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February 8, 2013

VIA EDGAR AND OVERNIGHT DELIVERY

Securities and Exchange Commission
Division of Corporation Finance
100 F Street N.E.
Washington, D.C. 20549

Mail Stop 4561

Attention: Russell Mancuso, Legal Branch Chief
Tim Buchmiller, Senior Attorney

Re: *Sunshine Heart, Inc.*
Form S-1 filed January 28, 2013 (the "Initial Registration Statement")
File No. 333-186259

Dear Mr. Mancuso and Mr. Buchmiller:

On behalf of Sunshine Heart, Inc., a Delaware corporation (the "**Registrant**") and pursuant to the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), we have filed with the Securities and Exchange Commission (the "**SEC**") an Amendment No. 1 to a Registration Statement on Form S-1 (the "**Amended S-1**"). Such filing was prepared in response to the comments of the SEC's staff (the "**Staff**") as set forth in a comment letter dated February 5, 2013.

In order to facilitate the Staff's review of the Amended S-1, wherever practicable all disclosures which were not completed in the prior filing of the Initial Registration Statement have been completed. In addition, all disclosures have been updated to the latest practicable date.

The action taken by, or the response of, the Registrant with respect to each comment contained in your February 5, 2013 comment letter is set forth below. For convenience of the Staff, the Staff's comments have been included in their entirety followed by the Registrant's response. Capitalized terms used but not defined herein shall have the meanings for such terms that are set forth in the Amended S-1.

SEC STAFF COMMENT

1. *Please update your filing to include the disclosures required by*

Regulation S-K Item 402 for your last completed fiscal year.

REGISTRANT'S RESPONSE

We have updated the Amended S-1 to include the disclosures required by Regulation S-K Item 402 for the Registrant's last completed fiscal year.

SEC STAFF COMMENT

2. *Please include the information required by Regulation S-K Item 601(b)(101) as an exhibit to your filing.*

REGISTRANT'S RESPONSE

We have included the information required by Regulation S-K Item 601(b)(101) as an exhibit to the Amended S-1.

SEC STAFF COMMENT

3. *Please include all required undertakings in the form required by Regulation S-K Item 512. For example, you have omitted the undertakings required by Regulation S-K Item 512(a)(6). Also, it is unclear whether you are attempting to provide the undertakings in Regulation S-K Item 512(a)(5)(i), and if so, why you have included only a part of the language in that Item.*

REGISTRANT'S RESPONSE

The Registrant intentionally omitted the undertaking required by Regulation S-K Item 512(a)(6) as these undertakings apply to primary offerings and initial distributions of securities. Here, the offering of securities to be registered is a secondary offering, as the initial distribution to the selling shareholder will take place in a private offering exempt from registration requirements.

Similarly, the Registrant included the undertakings provided in Regulation S-K Item 512(a)(5)(i)(A), which applies to a prospectus filed pursuant to Rule 424(b)(3) (and is applicable here), but not the undertakings provided in Regulation S-K Item 512(a)(5)(i)(B), which applies to a prospectus filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) (and are not applicable here).

Finally, the Registrant inadvertently included the undertakings provided in Regulation S-K Item 512(e), which is inapplicable as the Registrant has not specifically incorporated by reference in the prospectus all or any part of the annual report to security holders meeting the requirements of Rule 14a-3 or Rule 14c-3 under the Exchange Act.

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As reflected in the above information, our documents have been amended in response to these comments. In connection with the response to the Staff's comments, all persons responsible for the filing of this document hereby acknowledge that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Finally, the Registrant further confirms that it will furnish a letter at the time it requests acceleration of the effective date of the registration statement acknowledging the statements set forth in the Staff's comment letter.

We hope that the foregoing has been responsive to the Staff's comments. If you would like to discuss any of the responses to the Staff's comments or if you would like to discuss any other matters, please contact Phillip D. Torrence, Esq. of Honigman Miller Schwartz and Cohn LLP, our outside securities counsel at (269) 337-7702. Thank you.

Sincerely,

/S/ JEFFREY MATHIESEN

Jeffrey Mathiesen

Chief Financial Officer

Sunshine Heart, Inc.

cc: David A. Rosa, Sunshine Heart, Inc.
Phillip D. Torrence, Honigman Miller Schwartz and Cohn LLP
Jeffrey Kuras, Honigman Miller Schwartz and Cohn LLP

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