SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

(MARK ONE)

[X] QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended June 30, 1999

or

[ ] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _______________ to _______________

Commission file number 0-23621

MKS INSTRUMENTS, INC.

(Exact name of registrant as specified in its charter)

Massachusetts	04-2277512
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
Six Shattuck Road, Andover, Massachusetts	01810
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code (978) 975-2350

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes [X] No [ ].

Number of shares outstanding of the issuer's common stock as of August 10, 1999: 24,430,407

MKS INSTRUMENTS, INC.
FORM 10-Q
INDEX

PART I FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

Consolidated Balance Sheets -
June 30, 1999 and December 31, 1998

Consolidated Statements of Income -
Three and six months ended June 30, 1999 and 1998

Consolidated Statements of Cash Flows -
Six months ended June 30, 1999 and 1998

Notes to Consolidated Financial Statements

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION
AND RESULTS OF OPERATIONS

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

PART II OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

ITEM 2. CHANGES IN SECURITIES AND USE OF PROCEEDS

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

ITEM 5. OTHER INFORMATION

ITEM 6. EXHIBITS AND REPORTS ON FORM 8-K

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

MKS INSTRUMENTS, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

	JUNE 30, 1999 (Unaudited)	DECEMBER 31, 1998
ASSETS		
Current assets:		
Cash and cash equivalents	$ 30,671	$11,188
Short-term investments	23,202	--
Trade accounts receivable, net	28,860	20,674
Inventories	25,142	24,464
Deferred tax asset	4,014	698
Other current assets	2,926	1,509
Total current assets	114,815	58,533
Property, plant and equipment, net	30,934	32,725
Other assets	6,101	4,974
Total assets	$151,850	$96,232
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Short-term borrowings	$ 9,172	$ 9,687
Current portion of long-term debt	2,035	2,058
Current portion of capital lease obligations	1,040	1,074
Accounts payable	7,166	3,677
Accrued compensation	6,285	3,985
Other accrued expenses	4,955	5,280
Income taxes payable	1,386	1,279
Total current liabilities	32,039	27,040
Long-term debt	10,775	12,042
Long-term portion of capital lease obligations	1,359	1,744
Deferred tax liability	392	117
Other liabilities	441	463
Commitments and contingencies (Note 10)		
Stockholders' equity:		
Preferred Stock, $0.01 par value, 2,000,000 shares authorized; none issued and outstanding	--	--
Common Stock, no par value, 50,000,000 shares authorized; 24,430,407 and 18,053,167 issued and outstanding at June 30, 1999 and December 31, 1998, respectively	113	113
Additional paid-in capital	82,110	48
Retained earnings	23,184	52,479
Accumulated other comprehensive income	1,437	2,186
Total stockholders' equity	106,844	54,826
Total liabilities and stockholders' equity	$151,850	$96,232

The accompanying notes are an integral part of the consolidated financial statements.

MKS INSTRUMENTS, INC.
CONSOLIDATED STATEMENTS OF INCOME
(in thousands, except per share data)
(Unaudited)

	Three Months Ended June 30		Six Months Ended June 30	
	1999	1998	1999	1998
Net sales	$44,209	$34,026	$82,119	$80,189
Cost of sales	25,550	20,265	48,107	47,022
Gross profit	18,659	13,761	34,012	33,167
Research and development	3,317	3,107	6,272	6,901
Selling, general and administrative	9,435	9,045	18,292	19,157
Income from operations	5,907	1,609	9,448	7,109
Interest expense	346	384	684	784
Interest income	578	47	674	72
Other income (expense), net	--	123	168	(158)
Income before income taxes	6,139	1,395	9,606	6,239
Provision for income taxes	2,333	163	2,671	728
Non-recurring deferred tax credit (Note 9)	(3,770)	--	(3,770)	--
Net income	$ 7,576	$ 1,232	$10,705	$ 5,511
Historical net income per share:				
Basic	$ 0.31	$ 0.07	$ 0.51	$ 0.31
Diluted	$ 0.30	$ 0.07	$ 0.48	$ 0.29
Historical weighted average common shares outstanding:				
Basic	24,065	18,053	21,060	18,053
Diluted	24,951	18,737	22,177	18,744
Pro forma data:				
Historical income before income taxes	$ 6,139	$ 1,395	$ 9,606	$ 6,239
Pro forma provision for income taxes assuming C corporation tax	2,333	530	3,650	2,371
Pro forma net income	$ 3,806	$ 865	$ 5,956	$ 3,868
Pro forma net income per share:				
Basic	$ 0.16	$ 0.05	$ 0.28	$ 0.21
Diluted	$ 0.15	$ 0.05	$ 0.27	$ 0.21
Pro forma weighted average common shares outstanding:				
Basic	24,065	18,053	21,060	18,053
Diluted	24,951	18,548	21,921	18,553

The accompanying notes are an integral part of the consolidated financial statements.

MKS INSTRUMENTS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(Unaudited)

	Six Months Ended June 30, 1999	Six Months Ended June 30, 1998
Cash flows from operating activities:		
Net income	$ 10,705	$ 5,511
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	3,095	3,322
Loss (gain) on disposal of property, plant and equipment	(181)	49
Non-recurring deferred tax credit	(3,770)	--
Other	198	94
Forward exchange contract gain realized	(64)	(836)
Changes in operating assets and liabilities:		
(Increase) decrease in trade accounts receivable	(9,328)	9,137
(Increase) decrease in inventories	(1,205)	3,365
(Increase) decrease in other current assets	(248)	123
Increase (decrease) in accrued expenses and other current liabilities	2,422	(4,166)
Increase (decrease) in accounts payable	3,665	(3,626)
Net cash provided by operating activities	5,289	12,973
Cash flows from investing activities:		
Purchases of investments	(23,756)	--
Purchases of property, plant and equipment	(2,421)	(1,701)
Proceeds from sales of property, plant & equipment	208	--
Increase in other assets	(221)	(174)
Cash received to settle forward exchange contracts	64	836
Net cash used in investing activities	(26,126)	(1,039)
Cash flows from financing activities:		
Proceeds from short-term borrowings	5,209	755
Payments on short-term borrowings	(5,211)	(755)
Principal payments on long-term debt	(1,029)	(1,026)
Proceeds from issuance of common stock, net of issuance costs	82,062	--
Cash distributions to stockholders	(40,000)	(6,000)
Principal payments under capital lease obligations	(419)	(569)
Net cash provided by (used in) financing activities	40,612	(7,595)
Effect of exchange rate changes on cash and cash equivalents	(292)	(284)
Increase in cash and cash equivalents	19,483	4,055
Cash and cash equivalents at beginning of period	11,188	2,511
Cash and cash equivalents at end of period	$ 30,671	$ 6,566
Supplemental disclosure of cash flow information:		
Cash paid during the period for:		
Interest	$ 605	$ 743
Income taxes	$ 2,738	$ 1,041
Noncash transactions during the period:		
Equipment acquired under capital leases	$ 86	$ 456

The accompanying notes are an integral part of the consolidated financial statements.

MKS INSTRUMENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Tables in thousands, except per share data)

1) BASIS OF PRESENTATION

The interim financial data as of June 30, 1999 and for the three and six months ended June 30, 1999 and 1998 is unaudited; however, in the opinion of MKS Instruments, Inc. (the "Company"), the interim data includes all adjustments, consisting only of normal recurring adjustments, necessary for a fair statement of the results for the interim periods. The unaudited financial statements presented herein have been prepared in accordance with the instructions to Form 10-Q and do not include all the information and note disclosures required by generally accepted accounting principles. The financial statements should be read in conjunction with the December 31, 1998 audited financial statements and notes thereto.

2) NEW ACCOUNTING PRONOUNCEMENTS

In June, 1998, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards (SFAS) No. 133, "Accounting for Derivative Instruments and Hedging Activities." SFAS No. 133 requires that all derivative instruments be recorded on the balance sheet at their fair value. Changes in the fair value of derivatives are recorded each period in current earnings or other comprehensive income, depending on whether a derivative is designated as part of a hedge transaction and, if it is, the type of hedge transaction. The Company adopted the provisions of SFAS No. 133 effective April 1, 1999. The impact of adopting SFAS No. 133 was the recording of an unrealized loss of $16,000 in other comprehensive income.

The Company hedges a portion of its forecasted foreign currency denominated intercompany sales of inventory, over a maximum period of fifteen months, using forward exchange contracts and currency options. These derivatives are designated as cash-flow hedges, and changes in their fair value are carried in accumulated other comprehensive income until the underlying forecasted transaction occurs. Once the underlying forecasted transaction is realized, the appropriate gain or loss from the derivative designated as a hedge of the transaction is reclassified from accumulated other comprehensive income to cost of sales. The Company utilizes an interest rate swap to fix the interest rate on certain variable term loans in order to minimize the effect of changes in interest rates on earnings. Net unrealized gains in the three months ended June 30, 1999 of $254,000 from derivatives designated as cash-flow hedging instruments have been recorded in accumulated other comprehensive income. Net realized gains and losses recorded in earnings in the three months ended June 30, 1999 were immaterial. As of June 30, 1999, the amount that will be reclassified from accumulated other comprehensive income to earnings over the next twelve months is an unrealized gain of $258,000. The ineffective portion of the derivatives is primarily related to option premiums. The amortization of the premiums in the three months ended June 30, 1999 was immaterial. The Company hedges certain of its intercompany payables with currency options. Since these derivatives hedge existing amounts that are denominated in foreign currencies, the options do not qualify for hedge accounting under SFAS No. 133. The changes in fair value of these options as well as the underlying exposures are generally offsetting and are recorded in other income or expense. The amounts of the changes were immaterial for the three months ended June 30, 1999.

3) USE OF ESTIMATES

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the dates of the financial statements and the reported amounts of revenues and expenses during the reporting periods. Actual results could differ from those estimates.

MKS INSTRUMENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(Tables in thousands, except per share data)

4) CASH AND CASH EQUIVALENTS AND SHORT-TERM INVESTMENTS

Cash and cash equivalents consist of the following at June 30, 1999:

Cash and money market instruments	$25,500
Commercial paper	3,471
Corporate obligations	1,700
	$30,671

Cash and cash equivalents at December 31, 1998 consisted of cash and money market instruments.

Short-term investments consist of the following at June 30, 1999:

Federal Government and Government Agencies obligations	$ 9,073
Corporate obligations	7,597
Commercial paper	6,532
	$23,202

5) HISTORICAL AND PRO FORMA NET INCOME PER SHARE

Historical net income per share is not meaningful because of the Company's conversion from an S corporation to a C corporation in April, 1999 upon the closing of its initial public offering. Historical net income has been adjusted for the pro forma provision for income taxes calculated assuming the Company was subject to income taxation as a C corporation, at a pro forma rate of 38%.

The following is a reconciliation of basic to diluted pro forma and historical net income per share:

	Three Months Ended June 30,			
	1999		1998	
	PRO FORMA	HISTORICAL	PRO FORMA	HISTORICAL
Net income	$ 3,806	$ 7,576	$ 865	$ 1,232
Shares used in net income per common share-basic	24,065	24,065	18,053	18,053
Effect of dilutive securities: Employee and director stock options	886	886	495	684
Shares used in net income per common share-diluted	24,951	24,951	18,548	18,737
Net income per common share-basic	$ 0.16	$ 0.31	$ 0.05	$ 0.07
Net income per common share-diluted	$ 0.15	$ 0.30	$ 0.05	$ 0.07

MKS INSTRUMENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(Tables in thousands, except per share data)

	Six Months Ended June 30, 1999		Six Months Ended June 30, 1998	
	PRO FORMA	HISTORICAL	PRO FORMA	HISTORICAL
Net income	$ 5,956	$10,705	$ 3,868	$ 5,511
Shares used in net income per common share-basic	21,060	21,060	18,053	18,053
Effect of dilutive securities:				
Employee and director stock options	861	1,117	500	691
Shares used in net income per common share-diluted	21,921	22,177	18,553	18,744
Net income per common share-basic	$ 0.28	$ 0.51	$ 0.21	$ 0.31
Net income per common share-diluted	$ 0.27	$ 0.48	$ 0.21	$ 0.29

For purposes of computing diluted earnings per share, weighted average common share equivalents do not include stock options with an exercise price greater than the average market price of the common shares during the period. Options to purchase 12,000 shares of common stock were outstanding during the six months ended June 30, 1999, but were not included in the calculation of diluted net income per common share because the option price was greater than the average market price of the common shares during the period. There were no options outstanding with an exercise price greater than the average market price of the common shares for the three and six months ending June 30, 1998 and the three months ending June 30, 1999.

6) INVENTORIES

Inventories consist of the following:

	June 30, 1999	December 31, 1998
Raw material	$ 6,391	$ 7,544
Work in process	6,305	5,718
Finished goods	12,446	11,202
	$25,142	$24,464

7) STOCKHOLDERS' EQUITY

In March 1999, the Company amended its Articles of Organization to: i) eliminate the authorized shares of Class A Common Stock and Class B Common Stock; ii) increase the authorized number of shares of Common Stock to 50,000,000 shares; iii) authorize 2,000,000 shares of Preferred Stock, $0.01 par value per share; and iv) provide that each outstanding share of Class A Common Stock and Class B Common Stock be converted into one share of Common Stock.

On April 5, 1999 the Company closed the initial public offering of its Common Stock. In connection with this offering and the exercise of an over-allotment option by the underwriters, the Company sold 6,375,000 shares of Common Stock at a price of $14.00 per share. The net proceeds to the Company were approximately $82,000,000. Offering costs were approximately $1,000,000.

On April 5, 1999 the Company distributed $40,000,000, which was the estimated amount of the Company's undistributed S corporation earnings as of the day prior to the closing of the offering.

MKS INSTRUMENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(Tables in thousands, except per share data)

Total comprehensive income was as follows:

	Three Months Ended June 30, 1999	1998
Net income	$7,576	$1,232
Other comprehensive income, net of taxes:		
Non-recurring deferred tax charge to comprehensive income (Note 9)	(660)	--
Impact of adopting SFAS No. 133	(16)	--
Changes in value of financial instruments designated as hedges of currency and interest rate exposures	254	--
Foreign currency translation adjustment	(172)	(110)
Unrealized gain (loss) on investments	293	(407)
Other comprehensive income, net of taxes	(301)	(517)
Total comprehensive income	$7,275	$ 715

	Six Months Ended June 30, 1999	1998
Net income	$10,705	$5,511
Other comprehensive income, net of taxes:		
Non-recurring deferred tax charge to comprehensive income (Note 9)	(660)	--
Impact of adopting SFAS No. 133	(16)	--
Changes in value of financial instruments designated as hedges of currency and interest rate exposures	254	--
Foreign currency translation adjustment	(739)	(286)
Unrealized gain (loss) on investments	412	(171)
Other comprehensive income, net of taxes	(749)	(457)
Total comprehensive income	$ 9,956	$5,054

8) SEGMENT INFORMATION AND SIGNIFICANT CUSTOMER

Segment Information for the three months ended June 30, 1999 and 1998:

		NORTH AMERICA	FAR EAST	EUROPE	TOTAL
Net sales to unaffiliated customers	1999	$30,861	$8,658	$4,690	$44,209
	1998	23,814	5,401	4,811	34,026
Intersegment net sales	1999	$ 8,931	$ 195	$ 342	$ 9,468
	1998	5,792	62	253	6,107
Income from operations	1999	$ 5,230	$ 331	$ 346	$ 5,907
	1998	787	494	328	1,609

MKS INSTRUMENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(Tables in thousands, except per share data)

Segment Information for the six months ended June 30, 1999 and 1998:

		NORTH AMERICA	FAR EAST	EUROPE	TOTAL
Net sales to unaffiliated customers	1999	$56,994	$15,747	$ 9,378	$82,119
	1998	57,343	12,484	10,362	80,189
Intersegment net sales	1999	$15,772	$ 327	$ 510	$16,609
	1998	14,606	117	436	15,159
Income from operations	1999	$ 8,087	$ 623	$ 738	$ 9,448
	1998	5,474	885	750	7,109

The Company had one customer comprising 22% and 13% of net sales for the three months ended June 30, 1999 and 1998, respectively and 21% and 18% for the six months ended June 30, 1999 and 1998, respectively.

9) INCOME TAXES

Prior to its initial public offering, the Company was treated as an S corporation for federal income tax purposes. As an S corporation, the Company was not subject to federal, and certain state income taxes. The Company terminated its S corporation status upon the closing of the initial public offering and became subject to taxes at C corporation tax rates. This change in tax status and tax rates resulted in a non-recurring, non-cash deferred tax credit to net income of $3,770,000 and a deferred tax charge to other comprehensive income of $660,000.

10) COMMITMENTS AND CONTINGENCIES

Prior to its initial public offering, the Company entered into a Tax Indemnification and S Corporation Distribution Agreement with its then existing stockholders (the "pre-IPO stockholders"). The agreement includes provisions for the payment, with interest, by the pre-IPO stockholders or MKS, as the case may be, for the difference between the $40,000,000 distributed as an estimate of the amount of the accumulated adjustments account as of April 4, 1999, which is the date the Company's S Corporation status was terminated, and the actual amount of the accumulated adjustments account on that day. The actual amount of the accumulated adjustments account cannot be determined until MKS calculates the amount of its taxable income for the year ending December 31, 1999. Management believes that any additional distributions would not have a material impact on its financial position or results of operations. No current shareholders, other than the pre-IPO stockholders, are parties to the Tax Indemnification and S Corporation Distribution Agreement.

ITEM 2.

MKS INSTRUMENTS, INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The Quarterly Report on Form 10-Q contains a number of statements, including, without limitation, statements relating to MKS's beliefs, expectations and plans which are forward-looking statements, as are statements that certain actions, conditions or circumstances will continue. Such statements are based upon management's current expectations and are subject to a number of factors and uncertainties. Information contained in these forward-looking statements is inherently uncertain and actual performance and results may differ materially due to many important factors. See "Factors That May Affect Future Results" for factors that could cause actual results to differ materially from any forward-looking statements made by MKS.

MKS's quarterly net sales have fluctuated primarily due to the decline in the semiconductor capital equipment market and the semiconductor device market in 1998 and the recovery in those markets in the first half of 1999. MKS's net sales declined in each of the first three quarters of 1998. In response to the decline, MKS implemented a comprehensive cost containment program that included manufacturing outsourcing, expense reductions, and the elimination of some temporary and contract positions. Worldwide staffing levels were decreased from 1,195 at the end of 1997 to 821 at the end of 1998. As a result of these actions, MKS maintained quarterly profitability during the decline despite lower net sales.

In the second quarter of 1999, MKS's net sales increased sequentially for the third consecutive quarter. Net sales increased 17% as compared to the first quarter of 1999. The increase was primarily due to increased sales to companies in the semiconductor industry.

The comparisons of the results of operations for the three and six months ending June 30, 1999 as compared to the three and six months ending June 30, 1998 have been significantly impacted by the decline in the semiconductor capital equipment market in 1998, and the cost containment program implemented by MKS as a result of the decline. The following table sets forth for the periods indicated the percentage of total net sales of certain line items included in MKS's consolidated statement of income data.

	Three Months Ended June 30,		Six Months Ended June 30,	
	1999	1998	1999	1998
Net sales	100.0%	100.0%	100.0%	100.0%
Cost of sales	57.8	59.6	58.6	58.6
Gross profit	42.2	40.4	41.4	41.4
Research and development	7.5	9.1	7.6	8.6
Selling, general and administrative	21.3	26.6	22.3	23.9
Income from operations	13.4	4.7	11.5	8.9
Interest income (expense), net	0.5	(1.0)	--	(0.9)
Other income (expense), net	--	0.4	0.2	(0.2)
Income before income taxes	13.9	4.1	11.7	7.8
Provision for income taxes	5.3	0.5	3.3	0.9
Non-recurring deferred tax credit	(8.5)	--	(4.6)	--
Net income	17.1%	3.6%	13.0%	6.9%
Pro form data:				
Historical income before income taxes	13.9%	4.1%	11.7%	7.8%
Pro forma provision for income taxes	5.3	1.6	4.4	3.0
Pro forma net income	8.6%	2.5%	7.3%	4.8%

Results of Operations

Net Sales. Net sales increased 30% to $44.2 million for the three months ended June 30, 1999 from $34.0 million for the three months ended June 30, 1998. International net sales were approximately $13.3 million for the three months ended June 30, 1999 or 30.2% of net sales and $10.5 million for the three months ended June 30, 1998 or 31.0% of net sales. The increase in net sales was due to increased sales volume of MKS's existing products in the United States and Far East which resulted primarily from increased sales to the Company's semiconductor capital equipment manufacturer and semiconductor device manufacturer customers. Net sales increased 2.4% to $82.1 million for the six months ended June 30, 1999 from $80.2 million in the same period of 1998.

Gross Profit. Gross profit as a percentage of net sales increased to 42.2% for the three months ended June 30, 1999 from 40.4% for the three months ended June 30, 1998. The increase was primarily due to fuller utilization of existing manufacturing capacity as a result of increased net sales. Gross profit as a percentage of net sales was 41.4% for the six months ended June 30, 1999 and for the same period of 1998.

Research and Development. Research and development expense increased 6.8% to $3.3 million or 7.5% of net sales for the three months ended June 30, 1999 from $3.1 million or 9.1% of net sales for the three months ended June 30, 1998 due to increased spending for development materials related to projects in process. Research and development expense decreased 9.1% to $6.3 million for the six months ended June 30, 1999 from $6.9 million for the same period of 1998 due to reduced compensation expense resulting from the reduction in personnel during the latter part of 1998.

Selling, General and Administrative. Selling, general and administrative expenses increased 4.3% to $9.4 million or 21.3% of net sales for the three months ended June 30, 1999 from $9.0 million or 26.6% of net sales for the three months ended June 30, 1998. The increase was due to increased incentive compensation expense. Selling, general and administrative expenses decreased 4.5% to $18.3 million for the six months ended June 30, 1999 from $19.2 million for the same period of 1998 due to reduced compensation expense resulting from the reduction in personnel during the latter part of 1998.

Interest Expense, Net. During the three and six months ended June 30, 1999 the Company generated interest income of approximately $0.6 million primarily from the invested net proceeds of the initial public offering, offset by interest expense on outstanding debt. Net interest expense for the three and six months ending June 30, 1998 represents interest on outstanding loans, offset by interest income earned on cash and cash equivalents and short-term investments.

Other Income (Expense), Net. Other income in 1999 represents gains recorded from foreign exchange contracts which did not qualify for hedge accounting. Other income in the three months ended June 30, 1998 represents gains from foreign exchange contracts which did not qualify for hedge accounting. Other expense for the six months ended June 30, 1998 also includes $0.7 million of costs associated with MKS's planned initial public offering in early 1998 which was postponed, offset by translation gains on intercompany payables.

Effective April 1, 1999 MKS adopted Statement of Financial Accounting Standards (SFAS) No. 133, "Accounting for Derivative Instruments and Hedging Activities." SFAS No. 133 requires that all derivative instruments be recorded on the balance sheet at their fair value. Changes in the fair value of derivatives are recorded each period in current earnings or other comprehensive income, depending on whether a derivative is designated as part of a hedge transaction and, if it is, the type of hedge transaction. The adoption of SFAS No. 133 did not have a material impact on MKS's financial position or results of operations. The derivative instruments currently held by MKS which have been designated as hedges, including forward exchange contracts, local currency purchased options, and an interest rate swap, qualify for hedge accounting under SFAS No. 133, and changes in their fair value will be recorded as a component of other comprehensive income until the hedged transaction occurs.

Pro Forma Provision for Income Taxes. Prior to the closing of its initial public offering in April, 1999 MKS was treated as an S corporation for tax purposes. As an S corporation, MKS was not subject to federal, and certain state, income taxes. Upon the closing of its initial public offering on April 5, 1999, MKS's status as an S corporation was terminated and it became subject to taxes as a C corporation. The pro forma provision for income taxes reflects the estimated tax expense MKS would have incurred had it been subject to federal and state income taxes as a C corporation. The pro forma provision reflects a pro forma tax rate of 38%, which differs from the federal statutory rate due primarily to the effects of state and foreign taxes and certain tax credits.

LIQUIDITY AND CAPITAL RESOURCES

MKS has financed its operations and capital requirements through a combination of cash provided by operations, long-term real estate financing, capital lease financing and short-term lines of credit. On April 5, 1999 the Company closed the initial public offering of its Common Stock. In connection with this offering and the exercise of an over-allotment option by the underwriters, the Company sold 6,375,000 shares of Common Stock at a price of $14.00 per share. The net proceeds to the Company were approximately $82,000,000 and were received in the second quarter of 1999. Offering costs were approximately $1,000,000. On April 5, 1999 MKS distributed $40,000,000, which is the estimated amount of its undistributed S corporation earnings as of the day prior to the closing of the offering.

Operations provided cash of $5.3 million for the six months ended June 30, 1999 primarily impacted by net income, depreciation and changes in the levels of accounts payable and accounts receivable. Investing activities utilized cash of $26.1 million for the six months ended June 30, 1999 primarily from purchasing short-term investments with the net proceeds from the initial public offering and for the purchase of property and equipment. Financing activities provided cash of $40.6 million, with net proceeds from the initial public offering of $82.1 million offset by the distribution to stockholders of $40.0 million.

Working capital was $82.8 million as of June 30, 1999, an increase of $51.3 million from December 31, 1998. MKS has a combined $30.0 million line of credit with two banks, expiring December 31, 1999, all of which is available.

MKS believes that the net proceeds from its initial public offering, together with the cash anticipated to be generated from operations and funds available from existing credit facilities, will be sufficient to satisfy its estimated working capital and planned capital expenditure requirements through at least the next 24 months.

RECENTLY ISSUED ACCOUNTING PRONOUNCEMENTS

See Note 2 of Notes to Consolidated Financial Statements for a discussion of the impact of recently issued accounting pronouncements.

YEAR 2000 COMPLIANCE

The Year 2000 problem stems from the fact that many currently installed computer systems include software and hardware products that are unable to distinguish 21st century dates from those in the 20th century. As a result, computer software and/or hardware used by many companies and governmental agencies may need to be upgraded to comply with Year 2000 requirements or risk system failure or miscalculations causing disruptions to normal business activities.

State of Readiness

MKS designed and began implementation of a multi-phase Year 2000 project which consists of:

* assessment of the corporate systems and operations including both information technology and non-information technology that could be affected by the Year 2000 problem

* remediation of non-compliant systems and components

* testing of systems and components following remediation

MKS, under the guidance of its Information Technology Steering Committee, has focused its Year 2000 review on four areas:

* internal computer software and hardware

* product compliance

* facilities and manufacturing equipment

* third-party compliance

Internal Computer Software and Hardware. MKS uses information technology for its internal infrastructure, which consists of its main enterprise systems which include the systems used, in part, for purchase orders, invoicing, shipping and accounting, and individual workstations, including personal computers, and its network systems.

Because MKS's business and manufacturing systems, such as its main enterprise systems, are essential to its business, financial condition and results of operations, MKS began its assessment of these systems prior to its other non-critical information technology systems. MKS began its assessment in the fall of 1997, and in November 1997, MKS developed a remediation plan for all identified noncompliant business and manufacturing systems. This remediation plan was implemented in January 1998. By July 1998, MKS had installed new systems or upgraded existing systems. Based upon post-implementation testing and review, management believes that all business and manufacturing systems within its manufacturing operations are Year 2000 compliant.

One of MKS's international subsidiaries is currently undergoing conversion of its business systems in order to become Year 2000 compliant. Management believes that these systems will be operational by the end of the third quarter of 1999. This phase of the Year 2000 project is currently on schedule.

MKS's personal computer based systems were assessed in early 1998. MKS believes that all non-compliant hardware and software was identified by March 1998, at which time it made a list prioritizing databases to be remedied. Critical databases were identified and were scheduled for remediation prior to other databases. Remediation plans to convert the databases were initiated in November 1998. MKS anticipates that it will complete its critical and non-critical conversions by the end of the third quarter of 1999. This phase of the Year 2000 project is currently on schedule.

Product Compliance. Throughout 1998, MKS assessed and addressed the Year 2000 compliance of its products. This assessment resulted in the identification of MKS's products that were compliant and non-compliant. The substantial majority of MKS's products were deemed to be compliant.

The date related functions of all non-compliant products, other than certain residual gas analysis products, are believed by MKS to be non-critical in that such noncompliance would not affect the independent performance of the product; would not cause the MKS product to cease operating on any particular date; and independently would not pose a safety risk. MKS believes that Year 2000 problems associated with non-compliant residual gas analysis products will also be non-critical. However, these products contain components of other manufacturers and cannot be tested and therefore it is possible that such products could cause unanticipated performance problems. MKS made available to its customers a list which describes Year 2000 readiness of its products. This phase of the Year 2000 project is currently on schedule.

Facilities and Manufacturing Equipment. Some aspects of MKS's facilities and manufacturing equipment may include embedded technology, such as microcontrollers. The Year 2000 problem could cause a system failure or miscalculation in such facilities or manufacturing equipment which could disrupt MKS's operations. Affected areas include security systems, elevator controls, voice mail and phone systems, clean room environmental controls, numerically controlled production machinery and computer based production equipment. MKS organized a team of experienced managers in November 1998 to assess the potential problems in these areas. An assessment of all facilities and manufacturing equipment was conducted through December 1998, and a remediation plan was developed in January 1999. MKS anticipates completion of all corrective actions including testing and review to occur by the end of the third quarter of 1999. This phase of the Year 2000 project is currently on schedule.

Third-Party Compliance. MKS has relationships with third-parties including customers and vendors and suppliers of goods, services and computer interfaces. The failure of such persons to implement and execute Year 2000 compliance measures in a timely manner, if at all, could, among other things:

* adversely affect MKS's ability to obtain components in a timely manner

* cause a reduction in the quality of components obtained by MKS

* cause a reduction, delay or cancellation of customer orders received by MKS or a delay in payments by its customers for products shipped

* result in the loss of services that would be necessary for MKS to operate in the normal course of business

MKS assessed which of these third-party goods, services and interfaces were critical to its operations and developed and mailed a standard survey to each third-party deemed critical in January 1998. By March 1998, MKS had reviewed most responses received. To date, the responses received indicate that the third-parties are either in the process of developing remediation plans, or are compliant. MKS continued its assessment through March 1999 and began conducting reviews at that time. All critical third-parties are expected to achieve satisfactory compliance by the end of August 1999. This phase of the Year 2000 project is currently on schedule.

Costs

MKS's costs to date associated with assessment, remediation and testing activities concerning the Year 2000 problem have been approximately $2.1 million. MKS estimates that an additional $1.1 million, the major portion of which will be capitalized and expensed over the life of the assets, will be required to complete the replacement or modification of its facilities, manufacturing equipment, computer software and products and to address the noncompliance of key third-parties. MKS has funded and will continue to fund these activities principally through cash provided by operations and existing leasing lines of credit. It is not possible for MKS to completely estimate the costs incurred in its remediation effort as many of its employees have focused and will continue to focus significant efforts in evaluating MKS's Year 2000 state of readiness and in remediating problems that have arisen, and will continue to arise, from such evaluation.

Contingency Plan

To date, MKS has not formulated contingency plans related to the failure of its or a third-party's Year 2000 remediation efforts. Contingency plans for the failure to implement compliance procedures have not been completed because it is the intent of MKS to complete all required modifications and to test modifications thoroughly prior to December 31, 1999. However, as discussed above, MKS is engaged in ongoing assessment, remediation and testing activities and the internal results as well as the responses received from third-parties will be taken into account in determining the nature and extent of any contingency plans if necessary.

FACTORS THAT MAY AFFECT FUTURE RESULTS

Cyclicality of the Semiconductor Industry

MKS estimates that approximately 60% of its sales during 1997 and 1998 were to semiconductor capital equipment manufacturers and semiconductor device manufacturers, and MKS expects that sales to such customers will continue to account for a substantial majority of its sales. MKS's business depends substantially upon the capital expenditures of semiconductor device manufacturers, which in turn depend upon the demand for semiconductors and other products utilizing semiconductors. Periodic reductions in demand for the products manufactured by semiconductor capital equipment manufacturers and semiconductor device manufacturers may adversely affect MKS's business, financial condition and results of operations. Historically, the semiconductor market has been highly cyclical and has experienced periods of overcapacity, resulting in significantly reduced demand for capital equipment. For example, in 1996 and 1998 the semiconductor industry experienced a significant decline, which caused a number of MKS's customers to reduce their orders. MKS cannot be certain that the current semiconductor downturn that began in 1998 will not continue. A further decline in the level of orders as a result of any future downturn or slowdown in the semiconductor industry could have a material adverse effect on MKS's business, financial condition and results of operations.

Asian Economies

The financial markets in Asia, one of MKS's principal international markets, have experienced significant turbulence. Turbulence in the Asian markets can adversely affect MKS's net sales and results of operations. MKS's direct net sales to customers in Asian markets have been approximately 17% to 18% of total net sales for the past three years. MKS's sales include both direct sales to the semiconductor industry in Asia, as well as to semiconductor capital equipment manufacturers that derive a significant portion of their revenue from sales to the Asian semiconductor industry. Turbulence in the Asian markets began to adversely affect the semiconductor device manufacturers and semiconductor capital equipment manufacturers in the fourth quarter of 1997 and throughout 1998.

Fluctuations in Operating Results

A substantial portion of MKS's shipments occur shortly after an order is received and therefore MKS operates with a low level of backlog. As a consequence of the just-in-time nature of shipments and the low level of backlog, a decrease in demand for MKS's products from one or more customers could occur with limited advance notice and could have a material adverse effect on MKS's results of operations in any particular period.

A significant percentage of MKS's expenses are relatively fixed and based in part on expectations of future net sales. The inability to adjust spending quickly enough to compensate for any shortfall would magnify the adverse impact of a shortfall in net sales on MKS's results of operations. Factors that could cause fluctuations in MKS's net sales include:

* The timing of the receipt of orders from major customers

* Shipment delays

* Disruption in sources of supply

* Seasonal variations of capital spending by customers

* Production capacity constraints

* Specific features requested by customers

For example, MKS was in the process of increasing production capacity when the semiconductor capital equipment market began to experience a significant downturn in 1996. This downturn had a material adverse effect on MKS's operating results in the second half of 1996 and the first half of 1997. After an increase in business in the latter half of 1997, the market experienced another downturn in 1998, which had a material adverse effect on MKS's 1998 and first quarter 1999 operating results. As a result of the factors discussed above, it is likely that MKS will in the future experience quarterly or annual fluctuations and that, in one or more future quarters, MKS's operating results will fall below the expectations of public market analysts or investors. In any such event, the price of MKS's common stock could decline significantly.

Customer Concentration

MKS's five largest customers in 1996, 1997 and 1998 accounted for approximately 26%, 32% and 24%, respectively, of its net sales. The loss of a major customer or any reduction in orders by such customers, including reductions due to market or competitive conditions, would likely have a material adverse effect on MKS's business, financial condition and results of operations. During 1998, one customer, Applied Materials, Inc., accounted for approximately 16% of MKS's net sales. While the Company has entered into a purchase contract with Applied Materials, Inc. that expires in 2000 unless it is extended by mutual agreement, none of MKS's significant customers, including Applied Materials, Inc., has entered into an agreement requiring it to purchase any minimum quantity of MKS's products. The demand for MKS's products from its semiconductor capital equipment customers depends in part on orders received by them from their semiconductor device manufacturer customers.

Attempts to lessen the adverse effect of any loss or reduction through the rapid addition of new customers could be difficult because prospective customers typically require lengthy qualification periods prior to placing volume orders with a new supplier. The Company's future success will continue to depend upon:

* MKS's ability to maintain relationships with existing key customers

* MKS's ability to attract new customers

* the success of MKS's customers in creating demand for their capital equipment products which incorporate MKS's products

Competition

The markets for MKS's products are highly competitive. The Company's competitive success often depends upon factors outside of its control. For example, in some cases, particularly with respect to mass flow controllers, semiconductor device manufacturers may direct semiconductor capital equipment manufacturers to use a specified supplier's product in their equipment. Accordingly, for such products, the Company's success will depend in part on its ability to have semiconductor device manufacturers specify that the Company's products be used at their semiconductor fabrication facilities. In addition, MKS may encounter difficulties in changing established relationships of competitors that already have a large installed base of products within such semiconductor fabrication facilities.

Technological Changes

New products designed by semiconductor capital equipment manufacturers typically have a lifespan of five to ten years. MKS's success depends on its products being designed into new generations of equipment for the semiconductor industry. The Company must develop products that are technologically current so that they are positioned to be chosen for use in each successive new generation of semiconductor equipment. If its products are not chosen by its customers, the Company's net sales may be reduced during the lifespan of its customers' products.

Risks Related to Year 2000 Compliance

MKS has implemented a multi-phase Year 2000 project consisting of assessment and remediation, and testing following remediation. MKS cannot, however, be certain that it has identified all of the potential risks. Failure by the Company to identify and remediate all material Year 2000 risks could adversely affect its business, financial condition and results of operations. MKS has identified the following risks:

* MKS cannot be certain that the entities on whom it relies for certain goods and services that are important for its business will be successful in addressing all of their software and systems problems in order to operate without disruption in the year 2000 and beyond

* MKS's customers or potential customers may be affected by Year 2000 issues that may, in part:

    - cause a delay in payments for products shipped

    - cause customers to expend significant resources on Year 2000 compliance matters, rather than investing in MKS's products

* MKS has not developed a contingency plan related to the failure of its or a third-party's Year 2000 remediation efforts and may not be prepared for such an event

Further, while MKS has made efforts to notify its customers who have purchased potential non-compliant products, the Company cannot be sure that customers who purchased such products will not assert claims against MKS alleging that such products should have been Year 2000 compliant at the time of purchase, which could result in costly litigation and divert management's attention.

Expansion into New Markets

MKS plans to build upon its experience in manufacturing and selling gas measurement, control and analysis products used by the semiconductor industry by designing and selling such products for applications in other industries which use production processes similar to those used in the semiconductor industry.

For example, MKS plans to expand its business to the manufacture of, among other things, hard coatings to minimize wear on cutting tools. Any failure by the Company to penetrate additional markets would limit its ability to reduce its vulnerability to downturns in the semiconductor industry and could have a material adverse effect on MKS's business, financial condition and results of operations.

MKS has limited experience selling its products in certain markets outside the semiconductor industry. The Company cannot be certain that it will be successful in the expansion of its business outside the semiconductor industry. MKS's future success will depend in part on its ability to:

* identify new applications for MKS's products

* adapt MKS's products for such applications

* market and sell such products to customers

Expansion of Manufacturing Capacity

MKS's ability to increase sales of certain products depends in part upon its ability to expand manufacturing capacity for such products in a timely manner. If the Company is unable to expand manufacturing capacity on a timely basis or to manage such expansion effectively, its customers could seek such products from others and its market share could be reduced. Because the semiconductor industry is subject to rapid demand shifts which are difficult to foresee, MKS may not be able to increase capacity quickly enough to respond to a rapid increase in demand in the semiconductor industry. Additionally, capacity expansion could increase the Company's fixed operating expenses and if sales levels do not increase to offset the additional expense levels associated with any such expansion, the Company's business, financial condition and results of operations could be materially adversely affected.

International Operations and Sales

International sales, which include sales by MKS's foreign subsidiaries, but exclude direct export sales which were less than 10% of total net sales, accounted for approximately 30% of net sales in 1996, 27% of net sales in 1997 and 32% of net sales in 1998. MKS anticipates that international sales will continue to account for a significant portion of net sales. In addition, certain of MKS's key domestic customers derive a significant portion of their revenues from sales in international markets. Therefore, MKS's sales and results of operations could be adversely affected by economic slowdowns and other risks associated with international sales.

Exchange rate fluctuations could have an adverse effect on MKS's net sales and results of operations and the Company could experience losses with respect to its hedging activities. Unfavorable currency fluctuations could require MKS to increase prices to foreign customers which could result in lower net sales to such customers. Alternatively, if MKS does not adjust the prices for its products in response to unfavorable currency fluctuations, its results of operations could be adversely affected. In addition, sales made by MKS's foreign subsidiaries are denominated in the currency of the country in which these products are sold and the currency MKS receives in payment for such sales could be less valuable at the time of receipt as a result of exchange rate fluctuations. While MKS enters into forward exchange contracts and local currency purchased options to reduce currency exposure arising from these sales and associated intercompany purchases of inventory, MKS cannot be certain that its efforts will be adequate to protect the Company against significant currency fluctuations or that such efforts will not expose MKS to additional exchange rate risks.

Need to Retain and Attract Key Employees

MKS's success depends to a large extent upon the efforts and abilities of a number of key employees and officers, particularly those with expertise in the semiconductor manufacturing and similar industrial manufacturing industries. The loss of key employees or officers could have a material and adverse effect on MKS's business, financial condition and results of operations. MKS believes that its future success will depend in part on its ability to attract and retain highly skilled technical, financial, managerial and marketing personnel. Competition for such personnel is intense, and MKS cannot be certain that it will be successful in attracting and retaining such personnel.

Intellectual Property Matters

Although MKS seeks to protect its intellectual property rights through patents, copyrights, trade secrets and other measures, MKS cannot be certain that:

* it will be able to protect its technology adequately

* competitors will not be able to develop similar technology independently

* any of its pending patent applications will be issued

* intellectual property laws will protect its intellectual property rights

* third parties will not assert that MKS's products infringe patent, copyright or trade secrets of such parties

Litigation may be necessary in order to enforce MKS's patents, copyrights or other intellectual property rights, to protect its trade secrets, to determine the validity and scope of the proprietary rights of others or to defend against claims of infringement. Such litigation could result in substantial costs and diversion of resources and could have a material adverse effect on the Company's business, financial condition and results of operations.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Information concerning market risk is contained in the annual Management's Discussion and Analysis of Financial Condition and Results of Operations in MKS's recent filings with the Securities and Exchange Commission. There were no material changes in MKS's exposure to market risk from December 31, 1998.

PART II OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

MKS is not aware of any material legal proceedings to which it or any of its subsidiaries is a party.

ITEM 2. CHANGES IN SECURITIES AND USE OF PROCEEDS

(d) Use of Proceeds from Sales of Registered Securities. On April 5, 1999 MKS closed the initial public offering of its Common Stock. The shares of Common Stock sold in the offering were registered under the Securities Act of 1933, as amended, on a Registration Statement on Form S-1 (the "Registration Statement") (Reg. No. 333-71363) that was declared effective by the Securities and Exchange Commission on March 29, 1999.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

None.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS AND REPORTS ON FORM 8-K

(a) Exhibits

Ex. No.	Description
10.4	Amended and Restated 1999 Employee Stock Purchase Plan
27	Financial Data Schedule

(b) Reports on Form 8-K

No reports on Form 8-K were filed during the quarter for which this report on Form 10-Q is filed.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

MKS INSTRUMENTS, INC.

August 13, 1999

By: /s/ Ronald C. Weigner

Ronald C. Weigner
Vice President and Chief Financial Officer
(Principal Accounting Officer)

MKS INSTRUMENTS, INC.

AMENDED AND RESTATED 1999 EMPLOYEE STOCK PURCHASE PLAN

The purpose of this Plan is to provide eligible employees of MKS Instruments, Inc. (the "Company") and certain of its subsidiaries with opportunities to purchase shares of the Company's Common Stock, no par value per share (the "Common Stock"), commencing on June 1, 1999; provided, that at such time the Company's Common Stock shall be listed for trading on the Nasdaq National Market or a national securities exchange. Four hundred fifty thousand (450,000) shares of Common Stock in the aggregate have been approved for this purpose. This Plan is intended to qualify as an "employee stock purchase plan" as defined in Section 423 of the Internal Revenue Code of 1986, as amended (the "Code") and the regulations promulgated thereunder, and shall be interpreted consistent therewith. All share amounts set forth in this Plan reflect the 3-for-2 stock split approved by the Board of Directors of the Company on February 10, 1999 (the "1999 Stock Split").

1. ADMINISTRATION. The Plan will be administered by the Company's Board of Directors (the "Board") or by a Committee appointed by the Board (the "Committee"). The Board or the Committee has authority to make rules and regulations for the administration of the Plan and its interpretation and decisions with regard thereto shall be final and conclusive.

2. ELIGIBILITY. All employees of the Company, including Directors who are employees, and all employees of any subsidiary of the Company (as defined in Section 424(f) of the Code) designated by the Board or the Committee from time to time (a "Designated Subsidiary") are eligible to participate in any one or more of the Offerings (as defined in Section 9) to purchase Common Stock under the Plan provided that:

(a) they are customarily employed by the Company or a Designated Subsidiary for more than 20 hours a week and for more than six months in a calendar year; and

(b) they have been employed by the Company or a Designated Subsidiary for at least six months prior to enrolling in the Plan; and

(c) they are employees of the Company or a Designated Subsidiary on the first day of the applicable Plan Period (as defined below).

No employee may be granted an option hereunder if such employee, immediately after the option is granted, owns 5% or more of the total combined voting power or value of the stock of the Company or any subsidiary. For purposes of the preceding sentence, the attribution rules of Section 424(d) of the Code shall apply in determining the stock ownership of an employee, and all stock which the employee has a contractual right to purchase shall be treated as stock owned by the employee.

3. OFFERINGS. The Company will make one or more offerings ("Offerings") to employees to purchase stock under this Plan. Offerings will begin each June 1 and December 1, or the first business day thereafter (the "Offering Commencement Dates"). Each Offering Commencement Date will begin a six (6) month period (a "Plan Period") during which Payroll deductions will be made and held for the purchase of Common Stock at the end of the Plan Period. The Board or the Committee may, at its discretion, choose a different Plan Period of twelve (12) months or less for subsequent Offerings.

4. PARTICIPATION. An employee eligible on the Offering Commencement Date of any Offering may participate in such Offering by completing and forwarding a payroll deduction authorization form to the employee's appropriate payroll office at least 30 days prior to the applicable Offering Commencement Date. The form will authorize a regular payroll deduction from the Compensation, as defined below, received by the employee during the Plan Period. Unless an employee files a new form or withdraws from the Plan, his deductions and purchases will continue at the same rate for future Offerings under the Plan as long as the Plan remains in effect. The term "Compensation" means the amount of money reportable on the employee's Federal Income Tax Withholding Statement, including overtime, shift premium, incentive or bonus awards and sales commissions and excluding allowances and reimbursements for expenses such as relocation allowances for travel expenses, income or gains on the exercise of Company stock options or stock appreciation rights, and similar items, whether or not shown on the employee's Federal Income Tax Withholding Statement.

5. DEDUCTIONS. The Company will maintain payroll deduction accounts for all participating employees. With respect to any Offering made under this Plan, an employee may authorize a payroll deduction in any whole percent amount up to a maximum of 10% (or such lower percentage as may be established by the Board or the Committee) of the Compensation he or she receives during the Plan Period or such shorter period during which deductions from payroll are made. The minimum payroll deduction is such percentage of compensation as may be established from time to time by the Board or the Committee.

No employee may be granted an Option (as defined in Section 9) which permits his rights to purchase Common Stock under this Plan and any other employee stock purchase plan (as defined in Section 423(b) of the Code) of the Company and its subsidiaries, to accrue at a rate which exceeds $25,000 of the fair market value of such Common Stock (determined at the Offering Commencement Date of the Plan Period) for each calendar year in which the Option is outstanding at any time.

6. DEDUCTION CHANGES. An employee may decrease, subject to section 5 hereof or discontinue his payroll deduction once during any Plan Period, by filing a new payroll deduction authorization form. However, an employee may not elect to increase his payroll deduction during a Plan Period. If an employee elects to discontinue his payroll deductions during a Plan Period, but does not elect to withdraw his funds pursuant to Section 8 hereof, funds deducted prior to his election to discontinue will be applied to the purchase of Common Stock on the Exercise Date (as defined below).

7. INTEREST. Interest will not be paid on employee accounts.

8. WITHDRAWAL OF FUNDS. An employee may at any time prior to the close of business on the last business day in a Plan Period and for any reason permanently draw out the balance accumulated in the employee's account and thereby withdraw from participation in an Offering. Partial withdrawals are not permitted. The employee may not begin participation again during the remainder of the Plan Period. The employee may participate in any subsequent Offering in accordance with terms and conditions established by the Board or the Committee.

9. PURCHASE OF SHARES. On the Offering Commencement Date of each Plan Period, the Company will grant to each eligible employee who is then a participant in the Plan an option ("Option") to purchase on the last business day of such Plan Period (the "Exercise Date"), at the Option Price hereinafter provided for, the largest number of whole shares of Common Stock of the Company as does not exceed the number of shares determined by multiplying $2,083 by the number of full months in the Offering Period and dividing the results by the closing price (as defined below) on the Offering Commencement Date of such Plan Period.

The purchase price for each share purchased will be 85% of the closing price of the Common Stock on (i) the first business day of such Plan Period or (ii) the Exercise Date, whichever closing price shall be less. Such closing price shall be (a) the closing price on any national securities exchange on which the Common Stock is listed, (b) the closing price of the Common Stock on the Nasdaq National Market or (c) the average of the closing bid and asked prices in the over-the-counter-market, whichever is applicable, as published in The Wall Street Journal. If no sales of Common Stock were made on such a day, the price of the Common Stock for purposes of clauses (a) and (b) above shall be the reported price for the next preceding day on which sales were made.

Each employee who continues to be a participant in the Plan on the Exercise Date shall be deemed to have exercised his Option at the Option Price on such date and shall be deemed to have purchased from the Company the number of shares, including any fractional shares thereof, of Common Stock reserved for the purpose of the Plan that his accumulated payroll deductions on such date will pay for, but not in excess of the maximum number determined in the manner set forth above. The Board may, in its discretion, limit any purchases to a whole number of shares.

Any balance remaining in an employee's payroll deduction account at the end of a Plan Period will be automatically refunded to the employee, except that any balance which is less than the purchase price of one share of Common Stock will be carried forward into the employee's payroll deduction account for the following Offering, unless the employee elects not to participate in the following Offering under the Plan, in which case the balance in the employee's account shall be refunded.

10. ISSUANCE OF CERTIFICATES. Certificates representing shares of Common Stock purchased under the Plan may be issued only in the name of the employee, in the name of the employee and another person of legal age as joint tenants with rights of survivorship, or (in the Company's sole discretion) in the name of a brokerage firm, bank or other nominee holder designated by the employee. The Company may, in its sole discretion and in compliance with applicable laws, authorize the use of book entry registration of shares in lieu of issuing stock certificates.

11. RIGHTS ON RETIREMENT, DEATH OR TERMINATION OF EMPLOYMENT. In the event of a participating employee's termination of employment prior to the last business day of a Plan Period, no payroll deduction shall be taken from any pay due and owing to an employee and the balance in the employee's account shall be paid to the employee or, in the event of the employee's death, (a) to a beneficiary previously designated in a revocable notice signed by the employee (with any spousal consent required under state law) or (b) in the absence of such a designated beneficiary, to the executor or administrator of the employee's estate or (c) if no such executor or administrator has been appointed to the knowledge of the Company, to such other person(s) as the Company may, in its discretion, designate. If, prior to the last business day of the Plan Period, the Designated Subsidiary by which an employee is employed shall cease to be a subsidiary of the Company, or if the employee is transferred to a subsidiary of the Company that is not a Designated Subsidiary, the employee shall be deemed to have terminated employment for the purposes of this Plan.

12. OPTIONEES NOT STOCKHOLDERS. No employee shall have any rights as a stockholder with respect to any shares of Common Stock to be distributed with respect to an Option until becoming the record holder or such shares. Notwithstanding the foregoing, in the event the Company effects a split of the Common Stock by means of a stock dividend (and the exercise price of and the number of shares subject to such Option are adjusted as of the date of the distribution of the dividend rather than as of the record date for such dividend), then an optionee who is deemed to have exercised an Option between the record date and the distribution date for such stock dividend shall be entitled to receive, on the distribution date, the stock dividend with respect to the shares of Common Stock.

13. RIGHTS NOT TRANSFERABLE. Rights under this Plan are not transferable by a participating employee other than by will or the laws of descent and distribution, and are exercisable during the employee's lifetime only by the employee.

14. APPLICATION OF FUNDS. All funds received or held by the Company under this Plan may be combined with other corporate funds and may be used for any corporate purpose.

15. ADJUSTMENT IN CASE OF CHANGES AFFECTING COMMON STOCK. In the event, at any time after the 1999 Stock Split, of a subdivision of outstanding shares of Common Stock, or the payment of a dividend in Common Stock, the number of shares approved for this Plan, and the share limitation set forth in Section 9, shall be increased proportionately, and such other adjustment shall be made as may be deemed equitable by the Board or the Committee. In the event of any other change affecting the Common Stock, such adjustment shall be made as may be deemed equitable by the Board or the Committee to give proper effect to such event.

16. MERGER. If the Company shall at any time merge or consolidate with another corporation and the holders of the capital stock of the Company immediately prior to such merger or consolidation continue to hold at least 80% by voting power of the capital stock of the surviving corporation ("Continuity of Control"), the holder of each Option then outstanding will thereafter be entitled to receive at the next Exercise Date upon the exercise of such Option for each share as to which such Option shall be exercised the securities or property which a holder of one share of the Common Stock was entitled to upon and at the time of such merger or consolidation, and the Board or the Committee shall take such steps in connection with such merger or consolidation as the Board or the Committee shall deem necessary to assure that the provisions of Section 15 shall thereafter be applicable, as nearly as reasonably may be, in relation to the said securities or property as to which such holder of such Option might thereafter be entitled to receive thereunder.

In the event of a merger or consolidation of the Company with or into another corporation which does not involve Continuity of Control, or of a sale of all or substantially all of the assets of the Company while unexercised Options remain outstanding under the Plan, all outstanding Options shall be cancelled by the Board or the Committee as of the effective date of any such transaction, provided that notice of such cancellation shall be given to each holder of an Option, and each holder of an Option shall have the right to exercise such Option in full based on payroll deductions then credited to his account as of a date determined by the Board or the Committee, which date shall not be less than ten (10) days preceding the effective date of such transaction.

17. AMENDMENT OF THE PLAN. The Board may at any time, and from time to time, amend this Plan in any respect, except that (a) if the approval of any

such amendment by the shareholders of the Company is required by Section 423 of the Code, such amendment shall not be effected without such approval, and (b) in no event may any amendment be made which would cause the Plan to fail to comply with Section 423 of the Code.

18. SUFFICIENT SHARES. In the event that the total number of shares of Common Stock specified in elections to be purchased under any Offering plus the number of shares purchased under previous Offerings under this Plan exceeds the maximum number of shares issuable under this Plan, the Board or the Committee will allot the shares then available on a pro rata basis.

19. TERMINATION OF THE PLAN. This Plan may be terminated at any time by the Board. Upon termination of this Plan all amounts in the accounts of participating employees shall be promptly refunded.

20. GOVERNMENTAL REGULATIONS. The Company's obligation to sell and deliver Common Stock under this Plan is subject to listing on a national stock exchange or quotation on the Nasdaq National Market and the approval of all or sale of such stock.

21. GOVERNING LAW. The Plan shall be governed by Massachusetts law except to the extent that such law is preempted by federal law.

22. ISSUANCE OF SHARES. Shares may be issued upon exercise of an Option from authorized but unissued Common Stock, from shares held in the treasury of the Company, or from any other proper source.

23. NOTIFICATION UPON SALE OF SHARES. Each employee agrees, by entering the Plan, to promptly give the Company notice of any disposition of shares purchased under the Plan where such disposition occurs within two years after the date of grant of the Option pursuant to which such shares were purchased or one year after the date of exercise of the Option.

24. EFFECTIVE DATE AND APPROVAL OF STOCKHOLDERS. The Plan shall take effect on June 1, 1999 if at such time the Common Stock is listed for trading on the Nasdaq National Market or a national securities exchange, subject to approval by the stockholders of the Company as required by Section 423 of the Code, which approval must occur within twelve months of the adoption of the Plan by the Board.

Adopted by the Board of Directors on February 10, 1999

Approval by the Stockholders
on February 17, 1999

Amended and Restated by the Board of Directors on
April 22, 1999

5
1,000

6-MOS
DEC-31-1999
JAN-01-1999
JUN-30-1999
30,671
23,202
28,860
883
25,142
114,815
75,323
44,389
151,850
32,039
10,775
0
0
113
106,731
151,850
82,119
82,119
48,107
48,107
23,722
32
684
9,606
(1,009)
10,705
0
0
0
10,705
0.28
0.27