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

FORM 11-K

(Mark One)

- ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
FOR THE FISCAL YEAR ENDED December 31, 2005

OR

- TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES AND EXCHANGE ACT OF 1934**
FOR THE TRANSITION PERIOD FROM _____ TO _____

Commission File Number: 000-21835

A. Full title of the plan and the address of the plan, if different from that of the issuer named below:

**SUN HYDRAULICS CORPORATION 401(K) AND
ESOP RETIREMENT PLAN**

1500 WEST UNIVERSITY PARKWAY
SARASOTA, FLORIDA 34243

B. Name of issuer of the securities held pursuant to the plan and the address of its principal executive office:

SUN HYDRAULICS CORPORATION
1500 WEST UNIVERSITY PARKWAY
SARASOTA, FLORIDA 34243

SUN HYDRAULICS CORPORATION 401(K) AND ESOP RETIREMENT PLAN
FINANCIAL STATEMENTS AND SUPPLEMENTAL SCHEDULE
AND REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

DECEMBER 31, 2005 AND 2004

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Participants and Administrator of the
Sun Hydraulics Corporation 401(k) and
ESOP Retirement Plan

We have audited the accompanying statements of net assets available for benefits of Sun Hydraulics Corporation 401(k) and ESOP Retirement Plan as of December 31, 2005 and 2004, and the related statement of changes in net assets available for benefits for the year ended December 31, 2005. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Plan is not required to have, nor were we engaged to perform an audit of its internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the net assets available for benefits of Sun Hydraulics Corporation 401(k) and ESOP Retirement Plan as of December 31, 2005 and 2004, and the changes in net assets available for benefits for the year ended December 31, 2005, in conformity with accounting principles generally accepted in the United States of America.

Our audit was conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedule of assets (held at year end) is presented for purposes of additional analysis and is not a required part of the basic financial statements, but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. This supplemental schedule has been subjected to the auditing procedures applied in the audit of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

/s/ Grant Thornton LLP

Tampa, Florida
June 9, 2006

SUN HYDRAULICS CORPORATION 401(K) AND ESOP RETIREMENT PLAN
STATEMENTS OF NET ASSETS AVAILABLE FOR BENEFITS

	December 31,	
Assets	2005	2004
Investments at market value		
Cash	\$ —	\$ 1,275
Money market funds	—	3,533,967
Common/collective trust fund	2,924,841	—
Mutual funds	22,967,220	20,549,447
Sponsor company common stock, non-participant directed	2,770,845	503,184
Total investments	28,662,906	24,587,873
Participant loans		
Participant loans	1,300,042	1,326,954
Total investments and participant loans	29,962,948	25,914,827
Receivables		
Employer contribution-cash	21,666	32,595
Employer contribution-sponsor company common stock	1,180,268	1,059,771
Participants' contribution	31,835	49,945
Participant loan interest	2,148	2,980
Total receivables	1,235,917	1,145,291
Net assets available for benefits	\$ 31,198,865	\$ 27,060,118

The accompanying Notes to the Financial Statements are an integral part of these financial statements.

SUN HYDRAULICS CORPORATION 401(K) AND ESOP RETIREMENT PLAN
STATEMENT OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS

	Year Ended December 31, 2005
Additions to net assets attributed to:	
Investment income	
Net appreciation in fair value of investments	\$ 2,549,154
Interest on investments	71,408
Participant loan interest	79,099
Total investment income	2,699,661
Contributions	
Participant	1,407,840
Employer-cash	864,960
Employer-sponsor company common stock, at fair value	1,180,268
Rollovers	36,209
Total contributions	3,489,277
Total additions	6,188,938
Deductions from net assets:	
Benefits paid to participants	2,028,247
Administrative expenses	21,944
Total deductions	2,050,191
Net increase	4,138,747
Net assets available for benefits	
Beginning of the year	27,060,118
End of the year	\$ 31,198,865

The accompanying Notes to the Financial Statements are an integral part of this financial statement.

SUN HYDRAULICS CORPORATION 401(K) AND ESOP RETIREMENT PLAN
NOTES TO THE FINANCIAL STATEMENTS
DECEMBER 31, 2005 AND 2004

1. Description of Plan

The following description of the Sun Hydraulics Corporation 401(k) and ESOP Retirement Plan (f/k/a Sun Hydraulics Corporation Retirement Plan) (the "Plan") provides only general information. Participants should refer to the Plan agreement, as amended, for a more complete description of the Plan's provisions.

General

The Plan became effective January 1, 1979. The Plan is a defined contribution 401(k) plan covering employees of its sponsor, Sun Hydraulics Corporation ("Corporation"), who have completed six months employment and reached the age of 18. Employees may enroll in the Plan effective on the first day of each calendar quarter following their sixth month of employment. The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974 (ERISA).

During 2004, the Corporation adopted the Employee Stock Ownership Plan ("ESOP"). Under the ESOP, the Corporation may contribute on a discretionary basis company common stock to all employees eligible to participate in the Plan. The ESOP is a non-participant directed investment as the Company makes all contributions to the fund. Contributions have a one year restriction on the sale of stock, with limited exceptions.

The sponsor company common stock is contributed into a unitized stock fund. The fund is made of approximately 95-97 percent in Sun Hydraulics Corporation stock, with the remaining amount invested in short-term money market funds. The cash reserve in the account helps support routine transfer and withdrawal activity. The value of the fund bears a relationship to, but is not the same as the price of Sun Hydraulics stock. At December 31, 2005, the fund held 137,480 shares of Sun Hydraulics Corporation common stock with a price of \$19.33 per share as of such date. The shares held reflect a three-for-two stock split, effected in the form of a 50% stock dividend, which became effective on July 15, 2005.

The Plan is administered by the Employee Benefits Committee (the "Committee") except in connection with the acquisition, retention or disposition of Corporation stock held by the Plan, with respect to which the Board of Directors retained authority. The Committee is composed of six employees of the Corporation appointed by the Corporation's Board of Directors. Charles Schwab Trust Company (the "Trustee") is the current trustee for the Plan. Schwab Retirement Plan Services, Inc. provides the recordkeeping, accounting, and the telephone and Internet exchange features of the Plan.

Contributions

Salary deferral contributions are made by participating employees through payroll deductions in amounts authorized by the employees. The Plan allows participants to make pre-tax contributions from 1% to 100% of their salary not to exceed statutory limits. Pre-tax

contributions, of up to 6% of the employee's salary (depending on length of service), are matched by the Corporation. Matching contributions are based on the years of service as listed in the following schedule:

Years of Service	% Match
Less than three years	3%
After three years	4%
After five years	5%
After seven or more years	6%

Additional contributions may be made by the Corporation on a discretionary basis. During 2005, the Corporation contributed \$1,180,268 to the ESOP in the form of company stock. The total amount is shown as a contribution receivable at December 31, 2005.

Participant Accounts

Each participant's account is credited with the participant's contribution, any employer's contribution and an allocation of Plan earnings or losses. Allocations are based on the participant's account balance.

Vesting

Participants are immediately vested in their voluntary contributions plus actual earnings thereon. Participants are vested in employer matching contributions and discretionary employer ESOP contributions based upon years of service defined in the Plan, as follows:

Years of Service	Vesting %
Less than 1	0%
1	20%
2	40%
3	60%
4	80%
5 or more	100%

Payment of Benefits

If a participant ceases to be employed by the Corporation for any reason other than death or total and permanent disability, prior to satisfying the age and service requirements for early or normal retirement, the terminated participant may elect to receive lump-sum or periodic payments of the participant's vested account balance. Withdrawals may be subject to tax withholdings and penalties.

Benefits may be paid upon death, disability, termination or retirement to the participants or their beneficiaries, in lump-sum amounts or periodic payments. Under certain circumstances, hardship withdrawals are allowed from the Plan.

Investment Options

The participants, upon enrollment in the Plan, elect to invest their contributions, in multiples of five (5) % increments, in the investment options provided by the Plan. Investments in sponsor company common stock is not a participant directed investment option.

Participant Loans

A participant may receive a loan based on the loan program set forth by the Plan. The minimum loan is \$1,000 and the maximum is \$50,000, not to exceed 50% of the participant's vested account balance. Loans are repaid through payroll deductions over a maximum of five (5) years. A participant can have only one loan outstanding. Current loans bear interest at rates between 6.00% and 10.5%.

Plan Expenses

The Plan pays the account administrative service fee from income earned by the Plan. The Corporation pays the administrative service fee, legal and accounting fees, and other expenses on behalf of the Plan.

Forfeitures

At December 31, 2005 and December 31, 2004, forfeited nonvested accounts totaled \$3,495 and \$29,542, respectively. Account balances will revert back to the Plan and will be used to pay reasonable administrative expenses of the Plan, any excess will be used to reduce the employer's matching contributions.

2. Summary of Accounting Policies**Basis of Accounting**

The accompanying financial statements are presented on the accrual basis of accounting.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and changes therein, and disclosure of contingent assets and liabilities. Actual results could differ from those estimates.

Investments

The Plan's investments are held by the Trustee. The Plan's investments are stated at fair value. If available, quoted market prices are used to value investments. For investments without quoted market prices, the net asset value is calculated and verified on a daily basis by the respective trusts and reported to the Trustee. Participants' loans are valued at cost which equals fair value. Investment income and gains and losses are allocated among participants on the basis of individual participant account balances. Purchases and sales of securities are recorded on a trade-date basis. Interest income is recorded on the accrual basis. Dividend income is recognized when earned.

Payment of Benefits

Benefits are recorded when paid.

Net Appreciation in Fair Value of Investments

The Plan presents, in the statements of changes in net assets available for benefits, the net appreciation in fair value of its investments consisting of interest, dividends, the realized gains (losses) and the unrealized appreciation (depreciation) on those investments.

3. Investments

Investment balances that represent five percent or more of the net assets available for benefits are as follows:

	2005	2004
Schwab S&P 500 Index Investor	\$5,354,364	\$6,436,112
Schwab Retirement Money Fund	***	3,533,967
White Oak Growth Stock	***	2,905,665
Dreyfus Small Company Value	2,656,474	2,407,527
Janus Mid Cap Value Investor	2,528,493	1,841,988
JPMorgan Core Bond Fund	1,964,929	1,565,128
Schwab Stable Value Fund	2,924,841	**
Jensen	2,668,094	*
Julius Baer International Equity	3,990,051	*
Sponsor Company Common Stock	2,770,845	*

* Investment does not exceed 5% or more of net assets available for benefits

** Investment was made available in plan year 2005

*** Investment was disposed of in plan year 2005

During the year ended December 31, 2005, the Plan's investments (including gains and losses on investments bought and sold, as well as held during the year) appreciated in value as follows:

	2005
Mutual funds	1,072,219
Common/collective trust fund	14,953
Sponsor company common stock	1,461,982
Net change in fair value	2,549,154

A portion of the Schwab Stable Value Fund, a common collective trust ("CCT"), is invested in guaranteed investment contracts ("GICs") which provide for benefit-responsive withdrawals by plan participants at contract value. The GICs are valued at fair value. Fair value approximates

contract value which represents principal balances of the contracts, plus accrued interest. The average yield for the CCT was 3.51% for the year ended December 31, 2005. The CCT's crediting interest rates on investments ranged from 2.3% to 6.45% on December 31, 2005.

4. Non-participant Directed Investments

Information about the net assets and the significant components of the changes in net assets relating to the non-participant directed investments is as follows:

	<u>2005</u>	<u>2004</u>
Net assets:		
Sponsor company common stock	\$2,770,845	\$503,184
		<u>Year Ended December 31, 2005</u>
Changes in net assets:		
Contributions	\$	1,059,771
Net appreciation		1,461,982
Benefits paid to participants		(142,659)
Administrative Expenses		(1,049)
Loans taken		(16,236)
Forfeitures		(13,404)
Transfers to participant directed investments		(80,744)
		<u>\$ 2,267,661</u>

5. Tax Status of the Plan

The Internal Revenue Service has determined and informed the Corporation by letter dated October 3, 2005, that the Plan and related trusts were designed in accordance with applicable sections of the Internal Revenue Code. Although the Plan has been amended since receiving the letter, the Corporation believes that the Plan is designed and is currently being operated in compliance with the applicable requirements of the Internal Revenue Code.

6. Plan Termination

Although it has not expressed any intent to do so, the Corporation has the right under the Plan to amend or discontinue the Plan at any time and to terminate the Plan, subject to the terms of ERISA. In the event of Plan termination, the participants will become 100% vested in their accounts and net assets of the Plan will be distributed to the participants and beneficiaries of the Plan.

7. Related Party Transactions

Certain Plan investments are shares of mutual funds and a common/collective trust managed by the trustee and shares of the Company's common stock; and therefore, these transactions qualify as party-in-interest.

8. Risks and Uncertainties

The Plan invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market, and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect participants' account balances and the amounts reported in the statement of net assets available for benefits.

SUPPLEMENTAL SCHEDULE

SUN HYDRAULICS CORPORATION 401(K) AND ESOP RETIREMENT PLAN

SCHEDULE OF ASSETS (HELD AT END OF YEAR)

December 31, 2005

Information furnished pursuant to item 4i, Schedule H of Form 5500

Employer identification number: 59 2754337

(a)	(b) Identity of Issuer/ Borrower	(c) Units Held/ Face Amount	(d) Cost	(e) Market Value
*	Schwab Stable Value Fund	183,542.46	\$ 2,912,702	\$ 2,924,841
	American Beacon Large Cap Value	45,442.70	944,635	906,127
	American Century Equity Growth	59,164.12	1,281,772	1,382,665
	Barclays Global Investor Lifepath 2010	52,689.53	687,722	681,276
	Barclays Global Investor Lifepath 2020	27,723.16	439,594	439,412
	Barclays Global Investor Lifepath 2030	22,513.93	355,454	346,489
	Barclays Global Investor Lifepath 2040	2,574.20	46,782	46,799
	Barclays Global Investor Lifepath Retirement	182.45	2,074	2,047
	Dreyfus Small Company Value	105,541.26	2,436,987	2,656,474
	Janus Mid Cap Value Investor	113,283.76	2,361,210	2,528,493
	Jensen	112,010.68	2,667,011	2,668,094
	JPMorgan Core Bond Fund	184,847.47	2,019,707	1,964,929
	Julius Baer International Equity	112,586.08	3,706,167	3,990,051
*	Schwab S&P 500 Index Investor	278,873.10	4,826,550	5,354,364
**	Sponsor Company Comon Stock	153,424.42	1,432,937	2,770,845
	Participant Loans	6.0%-10.5%	1,300,042	1,300,042
	Total investments		\$ 27,421,346	\$ 29,962,948

* Represents a party-in-interest to the Plan.

** Represents both a party-in-interest to the Plan and a non-participant directed fund.