT
342 R277 5F      LD  E,A
343 R278 15      DEC D   ; BIT COUNTER
344 R279 20E2      JR  NZ,SERBIT
345 R27B 0F      RRCA
346 R27C 0F      RRCA
347 R27D 0F      RRCA
348 R27E 0F      RRCA      ; SHIFT DOWN
349 R27F FE1F      CP  1FH
350 R281 2005      JR  NZ,FIGS
351 R283 21BFR2    LD  HL,TABLET
352 R286 18R8      JR  R1
353 R288 FE1B      FIGS:CP  1BH
354 R289 2005      JR  NZ,ORDCHAR
355 R28C 21DFR2    LD  HL,TABFIG
356 R28F 189F      JR  R1

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Delay $\frac{1}{2}$ bit time

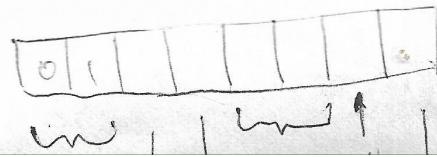
Delay 1 bit time

Loop + 61 t

: Loop + .7

$D_{val} = \frac{MS}{26} \times \text{clock kHz}$

$MS = D_{val} + \frac{26}{\text{clock kHz}}$



357 R291 45 LD B,L ; SAVE PTR LSB
 359 R292 85 ADD A,L
 360 R293 6F LD L,A
 361 R294 4E LD C,(HL) ; GET ASCII
 362 R295 68 LD L,B ; RESTORE PTR LSB
 363 R296 79 LD A,C
 364 R297 FE20 CP ""
 365 R299 2003 JR NZ,REC0
 366 R29B 21BFA2 LD HL, TABLET
 367 R29E D301 REC0:OUT (BDATA),R1 PRINT IT!
 368 R2A0 188E JR R1
 369 ;
 370 ; *** ASCII ***
 371 ASCII:
 372 R2A2 2169A3 LD HL,NYP
 373 R2A5 F0213CA0 LD IY,MORSE; DEFAULT TO CW
 374 R2A9 C3ACB2 JP PRT
 375 ;
 376 ; PRINT STRING -> HL
 377 R2AC 7E PRT: LD A,(HL)
 378 R2AD 23 INC HL
 379 R2AE B7 OR A
 380 R2AF 280C JR Z,PRR
 381 R2B1 D301 OUT (BDATA),R
 382 R2B3 110020 LD DE,2000H
 383 R2B6 1B PRD: DEC DE
 384 R2B7 78 LD A,D
 385 R2B8 B3 OR E
 386 R2B9 20FB JR NZ,PRD
 387 R2BB 18EF JR PRT
 388 R2BD FDE9 PRR: JP (IY)
 389 ;
 390 ;
 391 R2BF 00450A41 TABLET:DB 00H,45H,0AH,41H,20H
 391 R2C3 20
 392 R2C4 5349550D DEFB 53H,49H,55H,0DH,44H
 392 R2C8 44
 393 R2C9 524A4E46 DEFB 52H,4AH,4EH,46H,43H
 PAGE 8
 393 R2CD 43
 394 R2CE 4B545B4C DEFB 4BH,54H,58H,4CH,57H
 394 R2D2 57
 395 R2D3 48595051 DEFB 48H,59H,50H,51H,4FH
 395 R2D7 4F
 396 R2D8 4247004D DEFB 42H,47H,00H,4DH,58H
 396 R2DC 58
 397 R2DD 5600 DEFB 56H,00H
 398 R2DF 00330A2D TABFIG:DB 00H,33H,0AH,2DH,20H
 398 R2E3 20
 399 R2E4 2738370D DEFB 27H,38H,37H,0DH,3FH
 399 R2E8 3F
 400 R2E9 34072025 DEFB 34H,07H,2CH,25H,3AH
 400 R2E0 3A
 401 R2EE 28352B29 DEFB 28H,35H,2BH,29H,32H
 401 R2F2 32
 402 R2F3 23363031 DEFB 23H,36H,30H,31H,39H
 402 R2F7 39
 403 R2F8 3F40002E DEFB 3FH,40H,00H,2EH,2FH
 403 R2FC 2F
 404 R2FD 3D00 DEFB 3DH,00H
 405 ;
 406 RHELO:
 407 R2FF 52545459 DB "RTTY MODE AT ",0
 407 R303 20606F64
 407 R307 65206174
 407 R30B 2000

400 R300 353000 B50: DB "50",0
401 R310 343500 B45: DB "45",0
410 R313 353600 B56: DB "56",0
411 R316 373500 B75: DB "75",0
412
413 R319 20426175 B99: DB "BAUD.",CR,LF,LF,0
413 R31D 642E000R
413 R321 0800
414
415 R323 47345048 SIGN:DB "G4PHL MULTI-MODE"
415 R327 4C204075
415 R32B 6C74692D
415 R32F 6D6F6465
416 R333 2043656E BB "CENTRONICS CONVERTER."
416 R337 74726F6E
416 R33B 69637320
416 R33F 636F6E76
416 R343 65727465
416 R347 722E20
417 R34A 00 BB 0
418
419 R34B 436C6F63 C3579:DB "CLOCK=3.579M.",0
419 R34F 6B3D332E
419 R353 3537394D
419 R357 2E2000
420 R358 436C6F63 C4000:DB "CLOCK=4.000M.",0
420 R35E 6B3D342E
420 R362 3030304D
420 R366 2E2000
421
422 R369 206E6F20 NYP: DB "NO ASCII YET."
422 R36D 41736369
422 R371 69207965

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422 R375 742E
423 R377 00000000 BB CR,LF,LF,0
424
425 R37B D10B RBIT:DEFW 0BD1H : 45 @ 3579
426 R37D C10A DEFW 0AC1H : 50 @ 3579
427 R37F 9809 DEFW 099AH : 56 @ 3579
428 R381 2B07 DEFW 072BH : 75 @ 3579
429 R383 350B DEFW 0035H : 45 @ 4000
430 R385 040C DEFW 0C04H : 50 @ 4000
431 R387 B80A DEFW 08BBH : 56 @ 4000
432 R389 0308 DEFW 0803H : 75 @ 4000
433
434 R38B E904 ABIT:DEFW 04E3H : 110 @ 3579
435 R38D 7605 DEFW 0576H : 110 @ 4000
436 R38F CA01 DEFW 01CAH : 300 @ 3579
437 R391 0002 DEFW 0200H : 300 @ 4000
438
439 END

EXEC ADDR A000

Section repeated for sketch:

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323 R264 E81E      LD  DEH
325 R265 85          ADD  B,L
327 R267 6F          LD  L,R
328 R268 4E          LD  C,(HL)
329 R269 23          INC  HL
330 R26A 46          LD  B,(HL)
331
332 R26B 0B          RDEL2:DEC BC
333 R26C 78          LD  A,B
334 R26D B1          OR   C
335 R26E 20FB          JR  NZ,RDEL2
PAGE 7
336 R270 D9          EXX      ; NORM SET
337
338 R271 DB00          IN  A,(ADATA)
339 R273 E602          AND 02H
340 R275 B3          OR   E
341 R276 0F          RRCA     ; NEXT BIT
342 R277 5F          LD  E,A
343 R278 15          DEC  D     ; BIT COUNTER
344 R279 20E2          JR  NZ,SERBIT
345 R27B 0F          RRCA
346 R27C 0F          RRCA
347 R27D 0F          RRCA     ; SHIFT DOWN
348 R27E 0F          CP  1FH
349 R27F FE1F          JR  NZ,FIGS
350 R281 2005          LD  HL,TABLET
351 R283 21BFA2          JR  R1
352 R286 1888          FIGS:CP 1BH
353 R288 FE1B          JR  NZ,ORDCHAR
354 R28A 2005          LD  HL,TABFIG
355 R28C 21DFA2          JR  R1
356 R28F 189F          ORDCHAR:
358 R291 45          LD  B,L     ; SAVE PTR LSB
359 R292 85          ADD A,L
360 R293 6F          LD  L,R
361 R294 4E          LD  C,(HL) ; GET ASCII
362 R295 68          LR  L,B     ; RESTORE PTR LSB
363 R296 79          LD  A,C
364 R297 FE20          CP  ""
365 R299 2003          JR  NZ,REC0
366 R29B 21BFA2          LD  HL,TABLET
367 R29E D301          REC0:OUT (BDATA),A; PRINT IT!
368 R2A0 188E          JR  R1
369
370 ; *** ASCII ***
371 ASCII:
372 R2A2 2169A3          LD  HL,NYP
373 R2A5 F0213CA0          LD  IY,MORSE; DEFAULT TO CW
374 R2A9 C3AC02          JP  PRT
375
376 ; PRINT STRING -> HL
377 R2AC 7E          PRT: LD  A,(HL)
378 R2AD 23          INC  HL
379 R2AE B7          OR   A
380 R2AF 280C          JR  Z,PRR
381 R2B1 D301          OUT (BDATA),A
382 R2B3 110020          LD  DE,2000H
383 R2B6 18          PRD: DEC DE
384 R2B7 78          LD  A,B
385 R2B8 B3          OR   E
386 R2B9 20FB          JR  NZ,PRD
387 R2BB 18EF          JR  PRT
388 R2BD FDE9          PRR: JP  (IY)
389
390
391 R2BF 00450841 TABLET:DB  00H,45H,08H,41H,20H
391 R2C3 20
391 FFFF FF00FF,FF00FF,FF00FF

```

Delay 1 bit time

Loop + 61 t

: Loop + .1

$\text{MS} = \frac{\text{clock kHz}}{26}$

$\text{MS} = \frac{\text{Dual} + 26}{\text{clock kHz}}$

