

Model 575A Digital IC Tester



***BK PRECISION*** <sup>®</sup>

**MODEL 575A HANDHELD  
DIGITAL IC TESTER  
OPERATOR'S MANUAL**

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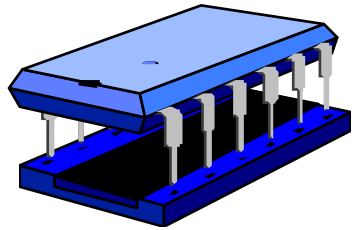
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## 1. introduction

Thank you for purchasing the B & K Precision Model 575A Hand Held Digital IC Tester.



The basic function of the B & K Model 575A Digital IC Tester is to test a digital IC for correct logical functioning as described in the truth table and/or function table. The B & K Model 575A applies the necessary signals to the inputs of the IC, monitoring the outputs at each stage and comparing them with the expected states. Any discrepancy results in a FAIL indication and the faulty pins are shown on the integral display. Additional facilities are also provided, amongst them test loops that can be used for goods inwards inspection, detecting intermittent faults or simply providing a rapid method of exercising any IC for demonstration or educational purposes. Since the B & K Model 575A contains an extensive IC library, it is not necessary to program the unit yourself other than to key in the IC number. It is also capable of identifying an unknown IC using the SEARCH mode - this is a feature that many users will find extremely valuable.

The B & K Model 575A is provided with an RS-232 interface enabling it to be connected to a companion software package called CompactLink running on a PC. CompactLink allows test programs for ICs not included in the internal library to be developed and downloaded into the B & K Model 575A memory to enhance the library according to your wishes.

## 2. DC input

The B & K Model 575A is powered by four AA batteries or by the use of the battery eliminator input at the rear of the case. To insert the batteries, turn the unit upside down and remove the battery

cover by removing the two cross head screws holding it in place. The batteries must be inserted in the correct orientation, as indicated by the drawing within the battery compartment. Incorrect insertion of batteries will not allow the unit to operate. Replace the battery cover and insert the screws. If the battery voltage falls too low, a low battery warning symbol will be displayed at the top left hand cell of the display in normal operating mode. A low battery warning will also be displayed during a result display. Test results may be inconsistent under these conditions.

### **3. battery eliminator**

An external battery eliminator is available for prolonged use of the B & K Model 575A. Many bipolar LSI ICs consume a large amount of current when powered up, and battery life can be conserved by using the eliminator. There is no need to remove the batteries prior to inserting the battery eliminator. However, please note that during prolonged periods of non-use batteries are prone to leakage and should be removed. Note that to avoid damage to the unit we strongly advise that you only use the recommended battery eliminator that is available by contacting your distributor. Note that using an incorrect battery eliminator voltage may damage the unit and invalidate the warranty.

## 4. switching on

To switch the unit on, simply press the 'ON' key. To preserve battery life, the unit powers itself off after approximately 3 minutes of non-use or when "Sw Off" is selected from the main menu. When the unit is switched on, it first performs a self-diagnosis test. Therefore, before switching on, check that the test socket is empty to prevent interference with the diagnostics. If the unit passes the self-test, a pass result will be displayed on the screen. Press a key to enter the main operating mode - the display will be as follows:



**NO:  
MODE:Single:RDY**

When this initial display is obtained the B & K Model 575A is ready for use. If, however, the message SELF-TEST FAIL: is displayed along with a fault message, this indicates that a self-test diagnostic fault has been detected. Any detected faults will be displayed one at a time. Pressing the TEST/EXEC key will then revert to the opening menu as above, but of course operation of the unit will then be suspect. Before contacting your distributor, check that the test socket is completely empty.

## 5. operating modes

The B & K Model 575A has a number of test modes that are selected using the MODE/CLEAR key from the initial screen. The test modes are as follows:

- Single - execute a single test on the IC in the socket.
- Loop - execute test repeatedly, regardless of the result.
- P Loop - execute test repeatedly, provided the result was PASS.
- F Loop - execute test repeatedly, provided the result was FAIL.
- Search - identify the number of the IC in the socket.
- Diags - execute the diagnostic self-test.
- CmLink - enter remote mode for CompactLink software.
- Sw Off - turn off the unit.

## 6. entering test numbers

Press the MODE/CLEAR key until the desired test mode is displayed. Enter the number of the IC you wish to test. Pressing the MODE/CLEAR key will clear the last digit from the display if a mistake is made.

**Note: The NUMERIC information only is entered, leaving out the manufacturers prefixes and suffixes and IC family information. As an example, all the following TTL ICs should be entered as 7, 4, 0, 0 on the keypad:**

e.g. DM74LS00J, N74LS00N, N74S00N, N7400N, 74ALS00N, SN74HCT00

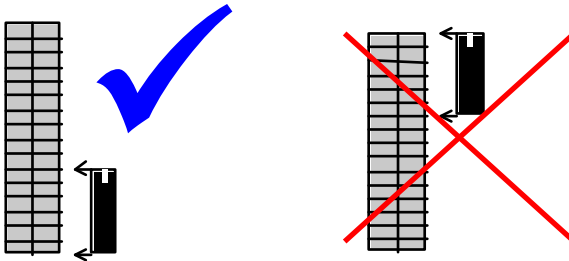
A very small number of ICs have differing pin-outs for different IC families - in these cases, the most popular pin-out only is supported. The CMOS 4000 series is also supported and the IC numbers for this family should all begin with "4", so that with for example Motorola ICs beginning MC14... the initial "1" should be omitted. The same principles apply also to memory ICs, which are mostly four digit numbers. With interface ICs of the 8T series the "T" should be omitted. A complete list of all ICs supported by the B & K Model 575A is contained in the IC SUPPORT LIST at the end of this

manual together with notes on any special requirements for certain ICs.

Note that if you have stored a user library using CompactLink, an IC in the user library with the same number as one in the internal library will take precedence. This allows a new test to be written for an existing IC. If you wish both tests to be available, use a different number for your user test.

## 7. testing the IC

Insert the IC to be tested in the front of the 40 pin Zero Insertion Force socket with pin 1 towards the display as shown below:



Ensure that the operating lever on the socket is in the open (i.e. up) position before inserting the IC. Close the socket by lowering the lever, making sure that the IC is firmly seated in the socket and making good contact. Press the TEST/EXEC key to activate the test sequence for the IC. If an invalid IC type number was entered, or if the IC you have requested is not supported the message "Unknown" will be displayed. Simply entering another IC type number will automatically clear this error message. If a valid type number was entered, the IC test will begin and the message "BUSY" will be displayed while the test proceeds. Many of the tests, however, execute so quickly that this message is not noticeable.

## **8. test results**

A pre-determined sequence of signals is applied to the inputs of the IC and the IC outputs are monitored for the correct logic levels. The unit uses TTL or CMOS logic thresholds (depending on the selected IC) when evaluating the response of the IC outputs. If all the outputs respond correctly, the result PASS will be displayed at the top right of the display. A scrolling message will contain the IC function and power pin information.

If a short circuit between the power pins of the IC is detected, a warning 'SHT!' will appear on the top right of the display and, since no valid test is then possible, the result will FAIL. If the IC under test takes an excessive amount of current when power is applied, a warning 'ICC!' will appear. Press the TEST/EXEC key to continue with the test, or MODE/CLEAR to abandon. Depending on the condition of the batteries there may also be a 'BAT!' warning which indicates that the batteries are incapable of supplying the current required by the IC under test. You can continue with the test by pressing the TEST/EXEC key, but the unit may malfunction because of a drop in battery voltage. To avoid this, change the batteries or use a battery eliminator. Note that a faulty IC may demand more operating current and therefore will quickly drain the batteries.

In the case of a FAIL result, the error conditions at all the non-functional pins of the IC will be scrolled on the display, and the IC function will be shown. The various failure conditions that can be displayed are as follows:

- LOW - the output was LOW when HIGH was expected.
- MID LOW - the output was LOW, but not a valid logic level.
- HIGH - the output was HIGH when LOW was expected.
- MID HIGH - the output was HIGH, but not a valid logic level.
- LOAD 0V - the input cannot be driven HIGH.
- LOAD 5V - the input cannot be driven LOW.

In some cases, the scrolling test results may include one or more WARNING indications. These warnings indicate conditions that may result in an incorrect test result, and are as follows:

- D/F - result may be invalid because last self-test failed.
- BAT - battery voltage too low during test.
- ICC - large current taken by IC under test.

Before discarding a failed IC check that the correct IC type number was entered and also check that the IC pins are clean and making good contact with the test socket. Note that there is no way of stopping a test once it has commenced, but see the description of loop functions later in this manual.

## **9. testing further ICs**

After a test is completed, the test result will be displayed. To test another IC of the same type, simply insert the next IC and press the TEST/EXEC key again. To test a different IC, enter the new IC type number in the usual way, noticing that pressing the first digit of the new number automatically clears the previous number from the display. Remember that the MODE/CLEAR key can be used if an error is made during the entry of the IC type number.

## 10. continuous testing

It is possible to test the same IC repeatedly to detect intermittent or temperature-related faults, or to rapidly test a batch of identical ICs. There are three types of test loop modes:

- Loop - execute a test repeatedly, regardless of the result.
- P Loop - execute a test repeatedly, provided the result is PASS.
- F Loop - execute a test repeatedly, provided the result was FAIL.

The B & K Model 575A is configured into one of the loop modes using the MODE/CLEAR key as described earlier. Insert the IC and press TEST/EXEC in the usual way to start the continuous test process. The result of each test is displayed as PASS or FAIL on the top right of the display. In LOOP mode, this allows a large batch of identical ICs to be tested, without any action on the part of the operator other than inserting the IC. When the IC is inserted, sufficient time must be allowed for the test to take place before the result status is updated, so if in doubt the IC should be tested in single mode so that the approximate test time can be determined. It will be found that high throughput can be obtained using this mode.

To stop any of the test loops, press MODE/CLEAR, but note that the test in progress is completed before the command is obeyed. The effect of this is usually unnoticeable, but where the test takes a reasonable time to execute there will be a delay before the instrument responds to the MODE/CLEAR key.

**Note:** Testing high current ICs in loop mode will drain the batteries quickly, and it is recommended that a battery eliminator is used if you wish to perform loop tests.

## 11. search mode

This feature allows the type number of an unknown IC to be determined, provided the IC is actually contained in the B & K

Model 575A library, and it is a correctly functioning IC. This facility is useful when the IC type number is illegible or has been removed.

Use the MODE/CLEAR key to choose SEARCH mode, insert the unknown IC into the socket and press the TEST/EXEC key. You will be prompted to choose the number of pins of the IC you wish to identify - use the MODE/CLEAR key to select from 8 to 40 pins or 'QUIT' to abandon this mode. Press the TEST/EXEC key again to start the SEARCH or to quit as required.

During the identification process the display will indicate the number of ICs identified (IDENT:) and will show graphically how far through the library the SEARCH has progressed. At the end of the SEARCH, a list of all the similar ICs will be scrolled onto the display. The list may be scrolled again by pressing the TEST/EXEC key.

If the IC cannot be identified the message "Not in Library" will be displayed. This means either that the IC is not in the library or it is non-functional. Note that if the B & K Model 575A detects excessive supply current (ICC! or BAT! warnings), the IC will not be identified during the SEARCH, but can still be tested in SINGLE mode.

If you have a user library present the search will extend to user ICs in that library also. However, CompactLink contains a facility for excluding ICs from the search if required.

## **12. self test mode**

This feature allows you to check the integrity of the unit, including the pin drivers and receivers, power supplies and other internal hardware. The test executes automatically at switch on, but you can if you wish perform a self-test at any time by selecting Self-Test (DIAGS) mode using the MODE/CLEAR key and pressing TEST/EXEC.

If a fault is discovered a brief description will be displayed which will help our engineers to locate and rectify the fault. This message

should be noted and quoted in any correspondence relating to a unit fault. Contact your distributor in the event of a self-test fail, but first of all ensure that the socket was empty when the diagnostics were run.

### **13. CompactLink mode**

The B & K Model 575A is provided with an RS-232 interface to connect to a PC with a serial COM port or using a USB to RS-232 converter. A companion software package CompactLink is available which provides library management, test development and debugging and user library update facilities. You can also use CompactLink to update the software of your B & K Model 575A without replacing the internal memory or opening the case.

To enter CompactLink mode, use the MODE/CLEAR key to enter CMLINK mode, then press TEST/EXEC. Press TEST/EXEC again to confirm that you wish to enter CompactLink mode, and the display will show "Not Connected". Run the CompactLink software on your PC, connect the serial cable and follow the CompactLink manual instructions to connect to the B & K Model 575A.

For comprehensive instructions on using CompactLink please refer to the manual and built-in help supplied with the software.

Note that in CompactLink mode, including waiting for a connection, the normal power down timeout is disabled and the unit will remain on for ever. We recommend using a battery eliminator when using CompactLink mode to develop test programs.

## 14. specifications

| SPECIFICATIONS                     |                                                |                |
|------------------------------------|------------------------------------------------|----------------|
| Batteries                          | 4 X AA size                                    |                |
| DC input                           | 6V, 850mA max, center positive, regulated      |                |
| Power consumption                  | Power off                                      | 10 $\mu$ A max |
|                                    | Standby                                        | 30mA           |
|                                    | Testing                                        | IC dependent   |
| Test thresholds (internal library) | TTL low                                        | 0.5V max       |
|                                    | TTL switching                                  | 1.2V           |
|                                    | TTL high                                       | 2.4V min       |
|                                    | CMOS low                                       | 0.5V max       |
|                                    | CMOS switching                                 | 2.4V           |
|                                    | CMOS high                                      | 3.8V min       |
| Test thresholds (user library)     | Programmable 0V to 5V (using CompactLink)      |                |
| RS-232 settings                    | 38400 baud, 8 data bits, 1 stop bit, no parity |                |
| Dimensions                         | 200mm X 100mm X 55mm approx.                   |                |
| Library ICs                        | TTL, CMOS, VLSI, Interface, Memory, User       |                |

## 15. IC support list

### 15.1. *introduction*

This section is a complete list of the ICs supported by the B & K Model 575A. If there are any special requirements necessary for a particular IC, there will be a number in brackets referring to the notes at the end of this manual. Always consult this list before testing an IC you have not tested before, particularly when there is a note to refer to.

### 15.2. *series 54/74 TTL ICs*

|      |          |          |           |
|------|----------|----------|-----------|
| 7400 | 7431     | 7476     | 74120     |
| 7401 | 7432     | 7477     | 74122 (3) |
| 7402 | 7433     | 7478     | 74123 (3) |
| 7403 | 7437     | 7480     | 74125     |
| 7404 | 7438     | 7482     | 74126     |
| 7405 | 7439     | 7483     | 74128     |
| 7406 | 7440     | 7485     | 74132     |
| 7407 | 7442     | 7486 (2) | 74133     |
| 7408 | 7443     | 7489     | 74134     |
| 7409 | 7444     | 7490     | 74135     |
| 7410 | 7445     | 7491     | 74136     |
| 7411 | 7446     | 7492     | 74137     |
| 7412 | 7447     | 7493     | 74138     |
| 7413 | 7448     | 7494     | 74139     |
| 7414 | 7449     | 7495     | 74140     |
| 7415 | 7450 (1) | 7496     | 74143     |
| 7416 | 7451 (2) | 7497     | 74144     |
| 7417 | 7453 (1) | 74100    | 74145     |
| 7418 | 7454 (2) | 74104    | 74147     |
| 7419 | 7455     | 74105    | 74148     |
| 7420 | 7456     | 74107    | 74150     |
| 7421 | 7457     | 74109    | 74151     |
| 7422 | 7460     | 74110    | 74152     |
| 7423 | 7464     | 74111    | 74153     |
| 7424 | 7465     | 74112    | 74154     |
| 7425 | 7470     | 74113    | 74155     |
| 7426 | 7472     | 74114    | 74156     |
| 7427 | 7473     | 74116    | 74157     |
| 7428 | 7474     | 74118    | 74158     |
| 7430 | 7475     | 74119    | 74159     |

|           |           |           |           |
|-----------|-----------|-----------|-----------|
| 74160     | 74241     | 74355     | 74465     |
| 74161     | 74242     | 74356     | 74466     |
| 74162     | 74243     | 74357     | 74467     |
| 74163     | 74244     | 74363     | 74468     |
| 74164     | 74245     | 74364     | 74470 (6) |
| 74165     | 74246     | 74365     | 74471 (6) |
| 74166     | 74247     | 74366     | 74472 (6) |
| 74167     | 74248     | 74367     | 74473 (6) |
| 74168     | 74249     | 74368     | 74474     |
| 74169     | 74251     | 74373     | 74475     |
| 74170     | 74253     | 74374     | 74490     |
| 74171     | 74257     | 74375     | 74518     |
| 74173     | 74258     | 74376     | 74519     |
| 74174     | 74259     | 74377     | 74520     |
| 74175     | 74260     | 74378     | 74521     |
| 74176     | 74261     | 74379     | 74522     |
| 74177     | 74265     | 74381     | 74533     |
| 74178     | 74266     | 74382     | 74534     |
| 74179     | 74273     | 74384     | 74540     |
| 74180     | 74276     | 74385     | 74541     |
| 74181     | 74278     | 74386     | 74543     |
| 74182     | 74279     | 74387 (6) | 74560     |
| 74183     | 74280     | 74390     | 74561     |
| 74184     | 74281     | 74393     | 74563     |
| 74185     | 74283     | 74395     | 74564     |
| 74188 (6) | 74284     | 74398     | 74568     |
| 74189     | 74285     | 74399     | 74569     |
| 74190     | 74287 (6) | 74408     | 74573     |
| 74191     | 74288 (6) | 74412     | 74574     |
| 74192     | 74289     | 74415     | 74576     |
| 74193     | 74290     | 74422 (3) | 74580     |
| 74194     | 74293     | 74423 (3) | 74590     |
| 74195     | 74295     | 74425     | 74591     |
| 74196     | 74298     | 74426     | 74592     |
| 74197     | 74299     | 74436     | 74593     |
| 74198     | 74300     | 74437     | 74595     |
| 74199     | 74301     | 74440     | 74596     |
| 74200     | 74322     | 74441     | 74597     |
| 74201     | 74323     | 74442     | 74604     |
| 74224     | 74347     | 74443     | 74605     |
| 74225     | 74348     | 74444     | 74606     |
| 74230     | 74350     | 74445     | 74607     |
| 74231     | 74351     | 74446     | 74620     |
| 74237     | 74352     | 74447     | 74621     |
| 74238     | 74353     | 74448     | 74622     |
| 74240     | 74354     | 74449     | 74623     |

|       |       |        |        |
|-------|-------|--------|--------|
| 74638 | 74670 | 74832  | 741032 |
| 74639 | 74671 | 74867  | 741035 |
| 74640 | 74672 | 75869  | 741240 |
| 74641 | 74682 | 74873  | 741241 |
| 74642 | 74683 | 74874  | 741242 |
| 74643 | 74684 | 74876  | 741243 |
| 74644 | 74685 | 74878  | 741244 |
| 74645 | 74688 | 74879  | 741245 |
| 74646 | 74689 | 74880  | 741620 |
| 74647 | 74690 | 74906  | 741621 |
| 74648 | 74691 | 74907  | 741622 |
| 74649 | 74692 | 74929  | 741623 |
| 74651 | 74693 | 741000 | 741638 |
| 74652 | 74696 | 741002 | 741639 |
| 74653 | 74697 | 741003 | 741640 |
| 74654 | 74698 | 741004 | 741641 |
| 74657 | 74699 | 741005 | 741642 |
| 74666 | 74760 | 741008 | 741643 |
| 74667 | 74804 | 741010 | 741644 |
| 74668 | 74805 | 741011 | 741645 |
| 74669 | 74808 | 741020 |        |

### 15.3. CMOS ICs

Note: 74C/HC/HCT ICs are listed in the TTL section

|      |      |      |          |
|------|------|------|----------|
| 4000 | 4024 | 4056 | 4094     |
| 4001 | 4025 | 4060 | 4098 (3) |
| 4002 | 4026 | 4063 | 4099     |
| 4006 | 4027 | 4066 | 4104     |
| 4007 | 4028 | 4067 | 4106     |
| 4008 | 4029 | 4068 | 4160     |
| 4009 | 4030 | 4069 | 4161     |
| 4010 | 4031 | 4070 | 4162     |
| 4011 | 4032 | 4071 | 4163     |
| 4012 | 4035 | 4072 | 4174     |
| 4013 | 4038 | 4073 | 4175     |
| 4014 | 4040 | 4075 | 4192     |
| 4015 | 4041 | 4076 | 4193     |
| 4016 | 4042 | 4077 | 4194     |
| 4017 | 4043 | 4078 | 4195     |
| 4018 | 4044 | 4081 | 4240     |
| 4019 | 4049 | 4082 | 4244     |
| 4020 | 4050 | 4085 | 4245     |
| 4021 | 4051 | 4086 | 4373     |
| 4022 | 4052 | 4089 | 4374     |
| 4023 | 4053 | 4093 | 4501     |

|      |          |          |       |
|------|----------|----------|-------|
| 4502 | 4528 (3) | 4572     | 40161 |
| 4506 | 4530     | 4583     | 40162 |
| 4507 | 4531     | 4584     | 40163 |
| 4508 | 4532     | 4585 (4) | 40174 |
| 4510 | 4538 (3) | 4599     | 40175 |
| 4511 | 4539     | 4724     | 40181 |
| 4512 | 4541     | 4731     | 40192 |
| 4514 | 4543     | 40085    | 40193 |
| 4515 | 4544     | 40097    | 40194 |
| 4516 | 4547     | 40098    | 40195 |
| 4517 | 4555     | 40102    | 40240 |
| 4518 | 4556     | 40103    | 40244 |
| 4519 | 4557     | 40104    | 40245 |
| 4520 | 4558     | 40106    | 40373 |
| 4522 | 4559     | 40107    | 40374 |
| 4526 | 4560     | 40109    | 5029  |
| 4527 | 4561     | 40160    | 22100 |

#### 15.4. memory ICs

|       |             |       |                   |
|-------|-------------|-------|-------------------|
| 1220  | 2k * 8      | 5256  | 256k * 4          |
| 1403  | 16k * 1     | 5516  | 2k * 8            |
| 2015  | 2k * 8      | 5517  | 2k * 8            |
| 2016  | 2k * 8      | 5518  | 2k * 8            |
| 2102  | 1k * 1      | 6104  | 4K * 1            |
| 2111  | 256 * 4     | 6116  | 2k * 8            |
| 2112  | 256 * 4     | 6167  | 16k * 1           |
| 2114  | 1k * 4      | 62256 | 32k * 8           |
| 2141  | 4k * 1      | 6264  | 8k * 8            |
| 2142  | 1k * 4      | 6810  | 128 * 8           |
| 2147  | 4k * 1      | 7164  | 16k * 4           |
| 2148  | 1k * 4      | 7185  | 8k * 8            |
| 2149  | 1k * 4      | 7186  | 8k * 8            |
| 2600  | 64K * 1     | 7489  | 16 * 4            |
| 2700  | 256 * 1     | 74189 | 16 * 4            |
| 2703  | 16 * 4      | 74200 | 256 * 1           |
| 3101  | 16 * 4      | 74201 | 256 * 1           |
| 4164  | 64k * 1     | 74289 | 16 * 4            |
| 41256 | 256k * 1    | 74300 | 256 * 1           |
| 41257 | 256k * 1    | 74301 | 256 * 1           |
| 41464 | 64k * 4     | 74929 | 1k * 1            |
| 4256  | 256k * 1    | 8225  | 16 * 4            |
| 4416  | 16k * 4     | 2716  | 2k * 8 EPROM (6)  |
| 4464  | 8k * 8      | 2732  | 4K * 8 EPROM (6)  |
| 4532  | 32K * 1 (5) | 2764  | 8K * 8 EPROM (6)  |
| 4816  | 16k * 1     | 27128 | 16K * 8 EPROM (6) |
| 5110  | 1024k * 1   | 27256 | 32K * 8 EPROM (6) |

|        |                    |       |                  |
|--------|--------------------|-------|------------------|
| 27512  | 64K * 8 EPROM (6)  | 74288 | 32 * 8 PROM (6)  |
| 27101  | 128K * 8 EPROM (6) | 74387 | 256 * 4 PROM (6) |
| 271001 | 128K * 8 EPROM (6) | 74470 | 256 * 8 PROM (6) |
| 1410   | 256 * 4 PROM (6)   | 74471 | 256 * 8 PROM (6) |
| 1822   | 256 * 8 PROM (6)   | 74472 | 512 * 8 PROM (6) |
| 1830   | 32 * 8 PROM (6)    | 74473 | 512 * 8 PROM (6) |
| 1842   | 512 * 8 PROM (6)   | 74474 | 512 * 8 PROM (6) |
| 1846   | 512 * 8 PROM (6)   | 74475 | 512 * 8 PROM (6) |
| 74188  | 32 * 8 PROM (6)    |       |                  |
| 74287  | 256 * 4 PROM (6)   |       |                  |

### 15.5. *interface, peripheral, microprocessor and LSI ICs*

|                     |                       |                           |
|---------------------|-----------------------|---------------------------|
| <u>75... SERIES</u> | 75416                 | 8830                      |
| 75113               | 75417                 | 8831                      |
| 75114               | 75418                 | 8837                      |
| 75121               | 75419                 | 8838                      |
| 75122               | 75451                 | 8881                      |
| 75123               | 75452                 | 8885                      |
| 75124               | 75453                 |                           |
| 75125               | 75454                 | <u>8T SERIES</u>          |
| 75127               | 75465                 | 8T13 use 813              |
| 75128               | 75466                 | 8T14 use 814              |
| 75129               | 75468                 | 8T23 etc                  |
| 75136               | 75469                 | 8T24                      |
| 75138               | 75476                 | 8T26                      |
| 75146               | 75477                 | 8T28                      |
| 75151               | 75478                 | 8T38                      |
| 75153               | 75479                 | 8T97                      |
| 75158               | 75491                 | 8T98                      |
| 75159               | 75492                 | 8T127                     |
| 75160               |                       | 8T128                     |
| 75161               | <u>ULN2... SERIES</u> | 8T129                     |
| 75163               | 2001                  |                           |
| 75172               | 2003                  | <u>82... SERIES</u>       |
| 75173               | 2004                  | 8234                      |
| 75174               | 2005                  | 8251                      |
| 75175               | 2064                  | 8266                      |
| 75183               | 2065                  | 8273                      |
| 75189               | 2066                  |                           |
| 75192               | 2067                  | <u>25/26/29... SERIES</u> |
| 75194               | 2068                  | 2510                      |
| 75195               | 2069                  | 2514                      |
| 75401               | 2070                  | 2515                      |
| 75402               |                       | 2518                      |
| 75403               | <u>DS88.. SERIES</u>  | 2522                      |
| 75404               | 8815                  | 2595                      |

|                       |                       |                      |
|-----------------------|-----------------------|----------------------|
| 252517                | <u>MC34... SERIES</u> | 8283                 |
| 252521                | 3438                  | 8286                 |
| 252536                | 3446                  | 8287                 |
| 252568                | 3486                  | 8288                 |
| 252569                | 3487                  | 8289                 |
| 2610                  |                       | 8755 (6)             |
| 2611                  | <u>Z80... SERIES</u>  |                      |
| 2631                  | 780 Z80 CPU           | <u>MISCELLANEOUS</u> |
| 2632                  | 8400 Z80 CPU          | 1005                 |
| 2633                  | 8420 Z80 PIO          | 1006                 |
| 2901                  | 8430 Z80 CTC          | 1489                 |
| 2902                  | 8440 Z80 SIO          | 384                  |
| 2907                  | 8442 Z80 SIO-2        | 491                  |
| 2908                  | 8470 Z80 DART         | 492                  |
| 2911                  |                       | 5452                 |
| 2918                  | <u>MC65... SERIES</u> | 54563                |
| 2922                  | 6502                  | 54564                |
| 2924                  | 6510                  | 58167                |
| 29821                 | 6520                  | 6595                 |
| 29822                 | 6522                  | 7641                 |
| 29823                 | 6545                  | 8131                 |
| 29824                 | 6551                  | 8136                 |
| 29825                 |                       | 8160                 |
| 29826                 | <u>INTEL SERIES</u>   | 8230                 |
| 29841                 | 8031                  | 8252                 |
| 29842                 | 8032                  | 8262                 |
| 29843                 | 8039 (9)              | 8277                 |
| 29844                 | 8040 (9)              | 8641                 |
| 29845                 | 8042 (8)              | 9014                 |
| 29846                 | 8085                  | 9301                 |
|                       | 8088 (7)              | 9309                 |
| <u>MC68... SERIES</u> | 8155                  | 9312                 |
| 6800                  | 8156                  | 9314                 |
| 6802                  | 8212                  | 9324                 |
| 6805 (12)             | 8216                  | 9328                 |
| 6818                  | 8226                  | 9338                 |
| 6820                  | 8228                  | 9347                 |
| 6821                  | 8237                  | 9348                 |
| 6845                  | 8243                  | 9614                 |
| 6850                  | 8250                  | 9640                 |
| 6880                  | 8253                  | 9641                 |
| 6887                  | 8254                  | 9901                 |
| 6888                  | 8255                  | 9902 (10)            |
| 6889                  | 8259                  | 9995 (11)            |
| 68681                 | 8279                  |                      |
|                       | 8282                  |                      |

### 15.6. notes on TTL ICs

**Note 1:** The 7450 and 7453 ICs have non-TTL compatible expander inputs that are often not used in designs. These inputs are not tested.

**Note 2:** The 74LS51 and 74LS54 have differing pin connections and functions from the standard 7451 and 7454 ICs. The test assumes that the 'LS version is being tested - to test the standard version use the numbers 7450 and 7453 respectively. In addition, the 74L86 IC has a different pin out to the standard 7486 ICs, but it can be tested using the 74386 test.

**Note 3:** When testing these ICs the warning "EXT" will appear on the LCD display. This means that external timing components are required to test the IC. The timing components should be inserted into the socket as given in following table:

| IC             | COMPONENTS                                                          |
|----------------|---------------------------------------------------------------------|
| 74122/74422    | 2.2 $\mu$ F between pins 24 and 26 of the ZIF socket, +ve to pin 26 |
| 74123/74423    | 2.2 $\mu$ F between pins 18 and 19 of the ZIF socket, +ve to pin 19 |
|                | 2.2 $\mu$ F between pins 27 and 26 of the ZIF socket, +ve to pin 27 |
| 4528/4538/4098 | 0.22 $\mu$ F between pins 13 and 14 of the ZIF socket.              |
|                | 0.22 $\mu$ F between pins 27 and 26 of the ZIF socket.              |

### 15.7. notes on CMOS ICs

**Note 4:** Certain differences exist between manufacturers parts with this IC which may cause a FAIL result with ICs other than (Motorola) MC14585 ICs. Consult the data sheets for full details.

### 15.8. notes on memory ICs

**Note 5:** The 4532 32k DRAM is in fact a partially non-functional 64k DRAM. Four types exist, manufactured by OKI and TI who each supply two types. The type numbers 45321 and 45322 are used for OKI types, and 45323 and 45324 are used for TI types. The first number in each case is for the low array version, and the second number for the high array version. See the IC data sheets for further details.

**Note 6:** The ROM/EPROM tests perform a blank check and checksum on the IC, and display the contents of the first 16 locations. These tests cannot confirm the integrity of an IC, or identify it in SEARCH mode, since they have no knowledge of the intended contents of the EPROM. Please be patient when testing EPROMs in this way - some of the larger ICs take a long time to read.

### **15.9. notes on interface ICs**

**Note 7:** The MOS version of this IC is internally dynamic, and the test may FAIL after a prolonged in-circuit LOOP test. The CMOS version, however, is completely static.

**Note 8:** The 8742 EPROM version of this IC must have the erase window covered otherwise the test may FAIL.

**Note 9:** The 8039 and 8040 ICs should be tested in FAIL LOOP mode due to the power down mode of the ICs affecting tester synchronization.

**Note 10:** This IC should only be tested in SINGLE MODE with a 1uF decoupling CAPACITOR connected across the supply and ground pins 29 and 20 of the ZIF socket (IC pins 18 and 9) due to its high supply current requirement.

**Note 11:** This IC requires a 1uF decoupling CAPACITOR to be connected across the supply and ground pins 10 and 31 of the ZIF socket due to its high supply current requirement.

**Note 12:** This IC may need to be tested in FAIL LOOP MODE.

## 16. Service Information

Contact B&K Precision to receive a repair Return Authorization tracking number. This number must be clearly written on the exterior of the shipping carton and will assist us with the processing of your return. Return all merchandise to B&K Precision Corp. with pre-paid shipping. The flat-rate repair charge includes return shipping to locations in North America. For overnight shipments and non-North America shipping fees contact B&K Precision Corp.

**Warranty Service:** Please return the product in the original packaging with proof of purchase to the below address. Clearly state in writing the performance problem and return any leads, connectors and accessories that you are using with the device.

**Non-Warranty Service:** Return the product in the original packaging to the below address. Clearly state in writing the performance problem and return any leads, connectors and accessories that you are using with the device. Customers not on open account must include payment in the form of a money order or credit card. For the most current repair charges contact the factory before shipping the product.

B&K Precision Corp.  
22820 Savi Ranch Parkway  
Yorba Linda  
CA 92887-4604

Phone: 714- 921-9095  
Facsimile: 714-921-6422

Include with the instrument your complete return shipping address, contact name, phone number and description of problem.

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## 17. Limited One-Year Warranty

B&K Precision Corp. warrants to the original purchaser that its product and the component parts thereof, will be free from defects in workmanship and materials for a period of one year from the date of purchase. B&K Precision Corp. will, without charge, repair or replace, at its' option, defective product or component parts. Returned product must be accompanied by proof of the purchase date in the form a sales receipt.

To obtain warranty coverage in the U.S.A., this product must be registered by completing and mailing the enclosed warranty card to: B&K Precision Corp., 22820 Savi Ranch Parkway, Yorba Linda, CA 92887 - 4604 within fifteen (15) days from proof of purchase.

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