



INSTRUCTION MANUAL FOR THE DISC TEST
SYSTEM FOR THE BBC MICROCOMPUTER

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within this manual and its associated software the initials "BBC" are used
as an abbreviation for the British Broadcasting Corporation

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SECTION 1

INTRODUCTION

1.1: GENERAL

This manual is intended to provide all the instructions necessary to operate the Disc Test system for the BBC microcomputer, both of which are designed and manufactured by Acorn Computers Ltd. of Cambridge, England. The Disc Test System is intended to be used by the Acorn dealers who will be servicing the BBC machine.

1.2: THE BBC MICROCOMPUTER

The BBC machine is currently available in several versions. Each version is a powerful, self-contained computer systems with the ability to generate high resolution colour graphics and synthesise music. The Model B is an enhanced version of the A, and both are capable of being greatly expanded, either on purchase or at a Later date, to include such options as Floppy Disc Interface, Econet, speech and high-level Language ROMs. There is also a selection of external, plug-in options, such as printers and additional processor systems. This is not intended to be an exhaustive description of the BBC computer systems, but should the reader require such it is suggested that they consult the service manual.

1.3: THE DISC TEST SYSTEM

The Disc Test System enables the user to establish the correct operation of the BBC Microcomputer Disc Interface and may be used with or without a FIT Test Station. It does not test Disc Drives. This manual will only detail its use as a stand-alone test, the details of its use as part of the test station routine are included in the Test Station manual (403,015), supplied with each Test Station Kit.

1.4: LIMITATIONS AND CONSTRAINTS

The Disc Tests, when used as a stand-alone system, ONLY test the Disc Interface and are therefore NOT a Final Inspection Test for the whole computer. If a Test

SECTION 2

EQUIPMENT DETAILS

2.1 THE TEST DISC

The Test Disc is 80 Track, double sided and contains 3 programs (on side 0):

FTESTD2: Used by the Test Station.

FTESTD3: Used by the Test Station.

DITEST : For use during these tests.

NOTE: FTESTD2 & 3 are, in fact, DITEST combined with the normal Model B tests plus a DFS ROM CRC check. IT IS STRONGLY RECOMMENDED THAT THESE ARE NOT USED as a full FIT test without a Test Station because the cassette interface will not be tested.

Full details of DITEST are included in Section 4.

The Test Disc has specific titles on both sides and must ALWAYS be write-protected.

2.2 THE SCRATCH DISCS

These are simply formatted 80 Track double sided discs with specific titles.

2.3 OTHER EQUIPMENT NEEDED

As well as the Disc Test Kit and the Unit Under Test (UUT) an 80 Track, double sided dual Disc Drive will be required.

The connection details are contained in the next section.

SECTION 3

SETTING UP

(a) Connect the Unit Under Test (UUT) to a monitor or TV (preferably colour).

(b) Connect the disc drive to the UUT via the 40-way ribbon cable (to the UUT "Disc Drive" port), and the 4-way power cable (to the UUT PSU socket).

(c) Insert the Test Disc into the top drive (drive 0) and the Scratch Disc 1 into the Lower drive (drive 1). Do not shut the drive doors yet.

(d) Connect the monitor and UUT to the mains.

Now follow the instructions in section 4 to test the computer Disc Interface.

SECTION 4

RUNNING THE TESTS

Turn the computer and monitor/tv ON. You should then see the message:

BBC Computer 32K

Acorn DFS

BASIC

If an Econet ROM is fitted this must be removed before the tests start, or they will not work. If any other ROM is fitted the tests should be OK as long as the two "master" ROMs are BASIC and DFS. If necessary, change the filing system to disc by either typing:

*DISC (RETURN)

(or hold down the D key, press and release the BREAK key, and then release the D key)

If the message is different in any way (e.g. "Acorn DFS" message missing), check the computer and repair where necessary. If all is O.K., then type:

CHAIN "DITEST" (RETURN)

(or hold down the SHIFT key, press and release the BREAK key, and then release the SHIFT key. NOTE: The SHIFT/BREAK option only works if DFS and BASIC are master ROMs)

on the UUT keyboard. The top drive should then start to spin (the small LED on the front will light up), so shut the top drive door. The test program will then load into the computer and start to run. (You can, of course, use LOAD "DITEST" followed by RUN if you prefer). If the program does not load, then check the interface and try again. The first thing that will happen when the program starts is that the screen will clear and the following header will appear, followed by the "PASS" messages below:

BBCpu MODEL B DISC INTERFACE TESTS

PASSED DFS ROM CRC
PASSED DRIVE SELECT
PASSED WRITE PROTECT

and the message "Change disc in drive 0 for scratch disc. Press space to continue" will appear at the bottom of the screen. Follow these instructions and the drives will spin and the screen will add:

PASSED SECTOR SAVE
PASSED SECTOR READ
PASSED R/W DATA

and then:

All tests complete. If there were
no FAIL messages proceed with
Model B FIT tests.

The tests are then over. Do not forget to carry out the
normal Model B FIT tests. REMEMBER! Change the filing
system before loading from cassette.

SECTION 5

ERROR MESSAGE INTERPRETATION

The disc interface tests are only intended as a final confidence tester for the BBC microcomputer disc interface and will only deliver Pass/Fail messages. The appearance of any Fail message should be noted and the repair department informed. There are, however, several checks worth making before investigating the Interface:

1. Drive does not spin: Check connection cables between the drive and the computer.
2. Fails DFS ROM CRC: An unofficial version of the DFS ROM is fitted. The only official released version at the time of writing is DFS 0.90.
3. Fails drive select: Wrong discs in the drives.
4. Fails write protect: Test disc not write protected.

The tests carry out the following checks:

(a) DFS ROM CRC: A CRC check of all the ROM slots in the machine and a comparison with a figure held within the program to see if any of the slots contain an official DFS ROM.

(b) Drive select: This catalogues each drive in turn and compares the last bit of the title with figures held in the program.

(c) Write Protect: Attempts to write to drive 0 track 39 and ensures that the "Write Protect" error message is returned through the interface correctly.

(d) Sector Save/Read & R/W Data: This sequence first writes to a sector and ensures completion, then reads back from that sector and confirms completion and finally checks that what was written is the same as that read back.

SECTION 6

SERVICE REPORT

It will be appreciated if you could fill in a copy of the standard Acorn Service Report Form and return it to the Service Department at Acorn Computers every time a BBC machine is repaired. Outside of the United Kingdom, the forms should be used as directed by the national dealer.

In the case of repairs under warranty, this form provides the mechanism by which the service organisation can be reimbursed for work done and restocked with servicing spare parts. The warranty period is 26 weeks from the date of despatch from Acorn Computers customer order fulfilment house. The warranty period is extended by 26 weeks from the date of repair, but only for those new parts used.

For repairs outside the warranty period, the form is used to report faults back to Acorn and the customer is charged at the agreed rate by the service organisation.

The form may also be used at any time to report modifications which have been carried out as directed by Acorn computers for which the service organisation should be reimbursed. For instance, the replacement of the early EPROM operating system with the later ROM version.

