

TANDY®

**Technician Series
Diagnostics Software**

KEYBOARD

**Keyboard Diagnostic
for
MS-DOS™ Computers**

01-0220 Computer Technical Services

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KEYBOARD DIAGNOSTICS

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GENERAL DESCRIPTION

KEYBOARD is used to test the keyboard on MS-DOS™-based computers. There are several functions incorporated within the hardware of these keyboards. The KEYBOARD diagnostics will test these functions.

FEATURES

- * Easy to operate menu system
- * Full screen keyboard layout with on-screen keyboard LED representation
- * Displays keys untested, keys pressed, and scan codes
- * Tests key lock, password, and typematic functions

EQUIPMENT REQUIRED

MS-DOS™-based Computer
Monitor
Display Adapter
Keyboard

LOADING KEYBOARD

There are two methods for loading the keyboard diagnostics. The first is to select the keyboard test function that appears on the main menu of our diagnostic software suite for your machine. Because KEYBOARD is a DOS executable program, you can run it directly from DOS. To run it from DOS, at the DOS prompt type:

KEYBOARD<ENTER>

You will then see the main display screen of the diagnostic.

OPERATING KEYBOARD**ORGANIZATION:**

The KEYBOARD test is organized around a set of two menus. The first selects the keyboard type, and the second selects the test function you wish to perform.

MOVING AROUND THE KEYBOARD TEST:

Use the arrow keys to move around the menus, or press the highlighted character on the menu screen for the item desired. To execute a menu option or test function, press the <ENTER> key. To back out of a menu at any time, you may press the <ESC> key.

DISPLAY DESCRIPTION

MS-DOS KEYBOARD DIAGNOSTIC
xxxxxx, 19xx Version x.xx
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KEYBOARD SELECTION	FUNCTION SELECTION
Tandy 1000 (90 Key) Tandy 1200 (84 Key) Tandy 1400 Internal Tandy 1400 External Tandy 2000 (90 Key) Standard (84 Key) Enhanced (101 Key)	

Select Keyboard Type, or <ESC> To Exit:

MAIN KEYBOARD SCREEN:

The figure above is the main screen of the keyboard test. It is the first screen that appears when starting the program and is the screen where the keyboard selection is made.

FUNCTION SELECTION
Display Keyboard Layout Toggle Typematic Rate Check System Key Lock

FUNCTION SELECTION:

Once the keyboard type is selected, you will see the screen above. The function selection screen is the screen used to select the test to be performed.

NOTE: The items listed may not appear exactly as above because of differences in keyboards and machines.

KEYBOARD LAYOUT SCREENS:

When the keyboard layout function is selected, the screen that appears is the layout of the selected keyboard.

The keyboard display indicates which keys are untested, currently being pressed, and keys that have been pressed and released. The untested keys will appear as solid blocks on the screen. While a key is being pressed, the key's legend will blink. Once a key has been released, the legend for that key will stop blinking.

Press and hold key to test Typematic rate: **FAST**

Press <SPACE> to Toggle Rate or <ESC> to Exit.

TOGGLE TYPEMATIC RATE:

When the toggle typematic rate function is selected, the screen above is displayed. The rate can be toggled from FAST to SLOW by pressing the <SPACE> key.

Turn Keylock Switch And Press A Key To Confirm
Keyboard Status: UNLOCKED

Press <ESC> to Exit.

CHECK SYSTEM KEY LOCK:

This screen is displayed when checking the system key lock function. Once the front panel key has been locked, the screen status will change to **LOCKED**.

New Password Programmed
Press A Key To Confirm Keyboard Locked
Then Type In Password Of 'pass' To Unlock
Keyboard Security Status: **PASSWORD ENABLED**

Press <ESC> to Exit.

CHECK KEYBOARD PASSWORD:

This screen appears when the keyboard password test function is selected. After typing in the password, the status will change to **PASSWORD DISABLED**.

TEST DESCRIPTIONS**KEYBOARD LAYOUT FUNCTION:**

This is the main test of the KEYBOARD program. This test will first display the keyboard layout of the selected keyboard type. The highlighted keys represent keys that have not been tested. To test the keyboard, press all keys individually on the keyboard until there are none highlighted on the screen.

The test also displays the scan codes of the keys that have been pressed or released. These can be compared with the codes listed in the appropriate manual for further assistance in troubleshooting.

To exit the keyboard layout function, press the key sequence shown in the lower left corner of the layout screen. This will then take you back to the "Function Selection" menu.

NOTES:

1. If many keys are pressed in rapid succession, the program may not be able to keep up. So it is best when testing to press each key deliberately.

2. The <PAUSE> key on the Extended Keyboard returns the same scan codes when being pressed and when released. Therefore, when pressing this key the legend will not flash.

3. The <FN> key on the 1400 LT does not return a scan code. The method for testing the key is to use it in combination with another key so that a unique scan code can be detected. The best keys for testing this key are the <NUM LOCK> and the <CAPS LOCK>. If these keys return a scan code, you have then determined the <FN> key is operating.

4. If selecting the 1400 External keyboard, the lock status LEDs will not be shown. This is because with this system the external keyboard cannot be programmed to properly reflect the LED states.

5. If selecting either the 1400 External keyboard or the 1000 Extended keyboard the left <CTRL> key will not respond as fast as the other keys.

6. When pressing either the <RETURN> or <ENTER> keys on the Tandy 1200, the legends for both will light. This is because they both return the same scan codes.

TOGGLE TYPEMATIC RATE:

NOTE: This test is only for those keyboards that support programmable key press repeat rates, known as typematic.

This test will check the typematic (automatic key repeat) function by alternating between fast and slow repeat modes.

To test this function, press and hold a key while watching the screen to make sure the key you are pressing is repeating at the rate displayed. Once this is verified, press the space bar to toggle the rate, and perform the same operation as above.

CHECK SYSTEM KEY LOCK:

NOTE: This test is only for those machines that have a front panel system lock.

This test will test the functionality of the system key lock by reading the keyboard status port to determine if the system has been locked.

To test the key lock, after selecting the menu option note the displayed lock status. If this matches the position of the key lock, which will be unlocked, then lock the system. The status should then change to **LOCKED** and you should also be unable to escape by pressing the escape key.

A failure of any of the above conditions indicates a system key lock malfunction.

CHECK KEYBOARD PASSWORD:

NOTE: This test is only for those machines that support the keyboard password function.

This test programs a password into the keyboard, checks to see if the keyboard detects that it is loaded, enables the password, and then tests to see if a properly entered password will unlock the keyboard.

To test the password function, after the password has been programmed, first verify that the keyboard has been locked by typing a few key non-password keys. Once this has been verified, type the password displayed on the screen. Once the password has been entered, the keyboard should unlock.

APPENDIX**ERROR MESSAGES:****Windows Error: Memory**

This error message is displayed when the keyboard test cannot allocate enough memory from DOS to display the windows. This indicates that the program is too big for the amount of memory in the system.

It can also occur when there is an error de-allocating memory. This indicates that something has corrupted either the DOS software or the keyboard diagnostics.

First verify that there are no memory resident programs installed as they might be taking too much memory to allow the program to run. Once you have verified that there should be enough memory, get a new copy of the diagnostic. If this fails to rectify the problem, try booting with a different copy of MS-DOS™.

Password NOT Programmed--Failed Test

This message is displayed when either the incorrect type of keyboard is selected or the selected keyboard has a hardware malfunction.

After verifying that the system you are using supports a keyboard password, the next step would be to try a different keyboard. If this fails also, then the next step might be to check all keyboard circuits on the motherboard of the computer.

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