AMSTRAD PC1640 VDU TESTS

INTRODUCTION:

This document describes the PC1640 VDU diagnostic disc
that is supplied with the RP5-2 diagnostics card.

Although the RP5-2 card will run full checks of a PC1512 it will
not check all the features of a PC1640 ie) EGA and HERCULES type
monitors.

The supplementary disc will allow full testing of these features.

SUMMARY:

The PC1640 VDU-test disc allows the testing and setting up of the
PC1640 monitors. The data display must be checked by the
operator.

LOADING THE PC1640 VDU-TESTS

To load the diagnostics disc place it in drive A: and switch the
machine on. The disc will autoboot and the following menu will be
displayed.

AMSTRAD PC1640 MONITOR TESTS

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A     ORION TEXT AND GRAPHICS TEST
B     PARADISE EGA TEST
C     AMSTRAD EGA/CGA TEXT AND GRAPHICS TEST
D     AMSTRAD HERCULES TEXT AND GRAPHICS TEST
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[CHOOSE A,B,C or D THEN PRESS RETURN]

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                              ORION TEST
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The orion tests will give a full selection of quality assurance
tests as well as tests to allow setting up of the monitor.

To select this option press 'A' followed by return.
The following menu will then appear.

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1 - CROSSHATCH PATTERN                p - CROSSHATCH PATTERN PW-2
2 - CIRCLE PATTERN                    P - CROSSHATCH PATTERN PW-2
3 - COLOR BAR PATTERN (80 MODE)       c - COLOR BAR PATTERN (40 MODE)
4 - WHITE VALANCE PATTERN             C - WHITE (PW-2)
5 - CHARACTER PATTERN (80 MODE)
6 - CHARACTER PATTERN (40 MODE)       M - MENU
7 - FCC PATTERN                       m - MENU
8 - RESOLUTION PATTERN (CIRCLE)
9 - RESOLUTION PATTERN (LINE)
s - SOUND TEST
r - COLOR (RED)
R - COLOR (LIGHT RED)
g - COLOR (GREEN)
G - COLOR (LIGHT GREEN)
b - COLOR (BLUE)
B - COLOR (LIGHT BLUE)
w - COLOR (WHITE)
W - COLOR (HIGH-INTENSITY WHITE)
l - COLOR (BLACK)
L - COLOR (GRAY)
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1) - CROSSHATCH PATTERN:

This test allows the monitor alignment to be checked. Vertical
and horizontal lines divide the screen into a grid.
The user should check that the lines appear straight.

2) - CIRCLE PATTERN:

This test checks monitor linearity. A circle is displayed on
screen. The user should check that the circle is round and not
elliptical.

3) - COLOUR BAR PATTERN(80 MODE):

This test shows the standard 16 colours. The colours are in two
groups. The top half of the screen contains normal colours and
the bottom half contains intensified colours.
The user should check that all the colours appear correctly.

4) - WHITE VALANCE PATTERN

This test fills the left half of the screen with bright white and the right half of the screen with normal white.
The user should check that the contrast of the two colours appears correct.

5) - 6) -CHARACTER PATTERN(80 MODE)-(40 MODE)

These tests display a sliding character pattern in either 40 or 80 column mode.
The user should check that the displayed pattern looks correct and that all the characters are displayed correctly.

7) - FCC PATTERN

This test will fill the screen with upper case 'H's.
This is used by the FCC for purposes of such tests as radiation levels.
This test will not be used by any field engineers.

8) - RESOLUTION PATTERN (CIRCLE)

This test will draw a circle using lines radiating from its centre. The user should check the clarity of this pattern.

9) - RESOLUTION PATTERN (LINE)

This test will fill the screen with lines that begin on the left and gradually decrease in thickness as they progress to the right of the screen.
The user should check the clarity of this pattern.

s) - SOUND TEST

This test allows the user to generate sound at a known frequency.
The frequency of the sound can then be checked. It is unlikely that this test will be needed.

r) - COLOUR (RED)
R) - COLOUR (LIGHT RED)
g) - COLOUR (GREEN)
G) - COLOUR (LIGHT GREEN)
b) - COLOUR (BLUE)
B) - COLOUR (LIGHT BLUE)
w) - COLOUR (WHITE)
W) - COLOUR (HIGH INTENSITY WHITE)
l) - COLOUR (BLACK)
L) - COLOUR (GREY)

These tests allow the user to choose any one of the listed colours they can then be used to check colour and colour purity as well as an aid to setting up the monitor.

p) - CROSSHATCH PATTERN PW-2
P) - CROSSHATCH PATTERN PW-2

These tests display a grid on the screen. This is used to check
monitor alignment. The user should check that the patterns appear
correct.

c) - COLOUR BAR PATTERN (40 MODE)

This test displays 16 colours in 40 column mode. The colours are
split into two groups. Normal colours are in the top half of the
screen and intensified are in the bottom half of the screen.
The user should check that all the colours appear correct.

C) - WHITE (PW-2)

This test will turn the screen to white. The user can then check
for purity.

RETURN TO MENU:

To return to the menu at any time press 'M' or 'm' .

Note that some choices require upper case characters. To obtain
these hold the shift key while pressing the correct letter key.

To exit this section of tests press '0' . You will be returned to
the main selection menu.

PARADISE EGA TEST
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To select the paradise test press B followed by return you the
following menu will then be displayed.

              The Paradise EGA Manufacturing Test for OEM2
                           Version 2.1

                    Full Test with Enhanced Monitor
                    Test with a 200 line RGB Monitor
                    Enhanced only Test with Enhanced Monitor
                    Monochrome only Test
                    Switch Monitors
                    Run Tests Individually
                    Return to FORTH

              Use the UP and DOWN arrows to move around
              and the ENTER key to select an item

These tests will run full checks on the paradise card which is a
multi graphics adapter ie) it supports EGA,CGA and HERCULES.
It also allows testing of the DIP switches on the rear of the
system unit.

To select an option use the arrow keys to highlight the required
choice and then press return.

You should note that depending on which monitor is in use some of
the options will not be available.

FULL TEST WITH ENHANCED MONITOR:

This test runs full tests on all of the EGA RAM.
Firstly the screen will fill with strange patterns as the test
writes to the RAM. When this is completed the message 'Auto tests
complete, will be displayed. If any errors are found during this
part of the test then they will be reported.

You will then be asked to set the DIP switches into different
positions and press a key. The test will then check the position
of the switches and if there is an error it will be reported.

If all is correct then a colour 80 attribute test will be
displayed followed by the same test in 40 columns.
The user should check that the displays appear correct.

The display is a cursor test in 40 and 80 mode. The user should
check that the cursor appears at the bottom right corner of the
screen.

Then a colour character attribute test will be displayed in 40
and 80 mode. Again the user should check that the displays appear
correct.

The next display shows a pattern off rectangles (solid, striped
and diagonal). The user should check that the display appears
correct.

Next you will be asked to connect a MD MONO display. The above
tests will then be performed on this monitor.

When these tests are complete you will be returned to the main
menu.

TEST WITH A 200 LINE RGB MONITOR:

These tests are as the above but are used on the CM monitor.

ENHANCED ONLY TEST WITH ENHANCED MONITOR:

This test is for use on the ECD monitor. It runs all the test
that the full EGA test performs with the exception of the RAM and
switch tests.

MONOCHROME ONLY TEST:

This test is for use with the MD monitor.
The tests performed are The rectangle tests and the 40 and 80
column attribute tests as detailed above.

SWITCH MONITORS:

This test will allow you to connect a different monitor.
You will be asked to select the correct DIP switch setting and
attach a new monitor to the system.

RUN TESTS INDIVIDUALLY:

If you choose this option the following menu will be displayed.

                    The Paradise EGA Manufacturing Test for OEM2
                                   Version 2.1

                              Video Ram Test
                              PEGA Chip Register Test
                              Test Switches
                              80 Column Character Test
                              40 Column Character Test
                              Cursor Test
                              Rectangle Test
                              Monochrome/Hercules Test
                              Set 200 Line Mode
                              Set 350 Line Mode
                              Return to Main Menu

From this menu you can choose any of the tests already detailed
to be run individually.

This option is useful in some circumstances. ie) If you suspect
that the switches are damaged you can choose to test just the
switches.

However for a proper quality assurance test you should still run
all tests after a repair has been affected.

To exit this section choose return to main menu.

To finish this selection of tests choose RETURN TO FORTH.
This will return you to forth but as there is no exit to DOS
command you must enter any string of character you desire
ie) 'jhshgs ' then press return. You can then press 'ESC' to
return to the main test selection menu.

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          AMSTRAD EGA/CGA TEXT AND GRAPHICS TEST
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To choose AMSTRAD EGA/CGA TEXT AND GRAPHICS TEST press 'C'
followed by return.

You will then be given the option to choose EGA or CGA. The tests
performed are identical for both monitors. Press 1 for CGA or 2
for EGA. The tests are run in sequence and are stepped through by
pressing any key.
The tests performed are as follows.

1) FCC PATTERN

This test is used by the FCC only and will not be needed for the
purpose of checking our monitors.

2) WHITE VALANCE PATTERN.

This test displays white on the left and bright white on the
right. The user should check that the contrast is correct.

3) COLOUR PALETTE TEST.

This test displays 16 colour bars in two groups. There are normal
colours at the top and bright colours at the bottom. The user
should check that the display appears correct.

4) CIRCLE ALIGNMENT TEST.

This test gives the following display:

a) A line drawn round the edge of the screen.
b) A large circle drawn in the centre of the screen that touches
both the top and bottom border lines.
c) Four small circles one in each corner of the screen.
d) Five groups of vertical bars in the bottom right segment of
   the circle. The first group are 5 dots wide and the second 4
   dots and so on.
e) Two lines one vertically through the centre of the circle and
one horizontally.
f) Four groups of two small line across near the ends of each of
the centre lines.

The user should check that the circles are round and the bars are
straight.

5) CROSSHATCH PATTERN.

This test draws a grid on the screen. The user should check that
the lines are straight.

                    AMSTRAD HECULES TEXT AND GRAPHICS TEST
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This test is exactly the same as the EGA/CGA tests as detailed
above but they are for use only with the mono monitor.

NOTE:
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All the above tests are for PC1640 only. The VDU tests for the
PC1512 are contained on the RP5-2 diagnostics card.

For details on the use of PC1512 diagnostics refer to the RP5-2
manual.