

Mail Stop 6010

June 14, 2007

Via Facsimile and U.S. Mail (925-734-4050)

Mr. David V. Smith
Executive Vice President and Chief Financial Officer
Thoratec Corporation
6035 Stoneridge Drive
Pleasanton, CA 94588

**Re: Thoratec Corporation
Form 10-Q for the quarter ended March 31, 2007
Filed May 10, 2007
Form 8-K dated May 3, 2007
File No. 0-49798**

Dear Mr. Smith:

We have reviewed your filings and have the following comments. We have limited our review to only your financial statements and related disclosures and will make no further review of your documents. Where indicated, we think you should revise future filings in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-Q for the quarter ended March 31, 2007

Management's Discussion and Analysis of Financial Condition and Results of Operations

Liquidity and Capital Resources

1. In future filings, please expand the discussion to include your cash provided from investing activities during the interim period.

Form 8-K dated May 3, 2007

2. Please refer to prior comment 5. Your response only refers us to your May 3, 2007 Form 8-K without further explanation. As such, we have re-issued our prior comment since we note that you continue to present your non-GAAP measures and reconciliation in the form of condensed non-GAAP statement of operations. This format may be confusing to investors as it also presents several non-GAAP measures, including non-GAAP selling, general and administrative expenses, non-GAAP research and development expenses and non-GAAP interest income and other, which have not been identified or described to investors. In fact, it appears that management does not use any of these non-GAAP measures but they are shown here as a result of the presentation format. Please note that Instruction 2 to Item 2.02 of Form 8-K requires that when furnishing information under this item you must provide all the disclosures required by paragraph (e)(1)(i) of Item 10 of Regulation S-K and FAQ 8 Regarding the Use of Non-GAAP Financial Measures dated June 13, 2003 for each non-GAAP measure presented. Specifically, you should provide a reconciliation to the most directly comparable GAAP measure for each non-GAAP measure presented and explain why you believe each measure provides useful information to investors.
 - To eliminate investor confusion, please remove the non-GAAP statements of operations from all future filings and instead disclose only those non-GAAP measures used by management that you wish to highlight for investors, such as non-GAAP gross margins and non-GAAP net income, with the appropriate reconciliations.
 - Please note that in the event that your Form 8-K is incorporated by reference into a '33 Act registration statement, we may have additional questions relating to the appropriateness of this information being included in a document filed with, and not just furnished to, the Commission. At that time, we may request an amendment to the Form 8-K.
3. Please refer to prior comment 3. As previously noted, under Instruction 2 to Item 2.02 of Form 8-K you must comply with Item 10(e)(1)(i) of Regulation S-K. As a result, you should include a statement disclosing the reasons why management believes that the presentation of each non-GAAP financial measure presented provides useful information to investors regarding your financial condition and results of operations. Also, to the extent material, you should include a statement disclosing the additional purposes, if any,

for which you use the non-GAAP financial measure. The current disclosure is very broad and not specific. For example, you refer to excluding items that are fixed costs, but it does not appear that all fixed costs of the company are actually excluded from the non-GAAP measure. You also refer to excluding amounts that are non-recurring or infrequent, however, we note that stock-based compensation is neither fixed, infrequent nor non-recurring. You refer to excluding certain litigation without explaining the nature of the litigation excluded and why some litigation is included. You refer to excluding some non-cash items, but you continue to include others like depreciation expense. Your explanations should allow a reader to easily determine by looking at your financial statements what amounts would be excluded or included in your non-GAAP financial measure. Please revise future filings to comply.

4. Under Regulation G and Item 10(e)(1)(i) of Regulation S-K, you must accompany each non-GAAP financial measure with certain information. This applies to every amount that you present as a non-GAAP measure including percentages for gross margin and income tax rates. The reconciliation should both identify and quantify each reconciling adjustment included in the non-GAAP measure. Please revise future filings to comply.
5. In addition, the staff's response to Question 8 included in Frequently Asked Questions Regarding the Use of Non-GAAP Measures in June of 2003 notes that the inclusion of a non-GAAP financial measure may be misleading absent the following disclosures:
 - The manner in which management uses the non-GAAP measure to conduct or evaluate its business;
 - The economic substance behind management's decision to use such a measure;
 - The material limitations associated with use of the non-GAAP financial measure as compared to the use of the most directly comparable GAAP financial measure;
 - The manner in which management compensates for these limitations when using the non-GAAP financial measure; and
 - The substantive reasons why management believes the non-GAAP financial measure provides useful information to investors.

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As appropriate, please respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a cover letter with your response that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

You may contact David Burton, Staff Accountant, at (202) 551-3626 or me at (202) 551-3604 if you have questions regarding these comments. In this regard, do not hesitate to contact Martin James, Senior Assistant Chief Accountant, at (202) 551-3671.

Sincerely,

Kaitlin Tillan
Assistant Chief Accountant