

Power supply problems with some Mark 5A units

MIT Haystack Observatory
16 August 2005

THIS IS A VERY IMPORTANT MESSAGE FOR ALL MARK 5 USERS -- PLEASE READ CAREFULLY!!

Conduant Corporation has recently informed us that there are problems with marginal power supplies in some Mark 5A units when using disk modules populated with Maxtor or Seagate disks. The particulars of the problem and the suggested solution are as follows:

1. Due to the unusually large number of problems with Hitachi 250GB disks, Conduant is now shipping disk modules with 250GB Maxtor. They have discovered, however, that the power draw of the Maxtor disks is significantly greater than the Hitachi disks and have observed occasional problems in some Mark 5A systems due to this extra power draw. Seagate 400GB disks are now known also to draw a high current and to create similar problems.
2. Initially, it was thought that the problem occurred only when a second Maxtor module was powered up while the first was recording or playing. However, we now have evidence that the problem can occur with just a single Maxtor module. Therefore, it is necessary that the problem power supplies be replaced if any Maxtor or Seagate-populated modules are used.
3. Until recently Conduant shipped all their Mark 5A units with an Antec True550 power supply. Some of these Antec power supplies do not have enough power for disk modules populated with Maxtor or Seagate drives. Recently, Conduant has been using the PC Power & Cooling Turbo-cool 510XE, which has heftier 12V performance and have proven to be OK. The triple-redundant supply in some of the early units built at Haystack has also been tested and found to be OK.
4. However, not all Antec True550 supplies are affected. Antec appears to have changed the specs on this model without changing the model number, so that only *some* Antec True550 supplies are affected. The difference is that the newer power supply, which is OK, has a "D" connector with a black plastic cover above the switch as shown in Figure 25. All good Antec supplies have this black plastic cover on the rear panel. The attached pictures should help to determine which supply you have.
5. If you need to replace your power supply, Conduant recommends the PC Power & Cooling Turbo-Cool 510XE as a replacement. We at Haystack concur with this recommendation as the quality and reputation of these supplies is outstanding, and they come with a 5-year warranty.
6. The PC Power & Cooling supply is available only from the manufacturer (<http://www.pcpowercooling.com/ordering/>) or from Conduant. The price is \$200 from PC Power; Conduant is offering them for a small markup at \$250. In addition, Conduant will specially prepare these units for installation in the Mark 5A. As you

may be aware, the connection of the power supply to the Mark 5A backplane is by screwdown connectors because of the high power draw. This requires removing an existing connector and stripping back the wires.

7. Conduant is preparing an instruction sheet for replacing the power supply, which I will distribute as soon as it is available. The replacement job is straightforward and should take a competent technician no more than an hour, but it is obviously critical that the job be done correctly.
8. USNO is taking delivery of 45 new modules populated with Maxtor disks, most of which will be used in CONT05 observations, which are starting in less than one month, so this problem is not just a theoretical one. It is imperative that you be aware of this problem and take appropriate action as soon as necessary.
9. Conduant will place a label on all Maxtor-populated modules purchased from them warning of this potential problem. Please pay attention to this warning!
10. Conduant has also warned us that Seagate disks, which we know are being used in some places, draw even more power than the Maxtor disks, so beware of using modules populated with Seagate disks without a proper power supply. In order of increasing 12V power requirements for 250GB disks are WD, Hitachi, Maxtor, and Seagate.
11. If you are unable to replace a problem supply, we suggest that power be applied to a second disk module only when the first module is quiet (i.e. not recording or playing) and the disk-activity lights are off. This will minimize the risk of problems.
12. Also, performing steps 7-14 on p. 7 of the "Experiment pre-checks and Operations" workshop notes is important for any module, but especially important before using a Maxtor or Seagate module. These tests take only a few minutes for each module. (<ftp://ivscc.gsfc.nasa.gov/pub/TOW/tow2005/notebook/Strand.OW.pdf>)
13. If you have any questions, please contact dsmythe@haystack.mit.edu or awhitney@haystack.mit.edu. If you wish to purchase a power supply from Conduant, please contact Tom Skrobacz at tom@conduant.com.

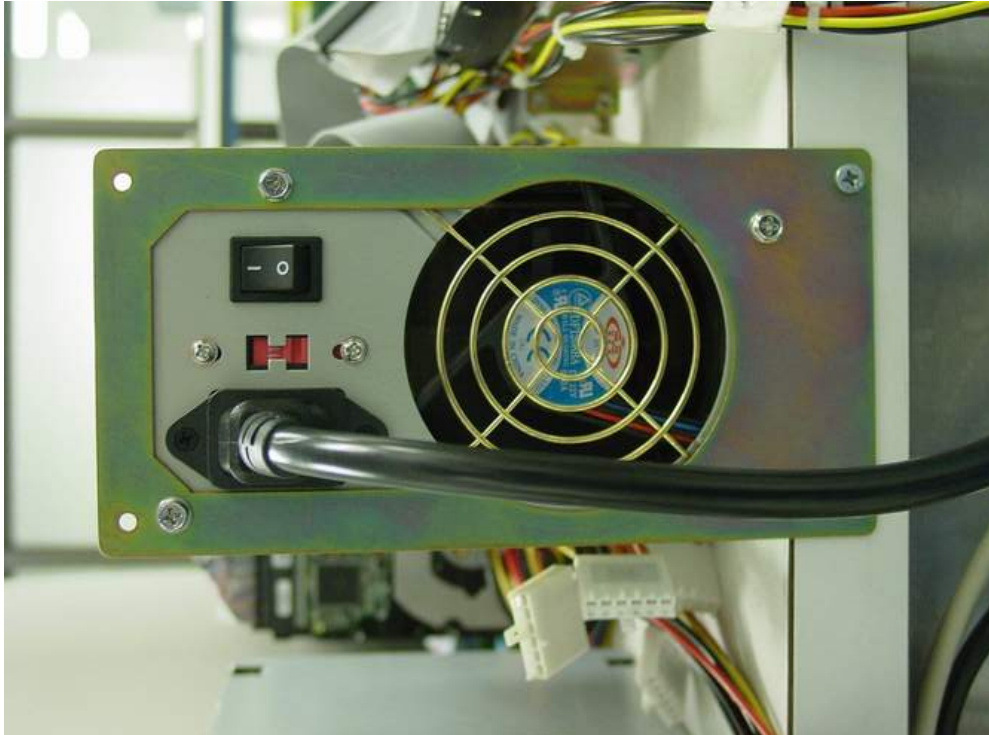


Figure 1: Bad Antec True550; fan may also be labeled “Antec”, as in Figure 2



Figure 2: Good Antec True550; fan may not be labeled “Antec”



Figure 3: Triple-redundant supply - OK



Figure 4: PC Power & Cooling Turbo-Cool 510XE - recommended replacement