

NO-BOOT PROCEDURE

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This procedure should be used in the event that the system is unable to load any software. This condition should be further divided into two groups: a failure to beep and display the Phoenix prompt, and a failure to load from any of the mass storage devices.

Preliminary Check

Attempt to boot the system. Disconnect all of the external peripherals from the system in order to limit the external variables affecting boot. Attempt to boot from the battery, external power supply, and battery replacement supply. The unit should beep and display the following message:

Phoenix ROM BIOS Ver v.vv, mm/dd/yy

(The mm/dd/yy is the revision date of the ROM BIOS and may change from unit to unit)

If the unit does not get this far, go through the procedure, No Phoenix Procedure. Otherwise, continue with No Storage Device Access Procedure below.

No Storage Device Access

After displaying the Phoenix prompt, the unit will attempt to access the mass storage devices in this order: Application ROMs, internal hard drive, internal floppy drive, and external floppy drive. Attempt to load the operating system from each of these devices:

1. **APPLICATION ROM.** To load the operating system from the Application ROM, press "R" when the unit beeps at the Phoenix prompt. *NOTE: You will need to have MS-DOS present in the application ROM in order to do this. If the unit does not boot from the application ROM or freezes, the application ROM or its related circuitry may be at fault. Do step #2 to verify that the application ROM is to blame.*

2. **FLOPPY DRIVE.** Turn off the unit and attach a pocket floppy drive to it. Turn the unit on, and attempt to load an operating system from either the internal floppy drive by pressing "F" or the pocket floppy drive by pressing "E" after the beep at the Phoenix prompt. Make sure a valid system disk is present in the floppy drive you are checking, and verify that the floppy drive's activity light is on. If the unit is able to

load the operating system from either drive after failing step 1 above, you could suspect either the application ROM board, the application ROM, or the main logic board. If the system fails to boot from the internal floppy drive, the drive is suspect. If the system fails to boot from both drives, go on to the next step.

3. **HARD DRIVE.** Reset the system and, after the beep at the Phoenix prompt, it should attempt to boot from the internal hard drive. **NOTE:** *Make sure the hard drive is bootable. If you can boot from the hard drive, the floppy drive control circuitry on the main logic board or the internal drive (the internal floppy drive and the pocket floppy drive share many of the same logic lines) may be suspect.*

No Phoenix Procedure

If the system will not boot (meaning, in this case, that it doesn't display the Phoenix prompt or doesn't beep at all), remove power and quickly flick the switch back and forth a few times. This will sometimes clean the contacts of the switch and allow the unit to work. Also check to see that the system is getting supplied with between 10 and 18 Volts DC of power. The low-battery LED should also flicker when the unit is powered off. The unit may make some noises – from the speaker being initialized incorrectly. It is also possible that the system beeps, but no prompt is present on the display. If this is the case, the display, the power to the display, or the main logic board would be suspect. If the unit still does not boot, follow the steps below.

If the system transmits a series of beeps, some aspect of the main logic board may be at fault. See Appendix A in the GRiDCASE 1500 Hardware Service Course Student Guide which covers interpretation of the GRiDCASE 1500 beep codes.

1. The system cannot boot without a valid source of +5 and +12 volts. Remove the system cover, and check the connections between the rear panel, the DC/DC converter, and the main logic board. Check the +12 and +5 volt supplies off of the modem connector. Remove the modem card, and check pins 29 (+12V +/-5%) and 27 (+5V +/-5%) for valid voltages. If the voltages are not present, the DC/DC converter, the rear panel, the main logic board, the display, and the connections between these devices are suspect. **NOTE:** *Make sure you have tried booting the system with the battery and the external supply first before doing this step. If one supply works versus another, the external DC connector/cable, the battery, or the diode switching logic on the main logic board may be suspect.*

2. Remove the display and attempt to boot the system without it. If the display had been shorted, the system would not have beeped at all. If the system is alright, it will beep without the display connected to indicate that a valid boot has occurred.

3. Reseat all socketed parts on the main logic board. Check for bent pins and correct orientation of socketed chips. Check for foreign objects (paper clips, staples) on logic board. Check for loose or broken jumper (rework) wires. Check the system for correct revision levels. Also, lift the main logic board out of the unit, and check for any foreign objects under the board, or any long leads or shorts between the board and the base of the system.

4. Remove the keyboard, application ROM board, floppy drive, video card, and all of the rear panel cables one at a time. It is possible that any of these cables or devices could be shorted and therefore could cause the system not to boot. Try booting the system with each of these devices disconnected. If the system boots at any time, suspect the last device disconnected. Don't worry about invalid configuration messages or, if the video card is removed, a short-long-short beep code. The purpose of this operation is to at least get the system to beep. If this doesn't work, go on to step 5.

5. If the system has still not booted and you have not done so yet, replace the main logic board. If this doesn't work, go back through the steps above and see what wasn't changed. The entire computer can be layed out on a benchtop and operated in an 'exploded' manner which makes it easy to locate trouble spots and verify connections between modules. To do this, you will need a minimum of the DC/DC converter, an external power jack and external supply, and the rear panel (for the on/off switch) in order to make the system boot.

Follow up

When the failing module has been located, attempt to verify the failure by checking it against a known good module. Once this has been done, replace the failing module, reassemble the system, and use the bringup batch file on the diagnostics diskette to totally test the system. After the system has passed all of the tests in the bring-up batch file, burn the unit in overnight with the burn-in batch file to "shake out" any marginally failing parts. After the unit has burned in, retest the unit with the bring-up batch file. If all goes well, the unit is ready to be returned to the unit.