

5071A Primary Frequency Standard Frequently Asked Questions

1 - Can I still buy parts for my 5071A, and where do I buy them?

There are a limited selection of parts available.

The 5071A Primary Frequency Standard is a very precise and complex product and Symmetricom strongly recommends that they be sent in for repairs and post-repair performance testing. However there are some assemblies, such as the Caesium beam tube that we do sell should you wish to perform this in your own facility. We require that you have a copy of the 5071A Assembly-Level Service Manual (P/N 05071-90040) before doing any repairs or parts replacements.

Although Symmetricom Global Services (SGS) is always available to help when you have questions, they cannot be expected to provide troubleshooting assistance when you are repairing the 5071A -- that is the purpose of the 5071a service manual.

Please also note that Symmetricom no longer carries all parts that are listed in the current printing of the manual. Future revisions will correctly reflect this new streamlined offering, but in the meantime you should contact your local Symmetricom distributor to see if the part you need is still available for sale. If it is not then our recommendation is to contact Symmetricom SGS at 888-367-7966 US/Canada, or 408-428-7907 International to arrange for repair.

2 - Does the 5071A carry the CE mark?

Yes. The 5071A has been tested and carries the CE marking. For more information, see the attached document. (Declaration of Conformity)

3 - Is the 5071A UL or CSA approved? If so, what are the reference numbers?

We test our products to both UL and CSA specifications. The product is certified to the CSA safety standard and is labeled accordingly. This safety certification is accepted both in Canada and in the United States, per 29CFR 1910.2(g) and 1907.10. We do not apply for UL marking.

4 - What is a suitable replacement for a 5061A or 5061B?

The 5061A and 5061B have been obsolete since November 1997. Even though Symmetricom still sells replacement CBTs for these models, we usually remind the customer that all other assemblies and parts for the 5061A/B are not available through Symmetricom and are becoming scarce on the used-equipment market.

Therefore to continue with caesium-based performance our recommendation is to consider replacing with the newer 5071A primary frequency standard, to ensure ongoing full support.

5 - How long will my caesium (cesium) beam tube (CBT) operate before it reaches end of life?

The answer depends on whether you have the 10890A long-life or 10891A high performance CBT, and when it was purchased. We have data for the high performance CBT currently indicating a life of about 6.5 to 7 years for those produced prior to December 2002. High Performance CBTs produced on or after December 2002 have an increased amount of caesium, giving them an expected lifetime of 9 years or more (from December 2002 the 10891A changed its serial prefix to US4240 concurrent with the increase of caesium from 6 to 9 grams). We have not yet seen any end of life phenomenon in the 10890A long-life CBT, which we expect to last 20 years.

6 - How do I know if my caesium (cesium) beam tube (CBT) is reaching its end of life?

There are a couple of indicators we've seen with 10891A high performance CBTs. One early indicator is a rapid rise in the Electron Multiplier (EM) voltage, approaching its limit of -2553 Volts. This can occur over a couple of months or as quickly as a few weeks. Once the EM voltage reaches its maximum, alert messages appear and the 5071A automatically increases the signal gain from a nominal 14.4% operating point to maintain the loop gain. However, once this begins, the signal-to-noise ratio degrades. Usually, long before the signal gain reaches a theoretical maximum of 100%, the 5071A will give a Fatal Error message related to the CBT, such as "Attempted lock on wrong peak" or "CBT signal loss" or "Low CS Signal "7" with max emult". It may be possible to re-lock the 5071A, but operation is likely to be short lived and usually with degraded performance.

We have as yet no empirical end-of-life data for the 10890A long-life CBT over the past 12 years of production. Based on our accelerated life testing and knowledge we suspect that the rise in EM voltage and subsequent rise of signal gain will be the first indicators. However, it is uncertain if the signal-to-noise will degrade significantly during this event. It is also unknown just how slowly the changes will occur. Since we project the long-life CBT to operate for over 12 years we don't expect to see field data yet.

Replacement CBTs are available as the model 10890A (long-life) and as the model 10891A (high performance).

7 - What is the best way to dispose of a caesium (cesium) beam tube (CBT) or the caesium standard?

When the caesium (cesium) beam tube (CBT) has reached its end-of-life, it should be disposed of using one of the following procedures:

1. Remove the CBT from the product and dispose of the tube in a local government approved hazardous material disposal site.
2. Remove the CBT from the product and contact Symmetricom Repair Administration at 888-367-7966 (toll free US) or 408-428-7907 (worldwide), option 3, option 2, regarding disposal options from Symmetricom.

The instrument chassis may then have a new CBT installed or if desired, be locally disposed/recycled in the same manner as any other piece of electronic test equipment.

8 - Where can I find the latest BIPM clock data?

BIPM (Bureau International de Poids et Mesures) data shows the performance level of clocks within the international timekeeping organization. BIPM is an international organization based in France that keeps track of International Atomic Time. Around 230 clocks are stationed at various timekeeping and national standards labs throughout the world. This data is maintained in a public accessible database at

<http://www.bipm.fr>

Each clock is assigned a weight based on its historic stability relative to the ensemble of clocks in the system and how long it has been part of the system. The higher the weight, the better the clock. Symmetricom clocks, primarily the 5071A, make up over 85% of the international atomic time scale by weight.

9 - What is in the functional test certificate for the 5071A?

The functional test certificate for the 5071A certifies that the instrument was calibrated (in compliance with ISO 9001/2 1994) and met its published specifications at the time of shipment. The document is included with every instrument.

It does not include any test data. If you need test data (the new definition of the certificate of calibration), or you need a military calibration, contact Symmetricom for a quote on the cost.

10 – What kind of calibration is available for my 5071A?

Aside from the initial test calibration when the unit ships (see functional test certificate above), 30-day calibration against the 77110C or 77120C standards at the NIST facility can be purchased at an additional charge at the time of purchase of a unit or completion

of a repair. In regards to 17025 and z540 calibration, these standards, based mainly for calibration facilities, are far beyond the calibration needs for the 5071A.

11 - Is the 5071A on a GSA (Government Services Administration) contract?

Yes. The 5071A primary frequency standard is on a GSA contract.

12 - If I did not originally purchase the optional 48 Vdc supply, can I change my 5071A to use this voltage at a later time?

We discourage this. The 48 Volt option requires a new main board, power transformer, dc-dc converter, power steering logic board and rear panel connections. It requires a complete disassembly of the 5071A to make these modifications.

13 - I would like to have both E1 (2.048 Mbps) and T1 (1.544 Mbps) outputs on the 5071A. Can I combine these options?

No. Each telecomm option is designed into the same assembly and can occupy only one space in the 5071A structure. There is no room for more than one.

14 - Is the caesium (cesium) in the 5071A radioactive? Just how hazardous is it? And what precautions do I need to take to ship it?

In summary:

- There is no radioactive caesium (or any other radioactive material) in Symmetricom 5071A caesium beam tubes.
- The caesium is well contained in a rugged package.
- The U.S. Department of Transportation waives the hazardous materials placards and allows shipment via passenger aircraft within the USA.

Visit the Symmetricom website for more detailed shipping information at:

<http://www.symmttm.com/5071A/Shipping/>

15 - I purchased a 5071A with the standard 24 Vdc input. I notice that the upper limit of this input is 42 Vdc. Can I operate my 5071A in a telecomm system using its -48 Vdc power?

No. Even though the voltage is nominally only 6 Volts more, actual telecomm bus bars can deliver as much as -57.6 Vdc and still be within telecomm specifications. This is far in excess of the allowed voltage and will likely damage the power supply.

16 – How do I reach technical support?

Call our Customer Assistance Center at 888-367-7966 (toll free US) or 408-428-7907 (worldwide) and select option 1, option 2 for TT&M Technical Support. Or contact us via e-mail at: techsupport.ttm@symmetricom.com

17 – How do I request a repair?

Return Material Authorization (RMA) requests can be submitted anytime by completing the online form on Symmetricom's website at:

http://www.symmetricom.com/Support/req_repair.htm

You may also call our Repair Administrators at 888-367-7966 (toll free US) or 408-428-7907 (worldwide), option 3, option 2, if you have any questions or cannot access the web form.

18 – How do I request a calibration?

Return Material Authorization (RMA) requests for calibrations can be submitted anytime by completing the online form on Symmetricom's website at:

http://www.symmetricom.com/Support/req_repair.htm

Make sure to note that you only want a quote for calibration. You may also call our Repair Administrators at 888-367-7966 (toll free US) or 408-428-7907 (worldwide), option 3, option 2, if you have any questions or cannot access the web form.

19 – Can I order parts for my 5071A?

Assembly- level modules, CBTs, and batteries can be ordered if you wish to attempt repair of the 5071A and have a copy of the service manual available. Component level parts and rebuilt modules are not available. Contact tmsales@symmetricom.com for ordering information.

20 – How do I order a support contract/extended warranty?

Call our Customer Assistance Center at 888-367-7966 (toll free US) or 408-428-7907 (worldwide) and select option 1, option 2 for TT&M Technical Support, and ask for the person handling support contract/extended warranty orders. Or contact us via e-mail at: techsupport.ttm@symmetricom.com