

# André's Acorn BBC Test ROM

```
Andre Test ROM at OS location  
  
first led flash=rom code executed  
START of bittest &1000;Bit=01234567  
START of bittest &7000;Bit=012
```

Contents

1. A MULTIFUNCTIONAL TESTROM .....2

2. LOCATED AT IC51: THE OS TEST ROM .....4

3. LOCATED IN IC101: THE LANGUAGE TESTROM .....7

4. LOCATED IN IC88: THE TESTROM AS A SIDEWAY ROM .....8

5. CROSS REFERENCE LED-FLASH TO DEFECTIVE IC.....10

## 1. A multifunctional Testrom

This document explains how to use the diagnostic testrom for the Acorn BBC.

### Background:

My first BBC came to me defective. Had no idea how to check it.  
Did the keyboard work?, did the sound work?, did the display work?.

A long time ago I wrote a testrom in late 1990 to diagnose cpu of Williams Pinballs, to check the vital IC's on board using the onboard leds, I thought let's do something similar for the BBC.

A dead BBC/CPU is often related to ram errors, however to display anything on screen, ram is also used. So the screen is not always the best diagnostic device.

A method used by pinball CPU's is to use the onboard led for diagnostics. On the BBC I used the shift and capslock leds for diagnostics. Each time the led flashes means an IC is working correctly.

This Test Rom would not possible if I could not have looked at the code provided by Tricky and his testrom, which was made available by him at star dot org. Also the Sideways ROM generic code and utilities by Rich Talbot-Watkins provided a lot of help.

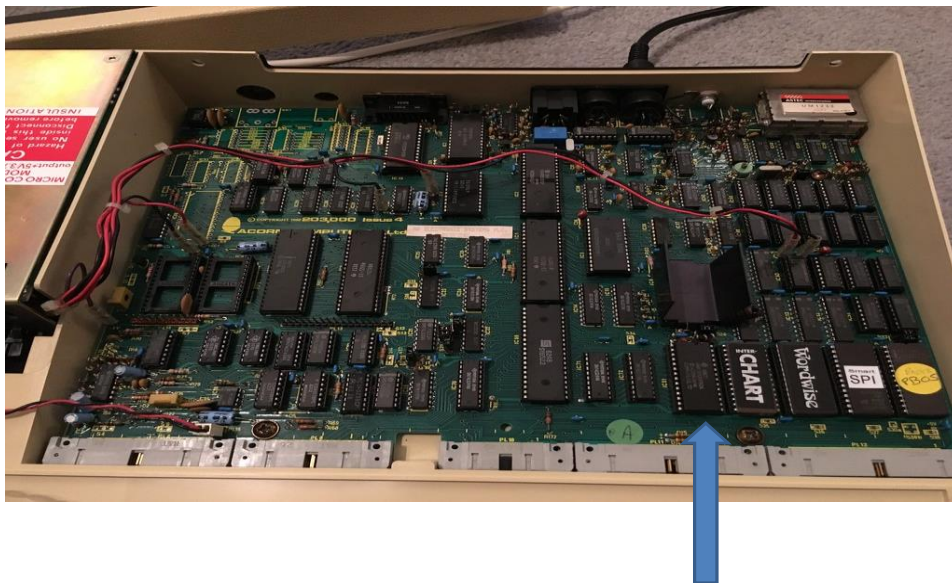
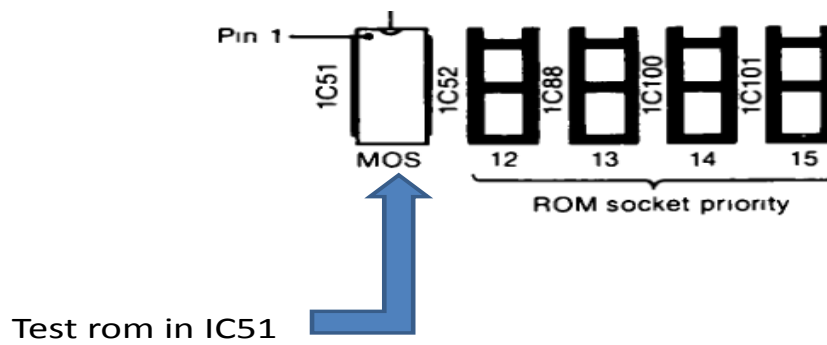
This manual explains how the test-eprom works how to identify errors during startup. I hope it can be helpful for repairing Acorn-BBC's

This test rom image is one image, but has three appearances depending on which socket it is placed:

- 1) OS TEST ROM: If you put in socket IC52 (OS location) it will flash the keyboard leds. Each flash means it passed a IC check (RAM)
- 2) "BASIC" Testrom. If the testrom is placed in socket before BASIC rom (fi. IC socked IC101). ) it will flash the keyboard leds each flash means it passed a IC check (RAM, user VIA, sys VIA) .
- 3) Testrom in sideways socket. The basic rom needs in socket 101 and the testrom in ic socket 88. In this mode you can perform simple RAM en VIA tests to find fi. Stuck bits.
  - a. MODE 0: \*RAMTEST  
Does as simple test of the whole memory.
  - b. \*STUCKBITS  
Will test 2 addresses if bits are stuck, checking the 16 RAM IC's (often a ram IC failing will cause one specific bits to fail.)
  - c. \*USR VIA  
Does a simple test to check the user via works
  - d. \*SYS VIA  
Does a simple test to check if the system via works.

## 2. Located at IC51: The OS TEST ROM

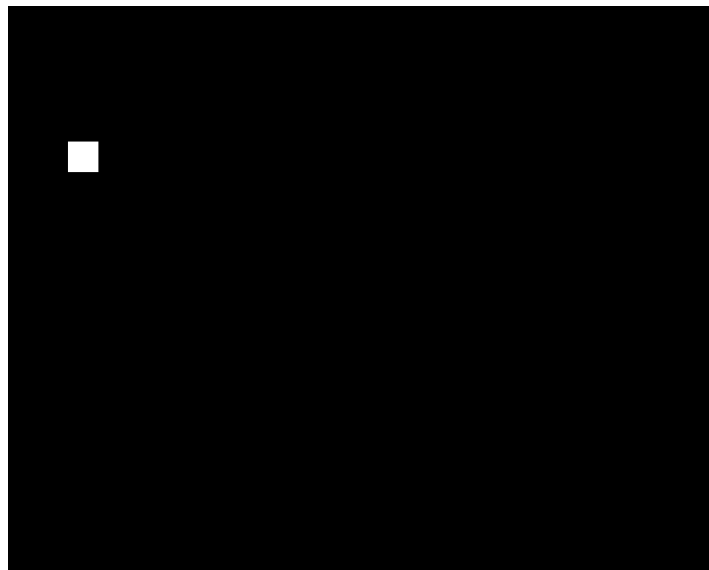
To use the testrom rom to do a start up test. You have to place the rom in IC socket IC51. It does not rely on ram chip`s



When powered up it will perform an number test. If a test is passed a keyboard led-flash is given (the cursor flashes also). First the tests are done using mode 7.

```
Andre Test ROM at OS location v0.05  
first led flash=rom code executed  
START of bittest &1000;Bit=01234567  
START of bittest &7000;Bit=01234567  
  
tests passed, Switch to special mode 0 f  
or large cursor and blank lines, Reset  
to run test again
```

After that a modification of mode 0 is used with blank lines, so the cursor should be better visible in case of ram errors.



Press Break to restart the test.

A flash of the keyboard led (or the cursor) indicates it has passed a test:

1. First keyboard led(or cursor) flash => OS-Rom code test passed, the eeprom is working. The 6502 can execute the code of the test os rom.
2. Second flash: Test D0 at &1000 => IC 61 passed
3. Test D1 at &1000 => IC 62 passed
4. Test D2 at &1000 => IC 63 passed

For the other led flashes refer to cross reference in chapter 5

## BBC model B Test Rom

If a test fails the computer will stop flashing at that point.  
For instance if there is a failure of D1 at &1000 you will see only 2 flashes

### 3. Located in IC101: The language testrom

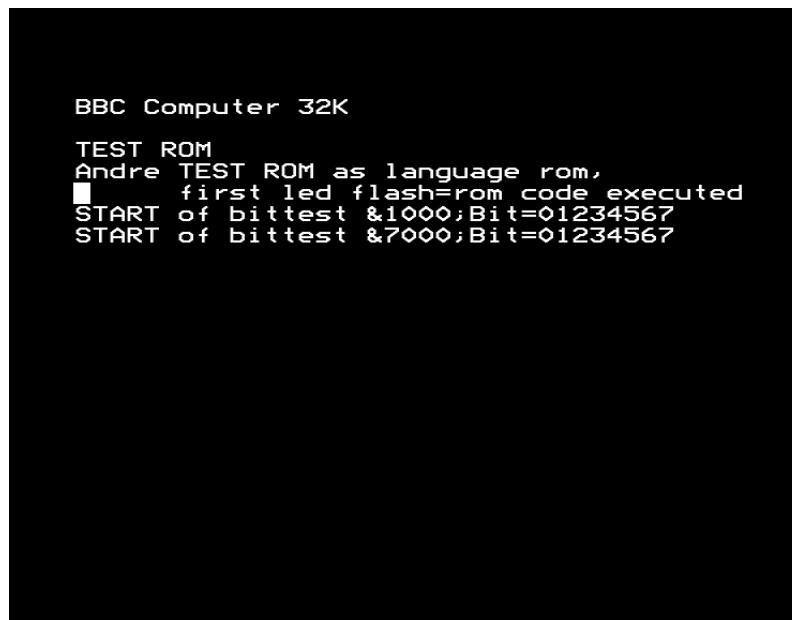
If the eprom is placed in IC101 location, and the original Acorn os1.2 rom in ic51. After a successful startup 19 ledflashes will be shown.

First led flash:

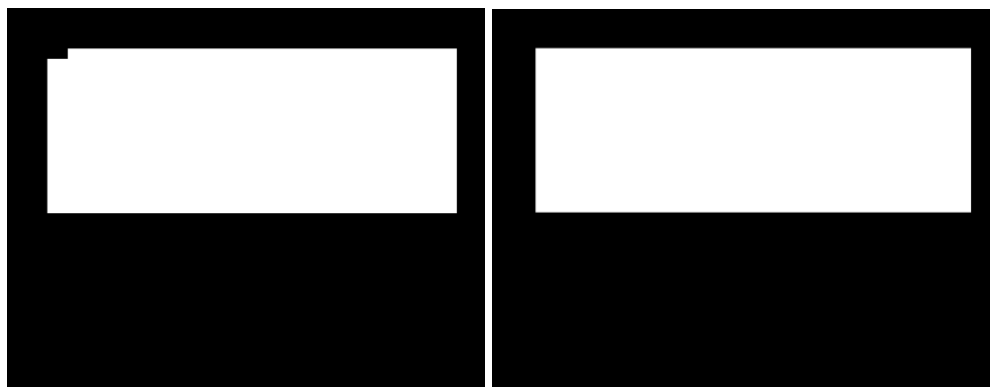
This indicates the Acorn OS-rom has started and functions, and also test-eprom in 101 is working.

For other led-flashes look at the crossreference table in chapter 5.

First mode 7 is used to display the tests.



After the tests are completed, the mode is switched to mode 0. Showing a black and white screen and a large cursor should blink at approx. 1 second rate. No additional tests are done.





#### 4. Located in IC88: The testrom as a sideways rom

Testrom in sideways socket. The basic rom needs installed fi. In socket 101 and the testrom in ic socket 88. In this mode you can perform simple RAM en VIA tests to find fi. Stuck bits.

```

BBC Computer 32K
Acorn DFS
BASIC
>*H.
DFS 0 90
DFS
UTILS
TEST ROM 1.00
RAMTEST
STUCKBITS
TESTSW
USRVIA
SYSVIA
OS 1.20
>

```

Commands:

- a. MODE 0: \*RAMTEST  
Does as simple test of the whole memory.
- b. \*STUCKBITS  
Will test 2 addresses if bits are stuck, checking the 16 RAM IC's (often a ram IC failing will cause one specific bits to fail).

```

Testing memory location &1000 for stuck
bits
00:00 Bin: 00000000:00000000 Ok
01:01 Bin: 00000001:00000001 Okk
02:02 Bin: 00000010:00000010 Okk
03:03 Bin: 00000011:00000011 Okk
04:04 Bin: 00000100:00000100 Okk
05:05 Bin: 00000101:00000101 Okk
06:06 Bin: 00000110:00000110 Okk
07:07 Bin: 00000111:00000111 Okk
08:08 Bin: 00001000:00001000 Okk
09:09 Bin: 00001001:00001001 Okk
10:10 Bin: 00001010:00001010 Okk
11:11 Bin: 00001011:00001011 Okk
12:12 Bin: 00001100:00001100 Okk
13:13 Bin: 00001101:00001101 Okk
14:14 Bin: 00001110:00001110 Okk
15:15 Bin: 00001111:00001111 Okk
16:16 Bin: 00010000:00010000 Okk
17:17 Bin: 00010001:00010001 Okk
18:18 Bin: 00010010:00010010 Okk
19:19 Bin: 00010011:00010011 Okk
20:20 Bin: 00010100:00010100 Okk
21:21 Bin: 00010101:00010101 Okk
22:22 Bin: 00010110:00010110 Okk
23:23 Bin: 00010111:00010111 Okk
24:24 Bin: 00011000:00011000 Okk
25:25 Bin: 00011001:00011001 Okk
26:26 Bin: 00011010:00011010 Okk
27:27 Bin: 00011011:00011011 Okk
28:28 Bin: 00011100:00011100 Okk
29:29 Bin: 00011101:00011101 Okk
30:30 Bin: 00011110:00011110 Okk
31:31 Bin: 00011111:00011111 Okk
32:32 Bin: 00010000:00010000 Okk
33:33 Bin: 00010001:00010001 Okk
34:34 Bin: 00010010:00010010 Okk
35:35 Bin: 00010011:00010011 Okk
36:36 Bin: 00010100:00010100 Okk
37:37 Bin: 00010101:00010101 Okk
38:38 Bin: 00010110:00010110 Okk
39:39 Bin: 00010111:00010111 Okk
40:40 Bin: 00011000:00011000 Okk
41:41 Bin: 00011001:00011001 Okk
42:42 Bin: 00011010:00011010 Okk
43:43 Bin: 00011011:00011011 Okk
44:44 Bin: 00011100:00011100 Okk
45:45 Bin: 00011101:00011101 Okk
46:46 Bin: 00011110:00011110 Okk
47:47 Bin: 00011111:00011111 Okk
48:48 Bin: 00100000:00100000 Okk
49:49 Bin: 00100001:00100001 Okk
50:50 Bin: 00100010:00100010 Okk
51:51 Bin: 00100011:00100011 Okk
52:52 Bin: 00100100:00100100 Okk
53:53 Bin: 00100101:00100101 Okk
54:54 Bin: 00100110:00100110 Okk
55:55 Bin: 00100111:00100111 Okk
56:56 Bin: 00101000:00101000 Okk
57:57 Bin: 00101001:00101001 Okk
58:58 Bin: 00101010:00101010 Okk
59:59 Bin: 00101011:00101011 Okk
60:60 Bin: 00101100:00101100 Okk
61:61 Bin: 00101101:00101101 Okk
62:62 Bin: 00101110:00101110 Okk
63:63 Bin: 00101111:00101111 Okk
64:64 Bin: 00110000:00110000 Okk
65:65 Bin: 00110001:00110001 Okk
66:66 Bin: 00110010:00110010 Okk
67:67 Bin: 00110011:00110011 Okk
68:68 Bin: 00110100:00110100 Okk
69:69 Bin: 00110101:00110101 Okk
70:70 Bin: 00110110:00110110 Okk
71:71 Bin: 00110111:00110111 Okk
72:72 Bin: 00111000:00111000 Okk
73:73 Bin: 00111001:00111001 Okk
74:74 Bin: 00111010:00111010 Okk
75:75 Bin: 00111011:00111011 Okk
76:76 Bin: 00111100:00111100 Okk
77:77 Bin: 00111101:00111101 Okk
78:78 Bin: 00111110:00111110 Okk
79:79 Bin: 00111111:00111111 Okk
80:80 Bin: 00100000:00100000 Okk
81:81 Bin: 00100001:00100001 Okk
82:82 Bin: 00100010:00100010 Okk
83:83 Bin: 00100011:00100011 Okk
84:84 Bin: 00100100:00100100 Okk
85:85 Bin: 00100101:00100101 Okk
86:86 Bin: 00100110:00100110 Okk
87:87 Bin: 00100111:00100111 Okk
88:88 Bin: 00101000:00101000 Okk
89:89 Bin: 00101001:00101001 Okk
90:90 Bin: 00101010:00101010 Okk
91:91 Bin: 00101011:00101011 Okk
92:92 Bin: 00101100:00101100 Okk
93:93 Bin: 00101101:00101101 Okk
94:94 Bin: 00101110:00101110 Okk
95:95 Bin: 00101111:00101111 Okk
96:96 Bin: 00110000:00110000 Okk
97:97 Bin: 00110001:00110001 Okk
98:98 Bin: 00110010:00110010 Okk
99:99 Bin: 00110011:00110011 Okk
100:100 Bin: 00110100:00110100 Okk
101:101 Bin: 00110101:00110101 Okk
102:102 Bin: 00110110:00110110 Okk
103:103 Bin: 00110111:00110111 Okk
104:104 Bin: 00111000:00111000 Okk
105:105 Bin: 00111001:00111001 Okk
106:106 Bin: 00111010:00111010 Okk
107:107 Bin: 00111011:00111011 Okk
108:108 Bin: 00111100:00111100 Okk
109:109 Bin: 00111101:00111101 Okk
110:110 Bin: 00111110:00111110 Okk
111:111 Bin: 00111111:00111111 Okk
112:112 Bin: 00100000:00100000 Okk
113:113 Bin: 00100001:00100001 Okk
114:114 Bin: 00100010:00100010 Okk
115:115 Bin: 00100011:00100011 Okk
116:116 Bin: 00100100:00100100 Okk
117:117 Bin: 00100101:00100101 Okk
118:118 Bin: 00100110:00100110 Okk
119:119 Bin: 00100111:00100111 Okk
120:120 Bin: 00101000:00101000 Okk
121:121 Bin: 00101001:00101001 Okk
122:122 Bin: 00101010:00101010 Okk
123:123 Bin: 00101011:00101011 Okk
124:124 Bin: 00101100:00101100 Okk
125:125 Bin: 00101101:00101101 Okk
126:126 Bin: 00101110:00101110 Okk
127:127 Bin: 00101111:00101111 Okk
128:128 Bin: 00110000:00110000 Okk
129:129 Bin: 00110001:00110001 Okk
130:130 Bin: 00110010:00110010 Okk
131:131 Bin: 00110011:00110011 Okk
132:132 Bin: 00110100:00110100 Okk
133:133 Bin: 00110101:00110101 Okk
134:134 Bin: 00110110:00110110 Okk
135:135 Bin: 00110111:00110111 Okk
136:136 Bin: 00111000:00111000 Okk
137:137 Bin: 00111001:00111001 Okk
138:138 Bin: 00111010:00111010 Okk
139:139 Bin: 00111011:00111011 Okk
140:140 Bin: 00111100:00111100 Okk
141:141 Bin: 00111101:00111101 Okk
142:142 Bin: 00111110:00111110 Okk
143:143 Bin: 00111111:00111111 Okk
144:144 Bin: 00100000:00100000 Okk
145:145 Bin: 00100001:00100001 Okk
146:146 Bin: 00100010:00100010 Okk
147:147 Bin: 00100011:00100011 Okk
148:148 Bin: 00100100:00100100 Okk
149:149 Bin: 00100101:00100101 Okk
150:150 Bin: 00100110:00100110 Okk
151:151 Bin: 00100111:00100111 Okk
152:152 Bin: 00101000:00101000 Okk
153:153 Bin: 00101001:00101001 Okk
154:154 Bin: 00101010:00101010 Okk
155:155 Bin: 00101011:00101011 Okk
156:156 Bin: 00101100:00101100 Okk
157:157 Bin: 00101101:00101101 Okk
158:158 Bin: 00101110:00101110 Okk
159:159 Bin: 00101111:00101111 Okk
160:160 Bin: 00110000:00110000 Okk
161:161 Bin: 00110001:00110001 Okk
162:162 Bin: 00110010:00110010 Okk
163:163 Bin: 00110011:00110011 Okk
164:164 Bin: 00110100:00110100 Okk
165:165 Bin: 00110101:00110101 Okk
166:166 Bin: 00110110:00110110 Okk
167:167 Bin: 00110111:00110111 Okk
168:168 Bin: 00111000:00111000 Okk
169:169 Bin: 00111001:00111001 Okk
170:170 Bin: 00111010:00111010 Okk
171:171 Bin: 00111011:00111011 Okk
172:172 Bin: 00111100:00111100 Okk
173:173 Bin: 00111101:00111101 Okk
174:174 Bin: 00111110:00111110 Okk
175:175 Bin: 00111111:00111111 Okk
176:176 Bin: 00100000:00100000 Okk
177:177 Bin: 00100001:00100001 Okk
178:178 Bin: 00100010:00100010 Okk
179:179 Bin: 00100011:00100011 Okk
180:180 Bin: 00100100:00100100 Okk
181:181 Bin: 00100101:00100101 Okk
182:182 Bin: 00100110:00100110 Okk
183:183 Bin: 00100111:00100111 Okk
184:184 Bin: 00101000:00101000 Okk
185:185 Bin: 00101001:00101001 Okk
186:186 Bin: 00101010:00101010 Okk
187:187 Bin: 00101011:00101011 Okk
188:188 Bin: 00101100:00101100 Okk
189:189 Bin: 00101101:00101101 Okk
190:190 Bin: 00101110:00101110 Okk
191:191 Bin: 00101111:00101111 Okk
192:192 Bin: 00110000:00110000 Okk
193:193 Bin: 00110001:00110001 Okk
194:194 Bin: 00110010:00110010 Okk
195:195 Bin: 00110011:00110011 Okk
196:196 Bin: 00110100:00110100 Okk
197:197 Bin: 00110101:00110101 Okk
198:198 Bin: 00110110:00110110 Okk
199:199 Bin: 00110111:00110111 Okk
200:200 Bin: 00111000:00111000 Okk
201:201 Bin: 00111001:00111001 Okk
202:202 Bin: 00111010:00111010 Okk
203:203 Bin: 00111011:00111011 Okk
204:204 Bin: 00111100:00111100 Okk
205:205 Bin: 00111101:00111101 Okk
206:206 Bin: 00111110:00111110 Okk
207:207 Bin: 00111111:00111111 Okk
208:208 Bin: 00100000:00100000 Okk
209:209 Bin: 00100001:00100001 Okk
210:210 Bin: 00100010:00100010 Okk
211:211 Bin: 00100011:00100011 Okk
212:212 Bin: 00100100:00100100 Okk
213:213 Bin: 00100101:00100101 Okk
214:214 Bin: 00100110:00100110 Okk
215:215 Bin: 00100111:00100111 Okk
216:216 Bin: 00101000:00101000 Okk
217:217 Bin: 00101001:00101001 Okk
218:218 Bin: 00101010:00101010 Okk
219:219 Bin: 00101011:00101011 Okk
220:220 Bin: 00101100:00101100 Okk
221:221 Bin: 00101101:00101101 Okk
222:222 Bin: 00101110:00101110 Okk
223:223 Bin: 00101111:00101111 Okk
224:224 Bin: 00110000:00110000 Okk
225:225 Bin: 00110001:00110001 Okk
226:226 Bin: 00110010:00110010 Okk
227:227 Bin: 00110011:00110011 Okk
228:228 Bin: 00110100:00110100 Okk
229:229 Bin: 00110101:00110101 Okk
230:230 Bin: 00110110:00110110 Okk
231:231 Bin: 00110111:00110111 Okk
232:232 Bin: 00111000:00111000 Okk
233:233 Bin: 00111001:00111001 Okk
234:234 Bin: 00111010:00111010 Okk
235:235 Bin: 00111011:00111011 Okk
236:236 Bin: 00111100:00111100 Okk
237:237 Bin: 00111101:00111101 Okk
238:238 Bin: 00111110:00111110 Okk
239:239 Bin: 00111111:00111111 Okk
240:240 Bin: 00100000:00100000 Okk
241:241 Bin: 00100001:00100001 Okk
242:242 Bin: 00100010:00100010 Okk
243:243 Bin: 00100011:00100011 Okk
244:244 Bin: 00100100:00100100 Okk
245:245 Bin: 00100101:00100101 Okk
246:246 Bin: 00100110:00100110 Okk
247:247 Bin: 00100111:00100111 Okk
248:248 Bin: 00101000:00101000 Okk
249:249 Bin: 00101001:00101001 Okk
250:250 Bin: 00101010:00101010 Okk
251:251 Bin: 00101011:00101011 Okk
252:252 Bin: 00101100:00101100 Okk
253:253 Bin: 00101101:00101101 Okk
254:254 Bin: 00101110:00101110 Okk
255:255 Bin: 00101111:00101111 Okk
256:256 Bin: 00110000:00110000 Okk
257:257 Bin: 00110001:00110001 Okk
258:258 Bin: 00110010:00110010 Okk
259:259 Bin: 00110011:00110011 Okk
260:260 Bin: 00110100:00110100 Okk
261:261 Bin: 00110101:00110101 Okk
262:262 Bin: 00110110:00110110 Okk
263:263 Bin: 00110111:00110111 Okk
264:264 Bin: 00111000:00111000 Okk
265:265 Bin: 00111001:00111001 Okk
266:266 Bin: 00111010:00111010 Okk
267:267 Bin: 00111011:00111011 Okk
268:268 Bin: 00111100:00111100 Okk
269:269 Bin: 00111101:00111101 Okk
270:270 Bin: 00111110:00111110 Okk
271:271 Bin: 00111111:00111111 Okk
272:272 Bin: 00100000:00100000 Okk
273:273 Bin: 00100001:00100001 Okk
274:274 Bin: 00100010:00100010 Okk
275:275 Bin: 00100011:00100011 Okk
276:276 Bin: 00100100:00100100 Okk
277:277 Bin: 00100101:00100101 Okk
278:278 Bin: 00100110:00100110 Okk
279:279 Bin: 00100111:00100111 Okk
280:280 Bin: 00101000:00101000 Okk
281:281 Bin: 00101001:00101001 Okk
282:282 Bin: 00101010:00101010 Okk
283:283 Bin: 00101011:00101011 Okk
284:284 Bin: 00101100:00101100 Okk
285:285 Bin: 00101101:00101101 Okk
286:286 Bin: 00101110:00101110 Okk
287:287 Bin: 00101111:00101111 Okk
288:288 Bin: 00110000:00110000 Okk
289:289 Bin: 00110001:00110001 Okk
290:290 Bin: 00110010:00110010 Okk
291:291 Bin: 00110011:00110011 Okk
292:292 Bin: 00110100:00110100 Okk
293:293 Bin: 00110101:00110101 Okk
294:294 Bin: 00110110:00110110 Okk
295:295 Bin: 00110111:00110111 Okk
296:296 Bin: 00111000:00111000 Okk
297:297 Bin: 00111001:00111001 Okk
298:298 Bin: 00111010:00111010 Okk
299:299 Bin: 00111011:00111011 Okk
300:300 Bin: 00111100:00111100 Okk
301:301 Bin: 00111101:00111101 Okk
302:302 Bin: 00111110:00111110 Okk
303:303 Bin: 00111111:00111111 Okk
304:304 Bin: 00100000:00100000 Okk
305:305 Bin: 00100001:00100001 Okk
306:306 Bin: 00100010:00100010 Okk
307:307 Bin: 00100011:00100011 Okk
308:308 Bin: 00100100:00100100 Okk
309:309 Bin: 00100101:00100101 Okk
310:310 Bin: 00100110:00100110 Okk
311:311 Bin: 00100111:00100111 Okk
312:312 Bin: 00101000:00101000 Okk
313:313 Bin: 00101001:00101001 Okk
314:314 Bin: 00101010:00101010 Okk
315:315 Bin: 00101011:00101011 Okk
316:316 Bin: 00101100:00101100 Okk
317:317 Bin: 00101101:00101101 Okk
318:318 Bin: 00101110:00101110 Okk
319:319 Bin: 00101111:00101111 Okk
320:320 Bin: 00110000:00110000 Okk
321:321 Bin: 00110001:00110001 Okk
322:322 Bin: 00110010:00110010 Okk
323:323 Bin: 00110011:00110011 Okk
324:324 Bin: 00110100:00110100 Okk
325:325 Bin: 00110101:00110101 Okk
326:326 Bin: 00110110:00110110 Okk
327:327 Bin: 00110111:00110111 Okk
328:328 Bin: 00111000:00111000 Okk
329:329 Bin: 00111001:00111001 Okk
330:330 Bin: 00111010:00111010 Okk
331:331 Bin: 00111011:00111011 Okk
332:332 Bin: 00111100:00111100 Okk
333:333 Bin: 00111101:00111101 Okk
334:334 Bin: 00111110:00111110 Okk
335:335 Bin: 00111111:00111111 Okk
336:336 Bin: 00100000:00100000 Okk
337:337 Bin: 00100001:00100001 Okk
338:338 Bin: 00100010:00100010 Okk
339:339 Bin: 00100011:00100011 Okk
340:340 Bin: 00100100:00100100 Okk
341:341 Bin: 00100101:00100101 Okk
342:342 Bin: 00100110:00100110 Okk
343:343 Bin: 00100111:00100111 Okk
344:344 Bin: 00101000:00101000 Okk
345:345 Bin: 00101001:00101001 Okk
346:346 Bin: 00101010:00101010 Okk
347:347 Bin: 00101011:00101011 Okk
348:348 Bin: 00101100:00101100 Okk
349:349 Bin: 00101101:00101101 Okk
350:350 Bin: 00101110:00101110 Okk
351:351 Bin: 00101111:00101111 Okk
352:352 Bin: 00110000:00110000 Okk
353:353 Bin: 00110001:00110001 Okk
354:354 Bin: 00110010:00110010 Okk
355:355 Bin: 00110011:00110011 Okk
356:356 Bin: 00110100:00110100 Okk
357:357 Bin: 00110101:00110101 Okk
358:358 Bin: 00110110:00110110 Okk
359:359 Bin: 00110111:00110111 Okk
360:360 Bin: 00111000:00111000 Okk
361:361 Bin: 00111001:00111001 Okk
362:362 Bin: 00111010:00111010 Okk
363:363 Bin: 00111011:00111011 Okk
364:364 Bin: 00111100:00111100 Okk
365:365 Bin: 00111101:00111101 Okk
366:366 Bin: 00111110:00111110 Okk
367:367 Bin: 00111111:00111111 Okk
368:368 Bin: 00100000:00100000 Okk
369:369 Bin: 00100001:00100001 Okk
370:370 Bin: 00100010:00100010 Okk
371:371 Bin: 00100011:00100011 Okk
372:372 Bin: 00100100:00100100 Okk
373:373 Bin: 00100101:00100101 Okk
374:374 Bin: 00100110:00100110 Okk
375:375 Bin: 00100111:00100111 Okk
376:376 Bin: 00101000:00101000 Okk
377:377 Bin: 00101001:00101001 Okk
378:378 Bin: 00101010:00101010 Okk
379:379 Bin: 00101011:00101011 Okk
380:380 Bin: 00101100:00101100 Okk
381:381 Bin: 00101101:00101101 Okk
382:382 Bin: 00101110:00101110 Okk
383:383 Bin: 00101111:00101111 Okk
384:384 Bin: 00110000:00110000 Okk
385:385 Bin: 00110001:00110001 Okk
386:386 Bin: 00110010:00110010 Okk
387:387 Bin: 00110011:00110011 Okk
388:388 Bin: 00110100:00110100 Okk
389:389 Bin: 00110101:00110101 Okk
390:390 Bin: 00110110:00110110 Okk
391:391 Bin: 00110111:00110111 Okk
392:392 Bin: 00111000:00111000 Okk
393:393 Bin: 00111001:00111001 Okk
394:394 Bin: 00111010:00111010 Okk
395:395 Bin: 00111011:00111011 Okk
396:396 Bin: 00111100:00111100 Okk
397:397 Bin: 00111101:00111101 Okk
398:398 Bin: 00111110:00111110 Okk
399:399 Bin: 00111111:00111111 Okk
400:400 Bin: 00100000:00100000 Okk
401:401 Bin: 00100001:00100001 Okk
402:402 Bin: 
```

```
>*USRVIA
USER VIA TEST
User VIA Register 6 functions correct
USER VIA T1 TEST
functions Correct
T1=F0EB (Initiated with &F0F0;should be
<=&F0EB>
User VIA T1 correct
USER VIA T2 TEST
functions Correct
T2=F0EB (Initiated with &F0F0;should be
<=&F0EB>
User VIA T2 correct
User VIA Register 7 functions correct
>
```

## d. \*SYSVIA

Does a simple test to check if the system via works. After that the system will be resetted.

## 5. Cross reference led-flash to defective IC

Model B is assumed and S25 in (standard) north position.

So if you see only 2 led flashes and then a long period of nothing. Then the test of ic62 failed. Thus ic 62 may be defective.

Led flash	Meaning	Comment
First Flash visible	Eprom image ok	
2nd flash	IC61 ok	D0 @ 1000
3th flash	IC62 ok	D1 @ 1000
4th flash	IC63 ok	D2 @ 1000
5th flash	IC64 ok	D3 @ 1000
6th flash	IC65 ok	D4 @ 1000
7th flash	IC66 ok	D5 @ 1000
8th flash	IC67 ok	D6 @ 1000
9th flash	IC68 ok	D7 @ &1000
10th flash	IC53 ok	D0 @ &7000
11th flash	IC54 ok	D1 @ &7000
12th flash	IC55 ok	D2 @ &7000
13th flash	IC56 ok	D3 @ &7000
14th flash	IC57 ok	D4 @ &7000
15th flash	IC58 ok	D5 @ &7000
16th flash	IC59 ok	D6 @ &7000
17th flash	IC60 ok	D7 @ &7000
18th flash	System VIA ok	Not in OS-rom test
19th flash	User VIA ok	Not in OS rom test