

Cardiovascular Systems Inc
 Form 4/A
 July 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 *
 NELSON GLEN D

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)
 05/17/2010

Director 10% Owner
 Officer (give title below) Other (specify below)

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

4. If Amendment, Date Original Filed (Month/Day/Year)
 05/17/2010

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) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|---|--|-----------------------------------|
| | | | Code | V | Amount | (A) or (D) | Price |
| Common Stock | 05/14/2010 | | P | | 27,000 | A | \$ 4.812 |
| | | | | | 241,702 | (2) | D |
| | | | | | | (1) | |

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

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.

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 Securities (Instr. 3 and 4) | 8. Price of Derivative Security (Instr. 5) | 9. Number of Derivative Securities Owned Following Transaction (Instr. 5) |
|--|--|--------------------------------------|--|--------------------------------|---|--|---|--|---|
|--|--|--------------------------------------|--|--------------------------------|---|--|---|--|---|

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|---|---------------|-----------|---------|-------|
| | Director | 10% Owner | Officer | Other |
| NELSON GLEN D 651 CAMPUS DRIVE ST. PAUL, MN 55112 | X | | | |

Signatures

/s/ John R. Remakel as Attorney-in-Fact for Glen D. Nelson pursuant to Power of Attorney previously filed.

07/22/2010

____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) The price reported in Column 4 is a weighted average price. These shares were purchased in multiple transactions at prices ranging from \$4.74 to \$4.92 inclusive. The reporting person undertakes to provide Cardiovascular Systems, Inc., any security holder of Cardiovascular Systems, Inc. or the staff of the Securities and Exchange Commission, upon request, full information regarding the number of shares purchased at each separate price within the range set forth in this footnote.

(2) The purpose of this amendment to the Form 4 filed on May 17, 2010 is to restate the number of beneficially-owned shares held directly by the reporting person, which was reported incorrectly due to a calculation error.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure.

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