

Martin David  
Form SC 13G  
February 10, 2010

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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549  
SCHEDULE 13G  
Under the Securities Exchange Act of 1934  
(Amendment No. \_\_\_\_)\*  
Cardiovascular Systems, Inc.**

(Name of Issuer)

Common Stock, \$0.001 par value per share

(Title of Class of Securities)

141619106

(CUSIP Number)

December 31, 2009

(Date of Event which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

Rule 13d-1(b)

Rule 13d-1(c)

Rule 13d-1(d)

\* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover pages shall not be deemed to be filed for the purpose of Section 18 of the Securities Act of 1934 ( Act ) or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

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Item 1(a). Name of Issuer:

Item 1(b). Address of Issuer's Principal Executive Offices:

Item 2(a). Name of Person Filing:

Item 2(b). Address of Principal Business Office, or if None, Residence:

Item 2(c). Citizenship:

Item 2(d). Title of Class of Securities:

Item 2(e). CUSIP Number:

Item 3

Item 4

Item 5

Item 6

Item 7

Item 8

Item 9

Item 10

SIGNATURE

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CUSIP NO. 141619106

**1** NAME OF REPORTING PERSON.  
David L. Martin

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)

**2**  
(a)   
(b)

**3** SEC USE ONLY

**4** CITIZENSHIP OR PLACE OF ORGANIZATION  
United States of America

**5** SOLE VOTING POWER  
NUMBER OF 809,381(1)

**6** SHARED VOTING POWER  
SHARES BENEFICIALLY OWNED BY 0

**7** SOLE DISPOSITIVE POWER  
EACH REPORTING PERSON 809,381(1)

**8** SHARED DISPOSITIVE POWER  
WITH 0

**9** AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

809,381(1)

**10** CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)

o

**11** PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

5.2%

**12** TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

IN

(1) Includes options exercisable within 60 days to acquire 641,070 shares of common stock.

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**Item 1(a). Name of Issuer:**

Cardiovascular Systems, Inc.

**Item 1(b). Address of Issuer's Principal Executive Offices:**

651 Campus Drive

St. Paul, Minnesota 55112-3495

**Item 2(a). Name of Person Filing:**

David L. Martin

**Item 2(b). Address of Principal Business Office, or if None, Residence:**

c/o Cardiovascular Systems, Inc.

651 Campus Drive

St. Paul, MN 55112-3495

**Item 2(c). Citizenship:**

United States of America

**Item 2(d). Title of Class of Securities:**

Common Stock, \$0.001 per share par value

**Item 2(e). CUSIP Number:**

141619106

**Item 3. If This Statement is Filed Pursuant to Rule 13d-1(b), or 13d-2(b) or (c), Check Whether the Person Filing is a:**

- (a)  Broker or dealer registered under Section 15 of the Exchange Act.
- (b)  Bank as defined in Section 3(a)(6) of the Exchange Act.
- (c)  Insurance company as defined in Section 3(a)(19) of the Exchange Act.
- (d)  Investment company registered under Section 8 of the Investment Company Act.
- (e)  An investment adviser in accordance with Rule 13d-1(b)(1)(ii)(E);
- (f)  An employee benefit plan or endowment fund in accordance with Rule 13d-1(b)(1)(ii)(F);
- (g)  A parent holding company or control person in accordance with Rule 13d-1(b)(1)(ii)(G);
- (h)  A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act;
- (i)  A church plan that is excluded from the definition of an investment company under Section 3(c)(14) of the Investment Company Act;
- (j)  Group, in accordance with §240.13d-1(b)(1)(ii)(J).

**Item 4. Ownership.**

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

- (a) Amount beneficially owned:

809,381 shares (includes options exercisable within 60 days to acquire 641,070 shares of common stock)

- (b) Percent of class:

5.2% (based on 14,832,698 shares of common stock outstanding as of January 12, 2010, as reported by the Issuer)

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(c) Number of shares as to which such person has:

(i) Sole power to vote or to direct the vote: 809,381

(ii) Shared power to vote or to direct the vote: 0

(iii) Sole power to dispose or to direct the disposition of: 809,381

(iv) Shared power to dispose or to direct the disposition of: 0

**Item 5. Ownership of Five Percent or Less of a Class.**

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities check the following o.

**Item 6. Ownership of More Than Five Percent on Behalf of Another Person.**

N/A

**Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company or Control Person.**

N/A

**Item 8. Identification and Classification of Members of the Group.**

N/A

**Item 9. Notice of Dissolution of Group.**

N/A

**Item 10. Certifications.**

(a) Not applicable

(b) Not applicable

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**SIGNATURE**

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Dated: February 9, 2010

/s/ David L. Martin  
DAVID L. MARTIN