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, 2004

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

FINANCIAL STATEMENTS AND SUPPLEMENTAL SCHEDULE AND REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

DECEMBER 31, 2004 AND 2003

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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, 2004 and 2003, and the related statement of changes in net assets available for benefits for the year ended December 31, 2004. 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 Company 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, 2004 and 2003, and the changes in net assets available for benefits for the year ended December 31, 2004, in conformity with accounting principles generally accepted in the United States of America.

Our audits were conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedule of assets (held at end of year) as of December 31, 2004 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 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 July 6, 2005

STATEMENTS OF NET ASSETS AVAILABLE FOR BENEFITS

	December 31,	
	2004	2003
Assets		
Investments at market value		
Cash	\$ 1,275	\$ —
Money market funds	3,533,967	5,894,082
Mutual funds	20,549,447	16,461,639
Sponsor company common stock, non-participant directed	503,184	
Total investments	24,587,873	22,355,721
Participant loans	1,326,954	1,191,191
Total investments and participant loans	25,914,827	23,546,912
Receivables		
Employer contribution-cash	32,595	29,000
Employer contribution- sponsor company common stock	1,059,771	
Participants' contribution	49,945	45,923
Participant loan interest	2,980	2,853
Total receivables	1,145,291	77,776
Net assets available for benefits	\$27,060,118	\$23,624,688
The accompanying Notes to Financial Statements are an integral part of these financial statements.		

STATEMENT OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS

	Year Ended December 31, 2004
Additions to net assets attributed to:	
Investment income	
Net appreciation in fair value of investments	\$ 1,343,255
Interest on investments	31,583
Participant loan interest	71,029
Total investment income	1,445,867
Contributions	
Participant	1,222,851
Employer-cash	776,591
Employer-sponsor company common stock, at fair value	1,570,267
Rollovers	18,566
Total contributions	3,588,275
Total additions	5,034,142
Deductions from net assets:	
Benefits paid to participants	1,582,987
Administrative expenses	15,725
Total deductions	1,598,712
Net increase	3,435,430
Net assets available for benefits	
Beginning of the year	23,624,688
End of the year	\$ 27,060,118

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

NOTES TO FINANCIAL STATEMENTS DECEMBER 31, 2004 AND 2003

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, 2004, the fund held 30,370 shares of Sun Hydraulics Corporation common stock with a price of \$15.97 per share.

The Plan is administered by the Employee Benefits Committee (the "Committee"). 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 2004, the Corporation contributed \$1,570,267 to the ESOP in the form of company stock of which \$510,496 was contributed in September 2004 and \$1,059,771 is shown as a contribution receivable at December 31, 2004.

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. If the vested account balance is less than \$5,000, the account balance may automatically be paid in a lump sum without the consent of the participant. Withdrawals may be subject to tax withholdings and penalties.

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.

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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 11.5%.

Payment of Benefits

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.

Plan Expenses

The Plan pays the account administrative service fee from income earned derived 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, 2004 and December 31, 2003, forfeited nonvested accounts totaled \$29,542 and \$10,658, 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.

Financial Statements

The financial statements and notes are representations of the Corporation's management, who is responsible for their integrity and objectivity. The accounting policies conform to accounting principles generally accepted in the United States of America and have been consistently applied in the preparation of the financial statements.

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 mutual funds and common stock, traded on a national exchange and are valued at fair market value as reported on the last business day of the year. 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:

	2004	2003
Schwab S&P 500 Investor Shares	\$6,436,112	\$4,210,754
Schwab Retirement Money Fund	3,533,967	5,894,082
White Oak Growth Stock	2,905,665	3,939,398
Dreyfus Small Company Value	2,407,527	2,372,708
Janus Mid Cap Value Investor	1,841,988	*
JPMorgan Core Bond Fund	1,565,128	**
Janus Worldwide Fund	*	1,644,488
One Group Bond Fund Class I	***	1,362,613

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

** Investment was made available in plan year 2004

During the year ended December 31, 2004, 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:

	2004	2003
Mutual funds	\$1,348,059	\$4,492,829
Sponsor company common stock	(4,804)	
Net change in fair value	\$1,343,255	\$4,492,829

^{***} Investment was disposed of in plan year 2004

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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:

Net assets:	2004	2003
Sponsor company common stock	\$503,184	\$ —
		ear Ended nber 31, 2004
Changes in net assets:		
Contributions	\$	510,496
Dividends		3,874
Net depreciation		(4,804)
Transfers to participant directed investments		(6,382)
	\$	503,184

5. Tax Status of the Plan

The Internal Revenue Service has determined and informed the Corporation by letter dated February 5, 2003, 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 and the Plan's tax counsel believe 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 money market fund 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

SCHEDULE OF ASSETS (HELD AT END OF YEAR)

December 31, 2004

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
	Cash	1,275.00	\$ 1,275	\$ 1,275
*	Schwab Retirement Money Fund	3,533,966.98	3,533,967	3,533,967
	AIM Total Return Fund	17,494.52	416,784	428,616
	American Century Equity Growth	38,770.98	790,735	856,063
	Ameristock Fund	12,876.00	485,013	521,993
	Dreyfus Small Company Value	93,678.10	1,936,139	2,407,527
	Janus Mid Cap Value Investor	83,385.59	1,574,080	1,841,988
	Janus Worldwide Fund	30,727.91	1,575,128	1,272,443
	Jensen	24,975.70	564,055	608,158
	JPMorgan Core Bond Fund	143,326.75	1,581,515	1,565,128
	Julius Baer Intl Equity	35,943.75	1,069,784	1,136,182
*	Schwab Market Track Conserv	42,473.71	538,142	569,572
*	Schwab S&P 500 Investor Shares	345,470.30	5,843,450	6,436,112
	White Oak Growth Stock	85,310.19	3,912,270	2,905,665
**	Sponsor Company Comon Stock	50,318.37	503,184	503,184
	Participant Loans	6.0%-11.5%	1,326,954	1,326,954
	Total investments		\$25,652,475	\$25,914,827

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

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