

Mail Stop 6010

May 1, 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-K for the fiscal year ended December 30, 2006
Filed April 2, 2007
Form 8-K dated February 15, 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-K for the fiscal year ended December 30, 2006

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 31

Acquisitions, page 31

1. We note your disclosure that the estimated fair value of assets acquired and liabilities assumed for the Avox acquisition were determined primarily by an independent valuation firm. Please note that if you intend to incorporate your Form 10-K by reference into any registration statement, you will be required to identify the valuation firm in the "Experts" section and include its consent in the registration statement. If true, you may revise the disclosure in future filings to clearly indicate that management is responsible for the valuation and that management considered a number of factors when estimating fair value. In this regard, you should discuss the specific factors that management considered when estimating fair value. This also applies to the disclosure in Note 2 on page 55.

Income Taxes, page 36

2. We note that your effective tax rate was (58)% and 26.9% in 2006 and 2005, respectively. You disclose that the change is primarily due to "a decrease in income before taxes, an updated estimate of foreign earnings considered to be permanently reinvested outside the U.S., and increases in tax advantaged interest income and research and development credits." From the tax rate reconciliation provided on page 66, we note that a return to provision true-up and an ARB 51 true-up also had significant impacts on your tax rate for 2006. Please tell us and revise future filings to discuss the nature of and reasons for all significant changes in your tax rate between periods.

Form 8-K dated February 15, 2007

3. When furnishing information under Form 8-K, please revise future filings to comply with Regulation G which requires that when disclosing material information that includes a non-GAAP financial measure you must provide a presentation of the most directly comparable financial measure calculated and presented in accordance with GAAP and a reconciliation to the directly comparable GAAP measure for each non-GAAP measure presented. Although we note that you included the information under Item 2.02, please consider the guidance with specific reference to Instruction 2 which 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, including explaining why you believe the measures provide useful information to investors.
4. In Exhibit 99.1 under "Guidance for Fiscal 2007" we note that you have identified non-GAAP earnings per share for fiscal 2007 before addressing the GAAP measure. Item 10(e)(1)(i) of Regulation S-K requires that whenever one or more non-GAAP financial

measures are provided the registrant must include a presentation, with equal or greater prominence, of the most directly comparable financial measure or measures calculated and presented in accordance with Generally Accepted Accounting Principles (GAAP). Please revise future filings to comply with the requirements of Item 10.

5. We note that you present your non-GAAP measures and reconciliation in the form of condensed non-GAAP statements 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.

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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.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes all information required under the Securities and Exchange Act of 1934 and that they have provided all information investors require for an

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informed investment decision. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In connection with responding to our comments, please provide, in writing, a statement from the company acknowledging that:

- The company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

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