

Thatcher Robert J
 Form 4
 April 23, 2010

FORM 4

**UNITED STATES SECURITIES AND EXCHANGE COMMISSION
 Washington, D.C. 20549**

OMB APPROVAL

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STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person *
 Thatcher Robert J

2. Issuer Name and Ticker or Trading Symbol
 Cardiovascular Systems Inc [CSII]

5. Relationship of Reporting Person(s) to Issuer
 (Check all applicable)

(Last) (First) (Middle)
 651 CAMPUS DRIVE
 (Street)

3. Date of Earliest Transaction
 (Month/Day/Year)
 04/21/2010

____ Director _____ 10% Owner
 Officer (give title below) _____ Other (specify below)
 Executive VP

ST. PAUL, MN 55112
 (City) (State) (Zip)

4. If Amendment, Date Original Filed(Month/Day/Year)

6. Individual or Joint/Group Filing(Check Applicable Line)
 Form filed by One Reporting Person
 Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

| 1. Title of Security (Instr. 3) | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) | 4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|---|--|-----------------------------------|
| Common Stock | | | | (A) or (D) Price | 55,335 ⁽¹⁾ | D | |

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

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SEC 1474 (9-02)

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

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| 1. Title of Derivative Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if any (Month/Day/Year) | 4. Transaction Code (Instr. 8) | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5) | 6. Date Exercisable and Expiration Date (Month/Day/Year) | | 7. Title and Amount of Underlying Security (Instr. 3 and 4) | Amount or Number of Shares |
|--|--|--------------------------------------|--|--------------------------------|---|--|-----------------|---|----------------------------|
| | | | | Code | V (A) (D) | Date Exercisable | Expiration Date | Title | |
| Stock Option (right to buy) | \$ 12.37 | 04/21/2010 | | D ⁽²⁾ | 64,700 | <u>(2)</u> | 10/16/2010 | Common Stock | 64,700 |
| Stock Option (right to buy) | \$ 8.83 | | | | | <u>(3)</u> | 12/18/2016 | Common Stock | 7,700 |
| Stock Option (right to buy) | \$ 8.83 | | | | | <u>(3)</u> | 04/17/2017 | Common Stock | 29,700 |
| Stock Option (right to buy) | \$ 7.9 | | | | | <u>(4)</u> | 08/06/2017 | Common Stock | 22,600 |
| Stock Option (right to buy) | \$ 12.15 | | | | | <u>(5)</u> | 12/11/2017 | Common Stock | 32,300 |
| Warrant | \$ 8.83 | | | | | 02/25/2009 | 02/24/2014 | Common Stock | 3,000 |
| Stock Option (right to buy) | \$ 8.75 | | | | | <u>(6)</u> | 03/01/2019 | Common Stock | 11,600 |
| Stock Option (right to buy) | \$ 12.37 | 04/21/2010 | | A ⁽²⁾ | 64,700 | <u>(2)</u> | 10/16/2015 | Common Stock | 64,700 |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|--------------------------------|---------------|-----------|--------------|-------|
| | Director | 10% Owner | Officer | Other |
| | | | Executive VP | |

Thatcher Robert J
651 CAMPUS DRIVE
ST. PAUL, MN 55112

Signatures

/s/ John R. Remakel as Attorney-in-Fact for Robert J. Thatcher pursuant to Power of Attorney previously filed.

04/23/2010

__Signature of Reporting Person

Date

Explanation of Responses:

- * If the form is filed by more than one reporting person, *see* Instruction 4(b)(v).
- ** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).
- (1) Includes 6,257 shares acquired through the Issuer's Employee Stock Purchase Plan on December 31, 2009.
- (2) The two reported transactions involved an amendment of an outstanding option, resulting in the deemed cancellation of the "old" option and the grant of a replacement option. The option was originally granted on October 17, 2005 and is fully exercisable.
- (3) Fully exercisable.
- (4) Exercisable: 7,549 on 8/7/08 and 7,548 on 8/7/09 and 8/7/10.
- (5) Exercisable: 16,175 on 2/25/10 and 2/25/11.
- (6) Exercisable: 5,823 on 3/2/10 and 3/2/11.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.