E X T E R N A L   S P E C I F I C A T I O N
(User Perspective)

TITLE   **:**   **Sun 2 & 3 Keyboard System Test External Specification**

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REPORT NO. :   950-1018

REVISION NO. :   B @ (#)keyboard.txt 1.9 85/07/10

DATE   : July 10, 1985

STATUS   : Release

APPROVALS   :   DATE

Originator   --

                  Sunny Kirsten

Test Engineering --

Manufacturing --

Production --

Quality Control --

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Sun 2 & 3 Keyboard Test EXTERNAL SPECIFICATION

1. INTRODUCTION

1.1. Purpose

The Sun 2 & 3 Keyboard Test, *kb.diag* , tests the Sun 2 Micro Switch keyboard and the Sun 3 Oak keyboard in a system environment. This specification describes the test itself and the procedure for using it.

1.2. Applicable Documents

(1)   Micro Switch Keyboard Specifications

(2)   Oak   Keyboard Specifications

1.3. General Performance Characteristics   The Sun 2 & 3 Keyboard System Test takes 3 minutes to execute.

2. SYSTEM OVERVIEW

2.1. General Description

The Sun 2 & 3 Keyboard Test, *kb.diag* , has been designed to test the Micro Switch and Oak keyboards used in Sun 2 & 3 configurations (PN:320-1000-01/PN:540-1006-01/PN:950-1029-01). It is a bootable diagnostic and runs on a Sun 2 processor.

2.2. Features

The features provided in *kb.diag* are :

(1)   The operator interface is presented graphically.

(2)   Each key is checked sequentially for a key-down code and an key-up code.

(3)   The keyboard idle state is indicated on the test station display.   . . .

(4)   The keyboard audio annunciator is tested.

(5)   Upon completion of the test, the operator is so notified.

2.3. Required Configuration

The diagnostic is intended to run in a system environment and can be booted on any of the Sun 2 & 3 system configurations containing a Sun 2 processor, memory, and a Sun 2 video board.

2.4. Error Handling

The following errors are detected by *kb.diag* :

Unknown Keycode Error

Other possible keyboard problems require assistance from the test operator. The operator must confirm the performance of the audio annunciator. That each key is functioning properly must be checked. If a key seems to be "stuck", that is, if a key is pressed and not acknowledged by *kb.diag* , then the operator must conclude that the keyboard is bad. In this case, *kb.diag* can easily be or aborted by pressing L1 and typing 'a'.

2.5. Limitations

The following limitations exist in *kb.diag* :

(1)   If several keys (greater than 10) are mashed and released simultaneously some of the keycodes will be missed (because of inadequate buffering). This is not a major

problem and does not limit the actual testing of the keyboard in any way.

3. Sun 2 & 3 Keyboard Test SPECIFICATION

3.1. User Interface

The user interface has been designed for ease of use. The keyboard layout is presented graphically on the test station monitor display. Before testing begins, each key is represented by a solid filled box. As each key on the keyboard under test is pressed, the corresponding key on the display is hatched confirming the key-down code for that key. When the key is released the corresponding key on the display is represented as an open box thereby verifying the key-up code.

3.2. Operation

The steps listed below should be followed for setting up the keyboard test:

(1) First, reset the test station to it's power-up state. This may be accomplished by either cycling power off then on, or by issuing the "k2" command to the PROM monitor. If the test station attempts to boot UNIX after the power-up reset command "k2", abort the auto-boot by holding down the "L1" key in the upper left corner of the keyboard and depressing the "A" key. NOTE: Failure to issue the "k2" reset command or cycle power will result in failure to test the Keyboard ID, programmed into a DIP switch on the Sun 3 keyboard, and therefore the board might be shipped with the wrong DIP switch settings.

(2) Second, boot the test program *kb.diag* at the test station from the manufacturing file server.

The test sequence itself is described in the following steps:

(1) The keyboard layout is presented. Initially all keys on the display should appear solid filled.

(2) The test proceeds with the test operator typing each key sequentially across each row from left to right, beginning with the upper left key in the top row of keys and continuing with the next row down until all keys in all rows have been tested. As a key is pressed, and the key-down code is verified by *kb.diag* , the key will appear hatched on the display. When the key is released, and the key-up code is confirmed, the key will appear as an open box on the display. If a key is typed out of sequence, the key will appear hatched on the display and the keyboard will "beep". No harm is done, just continue with the next key in sequence. To determine which key is next in sequence, simply examine the test station display for the next solid filled key and type the corresponding key on the keyboard.

(3) The final test is of the audio annunciator. The operator should verify that it works by listening for three (3) beeps after the last key (the lower right key) is typed.

(4) Finally, the operator is notifed that the test is complete.

3.3. Error Handling

If any of the following conditions occur, the keyboard should be rejected as it is not functioning properly:

(1) A KB DETECTED ERROR message is displayed.

(2) An UNKNOWN KEYCODE ERROR message is displayed.

(3) The idle indicator does not appear in the upper left corner of the display.

(4)   Any key does not pass in sequence.

(5)   The audio annunciator does not sound.